



Whiting Petroleum Corp.

Weld County, CO

Sec 30-T10N-R57W

Horsetail #30H-1948

Hz

APD

Anticollision Report

12 October, 2015



WOG

Anticollision Report

| | | | |
|---------------------------|-------------------------|-------------------------------------|--|
| Company: | Whiting Petroleum Corp. | Local Co-ordinate Reference: | Well Horsetail #30H-1948 |
| Project: | Weld County, CO | TVD Reference: | KBE @ 4746.00usft (Original Well Elev) |
| Reference Site: | Sec 30-T10N-R57W | MD Reference: | KBE @ 4746.00usft (Original Well Elev) |
| Site Error: | 0.00 usft | North Reference: | True |
| Reference Well: | Horsetail #30H-1948 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.00 usft | Output errors are at | 3.00 sigma |
| Reference Wellbore | HZ | Database: | LandmarkEDM |
| Reference Design: | APD | Offset TVD Reference: | Offset Datum |

| Reference | APD | | |
|------------------------------|---|----------------|---------------------|
| Filter type: | NO GLOBAL FILTER: Using user defined selection & filtering criteria | | |
| Interpolation Method: | MD Interval 100.00usft | Error Model: | ISCWSA |
| Depth Range: | Unlimited | Scan Method: | Closest Approach 3D |
| Results Limited by: | Maximum center-center distance of 1,550.00 usft | Error Surface: | Elliptical Conic |
| Warning Levels Evaluated at: | 3.00 Sigma | Casing Method: | Not applied |

| Survey Tool Program | | Date | 10/12/2015 | | |
|---------------------|--------------|-------------------|-----------------|--|--|
| From (usft) | To (usft) | Survey (Wellbore) | Tool Name | Description | |
| 0.00 | 13,876.00 | APD (Hz) | MWD+IFR1+MS+sag | Fixed:v2:crustal dec & 3-axis correction + sag | |

| 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 19-T10N-R57W | | | | | | |
| Mertens #1-19 - Wellbore #1 - Gyro | | | | | | Out of range |
| Sec 30-T10N-R57W | | | | | | |
| Horsetail #30H-1913 - Hz - APD | 300.00 | 300.00 | 149.95 | 148.33 | 92.849 | CC, ES |
| Horsetail #30H-1913 - Hz - APD | 13,876.00 | 13,739.33 | 849.05 | 620.65 | 3.717 | SF |
| Horsetail #30H-1914 - Hz - APD | 300.00 | 300.00 | 89.97 | 88.35 | 55.709 | CC, ES |
| Horsetail #30H-1914 - Hz - APD | 13,876.00 | 13,743.46 | 512.61 | 285.10 | 2.253 | SF |
| Horsetail #30H-1915 - Hz - APD | 300.00 | 300.00 | 29.99 | 28.37 | 18.570 | CC |
| Horsetail #30H-1915 - Hz - APD | 400.00 | 400.05 | 30.41 | 28.19 | 13.748 | ES |
| Horsetail #30H-1915 - Hz - APD | 13,876.00 | 13,675.75 | 257.84 | 92.92 | 1.563 | SF |
| Horsetail #30H-1916 - Hz - APD | 300.00 | 300.00 | 29.99 | 28.37 | 18.570 | CC |
| Horsetail #30H-1916 - Hz - APD | 13,876.00 | 13,759.92 | 208.19 | 15.02 | 1.078 | Level 2, ES, SF |
| Horsetail #30H-1946 - Hz - APD | 300.00 | 300.00 | 119.96 | 118.34 | 74.279 | CC, ES |
| Horsetail #30H-1946 - Hz - APD | 13,876.00 | 13,877.17 | 660.33 | 426.30 | 2.822 | SF |
| Horsetail #30H-1947 - Hz - APD | 300.00 | 300.00 | 59.98 | 58.36 | 37.140 | CC, ES |
| Horsetail #30H-1947 - Hz - APD | 13,876.00 | 13,954.90 | 341.32 | 113.51 | 1.498 | Level 3, SF |
| Horsetail #30H-3113 - Hz - APD | 300.00 | 299.00 | 157.93 | 156.32 | 97.998 | CC, ES |
| Horsetail #30H-3113 - Hz - APD | 5,600.00 | 6,014.07 | 596.84 | 556.44 | 14.773 | SF |
| Horsetail #30H-3114 - Hz - APD | 637.63 | 637.00 | 97.18 | 93.40 | 25.674 | CC, ES |
| Horsetail #30H-3114 - Hz - APD | 5,700.00 | 6,072.45 | 310.45 | 270.22 | 7.718 | SF |
| Horsetail #30H-3115 - Hz - APD | 774.58 | 773.02 | 24.22 | 19.48 | 5.109 | CC, ES |
| Horsetail #30H-3115 - Hz - APD | 5,635.81 | 6,048.21 | 69.85 | 29.31 | 1.723 | SF |
| Horsetail #30H-3116 - Hz - APD | 697.57 | 692.25 | 49.23 | 44.94 | 11.474 | CC |
| Horsetail #30H-3116 - Hz - APD | 700.00 | 694.64 | 49.24 | 44.93 | 11.427 | ES |
| Horsetail #30H-3116 - Hz - APD | 5,729.55 | 6,066.33 | 230.21 | 189.78 | 5.694 | SF |
| Horsetail #30H-3146 - Hz - APD | 300.00 | 299.00 | 129.80 | 128.19 | 80.543 | CC |
| Horsetail #30H-3146 - Hz - APD | 500.00 | 497.92 | 130.36 | 127.49 | 45.497 | ES |
| Horsetail #30H-3146 - Hz - APD | 5,900.00 | 6,035.68 | 431.43 | 391.84 | 10.897 | SF |
| Horsetail #30H-3147 - Hz - APD | 741.55 | 740.91 | 59.57 | 55.07 | 13.233 | CC, ES |
| Horsetail #30H-3147 - Hz - APD | 6,196.09 | 5,815.12 | 159.23 | 120.05 | 4.065 | SF |
| Horsetail #30H-3148 - Hz - APD | 777.44 | 774.25 | 14.39 | 9.59 | 3.002 | CC, ES |
| Horsetail #30H-3148 - Hz - APD | 6,003.62 | 5,942.27 | 90.52 | 51.04 | 2.293 | SF |

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



WOG

Anticollision Report

| | | | |
|---------------------------|-------------------------|-------------------------------------|--|
| Company: | Whiting Petroleum Corp. | Local Co-ordinate Reference: | Well Horsetail #30H-1948 |
| Project: | Weld County, CO | TVD Reference: | KBE @ 4746.00usft (Original Well Elev) |
| Reference Site: | Sec 30-T10N-R57W | MD Reference: | KBE @ 4746.00usft (Original Well Elev) |
| Site Error: | 0.00 usft | North Reference: | True |
| Reference Well: | Horsetail #30H-1948 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.00 usft | Output errors are at | 3.00 sigma |
| Reference Wellbore | Hz | Database: | LandmarkEDM |
| Reference Design: | APD | Offset TVD Reference: | Offset Datum |

| Offset Design | | | | | | | | | | | | | Offset Site Error: | 0.00 usft |
|-----------------------------------|-----------------------|-----------------------|-----------------------|------------------|---------------|-----------------------|-------------------------------------|--------------|------------------------|-------------------------|---------------------------|-------------------|--------------------|-----------|
| Survey Program: 0-MWD+IFR1+MS+sag | | | | | | | | | | | | | Offset Well Error: | 0.00 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 | | |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | -90.00 | 0.00 | -149.95 | 149.95 | | | | | |
| 100.00 | 100.00 | 100.00 | 100.00 | 0.13 | 0.13 | -90.00 | 0.00 | -149.95 | 149.95 | 149.68 | 0.27 | 562.970 | | |
| 200.00 | 200.00 | 200.00 | 200.00 | 0.47 | 0.47 | -90.00 | 0.00 | -149.95 | 149.95 | 149.01 | 0.94 | 159.407 | | |
| 300.00 | 300.00 | 300.00 | 300.00 | 0.81 | 0.81 | -90.00 | 0.00 | -149.95 | 149.95 | 148.33 | 1.61 | 92.849 | CC, ES | |
| 400.00 | 399.98 | 397.43 | 397.41 | 1.11 | 1.10 | 106.99 | -1.43 | -150.77 | 151.30 | 149.08 | 2.22 | 68.051 | | |
| 500.00 | 499.84 | 494.76 | 494.61 | 1.41 | 1.40 | 107.12 | -5.73 | -153.25 | 155.38 | 152.55 | 2.83 | 54.888 | | |
| 600.00 | 599.45 | 591.87 | 591.36 | 1.73 | 1.71 | 107.33 | -12.86 | -157.37 | 162.16 | 158.67 | 3.49 | 46.438 | | |
| 700.00 | 698.70 | 688.66 | 687.47 | 2.07 | 2.04 | 107.57 | -22.80 | -163.11 | 171.64 | 167.45 | 4.19 | 40.920 | | |
| 800.00 | 797.47 | 785.04 | 782.73 | 2.43 | 2.38 | 107.84 | -35.47 | -170.43 | 183.81 | 178.87 | 4.94 | 37.242 | | |
| 900.00 | 895.77 | 880.94 | 876.97 | 2.83 | 2.77 | 108.09 | -50.84 | -179.30 | 198.40 | 192.69 | 5.71 | 34.732 | | |
| 1,000.00 | 994.03 | 977.29 | 971.03 | 3.24 | 3.17 | 107.70 | -68.90 | -189.73 | 214.56 | 208.05 | 6.51 | 32.976 | | |
| 1,100.00 | 1,092.29 | 1,075.89 | 1,067.10 | 3.66 | 3.61 | 107.17 | -88.11 | -200.82 | 231.14 | 223.84 | 7.31 | 31.636 | | |
| 1,200.00 | 1,190.55 | 1,174.48 | 1,163.16 | 4.08 | 4.06 | 106.71 | -107.32 | -211.91 | 247.74 | 239.62 | 8.12 | 30.511 | | |
| 1,300.00 | 1,288.81 | 1,273.07 | 1,259.23 | 4.51 | 4.51 | 106.31 | -126.53 | -223.00 | 264.36 | 255.41 | 8.95 | 29.546 | | |
| 1,400.00 | 1,387.07 | 1,371.67 | 1,355.30 | 4.94 | 4.96 | 105.95 | -145.73 | -234.09 | 280.98 | 271.20 | 9.78 | 28.721 | | |
| 1,500.00 | 1,485.34 | 1,470.26 | 1,451.37 | 5.37 | 5.42 | 105.64 | -164.94 | -245.18 | 297.61 | 286.99 | 10.63 | 28.010 | | |
| 1,600.00 | 1,583.60 | 1,568.86 | 1,547.43 | 5.80 | 5.88 | 105.36 | -184.15 | -256.27 | 314.26 | 302.78 | 11.47 | 27.392 | | |
| 1,700.00 | 1,681.86 | 1,667.45 | 1,643.50 | 6.24 | 6.35 | 105.10 | -203.36 | -267.36 | 330.90 | 318.58 | 12.32 | 26.850 | | |
| 1,800.00 | 1,780.12 | 1,766.05 | 1,739.57 | 6.67 | 6.81 | 104.88 | -222.56 | -278.44 | 347.56 | 334.38 | 13.18 | 26.373 | | |
| 1,900.00 | 1,878.38 | 1,864.64 | 1,835.64 | 7.11 | 7.28 | 104.67 | -241.77 | -289.53 | 364.22 | 350.18 | 14.04 | 25.949 | | |
| 2,000.00 | 1,976.64 | 1,963.24 | 1,931.70 | 7.55 | 7.75 | 104.48 | -260.98 | -300.62 | 380.88 | 365.99 | 14.90 | 25.570 | | |
| 2,100.00 | 2,074.91 | 2,061.83 | 2,027.77 | 7.99 | 8.22 | 104.30 | -280.19 | -311.71 | 397.55 | 381.79 | 15.76 | 25.230 | | |
| 2,200.00 | 2,173.17 | 2,160.42 | 2,123.84 | 8.43 | 8.68 | 104.14 | -299.39 | -322.80 | 414.22 | 397.60 | 16.62 | 24.923 | | |
| 2,300.00 | 2,271.43 | 2,259.02 | 2,219.91 | 8.86 | 9.15 | 104.00 | -318.60 | -333.89 | 430.89 | 413.41 | 17.48 | 24.645 | | |
| 2,400.00 | 2,369.69 | 2,357.61 | 2,315.97 | 9.30 | 9.63 | 103.86 | -337.81 | -344.98 | 447.57 | 429.22 | 18.35 | 24.391 | | |
| 2,500.00 | 2,467.95 | 2,456.21 | 2,412.04 | 9.74 | 10.10 | 103.73 | -357.01 | -356.07 | 464.25 | 445.03 | 19.22 | 24.159 | | |
| 2,600.00 | 2,566.21 | 2,554.80 | 2,508.11 | 10.18 | 10.57 | 103.62 | -376.22 | -367.16 | 480.93 | 460.84 | 20.08 | 23.947 | | |
| 2,700.00 | 2,664.48 | 2,653.40 | 2,604.18 | 10.63 | 11.04 | 103.51 | -395.43 | -378.25 | 497.61 | 476.66 | 20.95 | 23.751 | | |
| 2,800.00 | 2,762.74 | 2,751.99 | 2,700.24 | 11.07 | 11.51 | 103.40 | -414.64 | -389.34 | 514.29 | 492.47 | 21.82 | 23.570 | | |
| 2,900.00 | 2,861.00 | 2,850.58 | 2,796.31 | 11.51 | 11.98 | 103.31 | -433.84 | -400.43 | 530.98 | 508.29 | 22.69 | 23.403 | | |
| 3,000.00 | 2,959.26 | 2,949.18 | 2,892.38 | 11.95 | 12.45 | 103.22 | -453.05 | -411.52 | 547.66 | 524.11 | 23.56 | 23.247 | | |
| 3,100.00 | 3,057.52 | 3,047.77 | 2,988.44 | 12.39 | 12.93 | 103.13 | -472.26 | -422.61 | 564.35 | 539.92 | 24.43 | 23.102 | | |
| 3,200.00 | 3,155.78 | 3,146.37 | 3,084.51 | 12.83 | 13.40 | 103.05 | -491.47 | -433.70 | 581.04 | 555.74 | 25.30 | 22.967 | | |
| 3,300.00 | 3,254.05 | 3,244.96 | 3,180.58 | 13.27 | 13.87 | 102.97 | -510.67 | -444.79 | 597.73 | 571.56 | 26.17 | 22.841 | | |
| 3,400.00 | 3,352.31 | 3,343.56 | 3,276.65 | 13.71 | 14.35 | 102.90 | -529.88 | -455.88 | 614.42 | 587.38 | 27.04 | 22.722 | | |
| 3,500.00 | 3,450.57 | 3,442.15 | 3,372.71 | 14.16 | 14.82 | 102.83 | -549.09 | -466.97 | 631.11 | 603.20 | 27.91 | 22.611 | | |
| 3,600.00 | 3,548.83 | 3,540.75 | 3,468.78 | 14.60 | 15.29 | 102.77 | -568.30 | -478.06 | 647.81 | 619.02 | 28.78 | 22.506 | | |
| 3,700.00 | 3,647.09 | 3,639.34 | 3,564.85 | 15.04 | 15.77 | 102.71 | -587.50 | -489.15 | 664.50 | 634.84 | 29.66 | 22.407 | | |
| 3,800.00 | 3,745.35 | 3,737.93 | 3,660.92 | 15.48 | 16.24 | 102.65 | -606.71 | -500.24 | 681.19 | 650.67 | 30.53 | 22.314 | | |
| 3,900.00 | 3,843.62 | 3,836.53 | 3,756.98 | 15.92 | 16.71 | 102.60 | -625.92 | -511.33 | 697.89 | 666.49 | 31.40 | 22.225 | | |
| 4,000.00 | 3,941.88 | 3,935.12 | 3,853.05 | 16.37 | 17.19 | 102.54 | -645.13 | -522.42 | 714.58 | 682.31 | 32.27 | 22.142 | | |
| 4,100.00 | 4,040.14 | 4,033.72 | 3,949.12 | 16.81 | 17.66 | 102.49 | -664.33 | -533.50 | 731.28 | 698.13 | 33.15 | 22.062 | | |
| 4,200.00 | 4,138.40 | 4,132.31 | 4,045.19 | 17.25 | 18.13 | 102.44 | -683.54 | -544.59 | 747.98 | 713.96 | 34.02 | 21.987 | | |
| 4,300.00 | 4,236.66 | 4,230.91 | 4,141.25 | 17.69 | 18.61 | 102.40 | -702.75 | -555.68 | 764.67 | 729.78 | 34.89 | 21.915 | | |
| 4,400.00 | 4,334.92 | 4,329.50 | 4,237.32 | 18.13 | 19.08 | 102.35 | -721.96 | -566.77 | 781.37 | 745.61 | 35.77 | 21.847 | | |
| 4,500.00 | 4,433.19 | 4,443.65 | 4,348.92 | 18.58 | 19.49 | 102.41 | -742.70 | -578.75 | 797.24 | 760.60 | 36.64 | 21.758 | | |
| 4,600.00 | 4,531.53 | 4,560.85 | 4,464.40 | 18.98 | 19.81 | 102.84 | -760.00 | -588.74 | 810.80 | 773.39 | 37.41 | 21.674 | | |
| 4,700.00 | 4,630.37 | 4,678.62 | 4,581.16 | 19.24 | 20.12 | 103.37 | -773.25 | -596.39 | 821.47 | 783.45 | 38.02 | 21.607 | | |
| 4,800.00 | 4,729.69 | 4,796.81 | 4,698.88 | 19.50 | 20.40 | 103.84 | -782.36 | -601.65 | 829.11 | 790.52 | 38.58 | 21.489 | | |
| 4,900.00 | 4,829.34 | 4,915.22 | 4,817.15 | 19.74 | 20.66 | 104.25 | -787.26 | -604.48 | 833.69 | 794.59 | 39.10 | 21.322 | | |
| 5,000.00 | 4,929.23 | 5,027.32 | 4,929.23 | 19.96 | 20.89 | 104.58 | -788.17 | -605.00 | 835.35 | 795.78 | 39.57 | 21.113 | | |
| 5,100.00 | 5,029.22 | 5,128.14 | 5,030.05 | 20.21 | 21.09 | -92.26 | -788.01 | -605.00 | 835.66 | 795.63 | 40.03 | 20.876 | | |

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



WOG

Anticollision Report

| | | | |
|---------------------------|-------------------------|-------------------------------------|--|
| Company: | Whiting Petroleum Corp. | Local Co-ordinate Reference: | Well Horsetail #30H-1948 |
| Project: | Weld County, CO | TVD Reference: | KBE @ 4746.00usft (Original Well Elev) |
| Reference Site: | Sec 30-T10N-R57W | MD Reference: | KBE @ 4746.00usft (Original Well Elev) |
| Site Error: | 0.00 usft | North Reference: | True |
| Reference Well: | Horsetail #30H-1948 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.00 usft | Output errors are at | 3.00 sigma |
| Reference Wellbore | HZ | Database: | LandmarkEDM |
| Reference Design: | APD | Offset TVD Reference: | Offset Datum |

| Offset Design | | | | | | | | | | | | | Offset Site Error: | 0.00 usft |
|-----------------------------------|-----------------------|-----------------------|-----------------------|------------------|---------------|-----------------------|-------------------------------------|--------------|------------------------|-------------------------|---------------------------|-------------------|--------------------|-----------|
| Survey Program: 0-MWD+IFR1+MS+sag | | | | | | | | | | | | | Offset Well Error: | 0.00 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 | | |
| 5,200.00 | 5,129.22 | 5,232.86 | 5,133.77 | 20.42 | 21.24 | -91.37 | -774.90 | -605.01 | 835.26 | 794.83 | 40.42 | 20.663 | | |
| 5,272.59 | 5,201.80 | 5,303.98 | 5,201.78 | 20.58 | 21.29 | -89.93 | -754.28 | -605.01 | 835.01 | 794.34 | 40.67 | 20.530 | | |
| 5,300.00 | 5,229.21 | 5,328.91 | 5,224.86 | 20.63 | 21.29 | -89.24 | -744.88 | -605.01 | 835.08 | 794.32 | 40.75 | 20.490 | | |
| 5,400.00 | 5,328.28 | 5,417.19 | 5,302.45 | 20.79 | 21.27 | -86.91 | -702.98 | -605.01 | 836.32 | 795.40 | 40.92 | 20.436 | | |
| 5,500.00 | 5,423.15 | 5,500.00 | 5,367.83 | 20.86 | 21.19 | -84.73 | -652.30 | -605.02 | 838.87 | 797.98 | 40.89 | 20.517 | | |
| 5,600.00 | 5,510.33 | 5,581.41 | 5,423.49 | 20.86 | 21.08 | -82.67 | -593.01 | -605.03 | 842.29 | 801.61 | 40.68 | 20.706 | | |
| 5,700.00 | 5,586.64 | 5,659.17 | 5,467.43 | 20.80 | 20.96 | -80.86 | -528.93 | -605.04 | 846.15 | 805.79 | 40.36 | 20.965 | | |
| 5,800.00 | 5,649.25 | 5,734.94 | 5,500.62 | 20.72 | 20.83 | -79.32 | -460.89 | -605.04 | 849.97 | 809.97 | 40.00 | 21.249 | | |
| 5,900.00 | 5,695.89 | 5,809.24 | 5,523.25 | 20.64 | 20.70 | -78.09 | -390.19 | -605.05 | 853.35 | 813.67 | 39.68 | 21.504 | | |
| 6,000.00 | 5,724.82 | 5,882.52 | 5,535.51 | 20.59 | 20.58 | -77.21 | -318.01 | -605.06 | 855.95 | 816.48 | 39.48 | 21.682 | | |
| 6,099.99 | 5,734.99 | 5,963.32 | 5,538.00 | 20.58 | 20.47 | -76.72 | -237.28 | -605.07 | 857.38 | 817.93 | 39.44 | 21.737 | | |
| 6,200.00 | 5,735.00 | 6,063.34 | 5,538.00 | 20.66 | 20.41 | -76.71 | -137.27 | -605.08 | 857.27 | 817.60 | 39.67 | 21.611 | | |
| 6,300.00 | 5,735.00 | 6,163.34 | 5,538.00 | 20.85 | 20.45 | -76.71 | -37.27 | -605.10 | 857.16 | 817.07 | 40.09 | 21.379 | | |
| 6,400.00 | 5,735.00 | 6,263.34 | 5,538.00 | 21.15 | 20.61 | -76.71 | 62.73 | -605.11 | 857.06 | 816.34 | 40.72 | 21.048 | | |
| 6,500.00 | 5,735.00 | 6,363.34 | 5,538.00 | 21.55 | 20.92 | -76.71 | 162.73 | -605.12 | 856.95 | 815.42 | 41.53 | 20.633 | | |
| 6,600.00 | 5,735.00 | 6,463.34 | 5,538.00 | 22.04 | 21.36 | -76.71 | 262.73 | -605.13 | 856.84 | 814.32 | 42.53 | 20.149 | | |
| 6,700.00 | 5,735.00 | 6,563.34 | 5,538.00 | 22.63 | 21.93 | -76.71 | 362.73 | -605.15 | 856.73 | 813.05 | 43.69 | 19.611 | | |
| 6,800.00 | 5,735.00 | 6,663.34 | 5,538.00 | 23.30 | 22.59 | -76.70 | 462.73 | -605.16 | 856.63 | 811.63 | 45.00 | 19.036 | | |
| 6,900.00 | 5,735.00 | 6,763.34 | 5,538.00 | 24.04 | 23.34 | -76.70 | 562.73 | -605.17 | 856.52 | 810.07 | 46.46 | 18.438 | | |
| 7,000.00 | 5,735.00 | 6,863.34 | 5,538.00 | 24.85 | 24.16 | -76.70 | 662.73 | -605.18 | 856.41 | 808.38 | 48.04 | 17.828 | | |
| 7,100.00 | 5,735.00 | 6,963.34 | 5,538.00 | 25.72 | 25.05 | -76.70 | 762.73 | -605.19 | 856.31 | 806.57 | 49.74 | 17.217 | | |
| 7,200.00 | 5,735.00 | 7,063.34 | 5,538.00 | 26.64 | 25.98 | -76.70 | 862.73 | -605.21 | 856.20 | 804.66 | 51.54 | 16.613 | | |
| 7,300.00 | 5,735.00 | 7,163.34 | 5,538.00 | 27.61 | 26.97 | -76.70 | 962.73 | -605.22 | 856.09 | 802.66 | 53.44 | 16.021 | | |
| 7,400.00 | 5,735.00 | 7,263.34 | 5,538.00 | 28.62 | 27.99 | -76.69 | 1,062.73 | -605.23 | 855.98 | 800.57 | 55.42 | 15.446 | | |
| 7,500.00 | 5,735.00 | 7,363.33 | 5,538.00 | 29.67 | 29.06 | -76.69 | 1,162.73 | -605.24 | 855.88 | 798.40 | 57.47 | 14.892 | | |
| 7,600.00 | 5,735.00 | 7,463.33 | 5,538.00 | 30.75 | 30.16 | -76.69 | 1,262.73 | -605.25 | 855.77 | 796.17 | 59.60 | 14.359 | | |
| 7,700.00 | 5,735.00 | 7,563.33 | 5,538.00 | 31.87 | 31.29 | -76.69 | 1,362.73 | -605.27 | 855.66 | 793.88 | 61.78 | 13.850 | | |
| 7,800.00 | 5,735.00 | 7,663.33 | 5,538.00 | 33.01 | 32.44 | -76.69 | 1,462.73 | -605.28 | 855.56 | 791.54 | 64.02 | 13.364 | | |
| 7,900.00 | 5,735.00 | 7,763.33 | 5,538.00 | 34.18 | 33.62 | -76.69 | 1,562.73 | -605.29 | 855.45 | 789.14 | 66.31 | 12.901 | | |
| 8,000.00 | 5,735.00 | 7,863.33 | 5,538.00 | 35.37 | 34.82 | -76.68 | 1,662.73 | -605.30 | 855.34 | 786.70 | 68.64 | 12.461 | | |
| 8,100.00 | 5,735.00 | 7,963.33 | 5,538.00 | 36.59 | 36.04 | -76.68 | 1,762.73 | -605.32 | 855.23 | 784.22 | 71.01 | 12.044 | | |
| 8,200.00 | 5,735.00 | 8,063.33 | 5,538.00 | 37.82 | 37.28 | -76.68 | 1,862.73 | -605.33 | 855.13 | 781.71 | 73.42 | 11.647 | | |
| 8,300.00 | 5,735.00 | 8,163.33 | 5,538.00 | 39.06 | 38.54 | -76.68 | 1,962.73 | -605.34 | 855.02 | 779.16 | 75.86 | 11.271 | | |
| 8,400.00 | 5,735.00 | 8,263.33 | 5,538.00 | 40.32 | 39.81 | -76.68 | 2,062.73 | -605.35 | 854.91 | 776.58 | 78.33 | 10.914 | | |
| 8,500.00 | 5,735.00 | 8,363.33 | 5,538.00 | 41.60 | 41.09 | -76.68 | 2,162.73 | -605.36 | 854.81 | 773.98 | 80.82 | 10.576 | | |
| 8,600.00 | 5,735.00 | 8,463.33 | 5,538.00 | 42.89 | 42.38 | -76.67 | 2,262.73 | -605.38 | 854.70 | 771.35 | 83.34 | 10.255 | | |
| 8,700.00 | 5,735.00 | 8,563.33 | 5,538.00 | 44.19 | 43.69 | -76.67 | 2,362.73 | -605.39 | 854.59 | 768.70 | 85.89 | 9.950 | | |
| 8,800.00 | 5,735.00 | 8,663.33 | 5,538.00 | 45.50 | 45.01 | -76.67 | 2,462.73 | -605.40 | 854.48 | 766.03 | 88.45 | 9.661 | | |
| 8,900.00 | 5,735.00 | 8,763.33 | 5,538.00 | 46.82 | 46.33 | -76.67 | 2,562.73 | -605.41 | 854.38 | 763.35 | 91.03 | 9.386 | | |
| 9,000.00 | 5,735.00 | 8,863.33 | 5,538.00 | 48.14 | 47.66 | -76.67 | 2,662.73 | -605.43 | 854.27 | 760.64 | 93.63 | 9.124 | | |
| 9,100.00 | 5,735.00 | 8,963.33 | 5,538.00 | 49.48 | 49.01 | -76.67 | 2,762.73 | -605.44 | 854.16 | 757.92 | 96.24 | 8.875 | | |
| 9,200.00 | 5,735.00 | 9,063.33 | 5,538.00 | 50.82 | 50.35 | -76.66 | 2,862.73 | -605.45 | 854.06 | 755.18 | 98.87 | 8.638 | | |
| 9,300.00 | 5,735.00 | 9,163.33 | 5,538.00 | 52.17 | 51.71 | -76.66 | 2,962.73 | -605.46 | 853.95 | 752.44 | 101.51 | 8.412 | | |
| 9,400.00 | 5,735.00 | 9,263.33 | 5,538.00 | 53.53 | 53.07 | -76.66 | 3,062.73 | -605.47 | 853.84 | 749.68 | 104.17 | 8.197 | | |
| 9,500.00 | 5,735.00 | 9,363.33 | 5,538.00 | 54.89 | 54.44 | -76.66 | 3,162.73 | -605.49 | 853.73 | 746.90 | 106.83 | 7.992 | | |
| 9,600.00 | 5,735.00 | 9,463.33 | 5,538.00 | 56.26 | 55.81 | -76.66 | 3,262.73 | -605.50 | 853.63 | 744.12 | 109.51 | 7.795 | | |
| 9,700.00 | 5,735.00 | 9,563.33 | 5,538.00 | 57.64 | 57.19 | -76.66 | 3,362.73 | -605.51 | 853.52 | 741.33 | 112.19 | 7.608 | | |
| 9,800.00 | 5,735.00 | 9,663.33 | 5,538.00 | 59.01 | 58.57 | -76.65 | 3,462.73 | -605.52 | 853.41 | 738.53 | 114.88 | 7.428 | | |
| 9,900.00 | 5,735.00 | 9,763.33 | 5,538.00 | 60.40 | 59.95 | -76.65 | 3,562.73 | -605.54 | 853.31 | 735.72 | 117.59 | 7.257 | | |
| 10,000.00 | 5,735.00 | 9,863.33 | 5,538.00 | 61.78 | 61.34 | -76.65 | 3,662.73 | -605.55 | 853.20 | 732.90 | 120.30 | 7.092 | | |
| 10,100.00 | 5,735.00 | 9,963.33 | 5,538.00 | 63.17 | 62.74 | -76.65 | 3,762.73 | -605.56 | 853.09 | 730.08 | 123.01 | 6.935 | | |
| 10,200.00 | 5,735.00 | 10,063.33 | 5,538.00 | 64.57 | 64.13 | -76.65 | 3,862.73 | -605.57 | 852.98 | 727.24 | 125.74 | 6.784 | | |

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



WOG

Anticollision Report

| | | | |
|---------------------------|-------------------------|-------------------------------------|--|
| Company: | Whiting Petroleum Corp. | Local Co-ordinate Reference: | Well Horsetail #30H-1948 |
| Project: | Weld County, CO | TVD Reference: | KBE @ 4746.00usft (Original Well Elev) |
| Reference Site: | Sec 30-T10N-R57W | MD Reference: | KBE @ 4746.00usft (Original Well Elev) |
| Site Error: | 0.00 usft | North Reference: | True |
| Reference Well: | Horsetail #30H-1948 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.00 usft | Output errors are at | 3.00 sigma |
| Reference Wellbore | Hz | Database: | LandmarkEDM |
| Reference Design: | APD | Offset TVD Reference: | Offset Datum |

| Offset Design | | | | | | | | | | | | | Offset Site Error: | 0.00 usft |
|-----------------------------------|-----------------------|-----------------------|-----------------------|------------------|---------------|-----------------------|-------------------------------------|--------------|------------------------|-------------------------|---------------------------|-------------------|--------------------|-----------|
| Survey Program: 0-MWD+IFR1+MS+sag | | | | | | | | | | | | | Offset Well Error: | 0.00 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 | | |
| 10,300.00 | 5,735.00 | 10,163.33 | 5,538.00 | 65.97 | 65.53 | -76.65 | 3,962.73 | -605.58 | 852.88 | 724.41 | 128.47 | 6.639 | | |
| 10,400.00 | 5,735.00 | 10,263.33 | 5,538.00 | 67.37 | 66.94 | -76.64 | 4,062.73 | -605.60 | 852.77 | 721.56 | 131.21 | 6.499 | | |
| 10,500.00 | 5,735.00 | 10,363.33 | 5,538.00 | 68.77 | 68.34 | -76.64 | 4,162.73 | -605.61 | 852.66 | 718.71 | 133.95 | 6.366 | | |
| 10,600.00 | 5,735.00 | 10,463.33 | 5,538.00 | 70.18 | 69.75 | -76.64 | 4,262.73 | -605.62 | 852.56 | 715.86 | 136.70 | 6.237 | | |
| 10,700.00 | 5,735.00 | 10,563.33 | 5,538.00 | 71.59 | 71.16 | -76.64 | 4,362.73 | -605.63 | 852.45 | 713.00 | 139.45 | 6.113 | | |
| 10,800.00 | 5,735.00 | 10,663.33 | 5,538.00 | 73.00 | 72.58 | -76.64 | 4,462.73 | -605.65 | 852.34 | 710.13 | 142.21 | 5.994 | | |
| 10,900.00 | 5,735.00 | 10,763.33 | 5,538.00 | 74.41 | 73.99 | -76.63 | 4,562.73 | -605.66 | 852.23 | 707.26 | 144.97 | 5.879 | | |
| 11,000.00 | 5,735.00 | 10,863.33 | 5,538.00 | 75.83 | 75.41 | -76.63 | 4,662.73 | -605.67 | 852.13 | 704.39 | 147.74 | 5.768 | | |
| 11,100.00 | 5,735.00 | 10,963.33 | 5,538.00 | 77.25 | 76.83 | -76.63 | 4,762.73 | -605.68 | 852.02 | 701.51 | 150.51 | 5.661 | | |
| 11,200.00 | 5,735.00 | 11,063.33 | 5,538.00 | 78.67 | 78.25 | -76.63 | 4,862.73 | -605.69 | 851.91 | 698.63 | 153.28 | 5.558 | | |
| 11,300.00 | 5,735.00 | 11,163.33 | 5,538.00 | 80.09 | 79.67 | -76.63 | 4,962.73 | -605.71 | 851.81 | 695.75 | 156.06 | 5.458 | | |
| 11,400.00 | 5,735.00 | 11,263.33 | 5,538.00 | 81.51 | 81.10 | -76.63 | 5,062.73 | -605.72 | 851.70 | 692.86 | 158.84 | 5.362 | | |
| 11,500.00 | 5,735.00 | 11,363.33 | 5,538.00 | 82.94 | 82.53 | -76.62 | 5,162.73 | -605.73 | 851.59 | 689.97 | 161.62 | 5.269 | | |
| 11,600.00 | 5,735.00 | 11,463.33 | 5,538.00 | 84.36 | 83.95 | -76.62 | 5,262.73 | -605.74 | 851.48 | 687.07 | 164.41 | 5.179 | | |
| 11,700.00 | 5,735.00 | 11,563.33 | 5,538.00 | 85.79 | 85.38 | -76.62 | 5,362.73 | -605.76 | 851.38 | 684.18 | 167.20 | 5.092 | | |
| 11,800.00 | 5,735.00 | 11,663.33 | 5,538.00 | 87.22 | 86.82 | -76.62 | 5,462.73 | -605.77 | 851.27 | 681.28 | 169.99 | 5.008 | | |
| 11,900.00 | 5,735.00 | 11,763.33 | 5,538.00 | 88.65 | 88.25 | -76.62 | 5,562.73 | -605.78 | 851.16 | 678.38 | 172.79 | 4.926 | | |
| 12,000.00 | 5,735.00 | 11,863.33 | 5,538.00 | 90.09 | 89.68 | -76.62 | 5,662.73 | -605.79 | 851.06 | 675.47 | 175.58 | 4.847 | | |
| 12,100.00 | 5,735.00 | 11,963.33 | 5,538.00 | 91.52 | 91.12 | -76.61 | 5,762.73 | -605.80 | 850.95 | 672.56 | 178.38 | 4.770 | | |
| 12,200.00 | 5,735.00 | 12,063.33 | 5,538.00 | 92.96 | 92.55 | -76.61 | 5,862.73 | -605.82 | 850.84 | 669.66 | 181.19 | 4.696 | | |
| 12,300.00 | 5,735.00 | 12,163.33 | 5,538.00 | 94.39 | 93.99 | -76.61 | 5,962.73 | -605.83 | 850.73 | 666.74 | 183.99 | 4.624 | | |
| 12,400.00 | 5,735.00 | 12,263.33 | 5,538.00 | 95.83 | 95.43 | -76.61 | 6,062.73 | -605.84 | 850.63 | 663.83 | 186.80 | 4.554 | | |
| 12,500.00 | 5,735.00 | 12,363.33 | 5,538.00 | 97.27 | 96.87 | -76.61 | 6,162.73 | -605.85 | 850.52 | 660.92 | 189.60 | 4.486 | | |
| 12,600.00 | 5,735.00 | 12,463.33 | 5,538.00 | 98.71 | 98.31 | -76.61 | 6,262.73 | -605.87 | 850.41 | 658.00 | 192.41 | 4.420 | | |
| 12,700.00 | 5,735.00 | 12,563.33 | 5,538.00 | 100.15 | 99.75 | -76.60 | 6,362.73 | -605.88 | 850.31 | 655.08 | 195.23 | 4.356 | | |
| 12,800.00 | 5,735.00 | 12,663.33 | 5,538.00 | 101.59 | 101.19 | -76.60 | 6,462.72 | -605.89 | 850.20 | 652.16 | 198.04 | 4.293 | | |
| 12,900.00 | 5,735.00 | 12,763.33 | 5,538.00 | 103.03 | 102.63 | -76.60 | 6,562.72 | -605.90 | 850.09 | 649.24 | 200.85 | 4.232 | | |
| 13,000.00 | 5,735.00 | 12,863.33 | 5,538.00 | 104.47 | 104.08 | -76.60 | 6,662.72 | -605.91 | 849.98 | 646.31 | 203.67 | 4.173 | | |
| 13,100.00 | 5,735.00 | 12,963.33 | 5,538.00 | 105.92 | 105.52 | -76.60 | 6,762.72 | -605.93 | 849.88 | 643.39 | 206.49 | 4.116 | | |
| 13,200.00 | 5,735.00 | 13,063.33 | 5,538.00 | 107.36 | 106.97 | -76.60 | 6,862.72 | -605.94 | 849.77 | 640.46 | 209.31 | 4.060 | | |
| 13,300.00 | 5,735.00 | 13,163.33 | 5,538.00 | 108.81 | 108.41 | -76.59 | 6,962.72 | -605.95 | 849.66 | 637.53 | 212.13 | 4.005 | | |
| 13,400.00 | 5,735.00 | 13,263.33 | 5,538.00 | 110.25 | 109.86 | -76.59 | 7,062.72 | -605.96 | 849.56 | 634.60 | 214.95 | 3.952 | | |
| 13,500.00 | 5,735.00 | 13,363.33 | 5,538.00 | 111.70 | 111.31 | -76.59 | 7,162.72 | -605.98 | 849.45 | 631.67 | 217.77 | 3.901 | | |
| 13,600.00 | 5,735.00 | 13,463.33 | 5,538.00 | 113.15 | 112.76 | -76.59 | 7,262.72 | -605.99 | 849.34 | 628.74 | 220.60 | 3.850 | | |
| 13,700.00 | 5,735.00 | 13,563.33 | 5,538.00 | 114.59 | 114.20 | -76.59 | 7,362.72 | -606.00 | 849.23 | 625.81 | 223.42 | 3.801 | | |
| 13,800.00 | 5,735.00 | 13,663.33 | 5,538.00 | 116.04 | 115.65 | -76.58 | 7,462.72 | -606.01 | 849.13 | 622.88 | 226.25 | 3.753 | | |
| 13,876.00 | 5,735.00 | 13,739.33 | 5,538.00 | 117.14 | 116.75 | -76.58 | 7,538.72 | -606.02 | 849.05 | 620.65 | 228.40 | 3.717 SF | | |



WOG

Anticollision Report

| | | | |
|---------------------------|-------------------------|-------------------------------------|--|
| Company: | Whiting Petroleum Corp. | Local Co-ordinate Reference: | Well Horsetail #30H-1948 |
| Project: | Weld County, CO | TVD Reference: | KBE @ 4746.00usft (Original Well Elev) |
| Reference Site: | Sec 30-T10N-R57W | MD Reference: | KBE @ 4746.00usft (Original Well Elev) |
| Site Error: | 0.00 usft | North Reference: | True |
| Reference Well: | Horsetail #30H-1948 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.00 usft | Output errors are at | 3.00 sigma |
| Reference Wellbore | HZ | Database: | LandmarkEDM |
| Reference Design: | APD | Offset TVD Reference: | Offset Datum |

| Offset Design | | | | | | | | | | | | | Offset Site Error: | 0.00 usft |
|-----------------------------------|-----------------------|-----------------------|-----------------------|------------------|---------------|-----------------------|-------------------------------------|--------------|------------------------|-------------------------|---------------------------|-------------------|--------------------|-----------|
| Survey Program: 0-MWD+IFR1+MS+sag | | | | | | | | | | | | | Offset Well Error: | 0.00 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 | | |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | -90.01 | -0.02 | -89.97 | 89.97 | | | | | |
| 100.00 | 100.00 | 100.00 | 100.00 | 0.13 | 0.13 | -90.01 | -0.02 | -89.97 | 89.97 | 89.70 | 0.27 | 337.782 | | |
| 200.00 | 200.00 | 200.00 | 200.00 | 0.47 | 0.47 | -90.01 | -0.02 | -89.97 | 89.97 | 89.03 | 0.94 | 95.644 | | |
| 300.00 | 300.00 | 300.00 | 300.00 | 0.81 | 0.81 | -90.01 | -0.02 | -89.97 | 89.97 | 88.35 | 1.61 | 55.709 CC, ES | | |
| 400.00 | 399.98 | 399.25 | 399.23 | 1.11 | 1.11 | 106.91 | -1.68 | -90.38 | 90.89 | 88.68 | 2.21 | 41.054 | | |
| 500.00 | 499.84 | 498.44 | 498.28 | 1.41 | 1.41 | 106.83 | -6.69 | -91.61 | 93.66 | 90.86 | 2.80 | 33.462 | | |
| 600.00 | 599.45 | 597.54 | 597.00 | 1.73 | 1.72 | 106.72 | -15.00 | -93.66 | 98.26 | 94.82 | 3.44 | 28.555 | | |
| 700.00 | 698.70 | 696.49 | 695.22 | 2.07 | 2.05 | 106.56 | -26.61 | -96.52 | 104.70 | 100.57 | 4.13 | 25.334 | | |
| 800.00 | 797.47 | 795.24 | 792.78 | 2.43 | 2.41 | 106.38 | -41.48 | -100.18 | 112.96 | 108.09 | 4.87 | 23.178 | | |
| 900.00 | 895.77 | 894.30 | 890.14 | 2.83 | 2.80 | 106.19 | -59.21 | -104.55 | 122.71 | 117.06 | 5.65 | 21.709 | | |
| 1,000.00 | 994.03 | 993.81 | 987.87 | 3.24 | 3.21 | 106.00 | -77.40 | -109.03 | 132.62 | 126.16 | 6.45 | 20.549 | | |
| 1,100.00 | 1,092.29 | 1,093.32 | 1,085.60 | 3.66 | 3.63 | 105.84 | -95.58 | -113.51 | 142.52 | 135.25 | 7.27 | 19.600 | | |
| 1,200.00 | 1,190.55 | 1,192.83 | 1,183.33 | 4.08 | 4.05 | 105.69 | -113.77 | -117.99 | 152.43 | 144.33 | 8.10 | 18.816 | | |
| 1,300.00 | 1,288.81 | 1,292.33 | 1,281.06 | 4.51 | 4.48 | 105.57 | -131.96 | -122.47 | 162.34 | 153.40 | 8.94 | 18.160 | | |
| 1,400.00 | 1,387.07 | 1,391.84 | 1,378.78 | 4.94 | 4.90 | 105.46 | -150.15 | -126.95 | 172.25 | 162.46 | 9.78 | 17.605 | | |
| 1,500.00 | 1,485.34 | 1,491.35 | 1,476.51 | 5.37 | 5.34 | 105.36 | -168.33 | -131.43 | 182.16 | 171.52 | 10.63 | 17.131 | | |
| 1,600.00 | 1,583.60 | 1,590.86 | 1,574.24 | 5.80 | 5.77 | 105.28 | -186.52 | -135.91 | 192.07 | 180.58 | 11.49 | 16.721 | | |
| 1,700.00 | 1,681.86 | 1,690.36 | 1,671.97 | 6.24 | 6.20 | 105.20 | -204.71 | -140.40 | 201.98 | 189.64 | 12.34 | 16.364 | | |
| 1,800.00 | 1,780.12 | 1,789.87 | 1,769.70 | 6.67 | 6.64 | 105.13 | -222.89 | -144.88 | 211.89 | 198.69 | 13.20 | 16.051 | | |
| 1,900.00 | 1,878.38 | 1,889.38 | 1,867.43 | 7.11 | 7.08 | 105.06 | -241.08 | -149.36 | 221.80 | 207.74 | 14.06 | 15.773 | | |
| 2,000.00 | 1,976.64 | 1,988.89 | 1,965.16 | 7.55 | 7.51 | 105.00 | -259.27 | -153.84 | 231.71 | 216.79 | 14.92 | 15.526 | | |
| 2,100.00 | 2,074.91 | 2,088.39 | 2,062.88 | 7.99 | 7.95 | 104.95 | -277.46 | -158.32 | 241.62 | 225.84 | 15.79 | 15.305 | | |
| 2,200.00 | 2,173.17 | 2,187.90 | 2,160.61 | 8.43 | 8.39 | 104.90 | -295.64 | -162.80 | 251.54 | 234.88 | 16.65 | 15.105 | | |
| 2,300.00 | 2,271.43 | 2,287.41 | 2,258.34 | 8.86 | 8.83 | 104.85 | -313.83 | -167.28 | 261.45 | 243.93 | 17.52 | 14.925 | | |
| 2,400.00 | 2,369.69 | 2,386.92 | 2,356.07 | 9.30 | 9.27 | 104.81 | -332.02 | -171.76 | 271.36 | 252.98 | 18.38 | 14.761 | | |
| 2,500.00 | 2,467.95 | 2,486.42 | 2,453.80 | 9.74 | 9.71 | 104.76 | -350.20 | -176.24 | 281.27 | 262.02 | 19.25 | 14.611 | | |
| 2,600.00 | 2,566.21 | 2,585.93 | 2,551.53 | 10.18 | 10.15 | 104.73 | -368.39 | -180.72 | 291.18 | 271.07 | 20.12 | 14.473 | | |
| 2,700.00 | 2,664.48 | 2,685.44 | 2,649.26 | 10.63 | 10.59 | 104.69 | -386.58 | -185.20 | 301.10 | 280.11 | 20.99 | 14.347 | | |
| 2,800.00 | 2,762.74 | 2,784.94 | 2,746.98 | 11.07 | 11.03 | 104.66 | -404.76 | -189.68 | 311.01 | 289.15 | 21.86 | 14.230 | | |
| 2,900.00 | 2,861.00 | 2,884.45 | 2,844.71 | 11.51 | 11.47 | 104.63 | -422.95 | -194.16 | 320.92 | 298.20 | 22.73 | 14.122 | | |
| 3,000.00 | 2,959.26 | 2,983.96 | 2,942.44 | 11.95 | 11.91 | 104.60 | -441.14 | -198.64 | 330.83 | 307.24 | 23.60 | 14.021 | | |
| 3,100.00 | 3,057.52 | 3,083.47 | 3,040.17 | 12.39 | 12.35 | 104.57 | -459.33 | -203.12 | 340.75 | 316.28 | 24.47 | 13.928 | | |
| 3,200.00 | 3,155.78 | 3,182.97 | 3,137.90 | 12.83 | 12.79 | 104.55 | -477.51 | -207.60 | 350.66 | 325.33 | 25.34 | 13.841 | | |
| 3,300.00 | 3,254.05 | 3,282.48 | 3,235.63 | 13.27 | 13.23 | 104.52 | -495.70 | -212.08 | 360.57 | 334.37 | 26.21 | 13.759 | | |
| 3,400.00 | 3,352.31 | 3,381.99 | 3,333.36 | 13.71 | 13.68 | 104.50 | -513.89 | -216.57 | 370.49 | 343.41 | 27.08 | 13.683 | | |
| 3,500.00 | 3,450.57 | 3,481.50 | 3,431.08 | 14.16 | 14.12 | 104.48 | -532.07 | -221.05 | 380.40 | 352.45 | 27.95 | 13.611 | | |
| 3,600.00 | 3,548.83 | 3,581.00 | 3,528.81 | 14.60 | 14.56 | 104.46 | -550.26 | -225.53 | 390.31 | 361.49 | 28.82 | 13.544 | | |
| 3,700.00 | 3,647.09 | 3,680.51 | 3,626.54 | 15.04 | 15.00 | 104.44 | -568.45 | -230.01 | 400.23 | 370.54 | 29.69 | 13.480 | | |
| 3,800.00 | 3,745.35 | 3,780.02 | 3,724.27 | 15.48 | 15.44 | 104.42 | -586.64 | -234.49 | 410.14 | 379.58 | 30.56 | 13.420 | | |
| 3,900.00 | 3,843.62 | 3,879.53 | 3,822.00 | 15.92 | 15.88 | 104.40 | -604.82 | -238.97 | 420.05 | 388.62 | 31.43 | 13.363 | | |
| 4,000.00 | 3,941.88 | 3,979.03 | 3,919.73 | 16.37 | 16.33 | 104.38 | -623.01 | -243.45 | 429.97 | 397.66 | 32.31 | 13.309 | | |
| 4,100.00 | 4,040.14 | 4,078.54 | 4,017.46 | 16.81 | 16.77 | 104.37 | -641.20 | -247.93 | 439.88 | 406.70 | 33.18 | 13.258 | | |
| 4,200.00 | 4,138.40 | 4,178.05 | 4,115.18 | 17.25 | 17.21 | 104.35 | -659.38 | -252.41 | 449.79 | 415.74 | 34.05 | 13.210 | | |
| 4,300.00 | 4,236.66 | 4,277.55 | 4,212.91 | 17.69 | 17.65 | 104.34 | -677.57 | -256.89 | 459.71 | 424.78 | 34.92 | 13.164 | | |
| 4,400.00 | 4,334.92 | 4,377.06 | 4,310.64 | 18.13 | 18.09 | 104.32 | -695.76 | -261.37 | 469.62 | 433.83 | 35.79 | 13.120 | | |
| 4,500.00 | 4,433.19 | 4,479.63 | 4,411.52 | 18.58 | 18.49 | 104.40 | -713.76 | -265.81 | 479.33 | 442.70 | 36.63 | 13.084 | | |
| 4,600.00 | 4,531.53 | 4,583.96 | 4,514.70 | 18.98 | 18.78 | 104.90 | -728.68 | -269.48 | 488.02 | 450.68 | 37.33 | 13.072 | | |
| 4,700.00 | 4,630.37 | 4,688.35 | 4,618.44 | 19.24 | 19.04 | 105.51 | -739.95 | -272.26 | 494.98 | 457.11 | 37.87 | 13.071 | | |
| 4,800.00 | 4,729.69 | 4,792.77 | 4,722.56 | 19.50 | 19.29 | 106.09 | -747.54 | -274.13 | 500.09 | 461.72 | 38.37 | 13.032 | | |
| 4,900.00 | 4,829.34 | 4,897.15 | 4,826.86 | 19.74 | 19.52 | 106.65 | -751.44 | -275.09 | 503.36 | 464.52 | 38.85 | 12.957 | | |
| 5,000.00 | 4,929.23 | 4,999.52 | 4,929.23 | 19.96 | 19.77 | 107.14 | -752.01 | -275.23 | 504.87 | 465.54 | 39.32 | 12.838 | | |
| 5,100.00 | 5,029.22 | 5,099.51 | 5,029.22 | 20.21 | 19.97 | -89.66 | -752.01 | -275.23 | 505.24 | 465.46 | 39.78 | 12.700 | | |

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



WOG

Anticollision Report

| | | | |
|---------------------------|-------------------------|-------------------------------------|--|
| Company: | Whiting Petroleum Corp. | Local Co-ordinate Reference: | Well Horsetail #30H-1948 |
| Project: | Weld County, CO | TVD Reference: | KBE @ 4746.00usft (Original Well Elev) |
| Reference Site: | Sec 30-T10N-R57W | MD Reference: | KBE @ 4746.00usft (Original Well Elev) |
| Site Error: | 0.00 usft | North Reference: | True |
| Reference Well: | Horsetail #30H-1948 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.00 usft | Output errors are at | 3.00 sigma |
| Reference Wellbore | HZ | Database: | LandmarkEDM |
| Reference Design: | APD | Offset TVD Reference: | Offset Datum |

| Offset Design | | | | | | | | | | | | | Offset Site Error: | 0.00 usft |
|-----------------------------------|-----------------------|-----------------------|-----------------------|------------------|---------------|-----------------------|-------------------------------------|--------------|------------------------|-------------------------|---------------------------|-------------------|--------------------|-----------|
| Survey Program: 0-MWD+IFR1+MS+sag | | | | | | | | | | | | | Offset Well Error: | 0.00 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 | | |
| 5,108.00 | 5,037.22 | 5,107.51 | 5,037.22 | 20.23 | 19.99 | -89.66 | -752.01 | -275.23 | 505.24 | 465.42 | 39.82 | 12.689 | | |
| 5,200.00 | 5,129.22 | 5,199.15 | 5,128.80 | 20.42 | 20.18 | -89.45 | -750.17 | -275.23 | 505.25 | 465.06 | 40.20 | 12.569 | | |
| 5,300.00 | 5,229.21 | 5,295.26 | 5,223.29 | 20.63 | 20.30 | -87.48 | -733.33 | -275.23 | 505.72 | 465.21 | 40.51 | 12.484 | | |
| 5,400.00 | 5,328.28 | 5,386.65 | 5,308.83 | 20.79 | 20.34 | -84.94 | -701.49 | -275.24 | 507.24 | 466.61 | 40.63 | 12.484 | | |
| 5,500.00 | 5,423.15 | 5,474.93 | 5,384.96 | 20.86 | 20.33 | -82.61 | -657.00 | -275.24 | 509.52 | 468.97 | 40.55 | 12.566 | | |
| 5,600.00 | 5,510.33 | 5,560.70 | 5,450.71 | 20.86 | 20.28 | -80.54 | -602.09 | -275.25 | 512.22 | 471.93 | 40.29 | 12.712 | | |
| 5,700.00 | 5,586.64 | 5,644.49 | 5,505.42 | 20.80 | 20.20 | -78.80 | -538.73 | -275.26 | 514.99 | 475.05 | 39.94 | 12.896 | | |
| 5,800.00 | 5,649.25 | 5,726.78 | 5,548.58 | 20.72 | 20.13 | -77.41 | -468.78 | -275.27 | 517.49 | 477.93 | 39.56 | 13.082 | | |
| 5,900.00 | 5,695.89 | 5,807.99 | 5,579.87 | 20.64 | 20.07 | -76.41 | -393.93 | -275.27 | 519.44 | 480.19 | 39.25 | 13.234 | | |
| 6,000.00 | 5,724.82 | 5,888.50 | 5,599.05 | 20.59 | 20.04 | -75.82 | -315.81 | -275.28 | 520.62 | 481.52 | 39.09 | 13.318 | | |
| 6,099.99 | 5,734.99 | 5,968.69 | 5,605.98 | 20.58 | 20.04 | -75.66 | -236.01 | -275.29 | 520.89 | 481.76 | 39.13 | 13.311 | | |
| 6,200.00 | 5,735.00 | 6,067.46 | 5,606.00 | 20.66 | 20.14 | -75.66 | -137.23 | -275.31 | 520.78 | 481.41 | 39.37 | 13.227 | | |
| 6,300.00 | 5,735.00 | 6,167.46 | 5,606.00 | 20.85 | 20.33 | -75.66 | -37.23 | -275.32 | 520.67 | 480.87 | 39.81 | 13.080 | | |
| 6,400.00 | 5,735.00 | 6,267.46 | 5,606.00 | 21.15 | 20.63 | -75.65 | 62.77 | -275.33 | 520.57 | 480.13 | 40.44 | 12.872 | | |
| 6,500.00 | 5,735.00 | 6,367.46 | 5,606.00 | 21.55 | 21.04 | -75.65 | 162.77 | -275.34 | 520.46 | 479.20 | 41.27 | 12.613 | | |
| 6,600.00 | 5,735.00 | 6,467.46 | 5,606.00 | 22.04 | 21.55 | -75.65 | 262.77 | -275.36 | 520.35 | 478.09 | 42.27 | 12.311 | | |
| 6,700.00 | 5,735.00 | 6,567.46 | 5,606.00 | 22.63 | 22.14 | -75.64 | 362.77 | -275.37 | 520.25 | 476.81 | 43.43 | 11.978 | | |
| 6,800.00 | 5,735.00 | 6,667.46 | 5,606.00 | 23.30 | 22.82 | -75.64 | 462.77 | -275.38 | 520.14 | 475.39 | 44.75 | 11.622 | | |
| 6,900.00 | 5,735.00 | 6,767.46 | 5,606.00 | 24.04 | 23.57 | -75.64 | 562.77 | -275.39 | 520.04 | 473.82 | 46.21 | 11.253 | | |
| 7,000.00 | 5,735.00 | 6,867.46 | 5,606.00 | 24.85 | 24.39 | -75.63 | 662.77 | -275.41 | 519.93 | 472.13 | 47.80 | 10.877 | | |
| 7,100.00 | 5,735.00 | 6,967.46 | 5,606.00 | 25.72 | 25.27 | -75.63 | 762.77 | -275.42 | 519.82 | 470.32 | 49.50 | 10.501 | | |
| 7,200.00 | 5,735.00 | 7,067.46 | 5,606.00 | 26.64 | 26.20 | -75.63 | 862.77 | -275.43 | 519.72 | 468.41 | 51.31 | 10.130 | | |
| 7,300.00 | 5,735.00 | 7,167.46 | 5,606.00 | 27.61 | 27.18 | -75.63 | 962.77 | -275.44 | 519.61 | 466.41 | 53.20 | 9.766 | | |
| 7,400.00 | 5,735.00 | 7,267.46 | 5,606.00 | 28.62 | 28.20 | -75.62 | 1,062.77 | -275.46 | 519.50 | 464.32 | 55.18 | 9.414 | | |
| 7,500.00 | 5,735.00 | 7,367.46 | 5,606.00 | 29.67 | 29.26 | -75.62 | 1,162.77 | -275.47 | 519.40 | 462.16 | 57.24 | 9.074 | | |
| 7,600.00 | 5,735.00 | 7,467.46 | 5,606.00 | 30.75 | 30.36 | -75.62 | 1,262.77 | -275.48 | 519.29 | 459.93 | 59.36 | 8.748 | | |
| 7,700.00 | 5,735.00 | 7,567.46 | 5,606.00 | 31.87 | 31.49 | -75.61 | 1,362.77 | -275.49 | 519.18 | 457.64 | 61.54 | 8.436 | | |
| 7,800.00 | 5,735.00 | 7,667.46 | 5,606.00 | 33.01 | 32.64 | -75.61 | 1,462.77 | -275.51 | 519.08 | 455.30 | 63.78 | 8.139 | | |
| 7,900.00 | 5,735.00 | 7,767.46 | 5,606.00 | 34.18 | 33.82 | -75.61 | 1,562.77 | -275.52 | 518.97 | 452.91 | 66.06 | 7.856 | | |
| 8,000.00 | 5,735.00 | 7,867.46 | 5,606.00 | 35.37 | 35.02 | -75.60 | 1,662.77 | -275.53 | 518.86 | 450.47 | 68.39 | 7.587 | | |
| 8,100.00 | 5,735.00 | 7,967.46 | 5,606.00 | 36.59 | 36.24 | -75.60 | 1,762.77 | -275.54 | 518.76 | 448.00 | 70.76 | 7.332 | | |
| 8,200.00 | 5,735.00 | 8,067.46 | 5,606.00 | 37.82 | 37.48 | -75.60 | 1,862.77 | -275.56 | 518.65 | 445.49 | 73.16 | 7.089 | | |
| 8,300.00 | 5,735.00 | 8,167.46 | 5,606.00 | 39.06 | 38.73 | -75.60 | 1,962.77 | -275.57 | 518.54 | 442.95 | 75.59 | 6.860 | | |
| 8,400.00 | 5,735.00 | 8,267.46 | 5,606.00 | 40.32 | 40.00 | -75.59 | 2,062.77 | -275.58 | 518.44 | 440.38 | 78.06 | 6.642 | | |
| 8,500.00 | 5,735.00 | 8,367.46 | 5,606.00 | 41.60 | 41.28 | -75.59 | 2,162.77 | -275.59 | 518.33 | 437.79 | 80.54 | 6.435 | | |
| 8,600.00 | 5,735.00 | 8,467.46 | 5,606.00 | 42.89 | 42.58 | -75.59 | 2,262.77 | -275.60 | 518.23 | 435.17 | 83.06 | 6.239 | | |
| 8,700.00 | 5,735.00 | 8,567.46 | 5,606.00 | 44.19 | 43.88 | -75.58 | 2,362.77 | -275.62 | 518.12 | 432.53 | 85.59 | 6.053 | | |
| 8,800.00 | 5,735.00 | 8,667.46 | 5,606.00 | 45.50 | 45.20 | -75.58 | 2,462.77 | -275.63 | 518.01 | 429.87 | 88.15 | 5.877 | | |
| 8,900.00 | 5,735.00 | 8,767.46 | 5,606.00 | 46.82 | 46.53 | -75.58 | 2,562.77 | -275.64 | 517.91 | 427.19 | 90.72 | 5.709 | | |
| 9,000.00 | 5,735.00 | 8,867.46 | 5,606.00 | 48.14 | 47.86 | -75.57 | 2,662.77 | -275.65 | 517.80 | 424.49 | 93.31 | 5.549 | | |
| 9,100.00 | 5,735.00 | 8,967.46 | 5,606.00 | 49.48 | 49.20 | -75.57 | 2,762.77 | -275.67 | 517.69 | 421.78 | 95.91 | 5.397 | | |
| 9,200.00 | 5,735.00 | 9,067.46 | 5,606.00 | 50.82 | 50.55 | -75.57 | 2,862.77 | -275.68 | 517.59 | 419.05 | 98.53 | 5.253 | | |
| 9,300.00 | 5,735.00 | 9,167.46 | 5,606.00 | 52.17 | 51.91 | -75.56 | 2,962.77 | -275.69 | 517.48 | 416.31 | 101.17 | 5.115 | | |
| 9,400.00 | 5,735.00 | 9,267.46 | 5,606.00 | 53.53 | 53.27 | -75.56 | 3,062.77 | -275.70 | 517.37 | 413.56 | 103.81 | 4.984 | | |
| 9,500.00 | 5,735.00 | 9,367.46 | 5,606.00 | 54.89 | 54.64 | -75.56 | 3,162.77 | -275.72 | 517.27 | 410.80 | 106.46 | 4.859 | | |
| 9,600.00 | 5,735.00 | 9,467.46 | 5,606.00 | 56.26 | 56.01 | -75.56 | 3,262.77 | -275.73 | 517.16 | 408.03 | 109.13 | 4.739 | | |
| 9,700.00 | 5,735.00 | 9,567.46 | 5,606.00 | 57.64 | 57.39 | -75.55 | 3,362.77 | -275.74 | 517.05 | 405.25 | 111.81 | 4.625 | | |
| 9,800.00 | 5,735.00 | 9,667.46 | 5,606.00 | 59.01 | 58.77 | -75.55 | 3,462.77 | -275.75 | 516.95 | 402.46 | 114.49 | 4.515 | | |
| 9,900.00 | 5,735.00 | 9,767.46 | 5,606.00 | 60.40 | 60.16 | -75.55 | 3,562.77 | -275.77 | 516.84 | 399.66 | 117.18 | 4.411 | | |
| 10,000.00 | 5,735.00 | 9,867.46 | 5,606.00 | 61.78 | 61.55 | -75.54 | 3,662.77 | -275.78 | 516.73 | 396.85 | 119.88 | 4.310 | | |
| 10,100.00 | 5,735.00 | 9,967.46 | 5,606.00 | 63.17 | 62.94 | -75.54 | 3,762.77 | -275.79 | 516.63 | 394.04 | 122.59 | 4.214 | | |
| 10,200.00 | 5,735.00 | 10,067.46 | 5,606.00 | 64.57 | 64.34 | -75.54 | 3,862.77 | -275.80 | 516.52 | 391.22 | 125.30 | 4.122 | | |

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



WOG

Anticollision Report

| | | | |
|---------------------------|-------------------------|-------------------------------------|--|
| Company: | Whiting Petroleum Corp. | Local Co-ordinate Reference: | Well Horsetail #30H-1948 |
| Project: | Weld County, CO | TVD Reference: | KBE @ 4746.00usft (Original Well Elev) |
| Reference Site: | Sec 30-T10N-R57W | MD Reference: | KBE @ 4746.00usft (Original Well Elev) |
| Site Error: | 0.00 usft | North Reference: | True |
| Reference Well: | Horsetail #30H-1948 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.00 usft | Output errors are at | 3.00 sigma |
| Reference Wellbore | Hz | Database: | LandmarkEDM |
| Reference Design: | APD | Offset TVD Reference: | Offset Datum |

| Offset Design | | | | | | | | | | | | | Offset Site Error: | 0.00 usft |
|-----------------------------------|-----------------------|-----------------------|-----------------------|------------------|---------------|-----------------------|-------------------------------------|--------------|------------------------|-------------------------|---------------------------|-------------------|--------------------|-----------|
| Survey Program: 0-MWD+IFR1+MS+sag | | | | | | | | | | | | | Offset Well Error: | 0.00 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 | | |
| 10,300.00 | 5,735.00 | 10,167.46 | 5,606.00 | 65.97 | 65.74 | -75.53 | 3,962.77 | -275.82 | 516.42 | 388.39 | 128.02 | 4.034 | | |
| 10,400.00 | 5,735.00 | 10,267.46 | 5,606.00 | 67.37 | 67.14 | -75.53 | 4,062.77 | -275.83 | 516.31 | 385.56 | 130.75 | 3.949 | | |
| 10,500.00 | 5,735.00 | 10,367.46 | 5,606.00 | 68.77 | 68.55 | -75.53 | 4,162.77 | -275.84 | 516.20 | 382.72 | 133.48 | 3.867 | | |
| 10,600.00 | 5,735.00 | 10,467.46 | 5,606.00 | 70.18 | 69.96 | -75.53 | 4,262.77 | -275.85 | 516.10 | 379.88 | 136.22 | 3.789 | | |
| 10,700.00 | 5,735.00 | 10,567.46 | 5,606.00 | 71.59 | 71.37 | -75.52 | 4,362.77 | -275.87 | 515.99 | 377.03 | 138.96 | 3.713 | | |
| 10,800.00 | 5,735.00 | 10,667.46 | 5,606.00 | 73.00 | 72.78 | -75.52 | 4,462.77 | -275.88 | 515.88 | 374.18 | 141.71 | 3.641 | | |
| 10,900.00 | 5,735.00 | 10,767.46 | 5,606.00 | 74.41 | 74.20 | -75.52 | 4,562.77 | -275.89 | 515.78 | 371.32 | 144.46 | 3.570 | | |
| 11,000.00 | 5,735.00 | 10,867.46 | 5,606.00 | 75.83 | 75.62 | -75.51 | 4,662.77 | -275.90 | 515.67 | 368.46 | 147.21 | 3.503 | | |
| 11,100.00 | 5,735.00 | 10,967.46 | 5,606.00 | 77.25 | 77.04 | -75.51 | 4,762.77 | -275.92 | 515.56 | 365.59 | 149.97 | 3.438 | | |
| 11,200.00 | 5,735.00 | 11,067.46 | 5,606.00 | 78.67 | 78.46 | -75.51 | 4,862.77 | -275.93 | 515.46 | 362.73 | 152.73 | 3.375 | | |
| 11,300.00 | 5,735.00 | 11,167.46 | 5,606.00 | 80.09 | 79.89 | -75.50 | 4,962.77 | -275.94 | 515.35 | 359.85 | 155.50 | 3.314 | | |
| 11,400.00 | 5,735.00 | 11,267.46 | 5,606.00 | 81.51 | 81.31 | -75.50 | 5,062.77 | -275.95 | 515.24 | 356.98 | 158.27 | 3.256 | | |
| 11,500.00 | 5,735.00 | 11,367.46 | 5,606.00 | 82.94 | 82.74 | -75.50 | 5,162.76 | -275.97 | 515.14 | 354.10 | 161.04 | 3.199 | | |
| 11,600.00 | 5,735.00 | 11,467.46 | 5,606.00 | 84.36 | 84.17 | -75.49 | 5,262.76 | -275.98 | 515.03 | 351.22 | 163.81 | 3.144 | | |
| 11,700.00 | 5,735.00 | 11,567.46 | 5,606.00 | 85.79 | 85.60 | -75.49 | 5,362.76 | -275.99 | 514.93 | 348.33 | 166.59 | 3.091 | | |
| 11,800.00 | 5,735.00 | 11,667.46 | 5,606.00 | 87.22 | 87.03 | -75.49 | 5,462.76 | -276.00 | 514.82 | 345.45 | 169.37 | 3.040 | | |
| 11,900.00 | 5,735.00 | 11,767.46 | 5,606.00 | 88.65 | 88.47 | -75.49 | 5,562.76 | -276.01 | 514.71 | 342.56 | 172.15 | 2.990 | | |
| 12,000.00 | 5,735.00 | 11,867.46 | 5,606.00 | 90.09 | 89.90 | -75.48 | 5,662.76 | -276.03 | 514.61 | 339.67 | 174.94 | 2.942 | | |
| 12,100.00 | 5,735.00 | 11,967.46 | 5,606.00 | 91.52 | 91.34 | -75.48 | 5,762.76 | -276.04 | 514.50 | 336.77 | 177.73 | 2.895 | | |
| 12,200.00 | 5,735.00 | 12,067.46 | 5,606.00 | 92.96 | 92.77 | -75.48 | 5,862.76 | -276.05 | 514.39 | 333.88 | 180.52 | 2.850 | | |
| 12,300.00 | 5,735.00 | 12,167.46 | 5,606.00 | 94.39 | 94.21 | -75.47 | 5,962.76 | -276.06 | 514.29 | 330.98 | 183.31 | 2.806 | | |
| 12,400.00 | 5,735.00 | 12,267.46 | 5,606.00 | 95.83 | 95.65 | -75.47 | 6,062.76 | -276.08 | 514.18 | 328.08 | 186.10 | 2.763 | | |
| 12,500.00 | 5,735.00 | 12,367.46 | 5,606.00 | 97.27 | 97.09 | -75.47 | 6,162.76 | -276.09 | 514.07 | 325.18 | 188.90 | 2.721 | | |
| 12,600.00 | 5,735.00 | 12,467.46 | 5,606.00 | 98.71 | 98.53 | -75.46 | 6,262.76 | -276.10 | 513.97 | 322.27 | 191.69 | 2.681 | | |
| 12,700.00 | 5,735.00 | 12,567.46 | 5,606.00 | 100.15 | 99.97 | -75.46 | 6,362.76 | -276.11 | 513.86 | 319.37 | 194.49 | 2.642 | | |
| 12,800.00 | 5,735.00 | 12,667.46 | 5,606.00 | 101.59 | 101.41 | -75.46 | 6,462.76 | -276.13 | 513.76 | 316.46 | 197.29 | 2.604 | | |
| 12,900.00 | 5,735.00 | 12,767.46 | 5,606.00 | 103.03 | 102.86 | -75.45 | 6,562.76 | -276.14 | 513.65 | 313.55 | 200.10 | 2.567 | | |
| 13,000.00 | 5,735.00 | 12,867.46 | 5,606.00 | 104.47 | 104.30 | -75.45 | 6,662.76 | -276.15 | 513.54 | 310.64 | 202.90 | 2.531 | | |
| 13,100.00 | 5,735.00 | 12,967.46 | 5,606.00 | 105.92 | 105.75 | -75.45 | 6,762.76 | -276.16 | 513.44 | 307.73 | 205.70 | 2.496 | | |
| 13,200.00 | 5,735.00 | 13,067.46 | 5,606.00 | 107.36 | 107.19 | -75.45 | 6,862.76 | -276.18 | 513.33 | 304.82 | 208.51 | 2.462 | | |
| 13,300.00 | 5,735.00 | 13,167.46 | 5,606.00 | 108.81 | 108.64 | -75.44 | 6,962.76 | -276.19 | 513.22 | 301.90 | 211.32 | 2.429 | | |
| 13,400.00 | 5,735.00 | 13,267.46 | 5,606.00 | 110.25 | 110.08 | -75.44 | 7,062.76 | -276.20 | 513.12 | 298.99 | 214.13 | 2.396 | | |
| 13,500.00 | 5,735.00 | 13,367.46 | 5,606.00 | 111.70 | 111.53 | -75.44 | 7,162.76 | -276.21 | 513.01 | 296.07 | 216.94 | 2.365 | | |
| 13,600.00 | 5,735.00 | 13,467.46 | 5,606.00 | 113.15 | 112.98 | -75.43 | 7,262.76 | -276.23 | 512.90 | 293.15 | 219.75 | 2.334 | | |
| 13,700.00 | 5,735.00 | 13,567.46 | 5,606.00 | 114.59 | 114.43 | -75.43 | 7,362.76 | -276.24 | 512.80 | 290.24 | 222.56 | 2.304 | | |
| 13,800.00 | 5,735.00 | 13,667.46 | 5,606.00 | 116.04 | 115.88 | -75.43 | 7,462.76 | -276.25 | 512.69 | 287.32 | 225.38 | 2.275 | | |
| 13,876.00 | 5,735.00 | 13,743.46 | 5,606.00 | 117.14 | 116.98 | -75.42 | 7,538.76 | -276.26 | 512.61 | 285.10 | 227.51 | 2.253 SF | | |



WOG

Anticollision Report

| | | | |
|---------------------------|-------------------------|-------------------------------------|--|
| Company: | Whiting Petroleum Corp. | Local Co-ordinate Reference: | Well Horsetail #30H-1948 |
| Project: | Weld County, CO | TVD Reference: | KBE @ 4746.00usft (Original Well Elev) |
| Reference Site: | Sec 30-T10N-R57W | MD Reference: | KBE @ 4746.00usft (Original Well Elev) |
| Site Error: | 0.00 usft | North Reference: | True |
| Reference Well: | Horsetail #30H-1948 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.00 usft | Output errors are at | 3.00 sigma |
| Reference Wellbore | Hz | Database: | LandmarkEDM |
| Reference Design: | APD | Offset TVD Reference: | Offset Datum |

| Offset Design | | | | | | | | | | | | | Offset Site Error: | 0.00 usft |
|-----------------------------------|-----------------------|-----------------------|-----------------------|------------------|---------------|-----------------------|-------------------------------------|--------------|------------------------|-------------------------|---------------------------|-------------------|--------------------|-----------|
| Survey Program: 0-MWD+IFR1+MS+sag | | | | | | | | | | | | | Offset Well Error: | 0.00 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 | | |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | -89.98 | 0.01 | -29.99 | 29.99 | | | | | |
| 100.00 | 100.00 | 100.00 | 100.00 | 0.13 | 0.13 | -89.98 | 0.01 | -29.99 | 29.99 | 29.72 | 0.27 | 112.594 | | |
| 200.00 | 200.00 | 200.00 | 200.00 | 0.47 | 0.47 | -89.98 | 0.01 | -29.99 | 29.99 | 29.05 | 0.94 | 31.881 | | |
| 300.00 | 300.00 | 300.00 | 300.00 | 0.81 | 0.81 | -89.98 | 0.01 | -29.99 | 29.99 | 28.37 | 1.61 | 18.570 CC | | |
| 400.00 | 399.98 | 400.05 | 400.03 | 1.11 | 1.11 | 106.81 | -1.74 | -29.90 | 30.41 | 28.19 | 2.21 | 13.748 ES | | |
| 500.00 | 499.84 | 500.10 | 499.93 | 1.41 | 1.41 | 106.39 | -6.97 | -29.62 | 31.65 | 28.86 | 2.79 | 11.348 | | |
| 600.00 | 599.45 | 600.12 | 599.57 | 1.73 | 1.73 | 105.75 | -15.68 | -29.16 | 33.74 | 30.31 | 3.43 | 9.850 | | |
| 700.00 | 698.70 | 700.11 | 698.81 | 2.07 | 2.06 | 104.98 | -27.85 | -28.51 | 36.66 | 32.54 | 4.11 | 8.912 | | |
| 800.00 | 797.47 | 800.06 | 797.52 | 2.43 | 2.42 | 104.15 | -43.46 | -27.68 | 40.41 | 35.55 | 4.85 | 8.324 | | |
| 900.00 | 895.77 | 899.96 | 895.72 | 2.83 | 2.82 | 103.33 | -61.83 | -26.71 | 44.82 | 39.17 | 5.64 | 7.941 | | |
| 1,000.00 | 994.03 | 999.86 | 993.86 | 3.24 | 3.23 | 102.64 | -80.43 | -25.72 | 49.29 | 42.83 | 6.46 | 7.629 | | |
| 1,100.00 | 1,092.29 | 1,099.76 | 1,092.01 | 3.66 | 3.65 | 102.07 | -99.03 | -24.74 | 53.76 | 46.47 | 7.29 | 7.371 | | |
| 1,200.00 | 1,190.55 | 1,199.66 | 1,190.15 | 4.08 | 4.07 | 101.58 | -117.64 | -23.75 | 58.24 | 50.10 | 8.14 | 7.157 | | |
| 1,300.00 | 1,288.81 | 1,299.55 | 1,288.30 | 4.51 | 4.50 | 101.16 | -136.24 | -22.76 | 62.72 | 53.73 | 8.99 | 6.978 | | |
| 1,400.00 | 1,387.07 | 1,399.45 | 1,386.45 | 4.94 | 4.93 | 100.80 | -154.84 | -21.77 | 67.21 | 57.36 | 9.85 | 6.826 | | |
| 1,500.00 | 1,485.34 | 1,499.35 | 1,484.59 | 5.37 | 5.36 | 100.49 | -173.44 | -20.79 | 71.70 | 60.99 | 10.71 | 6.695 | | |
| 1,600.00 | 1,583.60 | 1,599.25 | 1,582.74 | 5.80 | 5.79 | 100.21 | -192.05 | -19.80 | 76.19 | 64.61 | 11.57 | 6.583 | | |
| 1,700.00 | 1,681.86 | 1,699.15 | 1,680.89 | 6.24 | 6.23 | 99.96 | -210.65 | -18.81 | 80.68 | 68.24 | 12.44 | 6.485 | | |
| 1,800.00 | 1,780.12 | 1,799.05 | 1,779.03 | 6.67 | 6.66 | 99.74 | -229.25 | -17.83 | 85.17 | 71.86 | 13.31 | 6.398 | | |
| 1,900.00 | 1,878.38 | 1,898.94 | 1,877.18 | 7.11 | 7.10 | 99.54 | -247.85 | -16.84 | 89.67 | 75.48 | 14.18 | 6.322 | | |
| 2,000.00 | 1,976.64 | 1,998.84 | 1,975.32 | 7.55 | 7.54 | 99.36 | -266.46 | -15.85 | 94.16 | 79.10 | 15.06 | 6.254 | | |
| 2,100.00 | 2,074.91 | 2,098.74 | 2,073.47 | 7.99 | 7.98 | 99.19 | -285.06 | -14.87 | 98.66 | 82.73 | 15.93 | 6.193 | | |
| 2,200.00 | 2,173.17 | 2,198.64 | 2,171.62 | 8.43 | 8.42 | 99.04 | -303.66 | -13.88 | 103.15 | 86.35 | 16.81 | 6.138 | | |
| 2,300.00 | 2,271.43 | 2,298.54 | 2,269.76 | 8.86 | 8.85 | 98.91 | -322.26 | -12.89 | 107.65 | 89.97 | 17.68 | 6.088 | | |
| 2,400.00 | 2,369.69 | 2,398.44 | 2,367.91 | 9.30 | 9.29 | 98.78 | -340.87 | -11.91 | 112.15 | 93.59 | 18.56 | 6.043 | | |
| 2,500.00 | 2,467.95 | 2,498.34 | 2,466.06 | 9.74 | 9.73 | 98.67 | -359.47 | -10.92 | 116.65 | 97.21 | 19.44 | 6.001 | | |
| 2,600.00 | 2,566.21 | 2,598.23 | 2,564.20 | 10.18 | 10.17 | 98.56 | -378.07 | -9.93 | 121.15 | 100.83 | 20.32 | 5.963 | | |
| 2,700.00 | 2,664.48 | 2,698.13 | 2,662.35 | 10.63 | 10.62 | 98.46 | -396.68 | -8.95 | 125.65 | 104.45 | 21.19 | 5.928 | | |
| 2,800.00 | 2,762.74 | 2,798.03 | 2,760.49 | 11.07 | 11.06 | 98.36 | -415.28 | -7.96 | 130.15 | 108.07 | 22.07 | 5.896 | | |
| 2,900.00 | 2,861.00 | 2,897.93 | 2,858.64 | 11.51 | 11.50 | 98.28 | -433.88 | -6.97 | 134.65 | 111.69 | 22.95 | 5.866 | | |
| 3,000.00 | 2,959.26 | 2,997.83 | 2,956.79 | 11.95 | 11.94 | 98.20 | -452.48 | -5.98 | 139.15 | 115.31 | 23.83 | 5.839 | | |
| 3,100.00 | 3,057.52 | 3,097.73 | 3,054.93 | 12.39 | 12.38 | 98.12 | -471.09 | -5.00 | 143.65 | 118.93 | 24.71 | 5.813 | | |
| 3,200.00 | 3,155.78 | 3,197.63 | 3,153.08 | 12.83 | 12.82 | 98.05 | -489.69 | -4.01 | 148.15 | 122.55 | 25.59 | 5.789 | | |
| 3,300.00 | 3,254.05 | 3,297.52 | 3,251.23 | 13.27 | 13.26 | 97.98 | -508.29 | -3.02 | 152.65 | 126.18 | 26.47 | 5.766 | | |
| 3,400.00 | 3,352.31 | 3,397.42 | 3,349.37 | 13.71 | 13.70 | 97.92 | -526.89 | -2.04 | 157.15 | 129.80 | 27.35 | 5.745 | | |
| 3,500.00 | 3,450.57 | 3,497.32 | 3,447.52 | 14.16 | 14.15 | 97.86 | -545.50 | -1.05 | 161.65 | 133.42 | 28.23 | 5.725 | | |
| 3,600.00 | 3,548.83 | 3,597.22 | 3,545.66 | 14.60 | 14.59 | 97.80 | -564.10 | -0.06 | 166.15 | 137.04 | 29.12 | 5.707 | | |
| 3,700.00 | 3,647.09 | 3,697.12 | 3,643.81 | 15.04 | 15.03 | 97.75 | -582.70 | 0.92 | 170.65 | 140.66 | 30.00 | 5.689 | | |
| 3,800.00 | 3,745.35 | 3,797.02 | 3,741.96 | 15.48 | 15.47 | 97.70 | -601.30 | 1.91 | 175.15 | 144.28 | 30.88 | 5.673 | | |
| 3,900.00 | 3,843.62 | 3,896.91 | 3,840.10 | 15.92 | 15.91 | 97.65 | -619.91 | 2.90 | 179.66 | 147.90 | 31.76 | 5.657 | | |
| 4,000.00 | 3,941.88 | 3,996.81 | 3,938.25 | 16.37 | 16.36 | 97.60 | -638.51 | 3.88 | 184.16 | 151.52 | 32.64 | 5.642 | | |
| 4,100.00 | 4,040.14 | 4,096.71 | 4,036.39 | 16.81 | 16.80 | 97.56 | -657.11 | 4.87 | 188.66 | 155.14 | 33.52 | 5.628 | | |
| 4,200.00 | 4,138.40 | 4,196.61 | 4,134.54 | 17.25 | 17.24 | 97.52 | -675.71 | 5.86 | 193.16 | 158.76 | 34.40 | 5.614 | | |
| 4,300.00 | 4,236.66 | 4,296.51 | 4,232.69 | 17.69 | 17.68 | 97.48 | -694.32 | 6.84 | 197.67 | 162.38 | 35.29 | 5.602 | | |
| 4,400.00 | 4,334.92 | 4,396.78 | 4,331.28 | 18.13 | 18.08 | 97.56 | -712.57 | 7.81 | 202.12 | 165.99 | 36.13 | 5.594 | | |
| 4,500.00 | 4,433.19 | 4,497.35 | 4,430.67 | 18.58 | 18.35 | 98.48 | -727.86 | 8.62 | 206.28 | 169.44 | 36.84 | 5.599 | | |
| 4,600.00 | 4,531.53 | 4,597.63 | 4,530.25 | 18.98 | 18.61 | 100.25 | -739.63 | 9.25 | 210.18 | 172.69 | 37.49 | 5.606 | | |
| 4,700.00 | 4,630.37 | 4,697.69 | 4,629.96 | 19.24 | 18.85 | 102.10 | -747.89 | 9.69 | 213.52 | 175.54 | 37.98 | 5.623 | | |
| 4,800.00 | 4,729.69 | 4,797.54 | 4,729.69 | 19.50 | 19.07 | 103.91 | -752.66 | 9.94 | 216.23 | 177.81 | 38.42 | 5.628 | | |
| 4,900.00 | 4,829.34 | 4,897.21 | 4,829.34 | 19.74 | 19.32 | 105.68 | -753.99 | 10.01 | 218.30 | 179.44 | 38.86 | 5.617 | | |
| 5,000.00 | 4,929.23 | 4,997.09 | 4,929.23 | 19.96 | 19.53 | 106.89 | -753.99 | 10.01 | 219.62 | 180.36 | 39.26 | 5.594 | | |
| 5,100.00 | 5,029.22 | 5,097.08 | 5,029.22 | 20.21 | 19.74 | -89.70 | -753.85 | 10.01 | 219.99 | 180.28 | 39.71 | 5.540 | | |

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



WOG

Anticollision Report

| | | | |
|---------------------------|-------------------------|-------------------------------------|--|
| Company: | Whiting Petroleum Corp. | Local Co-ordinate Reference: | Well Horsetail #30H-1948 |
| Project: | Weld County, CO | TVD Reference: | KBE @ 4746.00usft (Original Well Elev) |
| Reference Site: | Sec 30-T10N-R57W | MD Reference: | KBE @ 4746.00usft (Original Well Elev) |
| Site Error: | 0.00 usft | North Reference: | True |
| Reference Well: | Horsetail #30H-1948 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.00 usft | Output errors are at | 3.00 sigma |
| Reference Wellbore | Hz | Database: | LandmarkEDM |
| Reference Design: | APD | Offset TVD Reference: | Offset Datum |

| Offset Design | | | | | | | | | | | | | Offset Site Error: | 0.00 usft |
|-----------------------------------|-----------------------|-----------------------|-----------------------|------------------|---------------|-----------------------|-------------------------------------|--------------|------------------------|-------------------------|---------------------------|-------------------|--------------------|-----------|
| Survey Program: 0-MWD+IFR1+MS+sag | | | | | | | | | | | | | Offset Well Error: | 0.00 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 | | |
| 5,100.11 | 5,029.33 | 5,097.19 | 5,029.33 | 20.21 | 19.74 | -89.70 | -753.85 | 10.01 | 219.99 | 180.28 | 39.71 | 5.540 | | |
| 5,200.00 | 5,129.22 | 5,195.42 | 5,126.73 | 20.42 | 19.89 | -86.70 | -742.31 | 10.07 | 220.31 | 180.37 | 39.94 | 5.516 | | |
| 5,300.00 | 5,229.21 | 5,286.51 | 5,213.65 | 20.63 | 19.96 | -79.68 | -715.45 | 10.21 | 223.82 | 184.17 | 39.65 | 5.645 | | |
| 5,400.00 | 5,328.28 | 5,371.20 | 5,289.14 | 20.79 | 19.96 | -71.77 | -677.27 | 10.41 | 232.32 | 193.65 | 38.68 | 6.007 | | |
| 5,500.00 | 5,423.15 | 5,450.00 | 5,352.97 | 20.86 | 19.92 | -65.12 | -631.19 | 10.65 | 243.74 | 206.67 | 37.08 | 6.574 | | |
| 5,600.00 | 5,510.33 | 5,530.71 | 5,410.39 | 20.86 | 19.86 | -59.41 | -574.59 | 10.95 | 256.23 | 220.98 | 35.25 | 7.270 | | |
| 5,700.00 | 5,586.64 | 5,607.02 | 5,456.03 | 20.80 | 19.80 | -55.04 | -513.52 | 11.27 | 268.28 | 235.02 | 33.26 | 8.067 | | |
| 5,800.00 | 5,649.25 | 5,681.78 | 5,491.63 | 20.72 | 19.75 | -51.78 | -447.85 | 11.62 | 278.69 | 247.24 | 31.45 | 8.861 | | |
| 5,900.00 | 5,695.89 | 5,750.00 | 5,515.62 | 20.64 | 19.72 | -49.62 | -384.04 | 11.95 | 286.66 | 256.63 | 30.03 | 9.546 | | |
| 6,000.00 | 5,724.82 | 5,828.42 | 5,532.64 | 20.59 | 19.72 | -48.19 | -307.57 | 12.35 | 291.41 | 262.01 | 29.40 | 9.913 | | |
| 6,099.99 | 5,734.99 | 5,903.25 | 5,538.00 | 20.58 | 19.75 | -47.71 | -233.00 | 12.74 | 292.83 | 263.37 | 29.46 | 9.940 | | |
| 6,200.00 | 5,735.00 | 6,000.21 | 5,538.00 | 20.66 | 19.86 | -47.63 | -136.04 | 13.25 | 292.34 | 262.63 | 29.72 | 9.838 | | |
| 6,300.00 | 5,735.00 | 6,100.21 | 5,538.00 | 20.85 | 20.09 | -47.55 | -36.04 | 13.78 | 291.86 | 261.76 | 30.10 | 9.696 | | |
| 6,400.00 | 5,735.00 | 6,200.21 | 5,538.00 | 21.15 | 20.42 | -47.46 | 63.96 | 14.30 | 291.39 | 260.74 | 30.65 | 9.507 | | |
| 6,500.00 | 5,735.00 | 6,300.20 | 5,538.00 | 21.55 | 20.86 | -47.38 | 163.95 | 14.82 | 290.91 | 259.56 | 31.35 | 9.278 | | |
| 6,600.00 | 5,735.00 | 6,400.20 | 5,538.00 | 22.04 | 21.38 | -47.29 | 263.95 | 15.35 | 290.44 | 258.23 | 32.20 | 9.019 | | |
| 6,700.00 | 5,735.00 | 6,500.20 | 5,538.00 | 22.63 | 21.99 | -47.20 | 363.95 | 15.87 | 289.96 | 256.78 | 33.18 | 8.739 | | |
| 6,800.00 | 5,735.00 | 6,600.20 | 5,538.00 | 23.30 | 22.68 | -47.12 | 463.94 | 16.40 | 289.49 | 255.21 | 34.28 | 8.445 | | |
| 6,900.00 | 5,735.00 | 6,700.20 | 5,538.00 | 24.04 | 23.44 | -47.03 | 563.94 | 16.92 | 289.01 | 253.53 | 35.48 | 8.145 | | |
| 7,000.00 | 5,735.00 | 6,800.19 | 5,538.00 | 24.85 | 24.27 | -46.94 | 663.94 | 17.45 | 288.54 | 251.75 | 36.78 | 7.844 | | |
| 7,100.00 | 5,735.00 | 6,900.19 | 5,538.00 | 25.72 | 25.15 | -46.85 | 763.93 | 17.97 | 288.07 | 249.90 | 38.17 | 7.547 | | |
| 7,200.00 | 5,735.00 | 7,000.19 | 5,538.00 | 26.64 | 26.09 | -46.76 | 863.93 | 18.49 | 287.60 | 247.96 | 39.63 | 7.257 | | |
| 7,300.00 | 5,735.00 | 7,100.19 | 5,538.00 | 27.61 | 27.08 | -46.68 | 963.93 | 19.02 | 287.12 | 245.97 | 41.16 | 6.976 | | |
| 7,400.00 | 5,735.00 | 7,200.19 | 5,538.00 | 28.62 | 28.10 | -46.59 | 1,063.92 | 19.54 | 286.65 | 243.91 | 42.75 | 6.706 | | |
| 7,500.00 | 5,735.00 | 7,300.18 | 5,538.00 | 29.67 | 29.17 | -46.50 | 1,163.92 | 20.07 | 286.19 | 241.80 | 44.38 | 6.448 | | |
| 7,600.00 | 5,735.00 | 7,400.18 | 5,538.00 | 30.75 | 30.27 | -46.41 | 1,263.92 | 20.59 | 285.72 | 239.65 | 46.06 | 6.203 | | |
| 7,700.00 | 5,735.00 | 7,500.18 | 5,538.00 | 31.87 | 31.40 | -46.32 | 1,363.91 | 21.12 | 285.25 | 237.46 | 47.79 | 5.969 | | |
| 7,800.00 | 5,735.00 | 7,600.18 | 5,538.00 | 33.01 | 32.56 | -46.23 | 1,463.91 | 21.64 | 284.78 | 235.24 | 49.54 | 5.748 | | |
| 7,900.00 | 5,735.00 | 7,700.18 | 5,538.00 | 34.18 | 33.74 | -46.14 | 1,563.90 | 22.17 | 284.31 | 232.99 | 51.33 | 5.539 | | |
| 8,000.00 | 5,735.00 | 7,800.17 | 5,538.00 | 35.37 | 34.94 | -46.05 | 1,663.90 | 22.69 | 283.85 | 230.71 | 53.14 | 5.341 | | |
| 8,100.00 | 5,735.00 | 7,900.17 | 5,538.00 | 36.59 | 36.17 | -45.96 | 1,763.90 | 23.21 | 283.38 | 228.40 | 54.98 | 5.154 | | |
| 8,200.00 | 5,735.00 | 8,000.17 | 5,538.00 | 37.82 | 37.41 | -45.87 | 1,863.89 | 23.74 | 282.92 | 226.08 | 56.84 | 4.978 | | |
| 8,300.00 | 5,735.00 | 8,100.17 | 5,538.00 | 39.06 | 38.67 | -45.78 | 1,963.89 | 24.26 | 282.45 | 223.74 | 58.71 | 4.811 | | |
| 8,400.00 | 5,735.00 | 8,200.16 | 5,538.00 | 40.32 | 39.94 | -45.68 | 2,063.89 | 24.79 | 281.99 | 221.39 | 60.60 | 4.653 | | |
| 8,500.00 | 5,735.00 | 8,300.16 | 5,538.00 | 41.60 | 41.22 | -45.59 | 2,163.88 | 25.31 | 281.53 | 219.03 | 62.50 | 4.504 | | |
| 8,600.00 | 5,735.00 | 8,400.16 | 5,538.00 | 42.89 | 42.52 | -45.50 | 2,263.88 | 25.84 | 281.07 | 216.65 | 64.42 | 4.363 | | |
| 8,700.00 | 5,735.00 | 8,500.16 | 5,538.00 | 44.19 | 43.83 | -45.41 | 2,363.88 | 26.36 | 280.61 | 214.26 | 66.34 | 4.230 | | |
| 8,800.00 | 5,735.00 | 8,600.16 | 5,538.00 | 45.50 | 45.15 | -45.31 | 2,463.87 | 26.89 | 280.15 | 211.87 | 68.28 | 4.103 | | |
| 8,900.00 | 5,735.00 | 8,700.15 | 5,538.00 | 46.82 | 46.47 | -45.22 | 2,563.87 | 27.41 | 279.69 | 209.47 | 70.22 | 3.983 | | |
| 9,000.00 | 5,735.00 | 8,800.15 | 5,538.00 | 48.14 | 47.81 | -45.13 | 2,663.87 | 27.93 | 279.23 | 207.06 | 72.17 | 3.869 | | |
| 9,100.00 | 5,735.00 | 8,900.15 | 5,538.00 | 49.48 | 49.15 | -45.03 | 2,763.86 | 28.46 | 278.77 | 204.65 | 74.12 | 3.761 | | |
| 9,200.00 | 5,735.00 | 9,000.15 | 5,538.00 | 50.82 | 50.50 | -44.94 | 2,863.86 | 28.98 | 278.31 | 202.24 | 76.08 | 3.658 | | |
| 9,300.00 | 5,735.00 | 9,100.15 | 5,538.00 | 52.17 | 51.86 | -44.85 | 2,963.86 | 29.51 | 277.86 | 199.82 | 78.04 | 3.561 | | |
| 9,400.00 | 5,735.00 | 9,200.14 | 5,538.00 | 53.53 | 53.22 | -44.75 | 3,063.85 | 30.03 | 277.40 | 197.40 | 80.00 | 3.468 | | |
| 9,500.00 | 5,735.00 | 9,300.14 | 5,538.00 | 54.89 | 54.59 | -44.66 | 3,163.85 | 30.56 | 276.95 | 194.98 | 81.96 | 3.379 | | |
| 9,600.00 | 5,735.00 | 9,400.14 | 5,538.00 | 56.26 | 55.96 | -44.56 | 3,263.85 | 31.08 | 276.49 | 192.56 | 83.93 | 3.294 | | |
| 9,700.00 | 5,735.00 | 9,500.14 | 5,538.00 | 57.64 | 57.34 | -44.47 | 3,363.84 | 31.61 | 276.04 | 190.14 | 85.90 | 3.214 | | |
| 9,800.00 | 5,735.00 | 9,600.14 | 5,538.00 | 59.01 | 58.73 | -44.37 | 3,463.84 | 32.13 | 275.58 | 187.72 | 87.87 | 3.136 | | |
| 9,900.00 | 5,735.00 | 9,700.13 | 5,538.00 | 60.40 | 60.11 | -44.27 | 3,563.84 | 32.65 | 275.13 | 185.30 | 89.83 | 3.063 | | |
| 10,000.00 | 5,735.00 | 9,800.13 | 5,538.00 | 61.78 | 61.50 | -44.18 | 3,663.83 | 33.18 | 274.68 | 182.88 | 91.80 | 2.992 | | |
| 10,100.00 | 5,735.00 | 9,900.13 | 5,538.00 | 63.17 | 62.90 | -44.08 | 3,763.83 | 33.70 | 274.23 | 180.47 | 93.76 | 2.925 | | |
| 10,200.00 | 5,735.00 | 10,000.13 | 5,538.00 | 64.57 | 64.30 | -43.98 | 3,863.82 | 34.23 | 273.78 | 178.05 | 95.73 | 2.860 | | |

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



WOG

Anticollision Report

| | | | |
|---------------------------|-------------------------|-------------------------------------|--|
| Company: | Whiting Petroleum Corp. | Local Co-ordinate Reference: | Well Horsetail #30H-1948 |
| Project: | Weld County, CO | TVD Reference: | KBE @ 4746.00usft (Original Well Elev) |
| Reference Site: | Sec 30-T10N-R57W | MD Reference: | KBE @ 4746.00usft (Original Well Elev) |
| Site Error: | 0.00 usft | North Reference: | True |
| Reference Well: | Horsetail #30H-1948 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.00 usft | Output errors are at | 3.00 sigma |
| Reference Wellbore | Hz | Database: | LandmarkEDM |
| Reference Design: | APD | Offset TVD Reference: | Offset Datum |

| Offset Design | | | | | | | | | | | | Offset Site Error: | 0.00 usft |
|-----------------------------------|-----------------------|-----------------------|-----------------------|------------------|---------------|-----------------------|-------------------------------------|--------------|------------------------|-------------------------|---------------------------|--------------------|-----------|
| Survey Program: 0-MWD+IFR1+MS+sag | | | | | | | | | | | | Offset Well Error: | 0.00 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 | |
| 10,300.00 | 5,735.00 | 10,100.12 | 5,538.00 | 65.97 | 65.70 | -43.88 | 3,963.82 | 34.75 | 273.33 | 175.64 | 97.69 | 2.798 | |
| 10,400.00 | 5,735.00 | 10,200.12 | 5,538.00 | 67.37 | 67.10 | -43.79 | 4,063.82 | 35.28 | 272.89 | 173.24 | 99.65 | 2.738 | |
| 10,500.00 | 5,735.00 | 10,300.12 | 5,538.00 | 68.77 | 68.51 | -43.69 | 4,163.81 | 35.80 | 272.44 | 170.83 | 101.61 | 2.681 | |
| 10,600.00 | 5,735.00 | 10,400.12 | 5,538.00 | 70.18 | 69.92 | -43.59 | 4,263.81 | 36.33 | 271.99 | 168.43 | 103.56 | 2.626 | |
| 10,700.00 | 5,735.00 | 10,500.12 | 5,538.00 | 71.59 | 71.33 | -43.49 | 4,363.81 | 36.85 | 271.55 | 166.03 | 105.51 | 2.574 | |
| 10,800.00 | 5,735.00 | 10,600.11 | 5,538.00 | 73.00 | 72.75 | -43.39 | 4,463.80 | 37.37 | 271.10 | 163.64 | 107.46 | 2.523 | |
| 10,900.00 | 5,735.00 | 10,700.11 | 5,538.00 | 74.41 | 74.16 | -43.29 | 4,563.80 | 37.90 | 270.66 | 161.25 | 109.40 | 2.474 | |
| 11,000.00 | 5,735.00 | 10,800.11 | 5,538.00 | 75.83 | 75.58 | -43.19 | 4,663.80 | 38.42 | 270.21 | 158.87 | 111.35 | 2.427 | |
| 11,100.00 | 5,735.00 | 10,900.11 | 5,538.00 | 77.25 | 77.00 | -43.09 | 4,763.79 | 38.95 | 269.77 | 156.49 | 113.28 | 2.381 | |
| 11,200.00 | 5,735.00 | 11,000.11 | 5,538.00 | 78.67 | 78.42 | -42.99 | 4,863.79 | 39.47 | 269.33 | 154.11 | 115.22 | 2.338 | |
| 11,300.00 | 5,735.00 | 11,100.10 | 5,538.00 | 80.09 | 79.85 | -42.89 | 4,963.79 | 40.00 | 268.89 | 151.75 | 117.14 | 2.295 | |
| 11,400.00 | 5,735.00 | 11,200.10 | 5,538.00 | 81.51 | 81.27 | -42.79 | 5,063.78 | 40.52 | 268.45 | 149.38 | 119.07 | 2.255 | |
| 11,500.00 | 5,735.00 | 11,300.10 | 5,538.00 | 82.94 | 82.70 | -42.69 | 5,163.78 | 41.05 | 268.01 | 147.02 | 120.99 | 2.215 | |
| 11,600.00 | 5,735.00 | 11,400.10 | 5,538.00 | 84.36 | 84.13 | -42.59 | 5,263.78 | 41.57 | 267.57 | 144.67 | 122.90 | 2.177 | |
| 11,700.00 | 5,735.00 | 11,500.10 | 5,538.00 | 85.79 | 85.56 | -42.48 | 5,363.77 | 42.09 | 267.14 | 142.32 | 124.81 | 2.140 | |
| 11,800.00 | 5,735.00 | 11,600.09 | 5,538.00 | 87.22 | 86.99 | -42.38 | 5,463.77 | 42.62 | 266.70 | 139.98 | 126.72 | 2.105 | |
| 11,900.00 | 5,735.00 | 11,700.09 | 5,538.00 | 88.65 | 88.42 | -42.28 | 5,563.77 | 43.14 | 266.26 | 137.65 | 128.62 | 2.070 | |
| 12,000.00 | 5,735.00 | 11,800.09 | 5,538.00 | 90.09 | 89.86 | -42.18 | 5,663.76 | 43.67 | 265.83 | 135.32 | 130.51 | 2.037 | |
| 12,100.00 | 5,735.00 | 11,900.09 | 5,538.00 | 91.52 | 91.29 | -42.07 | 5,763.76 | 44.19 | 265.40 | 132.99 | 132.40 | 2.004 | |
| 12,200.00 | 5,735.00 | 12,000.09 | 5,538.00 | 92.96 | 92.73 | -41.97 | 5,863.76 | 44.72 | 264.96 | 130.68 | 134.29 | 1.973 | |
| 12,300.00 | 5,735.00 | 12,100.08 | 5,538.00 | 94.39 | 94.17 | -41.86 | 5,963.75 | 45.24 | 264.53 | 128.37 | 136.16 | 1.943 | |
| 12,400.00 | 5,735.00 | 12,200.08 | 5,538.00 | 95.83 | 95.61 | -41.76 | 6,063.75 | 45.77 | 264.10 | 126.06 | 138.03 | 1.913 | |
| 12,500.00 | 5,735.00 | 12,300.08 | 5,538.00 | 97.27 | 97.05 | -41.66 | 6,163.75 | 46.29 | 263.67 | 123.77 | 139.90 | 1.885 | |
| 12,600.00 | 5,735.00 | 12,400.08 | 5,538.00 | 98.71 | 98.49 | -41.55 | 6,263.74 | 46.81 | 263.24 | 121.48 | 141.76 | 1.857 | |
| 12,700.00 | 5,735.00 | 12,500.07 | 5,538.00 | 100.15 | 99.93 | -41.44 | 6,363.74 | 47.34 | 262.81 | 119.20 | 143.61 | 1.830 | |
| 12,800.00 | 5,735.00 | 12,600.07 | 5,538.00 | 101.59 | 101.37 | -41.34 | 6,463.73 | 47.86 | 262.38 | 116.92 | 145.46 | 1.804 | |
| 12,900.00 | 5,735.00 | 12,700.07 | 5,538.00 | 103.03 | 102.81 | -41.23 | 6,563.73 | 48.39 | 261.96 | 114.65 | 147.30 | 1.778 | |
| 13,000.00 | 5,735.00 | 12,800.07 | 5,538.00 | 104.47 | 104.26 | -41.13 | 6,663.73 | 48.91 | 261.53 | 112.39 | 149.14 | 1.754 | |
| 13,100.00 | 5,735.00 | 12,900.07 | 5,538.00 | 105.92 | 105.70 | -41.02 | 6,763.72 | 49.44 | 261.11 | 110.14 | 150.97 | 1.730 | |
| 13,200.00 | 5,735.00 | 13,000.06 | 5,538.00 | 107.36 | 107.14 | -40.91 | 6,863.72 | 49.96 | 260.68 | 107.89 | 152.79 | 1.706 | |
| 13,300.00 | 5,735.00 | 13,100.06 | 5,538.00 | 108.81 | 108.59 | -40.80 | 6,963.72 | 50.48 | 260.26 | 105.66 | 154.60 | 1.683 | |
| 13,400.00 | 5,735.00 | 13,200.06 | 5,538.00 | 110.25 | 110.04 | -40.70 | 7,063.71 | 51.01 | 259.84 | 103.43 | 156.41 | 1.661 | |
| 13,500.00 | 5,735.00 | 13,300.06 | 5,538.00 | 111.70 | 111.48 | -40.59 | 7,163.71 | 51.53 | 259.42 | 101.20 | 158.21 | 1.640 | |
| 13,600.00 | 5,735.00 | 13,400.06 | 5,538.00 | 113.15 | 112.93 | -40.48 | 7,263.71 | 52.06 | 258.99 | 98.99 | 160.01 | 1.619 | |
| 13,700.00 | 5,735.00 | 13,500.05 | 5,538.00 | 114.59 | 114.38 | -40.37 | 7,363.70 | 52.58 | 258.58 | 96.78 | 161.79 | 1.598 | |
| 13,800.00 | 5,735.00 | 13,600.05 | 5,538.00 | 116.04 | 115.83 | -40.26 | 7,463.70 | 53.11 | 258.16 | 94.58 | 163.57 | 1.578 | |
| 13,876.00 | 5,735.00 | 13,675.75 | 5,538.00 | 117.14 | 116.93 | -40.18 | 7,539.40 | 53.50 | 257.84 | 92.92 | 164.92 | 1.563 SF | |



WOG

Anticollision Report

| | | | |
|---------------------------|-------------------------|-------------------------------------|--|
| Company: | Whiting Petroleum Corp. | Local Co-ordinate Reference: | Well Horsetail #30H-1948 |
| Project: | Weld County, CO | TVD Reference: | KBE @ 4746.00usft (Original Well Elev) |
| Reference Site: | Sec 30-T10N-R57W | MD Reference: | KBE @ 4746.00usft (Original Well Elev) |
| Site Error: | 0.00 usft | North Reference: | True |
| Reference Well: | Horsetail #30H-1948 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.00 usft | Output errors are at | 3.00 sigma |
| Reference Wellbore | HZ | Database: | LandmarkEDM |
| Reference Design: | APD | Offset TVD Reference: | Offset Datum |

| Offset Design | | | | | | | | | | | | | Offset Site Error: | 0.00 usft |
|-----------------------------------|-----------------------|-----------------------|-----------------------|------------------|---------------|-----------------------|-------------------------------------|--------------|------------------------|-------------------------|---------------------------|-------------------|--------------------|-----------|
| Survey Program: 0-MWD+IFR1+MS+sag | | | | | | | | | | | | | Offset Well Error: | 0.00 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 | | |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 89.98 | 0.01 | 29.99 | 29.99 | | | | | |
| 100.00 | 100.00 | 100.00 | 100.00 | 0.13 | 0.13 | 89.98 | 0.01 | 29.99 | 29.99 | 29.72 | 0.27 | 112.594 | | |
| 200.00 | 200.00 | 200.00 | 200.00 | 0.47 | 0.47 | 89.98 | 0.01 | 29.99 | 29.99 | 29.05 | 0.94 | 31.881 | | |
| 300.00 | 300.00 | 300.00 | 300.00 | 0.81 | 0.81 | 89.98 | 0.01 | 29.99 | 29.99 | 28.37 | 1.61 | 18.570 CC | | |
| 400.00 | 399.98 | 399.55 | 399.53 | 1.11 | 1.11 | -73.26 | -1.55 | 30.73 | 30.23 | 28.00 | 2.22 | 13.593 | | |
| 500.00 | 499.84 | 499.10 | 498.94 | 1.41 | 1.41 | -73.80 | -6.24 | 32.96 | 30.95 | 28.12 | 2.82 | 10.960 | | |
| 600.00 | 599.45 | 598.64 | 598.10 | 1.73 | 1.73 | -74.64 | -14.03 | 36.68 | 32.15 | 28.67 | 3.48 | 9.243 | | |
| 700.00 | 698.70 | 698.17 | 696.89 | 2.07 | 2.06 | -75.72 | -24.93 | 41.87 | 33.84 | 29.66 | 4.18 | 8.099 | | |
| 800.00 | 797.47 | 797.69 | 795.19 | 2.43 | 2.43 | -76.95 | -38.93 | 48.53 | 36.02 | 31.10 | 4.92 | 7.317 | | |
| 900.00 | 895.77 | 897.20 | 892.89 | 2.83 | 2.83 | -77.24 | -55.99 | 56.65 | 38.86 | 33.14 | 5.72 | 6.795 | | |
| 1,000.00 | 994.03 | 997.14 | 990.70 | 3.24 | 3.25 | -75.78 | -74.52 | 65.48 | 42.24 | 35.71 | 6.53 | 6.467 | | |
| 1,100.00 | 1,092.29 | 1,097.08 | 1,088.50 | 3.66 | 3.68 | -74.54 | -93.05 | 74.30 | 45.64 | 38.28 | 7.36 | 6.205 | | |
| 1,200.00 | 1,190.55 | 1,197.02 | 1,186.31 | 4.08 | 4.12 | -73.48 | -111.58 | 83.13 | 49.06 | 40.87 | 8.19 | 5.991 | | |
| 1,300.00 | 1,288.81 | 1,296.95 | 1,284.12 | 4.51 | 4.56 | -72.55 | -130.11 | 91.95 | 52.49 | 43.46 | 9.03 | 5.815 | | |
| 1,400.00 | 1,387.07 | 1,396.89 | 1,381.93 | 4.94 | 5.01 | -71.74 | -148.64 | 100.77 | 55.93 | 46.07 | 9.87 | 5.669 | | |
| 1,500.00 | 1,485.34 | 1,496.83 | 1,479.73 | 5.37 | 5.46 | -71.02 | -167.17 | 109.60 | 59.39 | 48.68 | 10.71 | 5.545 | | |
| 1,600.00 | 1,583.60 | 1,596.77 | 1,577.54 | 5.80 | 5.91 | -70.38 | -185.70 | 118.42 | 62.85 | 51.29 | 11.56 | 5.438 | | |
| 1,700.00 | 1,681.86 | 1,696.71 | 1,675.35 | 6.24 | 6.36 | -69.81 | -204.23 | 127.25 | 66.32 | 53.92 | 12.40 | 5.347 | | |
| 1,800.00 | 1,780.12 | 1,796.64 | 1,773.16 | 6.67 | 6.82 | -69.29 | -222.76 | 136.07 | 69.80 | 56.54 | 13.25 | 5.267 | | |
| 1,900.00 | 1,878.38 | 1,896.58 | 1,870.96 | 7.11 | 7.27 | -68.83 | -241.29 | 144.89 | 73.28 | 59.18 | 14.10 | 5.197 | | |
| 2,000.00 | 1,976.64 | 1,996.52 | 1,968.77 | 7.55 | 7.73 | -68.40 | -259.82 | 153.72 | 76.76 | 61.81 | 14.95 | 5.135 | | |
| 2,100.00 | 2,074.91 | 2,096.46 | 2,066.58 | 7.99 | 8.18 | -68.01 | -278.35 | 162.54 | 80.25 | 64.45 | 15.80 | 5.079 | | |
| 2,200.00 | 2,173.17 | 2,196.39 | 2,164.39 | 8.43 | 8.64 | -67.66 | -296.88 | 171.37 | 83.75 | 67.10 | 16.65 | 5.030 | | |
| 2,300.00 | 2,271.43 | 2,296.33 | 2,262.19 | 8.86 | 9.10 | -67.33 | -315.41 | 180.19 | 87.24 | 69.74 | 17.50 | 4.985 | | |
| 2,400.00 | 2,369.69 | 2,396.27 | 2,360.00 | 9.30 | 9.56 | -67.03 | -333.94 | 189.01 | 90.74 | 72.39 | 18.35 | 4.945 | | |
| 2,500.00 | 2,467.95 | 2,496.21 | 2,457.81 | 9.74 | 10.02 | -66.75 | -352.47 | 197.84 | 94.24 | 75.04 | 19.20 | 4.908 | | |
| 2,600.00 | 2,566.21 | 2,596.14 | 2,555.62 | 10.18 | 10.47 | -66.49 | -371.00 | 206.66 | 97.74 | 77.69 | 20.05 | 4.874 | | |
| 2,700.00 | 2,664.48 | 2,696.08 | 2,653.42 | 10.63 | 10.93 | -66.25 | -389.53 | 215.49 | 101.25 | 80.35 | 20.90 | 4.844 | | |
| 2,800.00 | 2,762.74 | 2,796.02 | 2,751.23 | 11.07 | 11.39 | -66.03 | -408.06 | 224.31 | 104.75 | 83.00 | 21.75 | 4.815 | | |
| 2,900.00 | 2,861.00 | 2,895.96 | 2,849.04 | 11.51 | 11.85 | -65.82 | -426.60 | 233.13 | 108.26 | 85.66 | 22.60 | 4.789 | | |
| 3,000.00 | 2,959.26 | 2,995.90 | 2,946.85 | 11.95 | 12.31 | -65.62 | -445.13 | 241.96 | 111.77 | 88.32 | 23.46 | 4.765 | | |
| 3,100.00 | 3,057.52 | 3,095.83 | 3,044.65 | 12.39 | 12.77 | -65.43 | -463.66 | 250.78 | 115.28 | 90.98 | 24.31 | 4.743 | | |
| 3,200.00 | 3,155.78 | 3,195.77 | 3,142.46 | 12.83 | 13.23 | -65.26 | -482.19 | 259.61 | 118.79 | 93.64 | 25.16 | 4.722 | | |
| 3,300.00 | 3,254.05 | 3,295.71 | 3,240.27 | 13.27 | 13.69 | -65.10 | -500.72 | 268.43 | 122.31 | 96.30 | 26.01 | 4.702 | | |
| 3,400.00 | 3,352.31 | 3,395.65 | 3,338.08 | 13.71 | 14.15 | -64.94 | -519.25 | 277.25 | 125.82 | 98.96 | 26.86 | 4.684 | | |
| 3,500.00 | 3,450.57 | 3,495.58 | 3,435.88 | 14.16 | 14.61 | -64.79 | -537.78 | 286.08 | 129.33 | 101.62 | 27.71 | 4.667 | | |
| 3,600.00 | 3,548.83 | 3,595.52 | 3,533.69 | 14.60 | 15.07 | -64.65 | -556.31 | 294.90 | 132.85 | 104.29 | 28.56 | 4.651 | | |
| 3,700.00 | 3,647.09 | 3,695.46 | 3,631.50 | 15.04 | 15.53 | -64.52 | -574.84 | 303.73 | 136.37 | 106.95 | 29.41 | 4.636 | | |
| 3,800.00 | 3,745.35 | 3,795.40 | 3,729.31 | 15.48 | 16.00 | -64.40 | -593.37 | 312.55 | 139.88 | 109.62 | 30.26 | 4.622 | | |
| 3,900.00 | 3,843.62 | 3,895.33 | 3,827.11 | 15.92 | 16.46 | -64.28 | -611.90 | 321.37 | 143.40 | 112.28 | 31.12 | 4.609 | | |
| 4,000.00 | 3,941.88 | 3,995.27 | 3,924.92 | 16.37 | 16.92 | -64.17 | -630.43 | 330.20 | 146.92 | 114.95 | 31.97 | 4.596 | | |
| 4,100.00 | 4,040.14 | 4,095.21 | 4,022.73 | 16.81 | 17.38 | -64.06 | -648.96 | 339.02 | 150.44 | 117.62 | 32.82 | 4.584 | | |
| 4,200.00 | 4,138.40 | 4,195.15 | 4,120.54 | 17.25 | 17.84 | -63.95 | -667.49 | 347.85 | 153.95 | 120.29 | 33.67 | 4.573 | | |
| 4,300.00 | 4,236.66 | 4,295.09 | 4,218.34 | 17.69 | 18.30 | -63.86 | -686.02 | 356.67 | 157.47 | 122.95 | 34.52 | 4.562 | | |
| 4,400.00 | 4,334.92 | 4,395.68 | 4,316.81 | 18.13 | 18.75 | -63.78 | -704.61 | 365.52 | 160.95 | 125.59 | 35.36 | 4.552 | | |
| 4,500.00 | 4,433.19 | 4,498.93 | 4,418.36 | 18.58 | 19.04 | -64.44 | -721.45 | 373.54 | 163.05 | 126.91 | 36.15 | 4.511 | | |
| 4,600.00 | 4,531.53 | 4,602.06 | 4,520.38 | 18.98 | 19.32 | -66.03 | -734.96 | 379.97 | 163.40 | 126.45 | 36.95 | 4.422 | | |
| 4,700.00 | 4,630.37 | 4,705.02 | 4,622.73 | 19.24 | 19.58 | -67.69 | -745.13 | 384.82 | 163.19 | 125.58 | 37.61 | 4.339 | | |
| 4,800.00 | 4,729.69 | 4,807.84 | 4,725.26 | 19.50 | 19.82 | -69.30 | -751.97 | 388.07 | 162.59 | 124.37 | 38.23 | 4.253 | | |
| 4,900.00 | 4,829.34 | 4,910.51 | 4,827.85 | 19.74 | 20.05 | -70.87 | -755.48 | 389.74 | 161.61 | 122.80 | 38.81 | 4.164 | | |
| 5,000.00 | 4,929.23 | 5,011.89 | 4,929.23 | 19.96 | 20.29 | -72.28 | -755.99 | 389.99 | 160.37 | 120.99 | 39.38 | 4.072 | | |
| 5,100.00 | 5,029.22 | 5,111.88 | 5,029.22 | 20.21 | 20.50 | 90.36 | -755.99 | 389.99 | 159.99 | 120.11 | 39.88 | 4.012 | | |

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



WOG

Anticollision Report

| | | | |
|---------------------------|-------------------------|-------------------------------------|--|
| Company: | Whiting Petroleum Corp. | Local Co-ordinate Reference: | Well Horsetail #30H-1948 |
| Project: | Weld County, CO | TVD Reference: | KBE @ 4746.00usft (Original Well Elev) |
| Reference Site: | Sec 30-T10N-R57W | MD Reference: | KBE @ 4746.00usft (Original Well Elev) |
| Site Error: | 0.00 usft | North Reference: | True |
| Reference Well: | Horsetail #30H-1948 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.00 usft | Output errors are at | 3.00 sigma |
| Reference Wellbore | Hz | Database: | LandmarkEDM |
| Reference Design: | APD | Offset TVD Reference: | Offset Datum |

| Offset Design | | | | | | | | | | | | Offset Site Error: | 0.00 usft |
|-----------------------------------|-----------------------|-----------------------|-----------------------|------------------|---------------|-----------------------|-------------------------------------|--------------|------------------------|-------------------------|---------------------------|--------------------|-----------|
| Survey Program: 0-MWD+IFR1+MS+sag | | | | | | | | | | | | Offset Well Error: | 0.00 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 | |
| 5,189.95 | 5,119.17 | 5,201.85 | 5,119.17 | 20.40 | 20.69 | 89.95 | -754.87 | 389.99 | 159.99 | 119.70 | 40.29 | 3.971 | |
| 5,200.00 | 5,129.22 | 5,211.87 | 5,129.15 | 20.42 | 20.70 | 89.68 | -754.12 | 389.99 | 159.99 | 119.64 | 40.35 | 3.965 | |
| 5,300.00 | 5,229.21 | 5,308.70 | 5,224.32 | 20.63 | 20.83 | 83.69 | -737.02 | 389.97 | 161.03 | 119.95 | 41.09 | 3.919 | |
| 5,400.00 | 5,328.28 | 5,400.00 | 5,309.71 | 20.79 | 20.88 | 75.88 | -705.04 | 389.95 | 165.30 | 123.93 | 41.36 | 3.996 | |
| 5,500.00 | 5,423.15 | 5,489.44 | 5,386.71 | 20.86 | 20.86 | 68.96 | -659.74 | 389.91 | 171.94 | 131.10 | 40.84 | 4.210 | |
| 5,600.00 | 5,510.33 | 5,575.60 | 5,452.51 | 20.86 | 20.80 | 63.26 | -604.28 | 389.87 | 179.80 | 140.21 | 39.59 | 4.542 | |
| 5,700.00 | 5,586.64 | 5,659.69 | 5,507.08 | 20.80 | 20.71 | 58.76 | -540.42 | 389.82 | 187.78 | 149.88 | 37.89 | 4.955 | |
| 5,800.00 | 5,649.25 | 5,742.21 | 5,549.97 | 20.72 | 20.62 | 55.39 | -470.03 | 389.76 | 194.94 | 158.83 | 36.11 | 5.398 | |
| 5,900.00 | 5,695.89 | 5,823.57 | 5,580.87 | 20.64 | 20.53 | 53.05 | -394.85 | 389.70 | 200.61 | 166.01 | 34.60 | 5.798 | |
| 6,000.00 | 5,724.82 | 5,900.00 | 5,598.91 | 20.59 | 20.45 | 51.69 | -320.65 | 389.64 | 204.33 | 170.76 | 33.57 | 6.087 | |
| 6,099.99 | 5,734.99 | 5,986.05 | 5,606.00 | 20.58 | 20.39 | 51.16 | -234.99 | 389.57 | 205.69 | 172.26 | 33.43 | 6.152 | |
| 6,101.20 | 5,735.00 | 5,986.05 | 5,606.00 | 20.58 | 20.39 | 51.16 | -234.99 | 389.57 | 205.68 | 172.25 | 33.44 | 6.152 | |
| 6,200.00 | 5,735.00 | 6,084.00 | 5,606.00 | 20.66 | 20.41 | 51.17 | -137.04 | 389.49 | 205.72 | 171.98 | 33.74 | 6.098 | |
| 6,300.00 | 5,735.00 | 6,184.00 | 5,606.00 | 20.85 | 20.52 | 51.17 | -37.04 | 389.41 | 205.75 | 171.55 | 34.20 | 6.016 | |
| 6,400.00 | 5,735.00 | 6,284.00 | 5,606.00 | 21.15 | 20.77 | 51.18 | 62.96 | 389.33 | 205.78 | 170.96 | 34.83 | 5.909 | |
| 6,500.00 | 5,735.00 | 6,384.00 | 5,606.00 | 21.55 | 21.13 | 51.19 | 162.96 | 389.24 | 205.81 | 170.21 | 35.60 | 5.781 | |
| 6,600.00 | 5,735.00 | 6,484.00 | 5,606.00 | 22.04 | 21.61 | 51.19 | 262.96 | 389.16 | 205.84 | 169.33 | 36.51 | 5.637 | |
| 6,700.00 | 5,735.00 | 6,584.00 | 5,606.00 | 22.63 | 22.19 | 51.20 | 362.96 | 389.08 | 205.88 | 168.32 | 37.56 | 5.481 | |
| 6,800.00 | 5,735.00 | 6,684.00 | 5,606.00 | 23.30 | 22.85 | 51.21 | 462.96 | 389.00 | 205.91 | 167.18 | 38.73 | 5.317 | |
| 6,900.00 | 5,735.00 | 6,784.00 | 5,606.00 | 24.04 | 23.60 | 51.22 | 562.96 | 388.92 | 205.94 | 165.94 | 40.00 | 5.148 | |
| 7,000.00 | 5,735.00 | 6,884.00 | 5,606.00 | 24.85 | 24.41 | 51.22 | 662.96 | 388.84 | 205.97 | 164.59 | 41.38 | 4.978 | |
| 7,100.00 | 5,735.00 | 6,984.00 | 5,606.00 | 25.72 | 25.29 | 51.23 | 762.96 | 388.76 | 206.01 | 163.16 | 42.85 | 4.808 | |
| 7,200.00 | 5,735.00 | 7,084.00 | 5,606.00 | 26.64 | 26.22 | 51.24 | 862.96 | 388.68 | 206.04 | 161.64 | 44.39 | 4.641 | |
| 7,300.00 | 5,735.00 | 7,184.00 | 5,606.00 | 27.61 | 27.20 | 51.24 | 962.96 | 388.60 | 206.07 | 160.05 | 46.02 | 4.478 | |
| 7,400.00 | 5,735.00 | 7,284.00 | 5,606.00 | 28.62 | 28.22 | 51.25 | 1,062.96 | 388.51 | 206.10 | 158.40 | 47.70 | 4.321 | |
| 7,500.00 | 5,735.00 | 7,384.00 | 5,606.00 | 29.67 | 29.28 | 51.26 | 1,162.96 | 388.43 | 206.13 | 156.69 | 49.45 | 4.169 | |
| 7,600.00 | 5,735.00 | 7,484.00 | 5,606.00 | 30.75 | 30.37 | 51.27 | 1,262.96 | 388.35 | 206.17 | 154.92 | 51.25 | 4.023 | |
| 7,700.00 | 5,735.00 | 7,584.00 | 5,606.00 | 31.87 | 31.49 | 51.27 | 1,362.96 | 388.27 | 206.20 | 153.10 | 53.09 | 3.884 | |
| 7,800.00 | 5,735.00 | 7,684.00 | 5,606.00 | 33.01 | 32.64 | 51.28 | 1,462.96 | 388.19 | 206.23 | 151.25 | 54.98 | 3.751 | |
| 7,900.00 | 5,735.00 | 7,784.00 | 5,606.00 | 34.18 | 33.82 | 51.29 | 1,562.96 | 388.11 | 206.26 | 149.35 | 56.91 | 3.624 | |
| 8,000.00 | 5,735.00 | 7,884.00 | 5,606.00 | 35.37 | 35.02 | 51.29 | 1,662.96 | 388.03 | 206.29 | 147.42 | 58.88 | 3.504 | |
| 8,100.00 | 5,735.00 | 7,984.00 | 5,606.00 | 36.59 | 36.23 | 51.30 | 1,762.96 | 387.95 | 206.33 | 145.46 | 60.87 | 3.390 | |
| 8,200.00 | 5,735.00 | 8,084.00 | 5,606.00 | 37.82 | 37.47 | 51.31 | 1,862.96 | 387.87 | 206.36 | 143.46 | 62.90 | 3.281 | |
| 8,300.00 | 5,735.00 | 8,184.00 | 5,606.00 | 39.06 | 38.72 | 51.32 | 1,962.96 | 387.78 | 206.39 | 141.45 | 64.95 | 3.178 | |
| 8,400.00 | 5,735.00 | 8,284.00 | 5,606.00 | 40.32 | 39.99 | 51.32 | 2,062.96 | 387.70 | 206.42 | 139.40 | 67.02 | 3.080 | |
| 8,500.00 | 5,735.00 | 8,384.00 | 5,606.00 | 41.60 | 41.27 | 51.33 | 2,162.96 | 387.62 | 206.46 | 137.34 | 69.11 | 2.987 | |
| 8,600.00 | 5,735.00 | 8,484.00 | 5,606.00 | 42.89 | 42.56 | 51.34 | 2,262.96 | 387.54 | 206.49 | 135.26 | 71.23 | 2.899 | |
| 8,700.00 | 5,735.00 | 8,584.00 | 5,606.00 | 44.19 | 43.86 | 51.34 | 2,362.96 | 387.46 | 206.52 | 133.16 | 73.36 | 2.815 | |
| 8,800.00 | 5,735.00 | 8,684.00 | 5,606.00 | 45.50 | 45.18 | 51.35 | 2,462.96 | 387.38 | 206.55 | 131.04 | 75.51 | 2.735 | |
| 8,900.00 | 5,735.00 | 8,784.00 | 5,606.00 | 46.82 | 46.50 | 51.36 | 2,562.96 | 387.30 | 206.58 | 128.91 | 77.68 | 2.660 | |
| 9,000.00 | 5,735.00 | 8,884.00 | 5,606.00 | 48.14 | 47.83 | 51.37 | 2,662.96 | 387.22 | 206.62 | 126.76 | 79.86 | 2.587 | |
| 9,100.00 | 5,735.00 | 8,984.00 | 5,606.00 | 49.48 | 49.17 | 51.37 | 2,762.96 | 387.14 | 206.65 | 124.60 | 82.05 | 2.519 | |
| 9,200.00 | 5,735.00 | 9,084.00 | 5,606.00 | 50.82 | 50.52 | 51.38 | 2,862.96 | 387.05 | 206.68 | 122.43 | 84.25 | 2.453 | |
| 9,300.00 | 5,735.00 | 9,184.00 | 5,606.00 | 52.17 | 51.87 | 51.39 | 2,962.96 | 386.97 | 206.71 | 120.25 | 86.47 | 2.391 | |
| 9,400.00 | 5,735.00 | 9,284.00 | 5,606.00 | 53.53 | 53.23 | 51.39 | 3,062.96 | 386.89 | 206.75 | 118.05 | 88.69 | 2.331 | |
| 9,500.00 | 5,735.00 | 9,384.00 | 5,606.00 | 54.89 | 54.60 | 51.40 | 3,162.96 | 386.81 | 206.78 | 115.85 | 90.93 | 2.274 | |
| 9,600.00 | 5,735.00 | 9,484.00 | 5,606.00 | 56.26 | 55.97 | 51.41 | 3,262.96 | 386.73 | 206.81 | 113.64 | 93.17 | 2.220 | |
| 9,700.00 | 5,735.00 | 9,584.00 | 5,606.00 | 57.64 | 57.35 | 51.42 | 3,362.96 | 386.65 | 206.84 | 111.42 | 95.42 | 2.168 | |
| 9,800.00 | 5,735.00 | 9,684.00 | 5,606.00 | 59.01 | 58.73 | 51.42 | 3,462.96 | 386.57 | 206.87 | 109.19 | 97.68 | 2.118 | |
| 9,900.00 | 5,735.00 | 9,784.00 | 5,606.00 | 60.40 | 60.11 | 51.43 | 3,562.96 | 386.49 | 206.91 | 106.96 | 99.95 | 2.070 | |
| 10,000.00 | 5,735.00 | 9,884.00 | 5,606.00 | 61.78 | 61.50 | 51.44 | 3,662.96 | 386.41 | 206.94 | 104.72 | 102.22 | 2.024 | |
| 10,100.00 | 5,735.00 | 9,984.00 | 5,606.00 | 63.17 | 62.89 | 51.44 | 3,762.96 | 386.32 | 206.97 | 102.47 | 104.50 | 1.981 | |

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



WOG

Anticollision Report

| | | | |
|---------------------------|-------------------------|-------------------------------------|--|
| Company: | Whiting Petroleum Corp. | Local Co-ordinate Reference: | Well Horsetail #30H-1948 |
| Project: | Weld County, CO | TVD Reference: | KBE @ 4746.00usft (Original Well Elev) |
| Reference Site: | Sec 30-T10N-R57W | MD Reference: | KBE @ 4746.00usft (Original Well Elev) |
| Site Error: | 0.00 usft | North Reference: | True |
| Reference Well: | Horsetail #30H-1948 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.00 usft | Output errors are at | 3.00 sigma |
| Reference Wellbore | Hz | Database: | LandmarkEDM |
| Reference Design: | APD | Offset TVD Reference: | Offset Datum |

| Offset Design | | | | | | | | | | | | | Offset Site Error: | 0.00 usft |
|-----------------------------------|-----------------------|-----------------------|-----------------------|------------------|---------------|-----------------------|-------------------------------------|--------------|------------------------|-------------------------|---------------------------|-----------------------|--------------------|-----------|
| Survey Program: 0-MWD+IFR1+MS+sag | | | | | | | | | | | | | Offset Well Error: | 0.00 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 | | |
| 10,200.00 | 5,735.00 | 10,084.00 | 5,606.00 | 64.57 | 64.29 | 51.45 | 3,862.96 | 386.24 | 207.00 | 100.21 | 106.79 | 1.938 | | |
| 10,300.00 | 5,735.00 | 10,184.00 | 5,606.00 | 65.97 | 65.69 | 51.46 | 3,962.96 | 386.16 | 207.04 | 97.95 | 109.08 | 1.898 | | |
| 10,400.00 | 5,735.00 | 10,284.00 | 5,606.00 | 67.37 | 67.09 | 51.47 | 4,062.96 | 386.08 | 207.07 | 95.69 | 111.38 | 1.859 | | |
| 10,500.00 | 5,735.00 | 10,384.00 | 5,606.00 | 68.77 | 68.50 | 51.47 | 4,162.96 | 386.00 | 207.10 | 93.42 | 113.68 | 1.822 | | |
| 10,600.00 | 5,735.00 | 10,484.00 | 5,606.00 | 70.18 | 69.91 | 51.48 | 4,262.96 | 385.92 | 207.13 | 91.14 | 115.99 | 1.786 | | |
| 10,700.00 | 5,735.00 | 10,584.00 | 5,606.00 | 71.59 | 71.32 | 51.49 | 4,362.96 | 385.84 | 207.16 | 88.87 | 118.30 | 1.751 | | |
| 10,800.00 | 5,735.00 | 10,684.00 | 5,606.00 | 73.00 | 72.73 | 51.49 | 4,462.96 | 385.76 | 207.20 | 86.58 | 120.61 | 1.718 | | |
| 10,900.00 | 5,735.00 | 10,784.00 | 5,606.00 | 74.41 | 74.14 | 51.50 | 4,562.96 | 385.68 | 207.23 | 84.30 | 122.93 | 1.686 | | |
| 11,000.00 | 5,735.00 | 10,884.00 | 5,606.00 | 75.83 | 75.56 | 51.51 | 4,662.96 | 385.59 | 207.26 | 82.00 | 125.26 | 1.655 | | |
| 11,100.00 | 5,735.00 | 10,984.00 | 5,606.00 | 77.25 | 76.98 | 51.52 | 4,762.96 | 385.51 | 207.29 | 79.71 | 127.58 | 1.625 | | |
| 11,200.00 | 5,735.00 | 11,084.00 | 5,606.00 | 78.67 | 78.40 | 51.52 | 4,862.96 | 385.43 | 207.33 | 77.41 | 129.92 | 1.596 | | |
| 11,300.00 | 5,735.00 | 11,184.00 | 5,606.00 | 80.09 | 79.83 | 51.53 | 4,962.96 | 385.35 | 207.36 | 75.11 | 132.25 | 1.568 | | |
| 11,400.00 | 5,735.00 | 11,284.00 | 5,606.00 | 81.51 | 81.25 | 51.54 | 5,062.96 | 385.27 | 207.39 | 72.80 | 134.59 | 1.541 | | |
| 11,500.00 | 5,735.00 | 11,384.00 | 5,606.00 | 82.94 | 82.68 | 51.54 | 5,162.96 | 385.19 | 207.42 | 70.50 | 136.93 | 1.515 | | |
| 11,600.00 | 5,735.00 | 11,484.00 | 5,606.00 | 84.36 | 84.11 | 51.55 | 5,262.96 | 385.11 | 207.46 | 68.19 | 139.27 | 1.490 Level 3 | | |
| 11,700.00 | 5,735.00 | 11,584.00 | 5,606.00 | 85.79 | 85.54 | 51.56 | 5,362.96 | 385.03 | 207.49 | 65.87 | 141.62 | 1.465 Level 3 | | |
| 11,800.00 | 5,735.00 | 11,684.00 | 5,606.00 | 87.22 | 86.97 | 51.56 | 5,462.96 | 384.95 | 207.52 | 63.56 | 143.96 | 1.441 Level 3 | | |
| 11,900.00 | 5,735.00 | 11,784.00 | 5,606.00 | 88.65 | 88.40 | 51.57 | 5,562.96 | 384.87 | 207.55 | 61.24 | 146.31 | 1.419 Level 3 | | |
| 12,000.00 | 5,735.00 | 11,884.00 | 5,606.00 | 90.09 | 89.83 | 51.58 | 5,662.96 | 384.78 | 207.58 | 58.92 | 148.67 | 1.396 Level 3 | | |
| 12,100.00 | 5,735.00 | 11,984.00 | 5,606.00 | 91.52 | 91.27 | 51.59 | 5,762.96 | 384.70 | 207.62 | 56.59 | 151.02 | 1.375 Level 3 | | |
| 12,200.00 | 5,735.00 | 12,084.00 | 5,606.00 | 92.96 | 92.70 | 51.59 | 5,862.96 | 384.62 | 207.65 | 54.27 | 153.38 | 1.354 Level 3 | | |
| 12,300.00 | 5,735.00 | 12,184.00 | 5,606.00 | 94.39 | 94.14 | 51.60 | 5,962.96 | 384.54 | 207.68 | 51.94 | 155.74 | 1.334 Level 3 | | |
| 12,400.00 | 5,735.00 | 12,284.00 | 5,606.00 | 95.83 | 95.58 | 51.61 | 6,062.96 | 384.46 | 207.71 | 49.61 | 158.10 | 1.314 Level 3 | | |
| 12,500.00 | 5,735.00 | 12,384.00 | 5,606.00 | 97.27 | 97.02 | 51.61 | 6,162.96 | 384.38 | 207.75 | 47.28 | 160.47 | 1.295 Level 3 | | |
| 12,600.00 | 5,735.00 | 12,484.00 | 5,606.00 | 98.71 | 98.46 | 51.62 | 6,262.96 | 384.30 | 207.78 | 44.94 | 162.83 | 1.276 Level 3 | | |
| 12,700.00 | 5,735.00 | 12,584.00 | 5,606.00 | 100.15 | 99.90 | 51.63 | 6,362.96 | 384.22 | 207.81 | 42.61 | 165.20 | 1.258 Level 3 | | |
| 12,800.00 | 5,735.00 | 12,684.00 | 5,606.00 | 101.59 | 101.34 | 51.64 | 6,462.96 | 384.14 | 207.84 | 40.27 | 167.57 | 1.240 Level 2 | | |
| 12,900.00 | 5,735.00 | 12,784.00 | 5,606.00 | 103.03 | 102.78 | 51.64 | 6,562.96 | 384.05 | 207.88 | 37.93 | 169.94 | 1.223 Level 2 | | |
| 13,000.00 | 5,735.00 | 12,884.00 | 5,606.00 | 104.47 | 104.23 | 51.65 | 6,662.96 | 383.97 | 207.91 | 35.59 | 172.32 | 1.207 Level 2 | | |
| 13,100.00 | 5,735.00 | 12,984.00 | 5,606.00 | 105.92 | 105.67 | 51.66 | 6,762.96 | 383.89 | 207.94 | 33.25 | 174.69 | 1.190 Level 2 | | |
| 13,200.00 | 5,735.00 | 13,084.00 | 5,606.00 | 107.36 | 107.12 | 51.66 | 6,862.96 | 383.81 | 207.97 | 30.91 | 177.07 | 1.175 Level 2 | | |
| 13,300.00 | 5,735.00 | 13,184.00 | 5,606.00 | 108.81 | 108.56 | 51.67 | 6,962.96 | 383.73 | 208.00 | 28.56 | 179.44 | 1.159 Level 2 | | |
| 13,400.00 | 5,735.00 | 13,284.00 | 5,606.00 | 110.25 | 110.01 | 51.68 | 7,062.96 | 383.65 | 208.04 | 26.21 | 181.82 | 1.144 Level 2 | | |
| 13,500.00 | 5,735.00 | 13,384.00 | 5,606.00 | 111.70 | 111.46 | 51.68 | 7,162.96 | 383.57 | 208.07 | 23.86 | 184.20 | 1.130 Level 2 | | |
| 13,600.00 | 5,735.00 | 13,484.00 | 5,606.00 | 113.15 | 112.90 | 51.69 | 7,262.96 | 383.49 | 208.10 | 21.52 | 186.59 | 1.115 Level 2 | | |
| 13,700.00 | 5,735.00 | 13,584.00 | 5,606.00 | 114.59 | 114.35 | 51.70 | 7,362.96 | 383.41 | 208.13 | 19.16 | 188.97 | 1.101 Level 2 | | |
| 13,800.00 | 5,735.00 | 13,684.00 | 5,606.00 | 116.04 | 115.80 | 51.71 | 7,462.96 | 383.32 | 208.17 | 16.81 | 191.36 | 1.088 Level 2 | | |
| 13,876.00 | 5,735.00 | 13,759.92 | 5,606.00 | 117.14 | 116.90 | 51.71 | 7,538.88 | 383.26 | 208.19 | 15.02 | 193.17 | 1.078 Level 2, ES, SF | | |



WOG

Anticollision Report

| | | | |
|---------------------------|-------------------------|-------------------------------------|--|
| Company: | Whiting Petroleum Corp. | Local Co-ordinate Reference: | Well Horsetail #30H-1948 |
| Project: | Weld County, CO | TVD Reference: | KBE @ 4746.00usft (Original Well Elev) |
| Reference Site: | Sec 30-T10N-R57W | MD Reference: | KBE @ 4746.00usft (Original Well Elev) |
| Site Error: | 0.00 usft | North Reference: | True |
| Reference Well: | Horsetail #30H-1948 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.00 usft | Output errors are at | 3.00 sigma |
| Reference Wellbore | Hz | Database: | LandmarkEDM |
| Reference Design: | APD | Offset TVD Reference: | Offset Datum |

| Offset Design | | | | | | | | | | | | | Offset Site Error: | 0.00 usft |
|-----------------------------------|-----------------------|-----------------------|-----------------------|------------------|---------------|-----------------------|-------------------------------------|--------------|------------------------|-------------------------|---------------------------|-------------------|--------------------|-----------|
| Survey Program: 0-MWD+IFR1+MS+sag | | | | | | | | | | | | | Offset Well Error: | 0.00 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 | | |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | -90.00 | -0.01 | -119.96 | 119.96 | | | | | |
| 100.00 | 100.00 | 100.00 | 100.00 | 0.13 | 0.13 | -90.00 | -0.01 | -119.96 | 119.96 | 119.69 | 0.27 | 450.376 | | |
| 200.00 | 200.00 | 200.00 | 200.00 | 0.47 | 0.47 | -90.00 | -0.01 | -119.96 | 119.96 | 119.02 | 0.94 | 127.526 | | |
| 300.00 | 300.00 | 300.00 | 300.00 | 0.81 | 0.81 | -90.00 | -0.01 | -119.96 | 119.96 | 118.34 | 1.61 | 74.279 CC, ES | | |
| 400.00 | 399.98 | 398.37 | 398.35 | 1.11 | 1.11 | 106.96 | -1.56 | -120.62 | 121.14 | 118.92 | 2.22 | 54.593 | | |
| 500.00 | 499.84 | 496.66 | 496.50 | 1.41 | 1.40 | 107.01 | -6.21 | -122.61 | 124.68 | 121.87 | 2.82 | 44.283 | | |
| 600.00 | 599.45 | 594.78 | 594.26 | 1.73 | 1.72 | 107.09 | -13.94 | -125.91 | 130.59 | 127.12 | 3.47 | 37.655 | | |
| 700.00 | 698.70 | 692.67 | 691.44 | 2.07 | 2.05 | 107.19 | -24.72 | -130.51 | 138.83 | 134.67 | 4.17 | 33.330 | | |
| 800.00 | 797.47 | 790.24 | 787.85 | 2.43 | 2.40 | 107.28 | -38.49 | -136.38 | 149.41 | 144.50 | 4.91 | 30.453 | | |
| 900.00 | 895.77 | 888.12 | 884.03 | 2.83 | 2.78 | 107.33 | -55.17 | -143.50 | 162.01 | 156.33 | 5.68 | 28.533 | | |
| 1,000.00 | 994.03 | 987.28 | 981.33 | 3.24 | 3.19 | 107.28 | -72.75 | -151.01 | 174.96 | 168.50 | 6.46 | 27.072 | | |
| 1,100.00 | 1,092.29 | 1,086.44 | 1,078.63 | 3.66 | 3.61 | 107.24 | -90.33 | -158.51 | 187.91 | 180.64 | 7.27 | 25.859 | | |
| 1,200.00 | 1,190.55 | 1,185.59 | 1,175.93 | 4.08 | 4.04 | 107.21 | -107.91 | -166.01 | 200.86 | 192.78 | 8.08 | 24.850 | | |
| 1,300.00 | 1,288.81 | 1,284.75 | 1,273.23 | 4.51 | 4.47 | 107.18 | -125.49 | -173.52 | 213.81 | 204.90 | 8.91 | 23.995 | | |
| 1,400.00 | 1,387.07 | 1,383.91 | 1,370.52 | 4.94 | 4.90 | 107.15 | -143.07 | -181.02 | 226.76 | 217.02 | 9.74 | 23.270 | | |
| 1,500.00 | 1,485.34 | 1,483.07 | 1,467.82 | 5.37 | 5.33 | 107.12 | -160.65 | -188.53 | 239.71 | 229.13 | 10.58 | 22.647 | | |
| 1,600.00 | 1,583.60 | 1,582.23 | 1,565.12 | 5.80 | 5.77 | 107.10 | -178.23 | -196.03 | 252.66 | 241.23 | 11.43 | 22.108 | | |
| 1,700.00 | 1,681.86 | 1,681.38 | 1,662.42 | 6.24 | 6.20 | 107.08 | -195.81 | -203.53 | 265.61 | 253.34 | 12.28 | 21.636 | | |
| 1,800.00 | 1,780.12 | 1,780.54 | 1,759.72 | 6.67 | 6.64 | 107.06 | -213.39 | -211.04 | 278.56 | 265.44 | 13.13 | 21.221 | | |
| 1,900.00 | 1,878.38 | 1,879.70 | 1,857.02 | 7.11 | 7.08 | 107.05 | -230.97 | -218.54 | 291.52 | 277.54 | 13.98 | 20.853 | | |
| 2,000.00 | 1,976.64 | 1,978.86 | 1,954.31 | 7.55 | 7.52 | 107.03 | -248.55 | -226.05 | 304.47 | 289.63 | 14.83 | 20.525 | | |
| 2,100.00 | 2,074.91 | 2,078.01 | 2,051.61 | 7.99 | 7.96 | 107.02 | -266.13 | -233.55 | 317.42 | 301.73 | 15.69 | 20.230 | | |
| 2,200.00 | 2,173.17 | 2,177.17 | 2,148.91 | 8.43 | 8.40 | 107.00 | -283.71 | -241.05 | 330.37 | 313.82 | 16.55 | 19.965 | | |
| 2,300.00 | 2,271.43 | 2,276.33 | 2,246.21 | 8.86 | 8.85 | 106.99 | -301.29 | -248.56 | 343.32 | 325.91 | 17.41 | 19.724 | | |
| 2,400.00 | 2,369.69 | 2,375.49 | 2,343.51 | 9.30 | 9.29 | 106.98 | -318.87 | -256.06 | 356.27 | 338.00 | 18.27 | 19.505 | | |
| 2,500.00 | 2,467.95 | 2,474.65 | 2,440.80 | 9.74 | 9.73 | 106.97 | -336.44 | -263.56 | 369.22 | 350.09 | 19.13 | 19.305 | | |
| 2,600.00 | 2,566.21 | 2,573.80 | 2,538.10 | 10.18 | 10.17 | 106.96 | -354.02 | -271.07 | 382.17 | 362.18 | 19.99 | 19.121 | | |
| 2,700.00 | 2,664.48 | 2,672.96 | 2,635.40 | 10.63 | 10.62 | 106.95 | -371.60 | -278.57 | 395.12 | 374.27 | 20.85 | 18.952 | | |
| 2,800.00 | 2,762.74 | 2,772.12 | 2,732.70 | 11.07 | 11.06 | 106.94 | -389.18 | -286.08 | 408.07 | 386.36 | 21.71 | 18.796 | | |
| 2,900.00 | 2,861.00 | 2,871.28 | 2,830.00 | 11.51 | 11.50 | 106.93 | -406.76 | -293.58 | 421.02 | 398.45 | 22.57 | 18.651 | | |
| 3,000.00 | 2,959.26 | 2,970.43 | 2,927.29 | 11.95 | 11.95 | 106.93 | -424.34 | -301.08 | 433.97 | 410.54 | 23.44 | 18.517 | | |
| 3,100.00 | 3,057.52 | 3,069.59 | 3,024.59 | 12.39 | 12.39 | 106.92 | -441.92 | -308.59 | 446.93 | 422.63 | 24.30 | 18.392 | | |
| 3,200.00 | 3,155.78 | 3,168.75 | 3,121.89 | 12.83 | 12.83 | 106.91 | -459.50 | -316.09 | 459.88 | 434.71 | 25.16 | 18.275 | | |
| 3,300.00 | 3,254.05 | 3,267.91 | 3,219.19 | 13.27 | 13.28 | 106.91 | -477.08 | -323.60 | 472.83 | 446.80 | 26.03 | 18.166 | | |
| 3,400.00 | 3,352.31 | 3,367.07 | 3,316.49 | 13.71 | 13.72 | 106.90 | -494.66 | -331.10 | 485.78 | 458.89 | 26.89 | 18.063 | | |
| 3,500.00 | 3,450.57 | 3,466.22 | 3,413.78 | 14.16 | 14.17 | 106.90 | -512.24 | -338.60 | 498.73 | 470.97 | 27.76 | 17.967 | | |
| 3,600.00 | 3,548.83 | 3,565.38 | 3,511.08 | 14.60 | 14.61 | 106.89 | -529.82 | -346.11 | 511.68 | 483.06 | 28.62 | 17.876 | | |
| 3,700.00 | 3,647.09 | 3,664.54 | 3,608.38 | 15.04 | 15.06 | 106.89 | -547.40 | -353.61 | 524.63 | 495.14 | 29.49 | 17.791 | | |
| 3,800.00 | 3,745.35 | 3,763.70 | 3,705.68 | 15.48 | 15.50 | 106.88 | -564.98 | -361.12 | 537.58 | 507.23 | 30.35 | 17.710 | | |
| 3,900.00 | 3,843.62 | 3,862.86 | 3,802.98 | 15.92 | 15.94 | 106.88 | -582.56 | -368.62 | 550.53 | 519.31 | 31.22 | 17.634 | | |
| 4,000.00 | 3,941.88 | 3,962.01 | 3,900.28 | 16.37 | 16.39 | 106.87 | -600.14 | -376.12 | 563.48 | 531.40 | 32.09 | 17.562 | | |
| 4,100.00 | 4,040.14 | 4,061.17 | 3,997.57 | 16.81 | 16.83 | 106.87 | -617.72 | -383.63 | 576.44 | 543.48 | 32.95 | 17.493 | | |
| 4,200.00 | 4,138.40 | 4,160.33 | 4,094.87 | 17.25 | 17.28 | 106.86 | -635.30 | -391.13 | 589.39 | 555.57 | 33.82 | 17.428 | | |
| 4,300.00 | 4,236.66 | 4,259.49 | 4,192.17 | 17.69 | 17.72 | 106.86 | -652.88 | -398.64 | 602.34 | 567.65 | 34.68 | 17.366 | | |
| 4,400.00 | 4,334.92 | 4,358.64 | 4,289.47 | 18.13 | 18.17 | 106.86 | -670.46 | -406.14 | 615.29 | 579.74 | 35.55 | 17.307 | | |
| 4,500.00 | 4,433.19 | 4,457.80 | 4,386.77 | 18.58 | 18.61 | 106.85 | -688.04 | -413.64 | 628.24 | 591.82 | 36.42 | 17.251 | | |
| 4,600.00 | 4,531.53 | 4,559.11 | 4,486.19 | 18.98 | 19.05 | 106.94 | -705.90 | -421.27 | 641.03 | 603.79 | 37.24 | 17.215 | | |
| 4,700.00 | 4,630.37 | 4,667.96 | 4,593.53 | 19.24 | 19.37 | 107.07 | -722.47 | -428.34 | 651.91 | 614.06 | 37.85 | 17.223 | | |
| 4,800.00 | 4,729.69 | 4,777.25 | 4,701.92 | 19.50 | 19.65 | 107.17 | -735.33 | -433.83 | 660.32 | 621.92 | 38.40 | 17.195 | | |
| 4,900.00 | 4,829.34 | 4,886.88 | 4,811.10 | 19.74 | 19.92 | 107.23 | -744.39 | -437.70 | 666.23 | 627.31 | 38.92 | 17.118 | | |
| 5,000.00 | 4,929.23 | 4,996.73 | 4,920.80 | 19.96 | 20.17 | 107.27 | -749.61 | -439.93 | 669.63 | 630.22 | 39.40 | 16.994 | | |
| 5,100.00 | 5,029.22 | 5,105.16 | 5,029.22 | 20.21 | 20.43 | -89.66 | -751.01 | -440.52 | 670.53 | 630.61 | 39.92 | 16.796 | | |

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



WOG

Anticollision Report

| | | | |
|---------------------------|-------------------------|-------------------------------------|--|
| Company: | Whiting Petroleum Corp. | Local Co-ordinate Reference: | Well Horsetail #30H-1948 |
| Project: | Weld County, CO | TVD Reference: | KBE @ 4746.00usft (Original Well Elev) |
| Reference Site: | Sec 30-T10N-R57W | MD Reference: | KBE @ 4746.00usft (Original Well Elev) |
| Site Error: | 0.00 usft | North Reference: | True |
| Reference Well: | Horsetail #30H-1948 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.00 usft | Output errors are at | 3.00 sigma |
| Reference Wellbore | Hz | Database: | LandmarkEDM |
| Reference Design: | APD | Offset TVD Reference: | Offset Datum |

| Offset Design | | | | | | | | | | | | | Offset Site Error: | 0.00 usft |
|-----------------------------------|-----------------------|-----------------------|-----------------------|------------------|---------------|-----------------------|-------------------------------------|--------------|------------------------|-------------------------|---------------------------|-------------------|--------------------|-----------|
| Survey Program: 0-MWD+IFR1+MS+sag | | | | | | | | | | | | | Offset Well Error: | 0.00 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 | | |
| 5,200.00 | 5,129.22 | 5,205.16 | 5,129.22 | 20.42 | 20.64 | -89.66 | -751.01 | -440.52 | 670.53 | 630.19 | 40.35 | 16.620 | | |
| 5,300.00 | 5,229.21 | 5,305.05 | 5,229.10 | 20.63 | 20.85 | -89.59 | -750.79 | -440.52 | 670.53 | 629.76 | 40.77 | 16.446 | | |
| 5,400.00 | 5,328.28 | 5,404.30 | 5,327.43 | 20.79 | 21.00 | -89.60 | -738.51 | -440.52 | 670.52 | 629.43 | 41.08 | 16.321 | | |
| 5,500.00 | 5,423.15 | 5,503.57 | 5,421.69 | 20.86 | 21.07 | -89.62 | -707.82 | -440.52 | 670.48 | 629.26 | 41.22 | 16.267 | | |
| 5,600.00 | 5,510.33 | 5,602.91 | 5,508.48 | 20.86 | 21.06 | -89.66 | -659.80 | -440.52 | 670.41 | 629.21 | 41.21 | 16.270 | | |
| 5,700.00 | 5,586.64 | 5,702.33 | 5,584.65 | 20.80 | 21.00 | -89.71 | -596.15 | -440.52 | 670.33 | 629.24 | 41.09 | 16.312 | | |
| 5,800.00 | 5,649.25 | 5,801.85 | 5,647.42 | 20.72 | 20.90 | -89.77 | -519.12 | -440.52 | 670.24 | 629.30 | 40.94 | 16.371 | | |
| 5,900.00 | 5,695.89 | 5,901.48 | 5,694.47 | 20.64 | 20.79 | -89.84 | -431.46 | -440.52 | 670.13 | 629.32 | 40.80 | 16.423 | | |
| 6,000.00 | 5,724.82 | 6,001.26 | 5,724.04 | 20.59 | 20.70 | -89.92 | -336.33 | -440.52 | 670.01 | 629.27 | 40.74 | 16.446 | | |
| 6,099.99 | 5,734.99 | 6,101.16 | 5,734.95 | 20.58 | 20.64 | -90.00 | -237.18 | -440.52 | 669.88 | 629.10 | 40.78 | 16.425 | | |
| 6,200.00 | 5,735.00 | 6,201.17 | 5,735.00 | 20.66 | 20.66 | -90.00 | -137.17 | -440.52 | 669.76 | 628.76 | 41.00 | 16.335 | | |
| 6,300.00 | 5,735.00 | 6,301.17 | 5,735.00 | 20.85 | 20.79 | -90.00 | -37.17 | -440.52 | 669.64 | 628.21 | 41.43 | 16.164 | | |
| 6,400.00 | 5,735.00 | 6,401.17 | 5,735.00 | 21.15 | 21.03 | -90.00 | 62.83 | -440.52 | 669.52 | 627.46 | 42.06 | 15.919 | | |
| 6,500.00 | 5,735.00 | 6,501.17 | 5,735.00 | 21.55 | 21.39 | -90.00 | 162.83 | -440.52 | 669.39 | 626.51 | 42.88 | 15.611 | | |
| 6,600.00 | 5,735.00 | 6,601.17 | 5,735.00 | 22.04 | 21.86 | -90.00 | 262.83 | -440.51 | 669.27 | 625.38 | 43.88 | 15.251 | | |
| 6,700.00 | 5,735.00 | 6,701.17 | 5,735.00 | 22.63 | 22.43 | -90.00 | 362.83 | -440.51 | 669.15 | 624.09 | 45.06 | 14.850 | | |
| 6,800.00 | 5,735.00 | 6,801.17 | 5,735.00 | 23.30 | 23.09 | -90.00 | 462.83 | -440.51 | 669.02 | 622.63 | 46.39 | 14.421 | | |
| 6,900.00 | 5,735.00 | 6,901.17 | 5,735.00 | 24.04 | 23.83 | -90.00 | 562.83 | -440.51 | 668.90 | 621.03 | 47.87 | 13.974 | | |
| 7,000.00 | 5,735.00 | 7,001.17 | 5,735.00 | 24.85 | 24.63 | -90.00 | 662.83 | -440.51 | 668.78 | 619.30 | 49.48 | 13.517 | | |
| 7,100.00 | 5,735.00 | 7,101.17 | 5,735.00 | 25.72 | 25.50 | -90.00 | 762.83 | -440.51 | 668.66 | 617.45 | 51.20 | 13.059 | | |
| 7,200.00 | 5,735.00 | 7,201.17 | 5,735.00 | 26.64 | 26.42 | -90.00 | 862.83 | -440.51 | 668.53 | 615.49 | 53.04 | 12.605 | | |
| 7,300.00 | 5,735.00 | 7,301.17 | 5,735.00 | 27.61 | 27.39 | -90.00 | 962.83 | -440.51 | 668.41 | 613.44 | 54.97 | 12.160 | | |
| 7,400.00 | 5,735.00 | 7,401.17 | 5,735.00 | 28.62 | 28.40 | -90.00 | 1,062.83 | -440.51 | 668.29 | 611.30 | 56.99 | 11.727 | | |
| 7,500.00 | 5,735.00 | 7,501.17 | 5,735.00 | 29.67 | 29.45 | -90.00 | 1,162.83 | -440.51 | 668.16 | 609.08 | 59.08 | 11.309 | | |
| 7,600.00 | 5,735.00 | 7,601.17 | 5,735.00 | 30.75 | 30.53 | -90.00 | 1,262.83 | -440.51 | 668.04 | 606.80 | 61.25 | 10.908 | | |
| 7,700.00 | 5,735.00 | 7,701.17 | 5,735.00 | 31.87 | 31.65 | -90.00 | 1,362.83 | -440.51 | 667.92 | 604.44 | 63.47 | 10.523 | | |
| 7,800.00 | 5,735.00 | 7,801.17 | 5,735.00 | 33.01 | 32.79 | -90.00 | 1,462.83 | -440.51 | 667.79 | 602.04 | 65.76 | 10.156 | | |
| 7,900.00 | 5,735.00 | 7,901.17 | 5,735.00 | 34.18 | 33.96 | -90.00 | 1,562.83 | -440.51 | 667.67 | 599.58 | 68.09 | 9.806 | | |
| 8,000.00 | 5,735.00 | 8,001.17 | 5,735.00 | 35.37 | 35.16 | -90.00 | 1,662.83 | -440.51 | 667.55 | 597.08 | 70.47 | 9.473 | | |
| 8,100.00 | 5,735.00 | 8,101.17 | 5,735.00 | 36.59 | 36.37 | -90.00 | 1,762.83 | -440.51 | 667.43 | 594.53 | 72.89 | 9.156 | | |
| 8,200.00 | 5,735.00 | 8,201.17 | 5,735.00 | 37.82 | 37.60 | -90.00 | 1,862.83 | -440.51 | 667.30 | 591.95 | 75.35 | 8.856 | | |
| 8,300.00 | 5,735.00 | 8,301.17 | 5,735.00 | 39.06 | 38.84 | -90.00 | 1,962.83 | -440.51 | 667.18 | 589.34 | 77.84 | 8.571 | | |
| 8,400.00 | 5,735.00 | 8,401.17 | 5,735.00 | 40.32 | 40.11 | -90.00 | 2,062.83 | -440.51 | 667.06 | 586.69 | 80.37 | 8.300 | | |
| 8,500.00 | 5,735.00 | 8,501.17 | 5,735.00 | 41.60 | 41.38 | -90.00 | 2,162.83 | -440.50 | 666.93 | 584.02 | 82.92 | 8.043 | | |
| 8,600.00 | 5,735.00 | 8,601.17 | 5,735.00 | 42.89 | 42.67 | -90.00 | 2,262.83 | -440.50 | 666.81 | 581.32 | 85.49 | 7.800 | | |
| 8,700.00 | 5,735.00 | 8,701.17 | 5,735.00 | 44.19 | 43.97 | -90.00 | 2,362.83 | -440.50 | 666.69 | 578.60 | 88.09 | 7.568 | | |
| 8,800.00 | 5,735.00 | 8,801.17 | 5,735.00 | 45.50 | 45.28 | -90.00 | 2,462.83 | -440.50 | 666.57 | 575.85 | 90.71 | 7.348 | | |
| 8,900.00 | 5,735.00 | 8,901.17 | 5,735.00 | 46.82 | 46.60 | -90.00 | 2,562.83 | -440.50 | 666.44 | 573.09 | 93.35 | 7.139 | | |
| 9,000.00 | 5,735.00 | 9,001.17 | 5,735.00 | 48.14 | 47.93 | -90.00 | 2,662.83 | -440.50 | 666.32 | 570.31 | 96.01 | 6.940 | | |
| 9,100.00 | 5,735.00 | 9,101.17 | 5,735.00 | 49.48 | 49.27 | -90.00 | 2,762.83 | -440.50 | 666.20 | 567.52 | 98.68 | 6.751 | | |
| 9,200.00 | 5,735.00 | 9,201.17 | 5,735.00 | 50.82 | 50.61 | -90.00 | 2,862.83 | -440.50 | 666.07 | 564.71 | 101.37 | 6.571 | | |
| 9,300.00 | 5,735.00 | 9,301.17 | 5,735.00 | 52.17 | 51.96 | -90.00 | 2,962.83 | -440.50 | 665.95 | 561.88 | 104.07 | 6.399 | | |
| 9,400.00 | 5,735.00 | 9,401.17 | 5,735.00 | 53.53 | 53.32 | -90.00 | 3,062.83 | -440.50 | 665.83 | 559.04 | 106.79 | 6.235 | | |
| 9,500.00 | 5,735.00 | 9,501.17 | 5,735.00 | 54.89 | 54.68 | -90.00 | 3,162.83 | -440.50 | 665.71 | 556.19 | 109.51 | 6.079 | | |
| 9,600.00 | 5,735.00 | 9,601.17 | 5,735.00 | 56.26 | 56.05 | -90.00 | 3,262.83 | -440.50 | 665.58 | 553.33 | 112.25 | 5.929 | | |
| 9,700.00 | 5,735.00 | 9,701.17 | 5,735.00 | 57.64 | 57.42 | -90.00 | 3,362.83 | -440.50 | 665.46 | 550.46 | 115.00 | 5.787 | | |
| 9,800.00 | 5,735.00 | 9,801.17 | 5,735.00 | 59.01 | 58.80 | -90.00 | 3,462.83 | -440.50 | 665.34 | 547.58 | 117.75 | 5.650 | | |
| 9,900.00 | 5,735.00 | 9,901.17 | 5,735.00 | 60.40 | 60.18 | -90.00 | 3,562.83 | -440.50 | 665.21 | 544.69 | 120.52 | 5.520 | | |
| 10,000.00 | 5,735.00 | 10,001.17 | 5,735.00 | 61.78 | 61.57 | -90.00 | 3,662.83 | -440.50 | 665.09 | 541.80 | 123.29 | 5.394 | | |
| 10,100.00 | 5,735.00 | 10,101.17 | 5,735.00 | 63.17 | 62.96 | -90.00 | 3,762.83 | -440.50 | 664.97 | 538.89 | 126.08 | 5.274 | | |
| 10,200.00 | 5,735.00 | 10,201.17 | 5,735.00 | 64.57 | 64.36 | -90.00 | 3,862.83 | -440.50 | 664.85 | 535.98 | 128.87 | 5.159 | | |
| 10,300.00 | 5,735.00 | 10,301.17 | 5,735.00 | 65.97 | 65.75 | -90.00 | 3,962.83 | -440.49 | 664.72 | 533.06 | 131.66 | 5.049 | | |

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



WOG

Anticollision Report

| | | | |
|---------------------------|-------------------------|-------------------------------------|--|
| Company: | Whiting Petroleum Corp. | Local Co-ordinate Reference: | Well Horsetail #30H-1948 |
| Project: | Weld County, CO | TVD Reference: | KBE @ 4746.00usft (Original Well Elev) |
| Reference Site: | Sec 30-T10N-R57W | MD Reference: | KBE @ 4746.00usft (Original Well Elev) |
| Site Error: | 0.00 usft | North Reference: | True |
| Reference Well: | Horsetail #30H-1948 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.00 usft | Output errors are at | 3.00 sigma |
| Reference Wellbore | Hz | Database: | LandmarkEDM |
| Reference Design: | APD | Offset TVD Reference: | Offset Datum |

| Offset Design | | | | | | | | | | | | Sec 30-T10N-R57W - Horsetail #30H-1946 - Hz - APD | | Offset Site Error: | | 0.00 usft | |
|-----------------------------------|----------------|----------------|----------------|-----------------|--------|-------------------|------------------------|-----------------|------------------|--------------------|-------------------|---|--|--------------------|--|-----------|--|
| Survey Program: 0-MWD+IFR1+MS+sag | | | | | | | | | | | | | | Offset Well Error: | | 0.00 usft | |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | | | | | |
| Measured Depth | Vertical Depth | Measured Depth | Vertical Depth | Reference | Offset | Highside Toolface | Offset Wellbore Centre | Between Centres | Between Ellipses | Minimum Separation | Separation Factor | Warning | | | | | |
| (usft) | (usft) | (usft) | (usft) | (usft) | (usft) | (°) | +N/-S (usft) | +E/-W (usft) | (usft) | (usft) | (usft) | | | | | | |
| 10,400.00 | 5,735.00 | 10,401.17 | 5,735.00 | 67.37 | 67.15 | -90.00 | 4,062.83 | -440.49 | 664.60 | 530.14 | 134.46 | 4.943 | | | | | |
| 10,500.00 | 5,735.00 | 10,501.17 | 5,735.00 | 68.77 | 68.56 | -90.00 | 4,162.83 | -440.49 | 664.48 | 527.21 | 137.27 | 4.841 | | | | | |
| 10,600.00 | 5,735.00 | 10,601.17 | 5,735.00 | 70.18 | 69.96 | -90.00 | 4,262.83 | -440.49 | 664.35 | 524.27 | 140.08 | 4.743 | | | | | |
| 10,700.00 | 5,735.00 | 10,701.17 | 5,735.00 | 71.59 | 71.37 | -90.00 | 4,362.83 | -440.49 | 664.23 | 521.33 | 142.90 | 4.648 | | | | | |
| 10,800.00 | 5,735.00 | 10,801.17 | 5,735.00 | 73.00 | 72.79 | -90.00 | 4,462.83 | -440.49 | 664.11 | 518.38 | 145.73 | 4.557 | | | | | |
| 10,900.00 | 5,735.00 | 10,901.17 | 5,735.00 | 74.41 | 74.20 | -90.00 | 4,562.83 | -440.49 | 663.99 | 515.43 | 148.56 | 4.470 | | | | | |
| | | | | | | | | | | | | | | | | | |
| 11,000.00 | 5,735.00 | 11,001.17 | 5,735.00 | 75.83 | 75.62 | -90.00 | 4,662.83 | -440.49 | 663.86 | 512.47 | 151.39 | 4.385 | | | | | |
| 11,100.00 | 5,735.00 | 11,101.17 | 5,735.00 | 77.25 | 77.03 | -90.00 | 4,762.83 | -440.49 | 663.74 | 509.51 | 154.23 | 4.304 | | | | | |
| 11,200.00 | 5,735.00 | 11,201.17 | 5,735.00 | 78.67 | 78.45 | -90.00 | 4,862.83 | -440.49 | 663.62 | 506.55 | 157.07 | 4.225 | | | | | |
| 11,300.00 | 5,735.00 | 11,301.17 | 5,735.00 | 80.09 | 79.88 | -90.00 | 4,962.83 | -440.49 | 663.49 | 503.58 | 159.91 | 4.149 | | | | | |
| 11,400.00 | 5,735.00 | 11,401.17 | 5,735.00 | 81.51 | 81.30 | -90.00 | 5,062.83 | -440.49 | 663.37 | 500.61 | 162.76 | 4.076 | | | | | |
| | | | | | | | | | | | | | | | | | |
| 11,500.00 | 5,735.00 | 11,501.17 | 5,735.00 | 82.94 | 82.72 | -90.00 | 5,162.83 | -440.49 | 663.25 | 497.64 | 165.61 | 4.005 | | | | | |
| 11,600.00 | 5,735.00 | 11,601.17 | 5,735.00 | 84.36 | 84.15 | -90.00 | 5,262.83 | -440.49 | 663.13 | 494.66 | 168.47 | 3.936 | | | | | |
| 11,700.00 | 5,735.00 | 11,701.17 | 5,735.00 | 85.79 | 85.58 | -90.00 | 5,362.83 | -440.49 | 663.00 | 491.68 | 171.32 | 3.870 | | | | | |
| 11,800.00 | 5,735.00 | 11,801.17 | 5,735.00 | 87.22 | 87.01 | -90.00 | 5,462.83 | -440.49 | 662.88 | 488.70 | 174.18 | 3.806 | | | | | |
| 11,900.00 | 5,735.00 | 11,901.17 | 5,735.00 | 88.65 | 88.44 | -90.00 | 5,562.83 | -440.49 | 662.76 | 485.71 | 177.05 | 3.743 | | | | | |
| | | | | | | | | | | | | | | | | | |
| 12,000.00 | 5,735.00 | 12,001.17 | 5,735.00 | 90.09 | 89.87 | -90.00 | 5,662.83 | -440.49 | 662.63 | 482.72 | 179.91 | 3.683 | | | | | |
| 12,100.00 | 5,735.00 | 12,101.17 | 5,735.00 | 91.52 | 91.31 | -90.00 | 5,762.83 | -440.48 | 662.51 | 479.73 | 182.78 | 3.625 | | | | | |
| 12,200.00 | 5,735.00 | 12,201.17 | 5,735.00 | 92.96 | 92.74 | -90.00 | 5,862.83 | -440.48 | 662.39 | 476.74 | 185.65 | 3.568 | | | | | |
| 12,300.00 | 5,735.00 | 12,301.17 | 5,735.00 | 94.39 | 94.18 | -90.00 | 5,962.83 | -440.48 | 662.26 | 473.74 | 188.52 | 3.513 | | | | | |
| 12,400.00 | 5,735.00 | 12,401.17 | 5,735.00 | 95.83 | 95.62 | -90.00 | 6,062.83 | -440.48 | 662.14 | 470.74 | 191.40 | 3.459 | | | | | |
| | | | | | | | | | | | | | | | | | |
| 12,500.00 | 5,735.00 | 12,501.17 | 5,735.00 | 97.27 | 97.05 | -90.00 | 6,162.83 | -440.48 | 662.02 | 467.74 | 194.28 | 3.408 | | | | | |
| 12,600.00 | 5,735.00 | 12,601.17 | 5,735.00 | 98.71 | 98.49 | -90.00 | 6,262.83 | -440.48 | 661.90 | 464.74 | 197.16 | 3.357 | | | | | |
| 12,700.00 | 5,735.00 | 12,701.17 | 5,735.00 | 100.15 | 99.93 | -90.00 | 6,362.83 | -440.48 | 661.77 | 461.74 | 200.04 | 3.308 | | | | | |
| 12,800.00 | 5,735.00 | 12,801.17 | 5,735.00 | 101.59 | 101.37 | -90.00 | 6,462.83 | -440.48 | 661.65 | 458.73 | 202.92 | 3.261 | | | | | |
| 12,900.00 | 5,735.00 | 12,901.17 | 5,735.00 | 103.03 | 102.82 | -90.00 | 6,562.83 | -440.48 | 661.53 | 455.72 | 205.80 | 3.214 | | | | | |
| | | | | | | | | | | | | | | | | | |
| 13,000.00 | 5,735.00 | 13,001.17 | 5,735.00 | 104.47 | 104.26 | -90.00 | 6,662.83 | -440.48 | 661.40 | 452.72 | 208.69 | 3.169 | | | | | |
| 13,100.00 | 5,735.00 | 13,101.17 | 5,735.00 | 105.92 | 105.70 | -90.00 | 6,762.83 | -440.48 | 661.28 | 449.70 | 211.58 | 3.125 | | | | | |
| 13,200.00 | 5,735.00 | 13,201.17 | 5,735.00 | 107.36 | 107.15 | -90.00 | 6,862.83 | -440.48 | 661.16 | 446.69 | 214.47 | 3.083 | | | | | |
| 13,300.00 | 5,735.00 | 13,301.17 | 5,735.00 | 108.81 | 108.59 | -90.00 | 6,962.83 | -440.48 | 661.04 | 443.68 | 217.36 | 3.041 | | | | | |
| 13,400.00 | 5,735.00 | 13,401.17 | 5,735.00 | 110.25 | 110.04 | -90.00 | 7,062.83 | -440.48 | 660.91 | 440.66 | 220.25 | 3.001 | | | | | |
| | | | | | | | | | | | | | | | | | |
| 13,500.00 | 5,735.00 | 13,501.17 | 5,735.00 | 111.70 | 111.48 | -90.00 | 7,162.83 | -440.48 | 660.79 | 437.65 | 223.14 | 2.961 | | | | | |
| 13,600.00 | 5,735.00 | 13,601.17 | 5,735.00 | 113.15 | 112.93 | -90.00 | 7,262.83 | -440.48 | 660.67 | 434.63 | 226.04 | 2.923 | | | | | |
| 13,700.00 | 5,735.00 | 13,701.17 | 5,735.00 | 114.59 | 114.38 | -90.00 | 7,362.83 | -440.48 | 660.54 | 431.61 | 228.93 | 2.885 | | | | | |
| 13,800.00 | 5,735.00 | 13,801.17 | 5,735.00 | 116.04 | 115.83 | -90.00 | 7,462.83 | -440.48 | 660.42 | 428.59 | 231.83 | 2.849 | | | | | |
| 13,876.00 | 5,735.00 | 13,877.17 | 5,735.00 | 117.14 | 116.93 | -90.00 | 7,538.83 | -440.48 | 660.33 | 426.30 | 234.03 | 2.822 SF | | | | | |



WOG

Anticollision Report

| | | | |
|---------------------------|-------------------------|-------------------------------------|--|
| Company: | Whiting Petroleum Corp. | Local Co-ordinate Reference: | Well Horsetail #30H-1948 |
| Project: | Weld County, CO | TVD Reference: | KBE @ 4746.00usft (Original Well Elev) |
| Reference Site: | Sec 30-T10N-R57W | MD Reference: | KBE @ 4746.00usft (Original Well Elev) |
| Site Error: | 0.00 usft | North Reference: | True |
| Reference Well: | Horsetail #30H-1948 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.00 usft | Output errors are at | 3.00 sigma |
| Reference Wellbore | Hz | Database: | LandmarkEDM |
| Reference Design: | APD | Offset TVD Reference: | Offset Datum |

| Offset Design | | | | | | | | | | | | | Offset Site Error: | 0.00 usft |
|-----------------------------------|-----------------------|-----------------------|-----------------------|------------------|---------------|-----------------------|-------------------------------------|--------------|------------------------|-------------------------|---------------------------|-------------------|--------------------|-----------|
| Survey Program: 0-MWD+IFR1+MS+sag | | | | | | | | | | | | | Offset Well Error: | 0.00 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 | | |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | -90.02 | -0.02 | -59.98 | 59.98 | | | | | |
| 100.00 | 100.00 | 100.00 | 100.00 | 0.13 | 0.13 | -90.02 | -0.02 | -59.98 | 59.98 | 59.71 | 0.27 | 225.188 | | |
| 200.00 | 200.00 | 200.00 | 200.00 | 0.47 | 0.47 | -90.02 | -0.02 | -59.98 | 59.98 | 59.04 | 0.94 | 63.763 | | |
| 300.00 | 300.00 | 300.00 | 300.00 | 0.81 | 0.81 | -90.02 | -0.02 | -59.98 | 59.98 | 58.36 | 1.61 | 37.140 CC, ES | | |
| 400.00 | 399.98 | 399.77 | 399.75 | 1.11 | 1.11 | 106.85 | -1.75 | -60.16 | 60.67 | 58.46 | 2.21 | 27.431 | | |
| 500.00 | 499.84 | 499.52 | 499.36 | 1.41 | 1.41 | 106.64 | -6.93 | -60.71 | 62.75 | 59.96 | 2.79 | 22.483 | | |
| 600.00 | 599.45 | 599.21 | 598.66 | 1.73 | 1.73 | 106.33 | -15.55 | -61.63 | 66.21 | 62.78 | 3.43 | 19.312 | | |
| 700.00 | 698.70 | 698.81 | 697.52 | 2.07 | 2.06 | 105.93 | -27.58 | -62.91 | 71.05 | 66.93 | 4.12 | 17.256 | | |
| 800.00 | 797.47 | 798.30 | 795.79 | 2.43 | 2.42 | 105.48 | -43.01 | -64.55 | 77.26 | 72.40 | 4.86 | 15.903 | | |
| 900.00 | 895.77 | 898.04 | 894.02 | 2.83 | 2.81 | 105.78 | -60.20 | -66.37 | 84.43 | 78.79 | 5.64 | 14.976 | | |
| 1,000.00 | 994.03 | 997.77 | 992.24 | 3.24 | 3.21 | 106.19 | -77.40 | -68.20 | 91.66 | 85.22 | 6.44 | 14.235 | | |
| 1,100.00 | 1,092.29 | 1,097.51 | 1,090.47 | 3.66 | 3.62 | 106.54 | -94.59 | -70.03 | 98.89 | 91.64 | 7.26 | 13.631 | | |
| 1,200.00 | 1,190.55 | 1,197.25 | 1,188.70 | 4.08 | 4.03 | 106.85 | -111.79 | -71.85 | 106.13 | 98.05 | 8.08 | 13.132 | | |
| 1,300.00 | 1,288.81 | 1,296.98 | 1,286.92 | 4.51 | 4.45 | 107.11 | -128.98 | -73.68 | 113.37 | 104.46 | 8.92 | 12.716 | | |
| 1,400.00 | 1,387.07 | 1,396.72 | 1,385.15 | 4.94 | 4.86 | 107.35 | -146.18 | -75.51 | 120.62 | 110.86 | 9.76 | 12.364 | | |
| 1,500.00 | 1,485.34 | 1,496.46 | 1,483.37 | 5.37 | 5.28 | 107.56 | -163.37 | -77.33 | 127.86 | 117.26 | 10.60 | 12.064 | | |
| 1,600.00 | 1,583.60 | 1,596.19 | 1,581.60 | 5.80 | 5.71 | 107.74 | -180.57 | -79.16 | 135.11 | 123.66 | 11.45 | 11.804 | | |
| 1,700.00 | 1,681.86 | 1,695.93 | 1,679.83 | 6.24 | 6.13 | 107.91 | -197.76 | -80.99 | 142.36 | 130.06 | 12.30 | 11.578 | | |
| 1,800.00 | 1,780.12 | 1,795.66 | 1,778.05 | 6.67 | 6.55 | 108.06 | -214.96 | -82.81 | 149.61 | 136.46 | 13.15 | 11.380 | | |
| 1,900.00 | 1,878.38 | 1,895.40 | 1,876.28 | 7.11 | 6.98 | 108.20 | -232.15 | -84.64 | 156.85 | 142.86 | 14.00 | 11.205 | | |
| 2,000.00 | 1,976.64 | 1,995.14 | 1,974.50 | 7.55 | 7.40 | 108.32 | -249.35 | -86.47 | 164.11 | 149.25 | 14.85 | 11.048 | | |
| 2,100.00 | 2,074.91 | 2,094.87 | 2,072.73 | 7.99 | 7.83 | 108.43 | -266.54 | -88.29 | 171.36 | 155.65 | 15.71 | 10.908 | | |
| 2,200.00 | 2,173.17 | 2,194.61 | 2,170.95 | 8.43 | 8.26 | 108.54 | -283.74 | -90.12 | 178.61 | 162.04 | 16.57 | 10.782 | | |
| 2,300.00 | 2,271.43 | 2,294.34 | 2,269.18 | 8.86 | 8.68 | 108.64 | -300.93 | -91.95 | 185.86 | 168.44 | 17.42 | 10.668 | | |
| 2,400.00 | 2,369.69 | 2,394.08 | 2,367.41 | 9.30 | 9.11 | 108.72 | -318.13 | -93.77 | 193.11 | 174.83 | 18.28 | 10.564 | | |
| 2,500.00 | 2,467.95 | 2,493.82 | 2,465.63 | 9.74 | 9.54 | 108.81 | -335.32 | -95.60 | 200.37 | 181.23 | 19.14 | 10.469 | | |
| 2,600.00 | 2,566.21 | 2,593.55 | 2,563.86 | 10.18 | 9.97 | 108.88 | -352.52 | -97.43 | 207.62 | 187.62 | 20.00 | 10.383 | | |
| 2,700.00 | 2,664.48 | 2,693.29 | 2,662.08 | 10.63 | 10.39 | 108.96 | -369.71 | -99.26 | 214.87 | 194.02 | 20.86 | 10.303 | | |
| 2,800.00 | 2,762.74 | 2,793.03 | 2,760.31 | 11.07 | 10.82 | 109.02 | -386.91 | -101.08 | 222.13 | 200.41 | 21.72 | 10.229 | | |
| 2,900.00 | 2,861.00 | 2,892.76 | 2,858.54 | 11.51 | 11.25 | 109.09 | -404.10 | -102.91 | 229.38 | 206.81 | 22.58 | 10.161 | | |
| 3,000.00 | 2,959.26 | 2,992.50 | 2,956.76 | 11.95 | 11.68 | 109.15 | -421.30 | -104.74 | 236.64 | 213.20 | 23.44 | 10.097 | | |
| 3,100.00 | 3,057.52 | 3,092.23 | 3,054.99 | 12.39 | 12.11 | 109.20 | -438.49 | -106.56 | 243.89 | 219.60 | 24.30 | 10.038 | | |
| 3,200.00 | 3,155.78 | 3,191.97 | 3,153.21 | 12.83 | 12.54 | 109.25 | -455.69 | -108.39 | 251.15 | 225.99 | 25.16 | 9.983 | | |
| 3,300.00 | 3,254.05 | 3,291.71 | 3,251.44 | 13.27 | 12.97 | 109.30 | -472.88 | -110.22 | 258.40 | 232.39 | 26.02 | 9.932 | | |
| 3,400.00 | 3,352.31 | 3,391.44 | 3,349.66 | 13.71 | 13.40 | 109.35 | -490.07 | -112.04 | 265.66 | 238.78 | 26.88 | 9.883 | | |
| 3,500.00 | 3,450.57 | 3,491.18 | 3,447.89 | 14.16 | 13.82 | 109.39 | -507.27 | -113.87 | 272.92 | 245.18 | 27.74 | 9.838 | | |
| 3,600.00 | 3,548.83 | 3,590.92 | 3,546.12 | 14.60 | 14.25 | 109.44 | -524.46 | -115.70 | 280.17 | 251.57 | 28.60 | 9.795 | | |
| 3,700.00 | 3,647.09 | 3,690.65 | 3,644.34 | 15.04 | 14.68 | 109.47 | -541.66 | -117.52 | 287.43 | 257.96 | 29.46 | 9.755 | | |
| 3,800.00 | 3,745.35 | 3,790.39 | 3,742.57 | 15.48 | 15.11 | 109.51 | -558.85 | -119.35 | 294.69 | 264.36 | 30.33 | 9.717 | | |
| 3,900.00 | 3,843.62 | 3,890.12 | 3,840.79 | 15.92 | 15.54 | 109.55 | -576.05 | -121.18 | 301.94 | 270.75 | 31.19 | 9.681 | | |
| 4,000.00 | 3,941.88 | 3,989.86 | 3,939.02 | 16.37 | 15.97 | 109.58 | -593.24 | -123.00 | 309.20 | 277.15 | 32.05 | 9.647 | | |
| 4,100.00 | 4,040.14 | 4,089.60 | 4,037.24 | 16.81 | 16.40 | 109.62 | -610.44 | -124.83 | 316.45 | 283.54 | 32.91 | 9.615 | | |
| 4,200.00 | 4,138.40 | 4,189.33 | 4,135.47 | 17.25 | 16.83 | 109.65 | -627.63 | -126.66 | 323.71 | 289.94 | 33.77 | 9.584 | | |
| 4,300.00 | 4,236.66 | 4,289.07 | 4,233.70 | 17.69 | 17.26 | 109.68 | -644.83 | -128.49 | 330.97 | 296.33 | 34.64 | 9.555 | | |
| 4,400.00 | 4,334.92 | 4,388.80 | 4,331.92 | 18.13 | 17.69 | 109.71 | -662.02 | -130.31 | 338.23 | 302.73 | 35.50 | 9.528 | | |
| 4,500.00 | 4,433.19 | 4,488.54 | 4,430.15 | 18.58 | 18.12 | 109.73 | -679.22 | -132.14 | 345.48 | 309.12 | 36.36 | 9.501 | | |
| 4,600.00 | 4,531.53 | 4,588.29 | 4,528.38 | 18.98 | 18.55 | 109.76 | -696.41 | -133.97 | 352.59 | 315.41 | 37.18 | 9.482 | | |
| 4,700.00 | 4,630.37 | 4,688.21 | 4,626.81 | 19.24 | 18.96 | 109.39 | -713.56 | -135.79 | 358.68 | 320.81 | 37.87 | 9.471 | | |
| 4,800.00 | 4,729.69 | 4,788.85 | 4,726.32 | 19.50 | 19.24 | 108.86 | -728.42 | -137.37 | 363.49 | 325.08 | 38.41 | 9.462 | | |
| 4,900.00 | 4,829.34 | 4,889.69 | 4,826.51 | 19.74 | 19.49 | 108.36 | -739.82 | -138.58 | 366.97 | 328.05 | 38.92 | 9.428 | | |
| 5,000.00 | 4,929.23 | 4,990.72 | 4,927.22 | 19.96 | 19.73 | 107.87 | -747.72 | -139.42 | 369.11 | 329.70 | 39.41 | 9.367 | | |
| 5,100.00 | 5,029.22 | 5,091.89 | 5,028.29 | 20.21 | 19.96 | -89.55 | -752.08 | -139.88 | 369.89 | 330.00 | 39.90 | 9.271 | | |

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



WOG

Anticollision Report

| | | | |
|---------------------------|-------------------------|-------------------------------------|--|
| Company: | Whiting Petroleum Corp. | Local Co-ordinate Reference: | Well Horsetail #30H-1948 |
| Project: | Weld County, CO | TVD Reference: | KBE @ 4746.00usft (Original Well Elev) |
| Reference Site: | Sec 30-T10N-R57W | MD Reference: | KBE @ 4746.00usft (Original Well Elev) |
| Site Error: | 0.00 usft | North Reference: | True |
| Reference Well: | Horsetail #30H-1948 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.00 usft | Output errors are at | 3.00 sigma |
| Reference Wellbore | HZ | Database: | LandmarkEDM |
| Reference Design: | APD | Offset TVD Reference: | Offset Datum |

| Offset Design | | | | | | | | | | | | | Offset Site Error: | 0.00 usft |
|-----------------------------------|-----------------------|-----------------------|-----------------------|------------------|---------------|-----------------------|-------------------------------------|--------------|------------------------|-------------------------|---------------------------|-------------------|--------------------|-----------|
| Survey Program: 0-MWD+IFR1+MS+sag | | | | | | | | | | | | | Offset Well Error: | 0.00 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 | | |
| 5,200.00 | 5,129.22 | 5,192.83 | 5,129.22 | 20.42 | 20.21 | -89.69 | -753.02 | -139.98 | 369.99 | 329.62 | 40.36 | 9.167 | | |
| 5,300.00 | 5,229.21 | 5,292.82 | 5,229.21 | 20.63 | 20.42 | -89.66 | -753.02 | -139.98 | 369.98 | 329.19 | 40.79 | 9.070 | | |
| 5,335.11 | 5,264.25 | 5,327.86 | 5,264.25 | 20.69 | 20.50 | -90.00 | -753.02 | -139.98 | 369.98 | 329.05 | 40.93 | 9.040 | | |
| 5,400.00 | 5,328.28 | 5,392.49 | 5,328.87 | 20.79 | 20.63 | -91.46 | -752.33 | -139.98 | 370.10 | 328.91 | 41.18 | 8.986 | | |
| 5,500.00 | 5,423.15 | 5,494.98 | 5,430.05 | 20.86 | 20.78 | -94.03 | -737.04 | -139.92 | 370.84 | 329.42 | 41.42 | 8.954 | | |
| 5,600.00 | 5,510.33 | 5,601.07 | 5,529.53 | 20.86 | 20.84 | -96.48 | -700.72 | -139.79 | 372.14 | 330.71 | 41.43 | 8.982 | | |
| 5,700.00 | 5,586.64 | 5,710.85 | 5,622.52 | 20.80 | 20.83 | -98.70 | -642.76 | -139.58 | 373.80 | 332.58 | 41.23 | 9.067 | | |
| 5,800.00 | 5,649.25 | 5,824.16 | 5,703.60 | 20.72 | 20.77 | -100.61 | -563.92 | -139.29 | 375.53 | 334.66 | 40.86 | 9.190 | | |
| 5,900.00 | 5,695.89 | 5,940.58 | 5,767.16 | 20.64 | 20.69 | -102.08 | -466.68 | -138.94 | 376.97 | 336.51 | 40.46 | 9.316 | | |
| 6,000.00 | 5,724.82 | 6,059.34 | 5,808.16 | 20.59 | 20.65 | -103.06 | -355.49 | -138.54 | 377.82 | 337.63 | 40.19 | 9.401 | | |
| 6,099.99 | 5,734.99 | 6,179.39 | 5,822.98 | 20.58 | 20.68 | -103.46 | -236.63 | -138.11 | 377.86 | 337.68 | 40.18 | 9.403 | | |
| 6,200.00 | 5,735.00 | 6,280.18 | 5,823.00 | 20.66 | 20.80 | -103.48 | -135.84 | -137.74 | 377.39 | 336.96 | 40.43 | 9.334 | | |
| 6,300.00 | 5,735.00 | 6,380.18 | 5,823.00 | 20.85 | 21.02 | -103.50 | -35.84 | -137.38 | 376.92 | 336.04 | 40.88 | 9.221 | | |
| 6,400.00 | 5,735.00 | 6,480.18 | 5,823.00 | 21.15 | 21.34 | -103.52 | 64.16 | -137.02 | 376.45 | 334.93 | 41.52 | 9.067 | | |
| 6,500.00 | 5,735.00 | 6,580.18 | 5,823.00 | 21.55 | 21.75 | -103.54 | 164.16 | -136.66 | 375.98 | 333.64 | 42.34 | 8.880 | | |
| 6,600.00 | 5,735.00 | 6,680.18 | 5,823.00 | 22.04 | 22.26 | -103.55 | 264.15 | -136.29 | 375.51 | 332.17 | 43.34 | 8.664 | | |
| 6,700.00 | 5,735.00 | 6,780.18 | 5,823.00 | 22.63 | 22.85 | -103.57 | 364.15 | -135.93 | 375.04 | 330.53 | 44.50 | 8.427 | | |
| 6,800.00 | 5,735.00 | 6,880.18 | 5,823.00 | 23.30 | 23.52 | -103.59 | 464.15 | -135.57 | 374.57 | 328.75 | 45.82 | 8.175 | | |
| 6,900.00 | 5,735.00 | 6,980.17 | 5,823.00 | 24.04 | 24.26 | -103.61 | 564.15 | -135.21 | 374.09 | 326.82 | 47.27 | 7.914 | | |
| 7,000.00 | 5,735.00 | 7,080.17 | 5,823.00 | 24.85 | 25.06 | -103.62 | 664.15 | -134.84 | 373.62 | 324.78 | 48.85 | 7.649 | | |
| 7,100.00 | 5,735.00 | 7,180.17 | 5,823.00 | 25.72 | 25.92 | -103.64 | 764.14 | -134.48 | 373.15 | 322.61 | 50.54 | 7.384 | | |
| 7,200.00 | 5,735.00 | 7,280.17 | 5,823.00 | 26.64 | 26.84 | -103.66 | 864.14 | -134.12 | 372.68 | 320.35 | 52.33 | 7.122 | | |
| 7,300.00 | 5,735.00 | 7,380.17 | 5,823.00 | 27.61 | 27.80 | -103.68 | 964.14 | -133.76 | 372.21 | 317.99 | 54.22 | 6.865 | | |
| 7,400.00 | 5,735.00 | 7,480.17 | 5,823.00 | 28.62 | 28.81 | -103.69 | 1,064.14 | -133.39 | 371.74 | 315.55 | 56.19 | 6.616 | | |
| 7,500.00 | 5,735.00 | 7,580.17 | 5,823.00 | 29.67 | 29.85 | -103.71 | 1,164.14 | -133.03 | 371.27 | 313.04 | 58.23 | 6.376 | | |
| 7,600.00 | 5,735.00 | 7,680.17 | 5,823.00 | 30.75 | 30.93 | -103.73 | 1,264.14 | -132.67 | 370.80 | 310.45 | 60.34 | 6.145 | | |
| 7,700.00 | 5,735.00 | 7,780.16 | 5,823.00 | 31.87 | 32.04 | -103.75 | 1,364.13 | -132.31 | 370.33 | 307.81 | 62.51 | 5.924 | | |
| 7,800.00 | 5,735.00 | 7,880.16 | 5,823.00 | 33.01 | 33.18 | -103.76 | 1,464.13 | -131.94 | 369.85 | 305.12 | 64.74 | 5.713 | | |
| 7,900.00 | 5,735.00 | 7,980.16 | 5,823.00 | 34.18 | 34.35 | -103.78 | 1,564.13 | -131.58 | 369.38 | 302.37 | 67.01 | 5.512 | | |
| 8,000.00 | 5,735.00 | 8,080.16 | 5,823.00 | 35.37 | 35.53 | -103.80 | 1,664.13 | -131.22 | 368.91 | 299.58 | 69.33 | 5.321 | | |
| 8,100.00 | 5,735.00 | 8,180.16 | 5,823.00 | 36.59 | 36.74 | -103.82 | 1,764.13 | -130.86 | 368.44 | 296.76 | 71.69 | 5.140 | | |
| 8,200.00 | 5,735.00 | 8,280.16 | 5,823.00 | 37.82 | 37.97 | -103.84 | 1,864.12 | -130.49 | 367.97 | 293.89 | 74.08 | 4.967 | | |
| 8,300.00 | 5,735.00 | 8,380.16 | 5,823.00 | 39.06 | 39.21 | -103.85 | 1,964.12 | -130.13 | 367.50 | 291.00 | 76.50 | 4.804 | | |
| 8,400.00 | 5,735.00 | 8,480.16 | 5,823.00 | 40.32 | 40.47 | -103.87 | 2,064.12 | -129.77 | 367.03 | 288.07 | 78.96 | 4.648 | | |
| 8,500.00 | 5,735.00 | 8,580.16 | 5,823.00 | 41.60 | 41.74 | -103.89 | 2,164.12 | -129.41 | 366.56 | 285.12 | 81.44 | 4.501 | | |
| 8,600.00 | 5,735.00 | 8,680.15 | 5,823.00 | 42.89 | 43.03 | -103.91 | 2,264.12 | -129.04 | 366.09 | 282.14 | 83.94 | 4.361 | | |
| 8,700.00 | 5,735.00 | 8,780.15 | 5,823.00 | 44.19 | 44.32 | -103.93 | 2,364.12 | -128.68 | 365.62 | 279.15 | 86.47 | 4.228 | | |
| 8,800.00 | 5,735.00 | 8,880.15 | 5,823.00 | 45.50 | 45.63 | -103.95 | 2,464.11 | -128.32 | 365.15 | 276.13 | 89.02 | 4.102 | | |
| 8,900.00 | 5,735.00 | 8,980.15 | 5,823.00 | 46.82 | 46.95 | -103.96 | 2,564.11 | -127.96 | 364.68 | 273.09 | 91.58 | 3.982 | | |
| 9,000.00 | 5,735.00 | 9,080.15 | 5,823.00 | 48.14 | 48.27 | -103.98 | 2,664.11 | -127.59 | 364.21 | 270.04 | 94.17 | 3.868 | | |
| 9,100.00 | 5,735.00 | 9,180.15 | 5,823.00 | 49.48 | 49.61 | -104.00 | 2,764.11 | -127.23 | 363.74 | 266.97 | 96.76 | 3.759 | | |
| 9,200.00 | 5,735.00 | 9,280.15 | 5,823.00 | 50.82 | 50.95 | -104.02 | 2,864.11 | -126.87 | 363.27 | 263.89 | 99.38 | 3.655 | | |
| 9,300.00 | 5,735.00 | 9,380.15 | 5,823.00 | 52.17 | 52.29 | -104.04 | 2,964.10 | -126.51 | 362.80 | 260.79 | 102.00 | 3.557 | | |
| 9,400.00 | 5,735.00 | 9,480.15 | 5,823.00 | 53.53 | 53.65 | -104.06 | 3,064.10 | -126.15 | 362.33 | 257.69 | 104.64 | 3.463 | | |
| 9,500.00 | 5,735.00 | 9,580.14 | 5,823.00 | 54.89 | 55.01 | -104.08 | 3,164.10 | -125.78 | 361.86 | 254.57 | 107.29 | 3.373 | | |
| 9,600.00 | 5,735.00 | 9,680.14 | 5,823.00 | 56.26 | 56.38 | -104.09 | 3,264.10 | -125.42 | 361.39 | 251.44 | 109.95 | 3.287 | | |
| 9,700.00 | 5,735.00 | 9,780.14 | 5,823.00 | 57.64 | 57.75 | -104.11 | 3,364.10 | -125.06 | 360.91 | 248.30 | 112.61 | 3.205 | | |
| 9,800.00 | 5,735.00 | 9,880.14 | 5,823.00 | 59.01 | 59.12 | -104.13 | 3,464.10 | -124.70 | 360.44 | 245.15 | 115.29 | 3.126 | | |
| 9,900.00 | 5,735.00 | 9,980.14 | 5,823.00 | 60.40 | 60.50 | -104.15 | 3,564.09 | -124.33 | 359.97 | 242.00 | 117.98 | 3.051 | | |
| 10,000.00 | 5,735.00 | 10,080.14 | 5,823.00 | 61.78 | 61.89 | -104.17 | 3,664.09 | -123.97 | 359.50 | 238.84 | 120.67 | 2.979 | | |
| 10,100.00 | 5,735.00 | 10,180.14 | 5,823.00 | 63.17 | 63.28 | -104.19 | 3,764.09 | -123.61 | 359.03 | 235.67 | 123.37 | 2.910 | | |
| 10,200.00 | 5,735.00 | 10,280.14 | 5,823.00 | 64.57 | 64.67 | -104.21 | 3,864.09 | -123.25 | 358.56 | 232.49 | 126.08 | 2.844 | | |

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



WOG

Anticollision Report

| | | | |
|---------------------------|-------------------------|-------------------------------------|--|
| Company: | Whiting Petroleum Corp. | Local Co-ordinate Reference: | Well Horsetail #30H-1948 |
| Project: | Weld County, CO | TVD Reference: | KBE @ 4746.00usft (Original Well Elev) |
| Reference Site: | Sec 30-T10N-R57W | MD Reference: | KBE @ 4746.00usft (Original Well Elev) |
| Site Error: | 0.00 usft | North Reference: | True |
| Reference Well: | Horsetail #30H-1948 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.00 usft | Output errors are at | 3.00 sigma |
| Reference Wellbore | Hz | Database: | LandmarkEDM |
| Reference Design: | APD | Offset TVD Reference: | Offset Datum |

| Offset Design | | | | | | | | | | | | Offset Site Error: | 0.00 usft |
|-----------------------------------|-----------------------|-----------------------|-----------------------|------------------|---------------|-----------------------|-------------------------------------|--------------|------------------------|-------------------------|---------------------------|--------------------|-----------|
| Survey Program: 0-MWD+IFR1+MS+sag | | | | | | | | | | | | Offset Well Error: | 0.00 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 | |
| 10,300.00 | 5,735.00 | 10,380.13 | 5,823.00 | 65.97 | 66.07 | -104.23 | 3,964.09 | -122.88 | 358.09 | 229.31 | 128.79 | 2.780 | |
| 10,400.00 | 5,735.00 | 10,480.13 | 5,823.00 | 67.37 | 67.46 | -104.25 | 4,064.08 | -122.52 | 357.62 | 226.12 | 131.51 | 2.719 | |
| 10,500.00 | 5,735.00 | 10,580.13 | 5,823.00 | 68.77 | 68.87 | -104.26 | 4,164.08 | -122.16 | 357.15 | 222.92 | 134.23 | 2.661 | |
| 10,600.00 | 5,735.00 | 10,680.13 | 5,823.00 | 70.18 | 70.27 | -104.28 | 4,264.08 | -121.80 | 356.69 | 219.73 | 136.96 | 2.604 | |
| 10,700.00 | 5,735.00 | 10,780.13 | 5,823.00 | 71.59 | 71.68 | -104.30 | 4,364.08 | -121.43 | 356.22 | 216.52 | 139.69 | 2.550 | |
| 10,800.00 | 5,735.00 | 10,880.13 | 5,823.00 | 73.00 | 73.09 | -104.32 | 4,464.08 | -121.07 | 355.75 | 213.31 | 142.43 | 2.498 | |
| 10,900.00 | 5,735.00 | 10,980.13 | 5,823.00 | 74.41 | 74.50 | -104.34 | 4,564.07 | -120.71 | 355.28 | 210.10 | 145.17 | 2.447 | |
| 11,000.00 | 5,735.00 | 11,080.13 | 5,823.00 | 75.83 | 75.92 | -104.36 | 4,664.07 | -120.35 | 354.81 | 206.89 | 147.92 | 2.399 | |
| 11,100.00 | 5,735.00 | 11,180.13 | 5,823.00 | 77.25 | 77.33 | -104.38 | 4,764.07 | -119.98 | 354.34 | 203.67 | 150.67 | 2.352 | |
| 11,200.00 | 5,735.00 | 11,280.12 | 5,823.00 | 78.67 | 78.75 | -104.40 | 4,864.07 | -119.62 | 353.87 | 200.45 | 153.42 | 2.307 | |
| 11,300.00 | 5,735.00 | 11,380.12 | 5,823.00 | 80.09 | 80.17 | -104.42 | 4,964.07 | -119.26 | 353.40 | 197.22 | 156.18 | 2.263 | |
| 11,400.00 | 5,735.00 | 11,480.12 | 5,823.00 | 81.51 | 81.59 | -104.44 | 5,064.07 | -118.90 | 352.93 | 193.99 | 158.94 | 2.221 | |
| 11,500.00 | 5,735.00 | 11,580.12 | 5,823.00 | 82.94 | 83.02 | -104.46 | 5,164.06 | -118.53 | 352.46 | 190.76 | 161.70 | 2.180 | |
| 11,600.00 | 5,735.00 | 11,680.12 | 5,823.00 | 84.36 | 84.44 | -104.48 | 5,264.06 | -118.17 | 351.99 | 187.53 | 164.46 | 2.140 | |
| 11,700.00 | 5,735.00 | 11,780.12 | 5,823.00 | 85.79 | 85.87 | -104.50 | 5,364.06 | -117.81 | 351.52 | 184.29 | 167.23 | 2.102 | |
| 11,800.00 | 5,735.00 | 11,880.12 | 5,823.00 | 87.22 | 87.30 | -104.52 | 5,464.06 | -117.45 | 351.05 | 181.05 | 170.00 | 2.065 | |
| 11,900.00 | 5,735.00 | 11,980.12 | 5,823.00 | 88.65 | 88.73 | -104.54 | 5,564.06 | -117.08 | 350.58 | 177.81 | 172.77 | 2.029 | |
| 12,000.00 | 5,735.00 | 12,080.11 | 5,823.00 | 90.09 | 90.16 | -104.56 | 5,664.05 | -116.72 | 350.11 | 174.57 | 175.54 | 1.994 | |
| 12,100.00 | 5,735.00 | 12,180.11 | 5,823.00 | 91.52 | 91.59 | -104.58 | 5,764.05 | -116.36 | 349.64 | 171.32 | 178.32 | 1.961 | |
| 12,200.00 | 5,735.00 | 12,280.11 | 5,823.00 | 92.96 | 93.02 | -104.60 | 5,864.05 | -116.00 | 349.17 | 168.08 | 181.10 | 1.928 | |
| 12,300.00 | 5,735.00 | 12,380.11 | 5,823.00 | 94.39 | 94.46 | -104.62 | 5,964.05 | -115.63 | 348.70 | 164.83 | 183.87 | 1.896 | |
| 12,400.00 | 5,735.00 | 12,480.11 | 5,823.00 | 95.83 | 95.90 | -104.64 | 6,064.05 | -115.27 | 348.24 | 161.58 | 186.66 | 1.866 | |
| 12,500.00 | 5,735.00 | 12,580.11 | 5,823.00 | 97.27 | 97.33 | -104.66 | 6,164.05 | -114.91 | 347.77 | 158.33 | 189.44 | 1.836 | |
| 12,600.00 | 5,735.00 | 12,680.11 | 5,823.00 | 98.71 | 98.77 | -104.68 | 6,264.04 | -114.55 | 347.30 | 155.08 | 192.22 | 1.807 | |
| 12,700.00 | 5,735.00 | 12,780.11 | 5,823.00 | 100.15 | 100.21 | -104.70 | 6,364.04 | -114.18 | 346.83 | 151.82 | 195.01 | 1.779 | |
| 12,800.00 | 5,735.00 | 12,880.11 | 5,823.00 | 101.59 | 101.65 | -104.72 | 6,464.04 | -113.82 | 346.36 | 148.57 | 197.79 | 1.751 | |
| 12,900.00 | 5,735.00 | 12,980.10 | 5,823.00 | 103.03 | 103.09 | -104.74 | 6,564.04 | -113.46 | 345.89 | 145.31 | 200.58 | 1.724 | |
| 13,000.00 | 5,735.00 | 13,080.10 | 5,823.00 | 104.47 | 104.53 | -104.76 | 6,664.04 | -113.10 | 345.42 | 142.05 | 203.37 | 1.699 | |
| 13,100.00 | 5,735.00 | 13,180.10 | 5,823.00 | 105.92 | 105.97 | -104.78 | 6,764.03 | -112.73 | 344.95 | 138.80 | 206.16 | 1.673 | |
| 13,200.00 | 5,735.00 | 13,280.10 | 5,823.00 | 107.36 | 107.42 | -104.80 | 6,864.03 | -112.37 | 344.48 | 135.54 | 208.95 | 1.649 | |
| 13,300.00 | 5,735.00 | 13,380.10 | 5,823.00 | 108.81 | 108.86 | -104.82 | 6,964.03 | -112.01 | 344.02 | 132.28 | 211.74 | 1.625 | |
| 13,400.00 | 5,735.00 | 13,480.10 | 5,823.00 | 110.25 | 110.31 | -104.84 | 7,064.03 | -111.65 | 343.55 | 129.02 | 214.53 | 1.601 | |
| 13,500.00 | 5,735.00 | 13,580.10 | 5,823.00 | 111.70 | 111.75 | -104.86 | 7,164.03 | -111.29 | 343.08 | 125.75 | 217.32 | 1.579 | |
| 13,600.00 | 5,735.00 | 13,680.10 | 5,823.00 | 113.15 | 113.20 | -104.88 | 7,264.03 | -110.92 | 342.61 | 122.49 | 220.12 | 1.556 | |
| 13,700.00 | 5,735.00 | 13,780.09 | 5,823.00 | 114.59 | 114.64 | -104.90 | 7,364.02 | -110.56 | 342.14 | 119.23 | 222.91 | 1.535 | |
| 13,800.00 | 5,735.00 | 13,880.09 | 5,823.00 | 116.04 | 116.09 | -104.93 | 7,464.02 | -110.20 | 341.67 | 115.96 | 225.71 | 1.514 | |
| 13,876.00 | 5,735.00 | 13,954.90 | 5,823.00 | 117.14 | 117.17 | -104.94 | 7,538.82 | -109.93 | 341.32 | 113.51 | 227.81 | 1.498 Level 3, SF | |



WOG

Anticollision Report

| | | | |
|---------------------------|-------------------------|-------------------------------------|--|
| Company: | Whiting Petroleum Corp. | Local Co-ordinate Reference: | Well Horsetail #30H-1948 |
| Project: | Weld County, CO | TVD Reference: | KBE @ 4746.00usft (Original Well Elev) |
| Reference Site: | Sec 30-T10N-R57W | MD Reference: | KBE @ 4746.00usft (Original Well Elev) |
| Site Error: | 0.00 usft | North Reference: | True |
| Reference Well: | Horsetail #30H-1948 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.00 usft | Output errors are at | 3.00 sigma |
| Reference Wellbore | Hz | Database: | LandmarkEDM |
| Reference Design: | APD | Offset TVD Reference: | Offset Datum |

| Offset Design | | | | | | | | | | | | | Offset Site Error: | 0.00 usft |
|-----------------------------------|-----------------------|-----------------------|-----------------------|------------------|---------------|-----------------------|-------------------------------------|--------------|------------------------|-------------------------|---------------------------|-------------------|--------------------|-----------|
| Survey Program: 0-MWD+IFR1+MS+sag | | | | | | | | | | | | | Offset Well Error: | 0.00 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 | | |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | -108.30 | -49.58 | -149.95 | 157.93 | | | | | |
| 100.00 | 100.00 | 99.00 | 99.00 | 0.13 | 0.13 | -108.30 | -49.58 | -149.95 | 157.93 | 157.67 | 0.27 | 595.930 | | |
| 200.00 | 200.00 | 199.00 | 199.00 | 0.47 | 0.47 | -108.30 | -49.58 | -149.95 | 157.93 | 156.99 | 0.94 | 168.500 | | |
| 300.00 | 300.00 | 299.00 | 299.00 | 0.81 | 0.80 | -108.30 | -49.58 | -149.95 | 157.93 | 156.32 | 1.61 | 97.998 CC, ES | | |
| 400.00 | 399.98 | 390.91 | 390.85 | 1.11 | 1.11 | 89.81 | -48.60 | -152.66 | 160.40 | 158.05 | 2.35 | 68.254 | | |
| 500.00 | 499.84 | 489.50 | 489.20 | 1.41 | 1.45 | 92.90 | -46.25 | -159.09 | 166.19 | 163.24 | 2.96 | 56.219 | | |
| 600.00 | 599.45 | 588.50 | 587.96 | 1.73 | 1.77 | 96.91 | -43.89 | -165.58 | 172.91 | 169.32 | 3.58 | 48.275 | | |
| 700.00 | 698.70 | 687.00 | 686.22 | 2.07 | 2.11 | 101.61 | -41.54 | -172.04 | 181.14 | 176.90 | 4.24 | 42.726 | | |
| 800.00 | 797.47 | 784.87 | 783.85 | 2.43 | 2.44 | 106.79 | -39.21 | -178.45 | 191.57 | 186.64 | 4.92 | 38.904 | | |
| 900.00 | 895.77 | 882.16 | 880.90 | 2.83 | 2.78 | 112.18 | -36.89 | -184.83 | 204.56 | 198.93 | 5.63 | 36.362 | | |
| 1,000.00 | 994.03 | 979.40 | 977.91 | 3.24 | 3.12 | 117.04 | -34.57 | -191.20 | 219.31 | 212.99 | 6.32 | 34.677 | | |
| 1,100.00 | 1,092.29 | 1,076.65 | 1,074.92 | 3.66 | 3.45 | 121.28 | -32.25 | -197.58 | 235.46 | 228.44 | 7.02 | 33.529 | | |
| 1,200.00 | 1,190.55 | 1,173.89 | 1,171.92 | 4.08 | 3.79 | 124.96 | -29.92 | -203.95 | 252.73 | 245.01 | 7.72 | 32.746 | | |
| 1,300.00 | 1,288.81 | 1,271.13 | 1,268.93 | 4.51 | 4.13 | 128.18 | -27.60 | -210.33 | 270.90 | 262.49 | 8.41 | 32.211 | | |
| 1,400.00 | 1,387.07 | 1,368.38 | 1,365.94 | 4.94 | 4.47 | 130.99 | -25.28 | -216.70 | 289.81 | 280.71 | 9.10 | 31.847 | | |
| 1,500.00 | 1,485.34 | 1,465.62 | 1,462.94 | 5.37 | 4.81 | 133.46 | -22.96 | -223.08 | 309.33 | 299.54 | 9.79 | 31.602 | | |
| 1,600.00 | 1,583.60 | 1,562.87 | 1,559.95 | 5.80 | 5.15 | 135.64 | -20.64 | -229.45 | 329.34 | 318.86 | 10.47 | 31.441 | | |
| 1,700.00 | 1,681.86 | 1,660.11 | 1,656.96 | 6.24 | 5.49 | 137.57 | -18.32 | -235.82 | 349.75 | 338.59 | 11.16 | 31.340 | | |
| 1,800.00 | 1,780.12 | 1,757.35 | 1,753.97 | 6.67 | 5.83 | 139.28 | -16.00 | -242.20 | 370.51 | 358.67 | 11.84 | 31.282 | | |
| 1,900.00 | 1,878.38 | 1,854.60 | 1,850.97 | 7.11 | 6.17 | 140.82 | -13.68 | -248.57 | 391.56 | 379.03 | 12.53 | 31.254 | | |
| 2,000.00 | 1,976.64 | 1,951.84 | 1,947.98 | 7.55 | 6.51 | 142.20 | -11.36 | -254.95 | 412.85 | 399.64 | 13.21 | 31.249 | | |
| 2,100.00 | 2,074.91 | 2,049.09 | 2,044.99 | 7.99 | 6.85 | 143.44 | -9.04 | -261.32 | 434.35 | 420.46 | 13.89 | 31.260 | | |
| 2,200.00 | 2,173.17 | 2,146.33 | 2,141.99 | 8.43 | 7.19 | 144.57 | -6.72 | -267.70 | 456.03 | 441.45 | 14.58 | 31.283 | | |
| 2,300.00 | 2,271.43 | 2,243.57 | 2,239.00 | 8.86 | 7.53 | 145.59 | -4.40 | -274.07 | 477.86 | 462.60 | 15.26 | 31.314 | | |
| 2,400.00 | 2,369.69 | 2,340.82 | 2,336.01 | 9.30 | 7.88 | 146.53 | -2.08 | -280.44 | 499.83 | 483.89 | 15.94 | 31.351 | | |
| 2,500.00 | 2,467.95 | 2,438.06 | 2,433.02 | 9.74 | 8.22 | 147.39 | 0.24 | -286.82 | 521.91 | 505.29 | 16.63 | 31.392 | | |
| 2,600.00 | 2,566.21 | 2,535.31 | 2,530.02 | 10.18 | 8.56 | 148.18 | 2.56 | -293.19 | 544.10 | 526.79 | 17.31 | 31.436 | | |
| 2,700.00 | 2,664.48 | 2,632.55 | 2,627.03 | 10.63 | 8.90 | 148.90 | 4.88 | -299.57 | 566.38 | 548.39 | 17.99 | 31.481 | | |
| 2,800.00 | 2,762.74 | 2,729.79 | 2,724.04 | 11.07 | 9.24 | 149.58 | 7.20 | -305.94 | 588.73 | 570.06 | 18.67 | 31.528 | | |
| 2,900.00 | 2,861.00 | 2,827.04 | 2,821.04 | 11.51 | 9.58 | 150.20 | 9.52 | -312.32 | 611.16 | 591.81 | 19.36 | 31.574 | | |
| 3,000.00 | 2,959.26 | 2,924.28 | 2,918.05 | 11.95 | 9.92 | 150.78 | 11.84 | -318.69 | 633.66 | 613.62 | 20.04 | 31.621 | | |
| 3,100.00 | 3,057.52 | 3,021.53 | 3,015.06 | 12.39 | 10.26 | 151.32 | 14.16 | -325.06 | 656.21 | 635.48 | 20.72 | 31.667 | | |
| 3,200.00 | 3,155.78 | 3,118.77 | 3,112.07 | 12.83 | 10.60 | 151.82 | 16.48 | -331.44 | 678.81 | 657.40 | 21.41 | 31.713 | | |
| 3,300.00 | 3,254.05 | 3,216.01 | 3,209.07 | 13.27 | 10.94 | 152.29 | 18.80 | -337.81 | 701.46 | 679.37 | 22.09 | 31.757 | | |
| 3,400.00 | 3,352.31 | 3,313.26 | 3,306.08 | 13.71 | 11.28 | 152.73 | 21.12 | -344.19 | 724.15 | 701.38 | 22.77 | 31.801 | | |
| 3,500.00 | 3,450.57 | 3,410.50 | 3,403.09 | 14.16 | 11.63 | 153.15 | 23.44 | -350.56 | 746.88 | 723.42 | 23.45 | 31.844 | | |
| 3,600.00 | 3,548.83 | 3,507.75 | 3,500.09 | 14.60 | 11.97 | 153.54 | 25.76 | -356.94 | 769.64 | 745.50 | 24.14 | 31.885 | | |
| 3,700.00 | 3,647.09 | 3,609.79 | 3,601.89 | 15.04 | 12.32 | 153.92 | 28.18 | -363.59 | 792.42 | 767.57 | 24.85 | 31.890 | | |
| 3,800.00 | 3,745.35 | 3,752.31 | 3,744.35 | 15.48 | 12.75 | 154.67 | 29.15 | -366.26 | 810.50 | 784.78 | 25.72 | 31.516 | | |
| 3,900.00 | 3,843.62 | 3,850.57 | 3,842.62 | 15.92 | 13.04 | 155.21 | 29.15 | -366.26 | 827.37 | 801.01 | 26.36 | 31.391 | | |
| 4,000.00 | 3,941.88 | 3,948.84 | 3,940.88 | 16.37 | 13.34 | 155.74 | 29.15 | -366.26 | 844.31 | 817.30 | 27.01 | 31.264 | | |
| 4,100.00 | 4,040.14 | 4,047.10 | 4,039.14 | 16.81 | 13.65 | 156.25 | 29.15 | -366.26 | 861.32 | 833.66 | 27.66 | 31.144 | | |
| 4,200.00 | 4,138.40 | 4,145.36 | 4,137.40 | 17.25 | 13.95 | 156.73 | 29.15 | -366.26 | 878.39 | 850.08 | 28.31 | 31.031 | | |
| 4,300.00 | 4,236.66 | 4,243.62 | 4,236.66 | 17.69 | 14.26 | 157.20 | 29.15 | -366.26 | 895.52 | 866.56 | 28.96 | 30.924 | | |
| 4,400.00 | 4,334.92 | 4,341.88 | 4,333.92 | 18.13 | 14.57 | 157.65 | 29.15 | -366.26 | 912.70 | 883.09 | 29.61 | 30.823 | | |
| 4,500.00 | 4,433.19 | 4,440.14 | 4,432.19 | 18.58 | 14.88 | 158.09 | 29.15 | -366.26 | 929.94 | 899.68 | 30.26 | 30.728 | | |
| 4,600.00 | 4,531.53 | 4,538.48 | 4,530.53 | 18.98 | 15.19 | 158.56 | 29.15 | -366.26 | 946.83 | 915.94 | 30.89 | 30.649 | | |
| 4,700.00 | 4,630.37 | 4,637.33 | 4,629.37 | 19.24 | 15.50 | 158.99 | 29.15 | -366.26 | 960.94 | 929.49 | 31.45 | 30.551 | | |
| 4,800.00 | 4,729.69 | 4,736.64 | 4,728.69 | 19.50 | 15.82 | 159.31 | 29.15 | -366.26 | 971.85 | 939.83 | 32.02 | 30.353 | | |
| 4,900.00 | 4,829.34 | 6,100.85 | 5,538.00 | 19.74 | 20.71 | 111.03 | -749.30 | -366.27 | 925.79 | 899.46 | 26.33 | 35.167 | | |
| 5,000.00 | 4,929.23 | 6,105.35 | 5,538.00 | 19.96 | 20.75 | 108.58 | -753.80 | -366.27 | 852.60 | 823.97 | 28.63 | 29.781 | | |
| 5,100.00 | 5,029.22 | 6,106.55 | 5,538.00 | 20.21 | 20.76 | -90.00 | -755.00 | -366.27 | 784.48 | 753.34 | 31.14 | 25.191 | | |

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



WOG

Anticollision Report

| | | | |
|---------------------------|-------------------------|-------------------------------------|--|
| Company: | Whiting Petroleum Corp. | Local Co-ordinate Reference: | Well Horsetail #30H-1948 |
| Project: | Weld County, CO | TVD Reference: | KBE @ 4746.00usft (Original Well Elev) |
| Reference Site: | Sec 30-T10N-R57W | MD Reference: | KBE @ 4746.00usft (Original Well Elev) |
| Site Error: | 0.00 usft | North Reference: | True |
| Reference Well: | Horsetail #30H-1948 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.00 usft | Output errors are at | 3.00 sigma |
| Reference Wellbore | Hz | Database: | LandmarkEDM |
| Reference Design: | APD | Offset TVD Reference: | Offset Datum |

| Offset Design | | | | | | | | | | | | Offset Site Error: | 0.00 usft |
|-----------------------------------|-----------------------|-----------------------|-----------------------|------------------|---------------|-----------------------|-------------------------------------|--------------|------------------------|-------------------------|---------------------------|--------------------|-----------|
| Survey Program: 0-MWD+IFR1+MS+sag | | | | | | | | | | | | Offset Well Error: | 0.00 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 | |
| 5,200.00 | 5,129.22 | 6,106.55 | 5,538.00 | 20.42 | 20.76 | -90.00 | -755.00 | -366.27 | 723.50 | 689.73 | 33.77 | 21.423 | |
| 5,300.00 | 5,229.21 | 6,106.33 | 5,538.00 | 20.63 | 20.75 | -90.80 | -754.77 | -366.27 | 671.94 | 635.53 | 36.41 | 18.453 | |
| 5,400.00 | 5,328.28 | 6,093.86 | 5,538.00 | 20.79 | 20.66 | -94.36 | -742.31 | -366.27 | 632.39 | 593.74 | 38.65 | 16.361 | |
| 5,500.00 | 5,423.15 | 6,062.73 | 5,538.00 | 20.86 | 20.45 | -94.40 | -711.17 | -366.27 | 607.37 | 567.32 | 40.05 | 15.167 | |
| 5,600.00 | 5,510.33 | 6,014.07 | 5,538.00 | 20.86 | 20.13 | -91.51 | -662.51 | -366.27 | 596.84 | 556.44 | 40.40 | 14.773 SF | |
| 5,636.48 | 5,539.59 | 5,992.28 | 5,538.00 | 20.84 | 19.99 | -89.91 | -640.73 | -366.27 | 596.13 | 555.84 | 40.29 | 14.796 | |
| 5,700.00 | 5,586.64 | 5,949.67 | 5,538.00 | 20.80 | 19.74 | -86.68 | -598.12 | -366.27 | 597.97 | 558.09 | 39.89 | 14.992 | |
| 5,800.00 | 5,649.25 | 5,871.90 | 5,538.00 | 20.72 | 19.31 | -81.18 | -520.34 | -366.27 | 606.09 | 567.23 | 38.86 | 15.598 | |
| 5,900.00 | 5,695.89 | 5,800.00 | 5,536.21 | 20.64 | 18.98 | -76.71 | -448.50 | -366.27 | 616.86 | 579.04 | 37.82 | 16.312 | |
| 6,000.00 | 5,724.82 | 5,730.65 | 5,525.87 | 20.59 | 18.70 | -72.69 | -379.97 | -366.26 | 629.28 | 592.40 | 36.88 | 17.065 | |
| 6,099.99 | 5,734.99 | 5,665.55 | 5,507.98 | 20.58 | 18.47 | -69.26 | -317.43 | -366.26 | 642.10 | 605.92 | 36.19 | 17.743 | |
| 6,200.00 | 5,735.00 | 5,600.00 | 5,482.22 | 20.66 | 18.27 | -67.09 | -257.20 | -366.26 | 657.59 | 621.95 | 35.65 | 18.446 | |
| 6,300.00 | 5,735.00 | 5,550.00 | 5,457.60 | 20.85 | 18.14 | -65.11 | -213.70 | -366.26 | 679.74 | 644.40 | 35.34 | 19.236 | |
| 6,400.00 | 5,735.00 | 5,500.00 | 5,428.92 | 21.15 | 18.01 | -62.88 | -172.76 | -366.26 | 709.16 | 674.10 | 35.06 | 20.225 | |
| 6,500.00 | 5,735.00 | 5,450.00 | 5,396.46 | 21.55 | 17.88 | -60.45 | -134.76 | -366.26 | 746.12 | 711.29 | 34.83 | 21.423 | |
| 6,600.00 | 5,735.00 | 5,420.84 | 5,375.89 | 22.04 | 17.81 | -58.98 | -114.10 | -366.26 | 790.17 | 755.19 | 34.98 | 22.590 | |
| 6,700.00 | 5,735.00 | 5,400.00 | 5,360.50 | 22.63 | 17.76 | -57.90 | -100.05 | -366.26 | 841.23 | 805.95 | 35.27 | 23.848 | |
| 6,800.00 | 5,735.00 | 5,350.00 | 5,321.38 | 23.30 | 17.63 | -55.28 | -68.94 | -366.26 | 898.22 | 863.09 | 35.12 | 25.573 | |
| 6,900.00 | 5,735.00 | 5,350.00 | 5,321.38 | 24.04 | 17.63 | -55.28 | -68.94 | -366.26 | 960.73 | 925.03 | 35.70 | 26.912 | |
| 7,000.00 | 5,735.00 | 5,300.00 | 5,279.46 | 24.85 | 17.49 | -52.64 | -41.73 | -366.26 | 1,027.85 | 992.29 | 35.56 | 28.903 | |
| 7,100.00 | 5,735.00 | 5,300.00 | 5,279.46 | 25.72 | 17.49 | -52.64 | -41.73 | -366.26 | 1,098.75 | 1,062.70 | 36.04 | 30.484 | |
| 7,200.00 | 5,735.00 | 5,278.63 | 5,260.78 | 26.64 | 17.44 | -51.52 | -31.34 | -366.26 | 1,173.31 | 1,137.09 | 36.22 | 32.392 | |
| 7,300.00 | 5,735.00 | 5,250.00 | 5,235.12 | 27.61 | 17.36 | -50.04 | -18.66 | -366.26 | 1,251.09 | 1,214.78 | 36.31 | 34.459 | |
| 7,400.00 | 5,735.00 | 5,250.00 | 5,235.12 | 28.62 | 17.36 | -50.04 | -18.66 | -366.26 | 1,330.93 | 1,294.30 | 36.64 | 36.329 | |
| 7,500.00 | 5,735.00 | 5,250.00 | 5,235.12 | 29.67 | 17.36 | -50.04 | -18.66 | -366.26 | 1,413.34 | 1,376.43 | 36.91 | 38.290 | |
| 7,600.00 | 5,735.00 | 5,227.12 | 5,214.14 | 30.75 | 17.29 | -48.87 | -9.54 | -366.26 | 1,497.26 | 1,460.27 | 36.99 | 40.480 | |



WOG

Anticollision Report

| | | | |
|---------------------------|-------------------------|-------------------------------------|--|
| Company: | Whiting Petroleum Corp. | Local Co-ordinate Reference: | Well Horsetail #30H-1948 |
| Project: | Weld County, CO | TVD Reference: | KBE @ 4746.00usft (Original Well Elev) |
| Reference Site: | Sec 30-T10N-R57W | MD Reference: | KBE @ 4746.00usft (Original Well Elev) |
| Site Error: | 0.00 usft | North Reference: | True |
| Reference Well: | Horsetail #30H-1948 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.00 usft | Output errors are at | 3.00 sigma |
| Reference Wellbore | HZ | Database: | LandmarkEDM |
| Reference Design: | APD | Offset TVD Reference: | Offset Datum |

| Offset Design | | | | | | | | | | | | | Offset Site Error: | 0.00 usft |
|-----------------------------------|-----------------------|-----------------------|-----------------------|------------------|---------------|-----------------------|-------------------------------------|--------------|------------------------|-------------------------|---------------------------|-------------------|--------------------|-----------|
| Survey Program: 0-MWD+IFR1+MS+sag | | | | | | | | | | | | | Offset Well Error: | 0.00 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 | | |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | -118.86 | -49.58 | -89.97 | 102.73 | | | | | |
| 100.00 | 100.00 | 99.00 | 99.00 | 0.13 | 0.13 | -118.86 | -49.58 | -89.97 | 102.73 | 102.46 | 0.27 | 387.621 | | |
| 200.00 | 200.00 | 199.00 | 199.00 | 0.47 | 0.47 | -118.86 | -49.58 | -89.97 | 102.73 | 101.79 | 0.94 | 109.601 | | |
| 300.00 | 300.00 | 299.00 | 299.00 | 0.81 | 0.80 | -118.86 | -49.58 | -89.97 | 102.73 | 101.11 | 1.61 | 63.743 | | |
| 400.00 | 399.98 | 400.85 | 400.83 | 1.11 | 1.15 | 79.93 | -47.81 | -89.84 | 101.47 | 99.20 | 2.27 | 44.670 | | |
| 500.00 | 499.84 | 500.50 | 500.42 | 1.41 | 1.49 | 84.72 | -44.25 | -89.58 | 99.03 | 96.15 | 2.89 | 34.296 | | |
| 600.00 | 599.45 | 599.76 | 599.61 | 1.73 | 1.82 | 91.71 | -40.70 | -89.33 | 97.36 | 93.83 | 3.53 | 27.562 | | |
| 637.63 | 636.85 | 637.00 | 636.82 | 1.86 | 1.95 | 94.89 | -39.36 | -89.23 | 97.18 | 93.40 | 3.79 | 25.674 | CC, ES | |
| 700.00 | 698.70 | 698.54 | 698.33 | 2.07 | 2.16 | 100.73 | -37.16 | -89.07 | 97.77 | 93.56 | 4.20 | 23.250 | | |
| 800.00 | 797.47 | 796.72 | 796.44 | 2.43 | 2.49 | 111.14 | -33.65 | -88.82 | 101.82 | 96.91 | 4.90 | 20.765 | | |
| 900.00 | 895.77 | 894.34 | 894.00 | 2.83 | 2.82 | 121.67 | -30.16 | -88.57 | 110.49 | 104.88 | 5.61 | 19.686 | | |
| 1,000.00 | 994.03 | 991.92 | 991.51 | 3.24 | 3.14 | 130.57 | -26.66 | -88.32 | 122.56 | 116.26 | 6.31 | 19.436 | | |
| 1,100.00 | 1,092.29 | 1,089.49 | 1,089.03 | 3.66 | 3.47 | 137.78 | -23.17 | -88.07 | 137.09 | 130.10 | 6.98 | 19.629 | | |
| 1,200.00 | 1,190.55 | 1,187.07 | 1,186.54 | 4.08 | 3.80 | 143.58 | -19.68 | -87.82 | 153.37 | 145.72 | 7.65 | 20.046 | | |
| 1,300.00 | 1,288.81 | 1,284.65 | 1,284.06 | 4.51 | 4.13 | 148.24 | -16.19 | -87.57 | 170.90 | 162.59 | 8.31 | 20.562 | | |
| 1,400.00 | 1,387.07 | 1,382.22 | 1,381.57 | 4.94 | 4.46 | 152.03 | -12.70 | -87.31 | 189.35 | 180.38 | 8.97 | 21.111 | | |
| 1,500.00 | 1,485.34 | 1,479.80 | 1,479.09 | 5.37 | 4.79 | 155.14 | -9.21 | -87.06 | 208.45 | 198.83 | 9.63 | 21.657 | | |
| 1,600.00 | 1,583.60 | 1,577.38 | 1,576.60 | 5.80 | 5.12 | 157.73 | -5.71 | -86.81 | 228.06 | 217.78 | 10.28 | 22.182 | | |
| 1,700.00 | 1,681.86 | 1,674.95 | 1,674.11 | 6.24 | 5.45 | 159.91 | -2.22 | -86.56 | 248.05 | 237.11 | 10.94 | 22.678 | | |
| 1,800.00 | 1,780.12 | 1,772.53 | 1,771.63 | 6.67 | 5.78 | 161.77 | 1.27 | -86.31 | 268.33 | 256.74 | 11.60 | 23.142 | | |
| 1,900.00 | 1,878.38 | 1,870.11 | 1,869.14 | 7.11 | 6.11 | 163.36 | 4.76 | -86.06 | 288.85 | 276.60 | 12.25 | 23.574 | | |
| 2,000.00 | 1,976.64 | 1,967.69 | 1,966.66 | 7.55 | 6.43 | 164.74 | 8.25 | -85.81 | 309.55 | 296.64 | 12.91 | 23.974 | | |
| 2,100.00 | 2,074.91 | 2,065.26 | 2,064.17 | 7.99 | 6.76 | 165.95 | 11.74 | -85.56 | 330.41 | 316.83 | 13.57 | 24.345 | | |
| 2,200.00 | 2,173.17 | 2,162.84 | 2,161.68 | 8.43 | 7.09 | 167.02 | 15.23 | -85.30 | 351.39 | 337.15 | 14.23 | 24.689 | | |
| 2,300.00 | 2,271.43 | 2,260.42 | 2,259.20 | 8.86 | 7.42 | 167.97 | 18.73 | -85.05 | 372.47 | 357.58 | 14.89 | 25.009 | | |
| 2,400.00 | 2,369.69 | 2,357.99 | 2,356.71 | 9.30 | 7.75 | 168.81 | 22.22 | -84.80 | 393.64 | 378.08 | 15.56 | 25.305 | | |
| 2,500.00 | 2,467.95 | 2,455.57 | 2,454.23 | 9.74 | 8.08 | 169.57 | 25.71 | -84.55 | 414.88 | 398.67 | 16.22 | 25.581 | | |
| 2,600.00 | 2,566.21 | 2,553.15 | 2,551.74 | 10.18 | 8.41 | 170.25 | 29.20 | -84.30 | 436.19 | 419.31 | 16.88 | 25.839 | | |
| 2,700.00 | 2,664.48 | 2,650.72 | 2,649.25 | 10.63 | 8.74 | 170.88 | 32.69 | -84.05 | 457.55 | 440.01 | 17.55 | 26.079 | | |
| 2,800.00 | 2,762.74 | 2,748.30 | 2,746.77 | 11.07 | 9.07 | 171.44 | 36.18 | -83.80 | 478.96 | 460.75 | 18.21 | 26.303 | | |
| 2,900.00 | 2,861.00 | 2,845.88 | 2,844.28 | 11.51 | 9.40 | 171.96 | 39.67 | -83.55 | 500.41 | 481.53 | 18.87 | 26.513 | | |
| 3,000.00 | 2,959.26 | 2,943.45 | 2,941.80 | 11.95 | 9.73 | 172.43 | 43.17 | -83.29 | 521.89 | 502.35 | 19.54 | 26.710 | | |
| 3,100.00 | 3,057.52 | 3,041.03 | 3,039.31 | 12.39 | 10.06 | 172.87 | 46.66 | -83.04 | 543.41 | 523.20 | 20.20 | 26.896 | | |
| 3,200.00 | 3,155.78 | 3,138.61 | 3,136.83 | 12.83 | 10.38 | 173.28 | 50.15 | -82.79 | 564.95 | 544.08 | 20.87 | 27.070 | | |
| 3,300.00 | 3,254.05 | 3,236.19 | 3,234.34 | 13.27 | 10.71 | 173.65 | 53.64 | -82.54 | 586.52 | 564.99 | 21.54 | 27.234 | | |
| 3,400.00 | 3,352.31 | 3,333.76 | 3,331.85 | 13.71 | 11.04 | 174.00 | 57.13 | -82.29 | 608.11 | 585.91 | 22.20 | 27.390 | | |
| 3,500.00 | 3,450.57 | 3,431.34 | 3,429.37 | 14.16 | 11.37 | 174.32 | 60.62 | -82.04 | 629.72 | 606.86 | 22.87 | 27.536 | | |
| 3,600.00 | 3,548.83 | 3,528.92 | 3,526.88 | 14.60 | 11.70 | 174.63 | 64.11 | -81.79 | 651.35 | 627.82 | 23.54 | 27.675 | | |
| 3,700.00 | 3,647.09 | 3,626.49 | 3,624.40 | 15.04 | 12.03 | 174.91 | 67.61 | -81.54 | 673.00 | 648.80 | 24.20 | 27.807 | | |
| 3,800.00 | 3,745.35 | 3,724.07 | 3,721.91 | 15.48 | 12.36 | 175.18 | 71.10 | -81.29 | 694.66 | 669.79 | 24.87 | 27.932 | | |
| 3,900.00 | 3,843.62 | 3,821.65 | 3,819.42 | 15.92 | 12.69 | 175.42 | 74.59 | -81.03 | 716.33 | 690.80 | 25.54 | 28.050 | | |
| 4,000.00 | 3,941.88 | 3,919.22 | 3,916.94 | 16.37 | 13.02 | 175.66 | 78.08 | -80.78 | 738.02 | 711.81 | 26.21 | 28.163 | | |
| 4,100.00 | 4,040.14 | 4,016.80 | 4,014.45 | 16.81 | 13.35 | 175.88 | 81.57 | -80.53 | 759.72 | 732.84 | 26.87 | 28.271 | | |
| 4,200.00 | 4,138.40 | 4,114.38 | 4,111.97 | 17.25 | 13.68 | 176.09 | 85.06 | -80.28 | 781.42 | 753.88 | 27.54 | 28.373 | | |
| 4,300.00 | 4,236.66 | 4,221.27 | 4,218.80 | 17.69 | 14.01 | 176.30 | 88.65 | -80.02 | 802.98 | 774.73 | 28.25 | 28.428 | | |
| 4,400.00 | 4,334.92 | 4,336.40 | 4,333.92 | 18.13 | 14.34 | 176.42 | 89.42 | -79.97 | 822.03 | 793.07 | 28.96 | 28.386 | | |
| 4,500.00 | 4,433.19 | 4,434.66 | 4,432.19 | 18.58 | 14.67 | 176.50 | 89.42 | -79.97 | 840.56 | 810.93 | 29.63 | 28.367 | | |
| 4,600.00 | 4,531.53 | 4,533.01 | 4,530.53 | 18.98 | 15.00 | 176.58 | 89.42 | -79.97 | 858.66 | 828.37 | 30.29 | 28.353 | | |
| 4,700.00 | 4,630.37 | 4,631.85 | 4,629.37 | 19.24 | 15.33 | 176.66 | 89.42 | -79.97 | 873.75 | 842.87 | 30.88 | 28.293 | | |
| 4,800.00 | 4,729.69 | 4,731.16 | 4,728.69 | 19.50 | 15.66 | 176.72 | 89.42 | -79.97 | 885.39 | 853.91 | 31.48 | 28.125 | | |
| 4,900.00 | 4,829.34 | 4,829.34 | 4,829.34 | 19.74 | 20.66 | 115.36 | -749.30 | -79.97 | 836.51 | 819.00 | 17.51 | 47.767 | | |
| 5,000.00 | 4,929.23 | 6,228.14 | 5,606.00 | 19.96 | 20.70 | 110.42 | -753.80 | -79.97 | 745.14 | 725.90 | 19.24 | 38.733 | | |

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



WOG

Anticollision Report

| | | | |
|---------------------------|-------------------------|-------------------------------------|--|
| Company: | Whiting Petroleum Corp. | Local Co-ordinate Reference: | Well Horsetail #30H-1948 |
| Project: | Weld County, CO | TVD Reference: | KBE @ 4746.00usft (Original Well Elev) |
| Reference Site: | Sec 30-T10N-R57W | MD Reference: | KBE @ 4746.00usft (Original Well Elev) |
| Site Error: | 0.00 usft | North Reference: | True |
| Reference Well: | Horsetail #30H-1948 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.00 usft | Output errors are at | 3.00 sigma |
| Reference Wellbore | Hz | Database: | LandmarkEDM |
| Reference Design: | APD | Offset TVD Reference: | Offset Datum |

| Offset Design | | | | | | | | | | | | | Offset Site Error: | 0.00 usft |
|-----------------------------------|-----------------------|-----------------------|-----------------------|------------------|---------------|-----------------------|-------------------------------------|--------------|------------------------|-------------------------|---------------------------|-------------------|--------------------|-----------|
| Survey Program: 0-MWD+IFR1+MS+sag | | | | | | | | | | | | | Offset Well Error: | 0.00 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 | | |
| 5,100.00 | 5,029.22 | 6,229.34 | 5,606.00 | 20.21 | 20.71 | -90.00 | -755.00 | -79.97 | 655.68 | 634.30 | 21.38 | 30.669 | | |
| 5,200.00 | 5,129.22 | 6,229.34 | 5,606.00 | 20.42 | 20.71 | -90.00 | -755.00 | -79.97 | 569.52 | 545.45 | 24.08 | 23.652 | | |
| 5,300.00 | 5,229.21 | 6,229.11 | 5,606.00 | 20.63 | 20.71 | -91.97 | -754.78 | -79.97 | 488.68 | 461.13 | 27.54 | 17.744 | | |
| 5,400.00 | 5,328.28 | 6,216.65 | 5,606.00 | 20.79 | 20.61 | -101.09 | -742.31 | -79.97 | 416.84 | 385.16 | 31.68 | 13.156 | | |
| 5,500.00 | 5,423.15 | 6,185.51 | 5,606.00 | 20.86 | 20.39 | -103.33 | -711.18 | -79.97 | 360.35 | 324.40 | 35.95 | 10.024 | | |
| 5,600.00 | 5,510.33 | 6,136.85 | 5,606.00 | 20.86 | 20.07 | -100.01 | -662.52 | -79.97 | 324.59 | 285.42 | 39.17 | 8.287 | | |
| 5,700.00 | 5,586.64 | 6,072.45 | 5,606.00 | 20.80 | 19.68 | -92.64 | -598.12 | -79.97 | 310.45 | 270.22 | 40.22 | 7.718 SF | | |
| 5,730.71 | 5,607.44 | 6,049.87 | 5,606.00 | 20.78 | 19.55 | -89.89 | -575.54 | -79.97 | 309.75 | 269.65 | 40.10 | 7.724 | | |
| 5,800.00 | 5,649.25 | 5,994.68 | 5,606.00 | 20.72 | 19.24 | -83.46 | -520.35 | -79.97 | 312.55 | 273.27 | 39.28 | 7.957 | | |
| 5,900.00 | 5,695.89 | 5,906.39 | 5,606.00 | 20.64 | 18.82 | -75.10 | -432.06 | -79.97 | 322.08 | 284.53 | 37.55 | 8.577 | | |
| 6,000.00 | 5,724.82 | 5,828.91 | 5,600.34 | 20.59 | 18.52 | -69.20 | -354.85 | -79.97 | 333.69 | 297.66 | 36.03 | 9.261 | | |
| 6,099.99 | 5,734.99 | 5,750.00 | 5,582.88 | 20.58 | 18.27 | -64.00 | -277.98 | -79.97 | 346.68 | 311.93 | 34.76 | 9.975 | | |
| 6,200.00 | 5,735.00 | 5,684.01 | 5,559.49 | 20.66 | 18.17 | -60.57 | -216.31 | -79.97 | 363.77 | 329.84 | 33.93 | 10.723 | | |
| 6,300.00 | 5,735.00 | 5,621.38 | 5,530.26 | 20.85 | 18.09 | -56.62 | -160.97 | -79.97 | 390.35 | 357.25 | 33.10 | 11.793 | | |
| 6,400.00 | 5,735.00 | 5,566.71 | 5,499.48 | 21.15 | 18.00 | -52.82 | -115.82 | -79.97 | 427.06 | 394.49 | 32.57 | 13.113 | | |
| 6,500.00 | 5,735.00 | 5,519.55 | 5,469.24 | 21.55 | 17.92 | -49.42 | -79.65 | -79.97 | 473.58 | 441.18 | 32.40 | 14.616 | | |
| 6,600.00 | 5,735.00 | 5,479.09 | 5,440.78 | 22.04 | 17.84 | -46.51 | -50.91 | -79.97 | 528.88 | 496.35 | 32.53 | 16.257 | | |
| 6,700.00 | 5,735.00 | 5,450.00 | 5,418.98 | 22.63 | 17.78 | -44.46 | -31.64 | -79.97 | 591.67 | 558.66 | 33.01 | 17.924 | | |
| 6,800.00 | 5,735.00 | 5,414.55 | 5,391.02 | 23.30 | 17.70 | -42.02 | -9.87 | -79.97 | 660.48 | 627.22 | 33.26 | 19.861 | | |
| 6,900.00 | 5,735.00 | 5,400.00 | 5,379.13 | 24.04 | 17.67 | -41.05 | -1.49 | -79.97 | 734.49 | 700.57 | 33.91 | 21.658 | | |
| 7,000.00 | 5,735.00 | 5,366.39 | 5,350.79 | 24.85 | 17.59 | -38.88 | 16.57 | -79.97 | 812.10 | 778.02 | 34.08 | 23.831 | | |
| 7,100.00 | 5,735.00 | 5,350.00 | 5,336.56 | 25.72 | 17.55 | -37.87 | 24.71 | -79.97 | 893.14 | 858.65 | 34.49 | 25.893 | | |
| 7,200.00 | 5,735.00 | 5,329.66 | 5,318.57 | 26.64 | 17.50 | -36.64 | 34.18 | -79.97 | 976.78 | 942.01 | 34.77 | 28.093 | | |
| 7,300.00 | 5,735.00 | 5,300.00 | 5,291.68 | 27.61 | 17.42 | -34.94 | 46.71 | -79.97 | 1,062.87 | 1,027.99 | 34.88 | 30.471 | | |
| 7,400.00 | 5,735.00 | 5,300.00 | 5,291.68 | 28.62 | 17.42 | -34.94 | 46.71 | -79.97 | 1,150.15 | 1,114.85 | 35.30 | 32.581 | | |
| 7,500.00 | 5,735.00 | 5,300.00 | 5,291.68 | 29.67 | 17.42 | -34.94 | 46.71 | -79.97 | 1,239.35 | 1,203.72 | 35.64 | 34.778 | | |
| 7,600.00 | 5,735.00 | 5,278.11 | 5,271.42 | 30.75 | 17.36 | -33.74 | 54.97 | -79.97 | 1,329.46 | 1,293.73 | 35.73 | 37.206 | | |
| 7,700.00 | 5,735.00 | 5,268.35 | 5,262.27 | 31.87 | 17.34 | -33.22 | 58.37 | -79.97 | 1,420.78 | 1,384.87 | 35.91 | 39.566 | | |
| 7,800.00 | 5,735.00 | 5,250.00 | 5,244.90 | 33.01 | 17.29 | -32.28 | 64.31 | -79.97 | 1,513.10 | 1,477.10 | 36.00 | 42.026 | | |



WOG

Anticollision Report

| | | | |
|---------------------------|-------------------------|-------------------------------------|--|
| Company: | Whiting Petroleum Corp. | Local Co-ordinate Reference: | Well Horsetail #30H-1948 |
| Project: | Weld County, CO | TVD Reference: | KBE @ 4746.00usft (Original Well Elev) |
| Reference Site: | Sec 30-T10N-R57W | MD Reference: | KBE @ 4746.00usft (Original Well Elev) |
| Site Error: | 0.00 usft | North Reference: | True |
| Reference Well: | Horsetail #30H-1948 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.00 usft | Output errors are at | 3.00 sigma |
| Reference Wellbore | Hz | Database: | LandmarkEDM |
| Reference Design: | APD | Offset TVD Reference: | Offset Datum |

| Offset Design | | | | | | | | | | | | | Offset Site Error: | 0.00 usft |
|-----------------------------------|-----------------------|-----------------------|-----------------------|------------------|---------------|-----------------------|-------------------------------------|--------------|------------------------|-------------------------|---------------------------|-------------------|--------------------|-----------|
| Survey Program: 0-MWD+IFR1+MS+sag | | | | | | | | | | | | | Offset Well Error: | 0.00 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 | | |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | -149.34 | -50.59 | -29.99 | 58.82 | | | | | |
| 100.00 | 100.00 | 99.00 | 99.00 | 0.13 | 0.13 | -149.34 | -50.59 | -29.99 | 58.81 | 58.55 | 0.27 | 221.929 | | |
| 200.00 | 200.00 | 199.00 | 199.00 | 0.47 | 0.47 | -149.34 | -50.59 | -29.99 | 58.81 | 57.88 | 0.94 | 62.751 | | |
| 300.00 | 300.00 | 299.00 | 299.00 | 0.81 | 0.80 | -149.34 | -50.59 | -29.99 | 58.81 | 57.20 | 1.61 | 36.495 | | |
| 400.00 | 399.98 | 400.82 | 400.80 | 1.11 | 1.14 | 48.26 | -49.56 | -28.55 | 56.04 | 53.74 | 2.31 | 24.273 | | |
| 500.00 | 499.84 | 501.39 | 501.25 | 1.41 | 1.48 | 50.79 | -46.69 | -24.57 | 48.11 | 45.13 | 2.99 | 16.110 | | |
| 600.00 | 599.45 | 600.71 | 600.43 | 1.73 | 1.81 | 58.35 | -43.57 | -20.25 | 37.90 | 34.28 | 3.62 | 10.468 | | |
| 700.00 | 698.70 | 699.61 | 699.18 | 2.07 | 2.14 | 77.65 | -40.47 | -15.95 | 27.79 | 23.53 | 4.26 | 6.517 | | |
| 774.58 | 772.41 | 773.02 | 772.49 | 2.34 | 2.39 | 105.60 | -38.17 | -12.76 | 24.22 | 19.48 | 4.74 | 5.109 CC, ES | | |
| 800.00 | 797.47 | 797.96 | 797.39 | 2.43 | 2.48 | 116.81 | -37.39 | -11.68 | 24.74 | 19.84 | 4.90 | 5.049 | | |
| 900.00 | 895.77 | 895.80 | 895.09 | 2.83 | 2.81 | 150.90 | -34.32 | -7.42 | 35.59 | 30.03 | 5.56 | 6.401 | | |
| 1,000.00 | 994.03 | 993.60 | 992.75 | 3.24 | 3.14 | 166.49 | -31.26 | -3.17 | 52.88 | 46.67 | 6.21 | 8.512 | | |
| 1,100.00 | 1,092.29 | 1,091.40 | 1,090.41 | 3.66 | 3.47 | 174.17 | -28.19 | 1.08 | 72.09 | 65.22 | 6.87 | 10.498 | | |
| 1,200.00 | 1,190.55 | 1,189.20 | 1,188.07 | 4.08 | 3.81 | 178.59 | -25.12 | 5.34 | 92.02 | 84.50 | 7.53 | 12.228 | | |
| 1,300.00 | 1,288.81 | 1,287.00 | 1,285.73 | 4.51 | 4.14 | -178.57 | -22.06 | 9.59 | 112.29 | 104.11 | 8.19 | 13.715 | | |
| 1,400.00 | 1,387.07 | 1,384.80 | 1,383.38 | 4.94 | 4.47 | -176.60 | -18.99 | 13.84 | 132.75 | 123.90 | 8.85 | 14.996 | | |
| 1,500.00 | 1,485.34 | 1,482.60 | 1,481.04 | 5.37 | 4.81 | -175.16 | -15.92 | 18.09 | 153.32 | 143.80 | 9.52 | 16.105 | | |
| 1,600.00 | 1,583.60 | 1,580.39 | 1,578.70 | 5.80 | 5.14 | -174.05 | -12.86 | 22.35 | 173.96 | 163.77 | 10.19 | 17.073 | | |
| 1,700.00 | 1,681.86 | 1,678.19 | 1,676.36 | 6.24 | 5.48 | -173.19 | -9.79 | 26.60 | 194.64 | 183.78 | 10.86 | 17.923 | | |
| 1,800.00 | 1,780.12 | 1,775.99 | 1,774.02 | 6.67 | 5.81 | -172.49 | -6.73 | 30.85 | 215.37 | 203.83 | 11.53 | 18.675 | | |
| 1,900.00 | 1,878.38 | 1,873.79 | 1,871.68 | 7.11 | 6.15 | -171.91 | -3.66 | 35.10 | 236.11 | 223.91 | 12.21 | 19.345 | | |
| 2,000.00 | 1,976.64 | 1,971.59 | 1,969.33 | 7.55 | 6.48 | -171.42 | -0.59 | 39.36 | 256.88 | 244.00 | 12.88 | 19.945 | | |
| 2,100.00 | 2,074.91 | 2,069.39 | 2,066.99 | 7.99 | 6.81 | -171.01 | 2.47 | 43.61 | 277.66 | 264.11 | 13.55 | 20.486 | | |
| 2,200.00 | 2,173.17 | 2,167.19 | 2,164.65 | 8.43 | 7.15 | -170.66 | 5.54 | 47.86 | 298.45 | 284.22 | 14.23 | 20.975 | | |
| 2,300.00 | 2,271.43 | 2,264.99 | 2,262.31 | 8.86 | 7.48 | -170.35 | 8.61 | 52.11 | 319.25 | 304.35 | 14.91 | 21.419 | | |
| 2,400.00 | 2,369.69 | 2,362.79 | 2,359.97 | 9.30 | 7.82 | -170.08 | 11.67 | 56.37 | 340.07 | 324.48 | 15.58 | 21.825 | | |
| 2,500.00 | 2,467.95 | 2,460.58 | 2,457.62 | 9.74 | 8.15 | -169.84 | 14.74 | 60.62 | 360.88 | 344.62 | 16.26 | 22.197 | | |
| 2,600.00 | 2,566.21 | 2,558.38 | 2,555.28 | 10.18 | 8.49 | -169.62 | 17.80 | 64.87 | 381.70 | 364.77 | 16.94 | 22.539 | | |
| 2,700.00 | 2,664.48 | 2,656.18 | 2,652.94 | 10.63 | 8.82 | -169.43 | 20.87 | 69.12 | 402.53 | 384.92 | 17.61 | 22.854 | | |
| 2,800.00 | 2,762.74 | 2,753.98 | 2,750.60 | 11.07 | 9.16 | -169.26 | 23.94 | 73.38 | 423.36 | 405.07 | 18.29 | 23.146 | | |
| 2,900.00 | 2,861.00 | 2,851.78 | 2,848.26 | 11.51 | 9.49 | -169.10 | 27.00 | 77.63 | 444.19 | 425.23 | 18.97 | 23.417 | | |
| 3,000.00 | 2,959.26 | 2,949.58 | 2,945.92 | 11.95 | 9.83 | -168.96 | 30.07 | 81.88 | 465.03 | 445.38 | 19.65 | 23.669 | | |
| 3,100.00 | 3,057.52 | 3,047.38 | 3,043.57 | 12.39 | 10.16 | -168.83 | 33.14 | 86.13 | 485.87 | 465.55 | 20.33 | 23.904 | | |
| 3,200.00 | 3,155.78 | 3,145.18 | 3,141.23 | 12.83 | 10.50 | -168.71 | 36.20 | 90.39 | 506.71 | 485.71 | 21.00 | 24.124 | | |
| 3,300.00 | 3,254.05 | 3,242.97 | 3,238.89 | 13.27 | 10.83 | -168.60 | 39.27 | 94.64 | 527.56 | 505.87 | 21.68 | 24.330 | | |
| 3,400.00 | 3,352.31 | 3,340.77 | 3,336.55 | 13.71 | 11.17 | -168.50 | 42.33 | 98.89 | 548.40 | 526.04 | 22.36 | 24.523 | | |
| 3,500.00 | 3,450.57 | 3,438.57 | 3,434.21 | 14.16 | 11.50 | -168.41 | 45.40 | 103.14 | 569.25 | 546.21 | 23.04 | 24.705 | | |
| 3,600.00 | 3,548.83 | 3,536.37 | 3,531.86 | 14.60 | 11.84 | -168.32 | 48.47 | 107.40 | 590.10 | 566.37 | 23.72 | 24.877 | | |
| 3,700.00 | 3,647.09 | 3,634.17 | 3,629.52 | 15.04 | 12.17 | -168.24 | 51.53 | 111.65 | 610.94 | 586.54 | 24.40 | 25.038 | | |
| 3,800.00 | 3,745.35 | 3,731.97 | 3,727.18 | 15.48 | 12.51 | -168.16 | 54.60 | 115.90 | 631.80 | 606.72 | 25.08 | 25.191 | | |
| 3,900.00 | 3,843.62 | 3,829.77 | 3,824.84 | 15.92 | 12.84 | -168.09 | 57.67 | 120.15 | 652.65 | 626.89 | 25.76 | 25.336 | | |
| 4,000.00 | 3,941.88 | 3,927.57 | 3,922.50 | 16.37 | 13.18 | -168.02 | 60.73 | 124.41 | 673.50 | 647.06 | 26.44 | 25.473 | | |
| 4,100.00 | 4,040.14 | 4,025.37 | 4,020.16 | 16.81 | 13.51 | -167.96 | 63.80 | 128.66 | 694.35 | 667.23 | 27.12 | 25.604 | | |
| 4,200.00 | 4,138.40 | 4,123.16 | 4,117.81 | 17.25 | 13.85 | -167.90 | 66.86 | 132.91 | 715.21 | 687.41 | 27.80 | 25.728 | | |
| 4,300.00 | 4,236.66 | 4,220.96 | 4,215.47 | 17.69 | 14.18 | -167.84 | 69.93 | 137.16 | 736.06 | 707.58 | 28.48 | 25.846 | | |
| 4,400.00 | 4,334.92 | 4,318.76 | 4,313.13 | 18.13 | 14.52 | -167.79 | 73.00 | 141.42 | 756.92 | 727.76 | 29.16 | 25.958 | | |
| 4,500.00 | 4,433.19 | 4,416.56 | 4,410.79 | 18.58 | 14.85 | -167.74 | 76.06 | 145.67 | 777.77 | 747.93 | 29.84 | 26.065 | | |
| 4,600.00 | 4,531.53 | 4,514.45 | 4,508.53 | 19.04 | 15.19 | -167.73 | 79.13 | 149.92 | 798.21 | 767.71 | 30.50 | 26.170 | | |
| 4,700.00 | 4,630.37 | 4,612.89 | 4,606.83 | 19.48 | 15.53 | -167.71 | 82.22 | 154.21 | 815.71 | 784.60 | 31.11 | 26.222 | | |
| 4,800.00 | 4,729.69 | 4,711.53 | 4,705.00 | 19.90 | 15.86 | -167.69 | -741.47 | 160.01 | 831.99 | 802.14 | 31.79 | 26.274 | | |
| 4,900.00 | 4,829.34 | 4,810.36 | 4,803.00 | 20.34 | 16.19 | -167.67 | -749.30 | 160.01 | 852.73 | 822.73 | 32.47 | 26.326 | | |
| 5,000.00 | 4,929.23 | 4,908.85 | 4,901.00 | 20.78 | 16.52 | -167.65 | -753.80 | 160.01 | 873.57 | 843.57 | 33.15 | 26.378 | | |

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



WOG

Anticollision Report

| | | | |
|---------------------------|-------------------------|-------------------------------------|--|
| Company: | Whiting Petroleum Corp. | Local Co-ordinate Reference: | Well Horsetail #30H-1948 |
| Project: | Weld County, CO | TVD Reference: | KBE @ 4746.00usft (Original Well Elev) |
| Reference Site: | Sec 30-T10N-R57W | MD Reference: | KBE @ 4746.00usft (Original Well Elev) |
| Site Error: | 0.00 usft | North Reference: | True |
| Reference Well: | Horsetail #30H-1948 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.00 usft | Output errors are at | 3.00 sigma |
| Reference Wellbore | Hz | Database: | LandmarkEDM |
| Reference Design: | APD | Offset TVD Reference: | Offset Datum |

| Offset Design | | | | | | | | | | | | | Offset Site Error: | 0.00 usft |
|-----------------------------------|-----------------------|-----------------------|-----------------------|------------------|---------------|-----------------------|-------------------------------------|--------------|------------------------|-------------------------|---------------------------|-------------------|--------------------|-----------|
| Survey Program: 0-MWD+IFR1+MS+sag | | | | | | | | | | | | | Offset Well Error: | 0.00 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 | | |
| 5,100.00 | 5,029.22 | 6,162.05 | 5,538.00 | 20.21 | 20.95 | -90.00 | -755.00 | 160.01 | 514.57 | 503.35 | 11.21 | 45.882 | | |
| 5,200.00 | 5,129.22 | 6,162.05 | 5,538.00 | 20.42 | 20.95 | -90.00 | -755.00 | 160.01 | 415.72 | 403.62 | 12.09 | 34.373 | | |
| 5,300.00 | 5,229.21 | 6,161.83 | 5,538.00 | 20.63 | 20.95 | -97.30 | -754.78 | 160.01 | 317.59 | 303.95 | 13.65 | 23.275 | | |
| 5,400.00 | 5,328.28 | 6,149.37 | 5,538.00 | 20.79 | 20.86 | -123.40 | -742.31 | 160.01 | 222.03 | 205.36 | 16.67 | 13.318 | | |
| 5,500.00 | 5,423.15 | 6,118.23 | 5,538.00 | 20.86 | 20.64 | -123.58 | -711.18 | 160.01 | 135.32 | 111.65 | 23.67 | 5.716 | | |
| 5,600.00 | 5,510.33 | 6,069.57 | 5,538.00 | 20.86 | 20.31 | -103.08 | -662.52 | 160.01 | 75.53 | 37.17 | 38.36 | 1.969 | | |
| 5,635.81 | 5,539.07 | 6,048.21 | 5,538.00 | 20.84 | 20.17 | -89.91 | -641.15 | 160.01 | 69.85 | 29.31 | 40.54 | 1.723 SF | | |
| 5,700.00 | 5,586.64 | 6,005.17 | 5,538.00 | 20.80 | 19.90 | -63.94 | -598.12 | 160.01 | 84.51 | 51.87 | 32.64 | 2.589 | | |
| 5,800.00 | 5,649.25 | 5,927.40 | 5,538.00 | 20.72 | 19.47 | -37.10 | -520.35 | 160.01 | 130.44 | 109.64 | 20.80 | 6.273 | | |
| 5,900.00 | 5,695.89 | 5,841.52 | 5,538.00 | 20.64 | 19.06 | -25.76 | -434.46 | 160.01 | 171.65 | 155.82 | 15.83 | 10.845 | | |
| 6,000.00 | 5,724.82 | 5,769.77 | 5,533.07 | 20.59 | 18.77 | -20.92 | -362.94 | 160.01 | 204.73 | 189.78 | 14.95 | 13.695 | | |
| 6,099.99 | 5,734.99 | 5,700.00 | 5,518.89 | 20.58 | 18.53 | -17.92 | -294.68 | 160.01 | 233.20 | 216.96 | 16.24 | 14.358 | | |
| 6,200.00 | 5,735.00 | 5,636.75 | 5,498.27 | 20.66 | 18.33 | -16.39 | -234.93 | 160.01 | 264.43 | 245.55 | 18.88 | 14.008 | | |
| 6,300.00 | 5,735.00 | 5,577.92 | 5,472.71 | 20.85 | 18.17 | -14.85 | -181.98 | 160.01 | 306.62 | 285.16 | 21.46 | 14.287 | | |
| 6,400.00 | 5,735.00 | 5,525.62 | 5,445.11 | 21.15 | 18.04 | -13.48 | -137.58 | 160.01 | 358.31 | 334.43 | 23.87 | 15.008 | | |
| 6,500.00 | 5,735.00 | 5,479.69 | 5,417.30 | 21.55 | 17.93 | -12.32 | -101.04 | 160.01 | 417.94 | 391.96 | 25.98 | 16.087 | | |
| 6,600.00 | 5,735.00 | 5,450.00 | 5,397.65 | 22.04 | 17.86 | -11.62 | -78.79 | 160.01 | 484.31 | 456.06 | 28.25 | 17.146 | | |
| 6,700.00 | 5,735.00 | 5,400.00 | 5,361.81 | 22.63 | 17.74 | -10.52 | -43.95 | 160.01 | 555.61 | 526.60 | 29.02 | 19.148 | | |
| 6,800.00 | 5,735.00 | 5,374.45 | 5,342.25 | 23.30 | 17.67 | -10.00 | -27.52 | 160.01 | 631.35 | 600.95 | 30.40 | 20.769 | | |
| 6,900.00 | 5,735.00 | 5,350.00 | 5,322.79 | 24.04 | 17.61 | -9.54 | -12.71 | 160.01 | 710.64 | 679.22 | 31.43 | 22.613 | | |
| 7,000.00 | 5,735.00 | 5,324.76 | 5,302.01 | 24.85 | 17.55 | -9.08 | 1.60 | 160.01 | 792.78 | 760.61 | 32.17 | 24.642 | | |
| 7,100.00 | 5,735.00 | 5,300.00 | 5,280.96 | 25.72 | 17.48 | -8.67 | 14.64 | 160.01 | 877.31 | 844.56 | 32.75 | 26.788 | | |
| 7,200.00 | 5,735.00 | 5,300.00 | 5,280.96 | 26.64 | 17.48 | -8.67 | 14.64 | 160.01 | 964.00 | 930.40 | 33.59 | 28.695 | | |
| 7,300.00 | 5,735.00 | 5,270.25 | 5,254.89 | 27.61 | 17.41 | -8.20 | 28.97 | 160.01 | 1,051.78 | 1,017.94 | 33.84 | 31.081 | | |
| 7,400.00 | 5,735.00 | 5,250.00 | 5,236.70 | 28.62 | 17.35 | -7.90 | 37.86 | 160.01 | 1,141.25 | 1,107.09 | 34.16 | 33.409 | | |
| 7,500.00 | 5,735.00 | 5,250.00 | 5,236.70 | 29.67 | 17.35 | -7.90 | 37.86 | 160.01 | 1,231.84 | 1,197.20 | 34.64 | 35.566 | | |
| 7,600.00 | 5,735.00 | 5,231.50 | 5,219.79 | 30.75 | 17.30 | -7.64 | 45.36 | 160.01 | 1,323.33 | 1,288.47 | 34.85 | 37.968 | | |
| 7,700.00 | 5,735.00 | 5,221.02 | 5,210.10 | 31.87 | 17.28 | -7.50 | 49.34 | 160.01 | 1,415.72 | 1,380.62 | 35.11 | 40.327 | | |
| 7,800.00 | 5,735.00 | 5,200.00 | 5,190.42 | 33.01 | 17.22 | -7.23 | 56.73 | 160.01 | 1,509.01 | 1,473.77 | 35.24 | 42.816 | | |



WOG

Anticollision Report

| | | | |
|---------------------------|-------------------------|-------------------------------------|--|
| Company: | Whiting Petroleum Corp. | Local Co-ordinate Reference: | Well Horsetail #30H-1948 |
| Project: | Weld County, CO | TVD Reference: | KBE @ 4746.00usft (Original Well Elev) |
| Reference Site: | Sec 30-T10N-R57W | MD Reference: | KBE @ 4746.00usft (Original Well Elev) |
| Site Error: | 0.00 usft | North Reference: | True |
| Reference Well: | Horsetail #30H-1948 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.00 usft | Output errors are at | 3.00 sigma |
| Reference Wellbore | HZ | Database: | LandmarkEDM |
| Reference Design: | APD | Offset TVD Reference: | Offset Datum |

| Offset Design | | | | | | | | | | | | | Offset Site Error: | 0.00 usft |
|-----------------------------------|-----------------------|-----------------------|-----------------------|------------------|---------------|-----------------------|-------------------------------------|--------------|------------------------|-------------------------|---------------------------|-------------------|--------------------|-----------|
| Survey Program: 0-MWD+IFR1+MS+sag | | | | | | | | | | | | | Offset Well Error: | 0.00 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 | | |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 149.35 | -50.61 | 29.99 | 58.84 | | | | | |
| 100.00 | 100.00 | 99.00 | 99.00 | 0.13 | 0.13 | 149.35 | -50.61 | 29.99 | 58.83 | 58.56 | 0.27 | 221.980 | | |
| 200.00 | 200.00 | 199.00 | 199.00 | 0.47 | 0.47 | 149.35 | -50.61 | 29.99 | 58.83 | 57.89 | 0.94 | 62.765 | | |
| 300.00 | 300.00 | 299.00 | 299.00 | 0.81 | 0.80 | 149.35 | -50.61 | 29.99 | 58.83 | 57.22 | 1.61 | 36.504 | | |
| 400.00 | 399.98 | 398.48 | 398.46 | 1.11 | 1.13 | -15.76 | -50.10 | 31.60 | 57.56 | 55.32 | 2.24 | 25.697 | | |
| 500.00 | 499.84 | 497.59 | 497.43 | 1.41 | 1.46 | -22.50 | -48.57 | 36.49 | 54.26 | 51.39 | 2.87 | 18.887 | | |
| 600.00 | 599.45 | 595.99 | 595.46 | 1.73 | 1.80 | -35.20 | -46.03 | 44.56 | 50.70 | 47.12 | 3.58 | 14.149 | | |
| 697.57 | 696.30 | 692.25 | 691.19 | 2.06 | 2.13 | -52.93 | -43.02 | 54.17 | 49.23 | 44.94 | 4.29 | 11.474 CC | | |
| 700.00 | 698.70 | 694.64 | 693.57 | 2.07 | 2.14 | -53.41 | -42.94 | 54.41 | 49.24 | 44.93 | 4.31 | 11.427 ES | | |
| 800.00 | 797.47 | 792.84 | 791.24 | 2.43 | 2.48 | -74.27 | -39.87 | 64.21 | 51.82 | 46.78 | 5.04 | 10.274 | | |
| 900.00 | 895.77 | 890.59 | 888.45 | 2.83 | 2.83 | -93.67 | -36.80 | 73.97 | 60.58 | 54.81 | 5.77 | 10.503 | | |
| 1,000.00 | 994.03 | 988.30 | 985.62 | 3.24 | 3.18 | -107.37 | -33.74 | 83.72 | 74.53 | 68.07 | 6.47 | 11.524 | | |
| 1,100.00 | 1,092.29 | 1,086.00 | 1,082.79 | 3.66 | 3.53 | -116.49 | -30.68 | 93.47 | 91.37 | 84.21 | 7.16 | 12.767 | | |
| 1,200.00 | 1,190.55 | 1,183.71 | 1,179.96 | 4.08 | 3.88 | -122.70 | -27.62 | 103.22 | 109.76 | 101.91 | 7.85 | 13.987 | | |
| 1,300.00 | 1,288.81 | 1,281.41 | 1,277.13 | 4.51 | 4.23 | -127.11 | -24.56 | 112.98 | 129.05 | 120.51 | 8.54 | 15.111 | | |
| 1,400.00 | 1,387.07 | 1,379.12 | 1,374.30 | 4.94 | 4.59 | -130.37 | -21.49 | 122.73 | 148.89 | 139.65 | 9.24 | 16.119 | | |
| 1,500.00 | 1,485.34 | 1,476.82 | 1,471.47 | 5.37 | 4.94 | -132.86 | -18.43 | 132.48 | 169.08 | 159.14 | 9.94 | 17.017 | | |
| 1,600.00 | 1,583.60 | 1,574.53 | 1,568.64 | 5.80 | 5.29 | -134.81 | -15.37 | 142.23 | 189.52 | 178.88 | 10.64 | 17.815 | | |
| 1,700.00 | 1,681.86 | 1,672.24 | 1,665.81 | 6.24 | 5.65 | -136.39 | -12.31 | 151.98 | 210.12 | 198.78 | 11.34 | 18.525 | | |
| 1,800.00 | 1,780.12 | 1,769.94 | 1,762.98 | 6.67 | 6.00 | -137.68 | -9.25 | 161.74 | 230.85 | 218.81 | 12.05 | 19.161 | | |
| 1,900.00 | 1,878.38 | 1,867.65 | 1,860.14 | 7.11 | 6.36 | -138.77 | -6.19 | 171.49 | 251.68 | 238.92 | 12.76 | 19.731 | | |
| 2,000.00 | 1,976.64 | 1,965.35 | 1,957.31 | 7.55 | 6.72 | -139.68 | -3.12 | 181.24 | 272.58 | 259.11 | 13.46 | 20.245 | | |
| 2,100.00 | 2,074.91 | 2,063.06 | 2,054.48 | 7.99 | 7.07 | -140.47 | -0.06 | 190.99 | 293.53 | 279.36 | 14.17 | 20.710 | | |
| 2,200.00 | 2,173.17 | 2,160.77 | 2,151.65 | 8.43 | 7.43 | -141.15 | 3.00 | 200.74 | 314.54 | 299.65 | 14.88 | 21.133 | | |
| 2,300.00 | 2,271.43 | 2,258.47 | 2,248.82 | 8.86 | 7.78 | -141.74 | 6.06 | 210.50 | 335.57 | 319.98 | 15.59 | 21.518 | | |
| 2,400.00 | 2,369.69 | 2,356.18 | 2,345.99 | 9.30 | 8.14 | -142.27 | 9.12 | 220.25 | 356.64 | 340.34 | 16.31 | 21.872 | | |
| 2,500.00 | 2,467.95 | 2,453.88 | 2,443.16 | 9.74 | 8.50 | -142.73 | 12.18 | 230.00 | 377.74 | 360.72 | 17.02 | 22.196 | | |
| 2,600.00 | 2,566.21 | 2,551.59 | 2,540.33 | 10.18 | 8.85 | -143.15 | 15.25 | 239.75 | 398.85 | 381.12 | 17.73 | 22.495 | | |
| 2,700.00 | 2,664.48 | 2,649.30 | 2,637.50 | 10.63 | 9.21 | -143.53 | 18.31 | 249.51 | 419.99 | 401.55 | 18.44 | 22.771 | | |
| 2,800.00 | 2,762.74 | 2,747.00 | 2,734.67 | 11.07 | 9.56 | -143.87 | 21.37 | 259.26 | 441.14 | 421.98 | 19.16 | 23.027 | | |
| 2,900.00 | 2,861.00 | 2,844.71 | 2,831.84 | 11.51 | 9.92 | -144.18 | 24.43 | 269.01 | 462.30 | 442.43 | 19.87 | 23.265 | | |
| 3,000.00 | 2,959.26 | 2,942.41 | 2,929.01 | 11.95 | 10.28 | -144.46 | 27.49 | 278.76 | 483.48 | 462.89 | 20.59 | 23.487 | | |
| 3,100.00 | 3,057.52 | 3,040.12 | 3,026.18 | 12.39 | 10.63 | -144.71 | 30.55 | 288.51 | 504.66 | 483.36 | 21.30 | 23.694 | | |
| 3,200.00 | 3,155.78 | 3,137.83 | 3,123.35 | 12.83 | 10.99 | -144.95 | 33.62 | 298.27 | 525.86 | 503.84 | 22.01 | 23.888 | | |
| 3,300.00 | 3,254.05 | 3,235.53 | 3,220.52 | 13.27 | 11.35 | -145.17 | 36.68 | 308.02 | 547.06 | 524.33 | 22.73 | 24.069 | | |
| 3,400.00 | 3,352.31 | 3,333.24 | 3,317.69 | 13.71 | 11.70 | -145.37 | 39.74 | 317.77 | 568.27 | 544.83 | 23.44 | 24.240 | | |
| 3,500.00 | 3,450.57 | 3,430.94 | 3,414.86 | 14.16 | 12.06 | -145.56 | 42.80 | 327.52 | 589.49 | 565.33 | 24.16 | 24.401 | | |
| 3,600.00 | 3,548.83 | 3,528.65 | 3,512.03 | 14.60 | 12.42 | -145.74 | 45.86 | 337.28 | 610.71 | 585.83 | 24.87 | 24.552 | | |
| 3,700.00 | 3,647.09 | 3,626.36 | 3,609.20 | 15.04 | 12.77 | -145.90 | 48.93 | 347.03 | 631.93 | 606.34 | 25.59 | 24.696 | | |
| 3,800.00 | 3,745.35 | 3,724.06 | 3,706.37 | 15.48 | 13.13 | -146.05 | 51.99 | 356.78 | 653.16 | 626.86 | 26.30 | 24.831 | | |
| 3,900.00 | 3,843.62 | 3,821.77 | 3,803.54 | 15.92 | 13.49 | -146.19 | 55.05 | 366.53 | 674.40 | 647.38 | 27.02 | 24.959 | | |
| 4,000.00 | 3,941.88 | 3,919.47 | 3,900.71 | 16.37 | 13.84 | -146.33 | 58.11 | 376.28 | 695.64 | 667.90 | 27.74 | 25.081 | | |
| 4,100.00 | 4,040.14 | 4,017.18 | 3,997.88 | 16.81 | 14.20 | -146.45 | 61.17 | 386.04 | 716.88 | 688.43 | 28.45 | 25.196 | | |
| 4,200.00 | 4,138.40 | 4,114.89 | 4,095.05 | 17.25 | 14.56 | -146.57 | 64.23 | 395.79 | 738.13 | 708.96 | 29.17 | 25.306 | | |
| 4,300.00 | 4,236.66 | 4,212.59 | 4,192.22 | 17.69 | 14.91 | -146.69 | 67.30 | 405.54 | 759.37 | 729.49 | 29.88 | 25.411 | | |
| 4,400.00 | 4,334.92 | 4,310.30 | 4,289.39 | 18.13 | 15.27 | -146.79 | 70.36 | 415.29 | 780.62 | 750.02 | 30.60 | 25.511 | | |
| 4,500.00 | 4,433.19 | 4,408.00 | 4,386.56 | 18.58 | 15.63 | -146.89 | 73.42 | 425.05 | 801.88 | 770.56 | 31.32 | 25.606 | | |
| 4,600.00 | 4,531.53 | 4,505.79 | 4,483.81 | 18.98 | 15.98 | -147.09 | 76.48 | 434.81 | 822.77 | 790.76 | 32.01 | 25.704 | | |
| 4,700.00 | 4,630.37 | 4,604.08 | 4,581.56 | 19.24 | 16.34 | -147.25 | 79.56 | 444.62 | 841.15 | 808.52 | 32.64 | 25.774 | | |
| 4,800.00 | 4,729.69 | 4,721.30 | 4,698.35 | 19.50 | 16.70 | -147.33 | 82.57 | 454.18 | 855.62 | 822.30 | 33.32 | 25.682 | | |
| 4,900.00 | 4,829.34 | 4,829.22 | 4,806.00 | 19.74 | 21.87 | -85.55 | -749.30 | 459.99 | 811.45 | 798.81 | 12.63 | 64.229 | | |
| 5,000.00 | 4,929.23 | 4,929.23 | 4,906.00 | 19.96 | 21.91 | -77.95 | -753.80 | 459.99 | 715.85 | 702.05 | 13.79 | 51.894 | | |

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



WOG

Anticollision Report

| | | | |
|---------------------------|-------------------------|-------------------------------------|--|
| Company: | Whiting Petroleum Corp. | Local Co-ordinate Reference: | Well Horsetail #30H-1948 |
| Project: | Weld County, CO | TVD Reference: | KBE @ 4746.00usft (Original Well Elev) |
| Reference Site: | Sec 30-T10N-R57W | MD Reference: | KBE @ 4746.00usft (Original Well Elev) |
| Site Error: | 0.00 usft | North Reference: | True |
| Reference Well: | Horsetail #30H-1948 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.00 usft | Output errors are at | 3.00 sigma |
| Reference Wellbore | Hz | Database: | LandmarkEDM |
| Reference Design: | APD | Offset TVD Reference: | Offset Datum |

| Offset Design | | | | | | | | | | | | | Offset Site Error: | 0.00 usft |
|-----------------------------------|-----------------------|-----------------------|-----------------------|------------------|---------------|-----------------------|-------------------------------------|--------------|------------------------|-------------------------|---------------------------|-------------------|--------------------|-----------|
| Survey Program: 0-MWD+IFR1+MS+sag | | | | | | | | | | | | | Offset Well Error: | 0.00 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 | | |
| 5,100.00 | 5,029.22 | 6,244.92 | 5,606.00 | 20.21 | 21.92 | 90.00 | -755.00 | 459.99 | 621.88 | 606.45 | 15.42 | 40.319 | | |
| 5,200.00 | 5,129.22 | 6,244.92 | 5,606.00 | 20.42 | 21.92 | 90.00 | -755.00 | 459.99 | 530.26 | 512.54 | 17.72 | 29.924 | | |
| 5,300.00 | 5,229.21 | 6,244.70 | 5,606.00 | 20.63 | 21.91 | 92.82 | -754.78 | 459.99 | 442.29 | 421.28 | 21.00 | 21.058 | | |
| 5,400.00 | 5,328.28 | 6,232.23 | 5,606.00 | 20.79 | 21.83 | 104.95 | -742.31 | 459.99 | 361.37 | 335.82 | 25.55 | 14.144 | | |
| 5,500.00 | 5,423.15 | 6,201.10 | 5,606.00 | 20.86 | 21.61 | 107.85 | -711.18 | 459.99 | 294.49 | 263.19 | 31.30 | 9.410 | | |
| 5,600.00 | 5,510.33 | 6,152.44 | 5,606.00 | 20.86 | 21.29 | 103.49 | -662.52 | 459.99 | 249.58 | 212.54 | 37.04 | 6.737 | | |
| 5,700.00 | 5,586.64 | 6,088.04 | 5,606.00 | 20.80 | 20.90 | 93.67 | -598.12 | 459.99 | 231.08 | 190.87 | 40.21 | 5.747 | | |
| 5,729.55 | 5,606.68 | 6,066.33 | 5,606.00 | 20.78 | 20.77 | 90.11 | -576.41 | 459.99 | 230.21 | 189.78 | 40.43 | 5.694 SF | | |
| 5,800.00 | 5,649.25 | 6,010.27 | 5,606.00 | 20.72 | 20.47 | 81.32 | -520.35 | 459.99 | 234.12 | 194.25 | 39.87 | 5.872 | | |
| 5,900.00 | 5,695.89 | 5,922.62 | 5,605.99 | 20.64 | 20.06 | 70.44 | -432.70 | 459.99 | 246.94 | 209.06 | 37.89 | 6.518 | | |
| 6,000.00 | 5,724.82 | 5,850.00 | 5,600.41 | 20.59 | 19.77 | 63.23 | -360.35 | 459.99 | 262.55 | 226.76 | 35.79 | 7.335 | | |
| 6,099.99 | 5,734.99 | 5,771.18 | 5,583.04 | 20.58 | 19.49 | 56.84 | -283.55 | 459.99 | 279.50 | 245.37 | 34.13 | 8.189 | | |
| 6,200.00 | 5,735.00 | 5,700.00 | 5,557.57 | 20.66 | 19.27 | 52.59 | -217.14 | 459.99 | 301.28 | 268.33 | 32.95 | 9.145 | | |
| 6,300.00 | 5,735.00 | 5,639.06 | 5,528.73 | 20.85 | 19.11 | 48.34 | -163.49 | 459.99 | 333.75 | 301.56 | 32.19 | 10.367 | | |
| 6,400.00 | 5,735.00 | 5,584.78 | 5,497.93 | 21.15 | 18.97 | 44.35 | -118.83 | 459.99 | 376.94 | 345.00 | 31.94 | 11.802 | | |
| 6,500.00 | 5,735.00 | 5,537.98 | 5,467.76 | 21.55 | 18.85 | 40.92 | -83.07 | 459.99 | 429.84 | 397.68 | 32.16 | 13.364 | | |
| 6,600.00 | 5,735.00 | 5,500.00 | 5,441.00 | 22.04 | 18.76 | 38.23 | -56.14 | 459.99 | 490.98 | 458.23 | 32.75 | 14.992 | | |
| 6,700.00 | 5,735.00 | 5,463.39 | 5,413.41 | 22.63 | 18.67 | 35.76 | -32.08 | 459.99 | 558.80 | 525.50 | 33.30 | 16.779 | | |
| 6,800.00 | 5,735.00 | 5,433.77 | 5,389.90 | 23.30 | 18.60 | 33.86 | -14.08 | 459.99 | 632.01 | 598.07 | 33.94 | 18.623 | | |
| 6,900.00 | 5,735.00 | 5,400.00 | 5,361.89 | 24.04 | 18.52 | 31.82 | 4.78 | 459.99 | 709.60 | 675.25 | 34.34 | 20.662 | | |
| 7,000.00 | 5,735.00 | 5,400.00 | 5,361.89 | 24.85 | 18.52 | 31.82 | 4.78 | 459.99 | 790.69 | 755.41 | 35.29 | 22.408 | | |
| 7,100.00 | 5,735.00 | 5,366.54 | 5,332.99 | 25.72 | 18.43 | 29.94 | 21.64 | 459.99 | 874.03 | 838.54 | 35.49 | 24.629 | | |
| 7,200.00 | 5,735.00 | 5,350.00 | 5,318.32 | 26.64 | 18.39 | 29.06 | 29.27 | 459.99 | 959.90 | 924.02 | 35.88 | 26.751 | | |
| 7,300.00 | 5,735.00 | 5,350.00 | 5,318.32 | 27.61 | 18.39 | 29.06 | 29.27 | 459.99 | 1,047.94 | 1,011.55 | 36.39 | 28.800 | | |
| 7,400.00 | 5,735.00 | 5,320.96 | 5,292.01 | 28.62 | 18.32 | 27.59 | 41.54 | 459.99 | 1,136.80 | 1,100.30 | 36.50 | 31.147 | | |
| 7,500.00 | 5,735.00 | 5,300.00 | 5,272.61 | 29.67 | 18.27 | 26.59 | 49.48 | 459.99 | 1,227.36 | 1,190.69 | 36.67 | 33.471 | | |
| 7,600.00 | 5,735.00 | 5,300.00 | 5,272.61 | 30.75 | 18.27 | 26.59 | 49.48 | 459.99 | 1,318.76 | 1,281.78 | 36.98 | 35.659 | | |
| 7,700.00 | 5,735.00 | 5,300.00 | 5,272.61 | 31.87 | 18.27 | 26.59 | 49.48 | 459.99 | 1,411.33 | 1,374.09 | 37.24 | 37.897 | | |
| 7,800.00 | 5,735.00 | 5,279.69 | 5,253.52 | 33.01 | 18.21 | 25.68 | 56.42 | 459.99 | 1,504.33 | 1,466.99 | 37.34 | 40.292 | | |



WOG

Anticollision Report

| | | | |
|---------------------------|-------------------------|-------------------------------------|--|
| Company: | Whiting Petroleum Corp. | Local Co-ordinate Reference: | Well Horsetail #30H-1948 |
| Project: | Weld County, CO | TVD Reference: | KBE @ 4746.00usft (Original Well Elev) |
| Reference Site: | Sec 30-T10N-R57W | MD Reference: | KBE @ 4746.00usft (Original Well Elev) |
| Site Error: | 0.00 usft | North Reference: | True |
| Reference Well: | Horsetail #30H-1948 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.00 usft | Output errors are at | 3.00 sigma |
| Reference Wellbore | Hz | Database: | LandmarkEDM |
| Reference Design: | APD | Offset TVD Reference: | Offset Datum |

| Offset Design | | | | | | | | | | | | | Sec 30-T10N-R57W - Horsetail #30H-3146 - Hz - APD | | Offset Site Error: | 0.00 usft |
|-----------------------------------|----------------|----------------|----------------|-----------------|--------|-------------------|------------------------|-----------------|------------------|--------------------|-------------------|---------|---|-----------|--------------------|-----------|
| Survey Program: 0-MWD+IFR1+MS+sag | | | | | | | | | | | | | Offset Well Error: | 0.00 usft | | |
| Reference | | Offset | | Semi Major Axis | | Distance | | | | | | | | Warning | | |
| Measured Depth | Vertical Depth | Measured Depth | Vertical Depth | Reference | Offset | Highside Toolface | Offset Wellbore Centre | Between Centres | Between Ellipses | Minimum Separation | Separation Factor | | | | | |
| (usft) | (usft) | (usft) | (usft) | (usft) | (usft) | (°) | +N/-S (usft) | +E/-W (usft) | (usft) | (usft) | (usft) | | | | | |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | -112.46 | -49.58 | -119.96 | 129.80 | | | | | | | |
| 100.00 | 100.00 | 99.00 | 99.00 | 0.13 | 0.13 | -112.46 | -49.58 | -119.96 | 129.80 | 129.54 | 0.27 | 489.782 | | | | |
| 200.00 | 200.00 | 199.00 | 199.00 | 0.47 | 0.47 | -112.46 | -49.58 | -119.96 | 129.80 | 128.86 | 0.94 | 138.487 | | | | |
| 300.00 | 300.00 | 299.00 | 299.00 | 0.81 | 0.80 | -112.46 | -49.58 | -119.96 | 129.80 | 128.19 | 1.61 | 80.543 | CC | | | |
| 400.00 | 399.98 | 398.30 | 398.28 | 1.11 | 1.14 | 85.98 | -48.12 | -120.80 | 129.90 | 127.65 | 2.24 | 57.899 | | | | |
| 500.00 | 499.84 | 497.92 | 497.84 | 1.41 | 1.48 | 89.76 | -45.12 | -122.52 | 130.36 | 127.49 | 2.87 | 45.497 | ES | | | |
| 600.00 | 599.45 | 597.18 | 597.04 | 1.73 | 1.81 | 94.96 | -42.13 | -124.24 | 131.65 | 128.13 | 3.52 | 37.433 | | | | |
| 700.00 | 698.70 | 695.95 | 695.75 | 2.07 | 2.14 | 101.40 | -39.16 | -125.96 | 134.67 | 130.48 | 4.19 | 32.105 | | | | |
| 800.00 | 797.47 | 794.13 | 793.87 | 2.43 | 2.47 | 108.71 | -36.20 | -127.66 | 140.47 | 135.57 | 4.90 | 28.690 | | | | |
| 900.00 | 895.77 | 891.75 | 891.43 | 2.83 | 2.80 | 116.30 | -33.27 | -129.35 | 149.68 | 144.07 | 5.61 | 26.683 | | | | |
| 1,000.00 | 994.03 | 989.32 | 988.94 | 3.24 | 3.13 | 123.05 | -30.33 | -131.04 | 161.41 | 155.10 | 6.31 | 25.564 | | | | |
| 1,100.00 | 1,092.29 | 1,086.89 | 1,086.46 | 3.66 | 3.46 | 128.84 | -27.39 | -132.73 | 175.11 | 168.10 | 7.01 | 24.986 | | | | |
| 1,200.00 | 1,190.55 | 1,184.47 | 1,183.98 | 4.08 | 3.79 | 133.77 | -24.45 | -134.42 | 190.34 | 182.65 | 7.69 | 24.743 | | | | |
| 1,300.00 | 1,288.81 | 1,282.04 | 1,281.49 | 4.51 | 4.12 | 137.96 | -21.52 | -136.11 | 206.78 | 198.41 | 8.37 | 24.706 | | | | |
| 1,400.00 | 1,387.07 | 1,379.62 | 1,379.01 | 4.94 | 4.45 | 141.53 | -18.58 | -137.80 | 224.15 | 215.11 | 9.04 | 24.792 | | | | |
| 1,500.00 | 1,485.34 | 1,477.19 | 1,476.52 | 5.37 | 4.78 | 144.58 | -15.64 | -139.49 | 242.25 | 232.54 | 9.71 | 24.951 | | | | |
| 1,600.00 | 1,583.60 | 1,574.76 | 1,574.04 | 5.80 | 5.11 | 147.21 | -12.70 | -141.18 | 260.94 | 250.56 | 10.37 | 25.151 | | | | |
| 1,700.00 | 1,681.86 | 1,672.34 | 1,671.55 | 6.24 | 5.44 | 149.49 | -9.77 | -142.87 | 280.09 | 269.05 | 11.04 | 25.373 | | | | |
| 1,800.00 | 1,780.12 | 1,769.91 | 1,769.07 | 6.67 | 5.77 | 151.47 | -6.83 | -144.56 | 299.61 | 287.91 | 11.70 | 25.603 | | | | |
| 1,900.00 | 1,878.38 | 1,867.49 | 1,866.58 | 7.11 | 6.10 | 153.22 | -3.89 | -146.25 | 319.45 | 307.08 | 12.37 | 25.835 | | | | |
| 2,000.00 | 1,976.64 | 1,965.06 | 1,964.10 | 7.55 | 6.43 | 154.76 | -0.95 | -147.94 | 339.53 | 326.50 | 13.03 | 26.062 | | | | |
| 2,100.00 | 2,074.91 | 2,062.64 | 2,061.61 | 7.99 | 6.76 | 156.13 | 1.98 | -149.63 | 359.83 | 346.14 | 13.69 | 26.282 | | | | |
| 2,200.00 | 2,173.17 | 2,160.21 | 2,159.13 | 8.43 | 7.09 | 157.35 | 4.92 | -151.33 | 380.30 | 365.95 | 14.35 | 26.494 | | | | |
| 2,300.00 | 2,271.43 | 2,257.78 | 2,256.64 | 8.86 | 7.42 | 158.45 | 7.86 | -153.02 | 400.93 | 385.91 | 15.02 | 26.697 | | | | |
| 2,400.00 | 2,369.69 | 2,355.36 | 2,354.16 | 9.30 | 7.75 | 159.44 | 10.80 | -154.71 | 421.68 | 406.00 | 15.68 | 26.890 | | | | |
| 2,500.00 | 2,467.95 | 2,452.93 | 2,451.67 | 9.74 | 8.08 | 160.34 | 13.73 | -156.40 | 442.54 | 426.20 | 16.35 | 27.074 | | | | |
| 2,600.00 | 2,566.21 | 2,550.51 | 2,549.19 | 10.18 | 8.41 | 161.16 | 16.67 | -158.09 | 463.50 | 446.49 | 17.01 | 27.248 | | | | |
| 2,700.00 | 2,664.48 | 2,648.08 | 2,646.70 | 10.63 | 8.74 | 161.90 | 19.61 | -159.78 | 484.54 | 466.87 | 17.68 | 27.413 | | | | |
| 2,800.00 | 2,762.74 | 2,745.65 | 2,744.22 | 11.07 | 9.08 | 162.59 | 22.55 | -161.47 | 505.65 | 487.31 | 18.34 | 27.570 | | | | |
| 2,900.00 | 2,861.00 | 2,843.23 | 2,841.73 | 11.51 | 9.41 | 163.22 | 25.48 | -163.16 | 526.83 | 507.82 | 19.01 | 27.719 | | | | |
| 3,000.00 | 2,959.26 | 2,940.80 | 2,939.25 | 11.95 | 9.74 | 163.80 | 28.42 | -164.85 | 548.06 | 528.39 | 19.67 | 27.860 | | | | |
| 3,100.00 | 3,057.52 | 3,038.38 | 3,036.76 | 12.39 | 10.07 | 164.34 | 31.36 | -166.54 | 569.35 | 549.01 | 20.34 | 27.994 | | | | |
| 3,200.00 | 3,155.78 | 3,135.95 | 3,134.28 | 12.83 | 10.40 | 164.84 | 34.29 | -168.23 | 590.67 | 569.67 | 21.00 | 28.121 | | | | |
| 3,300.00 | 3,254.05 | 3,233.52 | 3,231.79 | 13.27 | 10.73 | 165.30 | 37.23 | -169.92 | 612.04 | 590.37 | 21.67 | 28.242 | | | | |
| 3,400.00 | 3,352.31 | 3,331.10 | 3,329.31 | 13.71 | 11.06 | 165.74 | 40.17 | -171.61 | 633.44 | 611.10 | 22.34 | 28.356 | | | | |
| 3,500.00 | 3,450.57 | 3,428.67 | 3,426.82 | 14.16 | 11.39 | 166.14 | 43.11 | -173.30 | 654.88 | 631.87 | 23.01 | 28.466 | | | | |
| 3,600.00 | 3,548.83 | 3,526.25 | 3,524.34 | 14.60 | 11.72 | 166.52 | 46.04 | -174.99 | 676.34 | 652.67 | 23.67 | 28.570 | | | | |
| 3,700.00 | 3,647.09 | 3,623.82 | 3,621.85 | 15.04 | 12.05 | 166.88 | 48.98 | -176.68 | 697.84 | 673.49 | 24.34 | 28.669 | | | | |
| 3,800.00 | 3,745.35 | 3,721.39 | 3,719.37 | 15.48 | 12.38 | 167.21 | 51.92 | -178.37 | 719.35 | 694.34 | 25.01 | 28.764 | | | | |
| 3,900.00 | 3,843.62 | 3,818.97 | 3,816.88 | 15.92 | 12.71 | 167.53 | 54.86 | -180.07 | 740.89 | 715.21 | 25.68 | 28.854 | | | | |
| 4,000.00 | 3,941.88 | 3,916.54 | 3,914.40 | 16.37 | 13.04 | 167.82 | 57.79 | -181.76 | 762.45 | 736.10 | 26.35 | 28.941 | | | | |
| 4,100.00 | 4,040.14 | 4,014.12 | 4,011.91 | 16.81 | 13.37 | 168.11 | 60.73 | -183.45 | 784.02 | 757.01 | 27.01 | 29.023 | | | | |
| 4,200.00 | 4,138.40 | 4,111.69 | 4,109.43 | 17.25 | 13.70 | 168.37 | 63.67 | -185.14 | 805.62 | 777.93 | 27.68 | 29.102 | | | | |
| 4,300.00 | 4,236.66 | 4,209.26 | 4,206.94 | 17.69 | 14.03 | 168.62 | 66.61 | -186.83 | 827.23 | 798.88 | 28.35 | 29.178 | | | | |
| 4,400.00 | 4,334.92 | 4,306.84 | 4,304.46 | 18.13 | 14.36 | 168.86 | 69.54 | -188.52 | 848.85 | 819.83 | 29.02 | 29.250 | | | | |
| 4,500.00 | 4,433.19 | 4,404.41 | 4,401.97 | 18.58 | 14.69 | 169.09 | 72.48 | -190.21 | 870.49 | 840.80 | 29.69 | 29.320 | | | | |
| 4,600.00 | 4,531.53 | 4,502.08 | 4,499.58 | 18.98 | 15.02 | 169.34 | 75.42 | -191.90 | 891.72 | 861.38 | 30.34 | 29.394 | | | | |
| 4,700.00 | 4,630.37 | 4,600.35 | 4,597.80 | 19.24 | 15.36 | 169.58 | 78.38 | -193.60 | 910.01 | 879.08 | 30.93 | 29.425 | | | | |
| 4,800.00 | 4,729.69 | 4,699.21 | 4,696.60 | 19.50 | 15.69 | 169.75 | 81.36 | -195.32 | 924.92 | 893.40 | 31.52 | 29.346 | | | | |
| 4,900.00 | 4,829.34 | 4,798.53 | 4,795.86 | 19.74 | 16.03 | 169.87 | 84.35 | -197.04 | 936.43 | 904.32 | 32.11 | 29.162 | | | | |
| 5,000.00 | 4,929.23 | 4,897.42 | 4,894.60 | 19.96 | 21.16 | 109.93 | -753.80 | -199.96 | 914.02 | 892.97 | 21.05 | 43.418 | | | | |
| 5,100.00 | 5,029.22 | 6,358.62 | 5,735.00 | 20.21 | 21.17 | -90.00 | -755.00 | -199.96 | 827.29 | 804.30 | 22.99 | 35.984 | | | | |



WOG

Anticollision Report

| | | | |
|---------------------------|-------------------------|-------------------------------------|--|
| Company: | Whiting Petroleum Corp. | Local Co-ordinate Reference: | Well Horsetail #30H-1948 |
| Project: | Weld County, CO | TVD Reference: | KBE @ 4746.00usft (Original Well Elev) |
| Reference Site: | Sec 30-T10N-R57W | MD Reference: | KBE @ 4746.00usft (Original Well Elev) |
| Site Error: | 0.00 usft | North Reference: | True |
| Reference Well: | Horsetail #30H-1948 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.00 usft | Output errors are at | 3.00 sigma |
| Reference Wellbore | Hz | Database: | LandmarkEDM |
| Reference Design: | APD | Offset TVD Reference: | Offset Datum |

| Offset Design | | | | | | | | | | | | Sec 30-T10N-R57W - Horsetail #30H-3146 - Hz - APD | | Offset Site Error: | | 0.00 usft | |
|-----------------------------------|----------------|----------------|----------------|-----------------|--------|-------------------|------------------------|--------------|-----------------|------------------|--------------------|---|---------|--------------------|--|-----------|--|
| Survey Program: 0-MWD+IFR1+MS+sag | | | | | | | | | | | | | | Offset Well Error: | | 0.00 usft | |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | | | | | |
| Measured Depth | Vertical Depth | Measured Depth | Vertical Depth | Reference | Offset | Highside Toolface | Offset Wellbore Centre | | Between Centres | Between Ellipses | Minimum Separation | Separation Factor | Warning | | | | |
| (usft) | (usft) | (usft) | (usft) | (usft) | (usft) | (°) | +N/-S (usft) | +E/-W (usft) | (usft) | (usft) | (usft) | | | | | | |
| 5,200.00 | 5,129.22 | 6,358.62 | 5,735.00 | 20.42 | 21.17 | -90.00 | -755.00 | -199.96 | 743.67 | 718.40 | 25.27 | 29.424 | | | | | |
| 5,300.00 | 5,229.21 | 6,358.40 | 5,735.00 | 20.63 | 21.16 | -91.90 | -754.78 | -199.96 | 664.60 | 636.60 | 28.00 | 23.733 | | | | | |
| 5,400.00 | 5,328.28 | 6,345.93 | 5,735.00 | 20.79 | 21.08 | -101.68 | -742.31 | -199.96 | 592.53 | 561.48 | 31.05 | 19.082 | | | | | |
| 5,500.00 | 5,423.15 | 6,314.80 | 5,735.00 | 20.86 | 20.86 | -106.23 | -711.18 | -199.96 | 531.69 | 497.57 | 34.12 | 15.584 | | | | | |
| 5,600.00 | 5,510.33 | 6,266.14 | 5,735.00 | 20.86 | 20.55 | -106.57 | -662.52 | -199.96 | 485.48 | 448.69 | 36.80 | 13.193 | | | | | |
| 5,700.00 | 5,586.64 | 6,201.74 | 5,735.00 | 20.80 | 20.15 | -103.91 | -598.12 | -199.96 | 454.98 | 416.34 | 38.64 | 11.775 | | | | | |
| 5,800.00 | 5,649.25 | 6,123.97 | 5,735.00 | 20.72 | 19.74 | -99.54 | -520.35 | -199.96 | 438.34 | 398.83 | 39.51 | 11.095 | | | | | |
| 5,900.00 | 5,695.89 | 6,035.68 | 5,735.00 | 20.64 | 19.34 | -94.91 | -432.06 | -199.96 | 431.43 | 391.84 | 39.59 | 10.897 | SF | | | | |
| 6,000.00 | 5,724.82 | 5,939.14 | 5,726.19 | 20.59 | 19.00 | -90.28 | -336.05 | -199.96 | 429.45 | 390.13 | 39.32 | 10.922 | | | | | |
| 6,010.23 | 5,726.73 | 5,929.63 | 5,724.36 | 20.59 | 18.97 | -89.81 | -326.73 | -199.96 | 429.44 | 390.15 | 39.29 | 10.930 | | | | | |
| 6,099.99 | 5,734.99 | 5,850.00 | 5,702.46 | 20.58 | 18.77 | -85.81 | -250.25 | -199.96 | 430.68 | 391.74 | 38.94 | 11.061 | | | | | |
| 6,200.00 | 5,735.00 | 5,766.78 | 5,667.41 | 20.66 | 18.62 | -81.18 | -174.86 | -199.96 | 435.97 | 397.49 | 38.48 | 11.329 | | | | | |
| 6,300.00 | 5,735.00 | 5,700.00 | 5,630.89 | 20.85 | 18.51 | -76.49 | -119.01 | -199.96 | 448.82 | 410.84 | 37.98 | 11.818 | | | | | |
| 6,400.00 | 5,735.00 | 5,639.12 | 5,591.61 | 21.15 | 18.39 | -71.64 | -72.55 | -199.96 | 471.81 | 434.44 | 37.37 | 12.626 | | | | | |
| 6,500.00 | 5,735.00 | 5,591.25 | 5,557.08 | 21.55 | 18.29 | -67.59 | -39.42 | -199.96 | 506.07 | 469.17 | 36.90 | 13.714 | | | | | |
| 6,600.00 | 5,735.00 | 5,550.00 | 5,524.99 | 22.04 | 18.20 | -64.03 | -13.51 | -199.96 | 551.22 | 514.66 | 36.57 | 15.075 | | | | | |
| 6,700.00 | 5,735.00 | 5,518.76 | 5,499.38 | 22.63 | 18.13 | -61.33 | 4.37 | -199.96 | 606.00 | 569.53 | 36.47 | 16.617 | | | | | |
| 6,800.00 | 5,735.00 | 5,500.00 | 5,483.50 | 23.30 | 18.08 | -59.72 | 14.36 | -199.96 | 668.93 | 632.31 | 36.61 | 18.270 | | | | | |
| 6,900.00 | 5,735.00 | 5,467.83 | 5,455.47 | 24.04 | 18.00 | -57.01 | 30.13 | -199.96 | 738.12 | 701.61 | 36.51 | 20.214 | | | | | |
| 7,000.00 | 5,735.00 | 5,450.00 | 5,439.53 | 24.85 | 17.96 | -55.53 | 38.12 | -199.96 | 812.62 | 775.97 | 36.65 | 22.174 | | | | | |
| 7,100.00 | 5,735.00 | 5,430.75 | 5,422.02 | 25.72 | 17.91 | -53.97 | 46.13 | -199.96 | 891.21 | 854.48 | 36.73 | 24.262 | | | | | |
| 7,200.00 | 5,735.00 | 5,415.84 | 5,408.27 | 26.64 | 17.87 | -52.79 | 51.89 | -199.96 | 973.09 | 936.24 | 36.85 | 26.408 | | | | | |
| 7,300.00 | 5,735.00 | 5,400.00 | 5,393.49 | 27.61 | 17.83 | -51.56 | 57.56 | -199.96 | 1,057.60 | 1,020.67 | 36.93 | 28.635 | | | | | |
| 7,400.00 | 5,735.00 | 5,400.00 | 5,393.49 | 28.62 | 17.83 | -51.56 | 57.56 | -199.96 | 1,144.32 | 1,107.18 | 37.14 | 30.813 | | | | | |
| 7,500.00 | 5,735.00 | 5,381.08 | 5,375.61 | 29.67 | 17.78 | -50.12 | 63.76 | -199.96 | 1,232.58 | 1,195.42 | 37.16 | 33.168 | | | | | |
| 7,600.00 | 5,735.00 | 5,371.97 | 5,366.92 | 30.75 | 17.76 | -49.44 | 66.50 | -199.96 | 1,322.38 | 1,285.13 | 37.25 | 35.500 | | | | | |
| 7,700.00 | 5,735.00 | 5,350.00 | 5,345.79 | 31.87 | 17.70 | -47.85 | 72.50 | -199.96 | 1,413.61 | 1,376.36 | 37.25 | 37.950 | | | | | |
| 7,800.00 | 5,735.00 | 5,350.00 | 5,345.79 | 33.01 | 17.70 | -47.85 | 72.50 | -199.96 | 1,505.41 | 1,468.03 | 37.38 | 40.278 | | | | | |



WOG

Anticollision Report

| | | | |
|---------------------------|-------------------------|-------------------------------------|--|
| Company: | Whiting Petroleum Corp. | Local Co-ordinate Reference: | Well Horsetail #30H-1948 |
| Project: | Weld County, CO | TVD Reference: | KBE @ 4746.00usft (Original Well Elev) |
| Reference Site: | Sec 30-T10N-R57W | MD Reference: | KBE @ 4746.00usft (Original Well Elev) |
| Site Error: | 0.00 usft | North Reference: | True |
| Reference Well: | Horsetail #30H-1948 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.00 usft | Output errors are at | 3.00 sigma |
| Reference Wellbore | HZ | Database: | LandmarkEDM |
| Reference Design: | APD | Offset TVD Reference: | Offset Datum |

| Offset Design | | | | | | | | | | | | | Offset Site Error: | 0.00 usft |
|-----------------------------------|-----------------------|-----------------------|-----------------------|------------------|---------------|-----------------------|-------------------------------------|--------------|------------------------|-------------------------|---------------------------|-------------------|--------------------|-----------|
| Survey Program: 0-MWD+IFR1+MS+sag | | | | | | | | | | | | | Offset Well Error: | 0.00 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 | | |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | -129.58 | -49.59 | -59.98 | 77.83 | | | | | |
| 100.00 | 100.00 | 99.00 | 99.00 | 0.13 | 0.13 | -129.58 | -49.59 | -59.98 | 77.82 | 77.56 | 0.27 | 293.659 | | |
| 200.00 | 200.00 | 199.00 | 199.00 | 0.47 | 0.47 | -129.58 | -49.59 | -59.98 | 77.82 | 76.89 | 0.94 | 83.033 | | |
| 300.00 | 300.00 | 299.00 | 299.00 | 0.81 | 0.80 | -129.58 | -49.59 | -59.98 | 77.82 | 76.21 | 1.61 | 48.291 | | |
| 400.00 | 399.98 | 401.65 | 401.63 | 1.11 | 1.15 | 68.83 | -48.28 | -58.74 | 75.43 | 73.11 | 2.32 | 32.509 | | |
| 500.00 | 499.84 | 501.69 | 501.59 | 1.41 | 1.49 | 73.44 | -45.36 | -55.99 | 69.79 | 66.85 | 2.94 | 23.742 | | |
| 600.00 | 599.45 | 601.05 | 600.86 | 1.73 | 1.82 | 81.83 | -42.44 | -53.24 | 64.03 | 60.47 | 3.57 | 17.950 | | |
| 700.00 | 698.70 | 699.97 | 699.71 | 2.07 | 2.15 | 94.79 | -39.53 | -50.50 | 60.05 | 55.83 | 4.22 | 14.231 | | |
| 741.55 | 739.80 | 740.91 | 740.62 | 2.21 | 2.28 | 101.45 | -38.32 | -49.36 | 59.57 | 55.07 | 4.50 | 13.233 CC, ES | | |
| 800.00 | 797.47 | 798.34 | 798.00 | 2.43 | 2.48 | 111.61 | -36.63 | -47.77 | 60.68 | 55.78 | 4.90 | 12.386 | | |
| 900.00 | 895.77 | 896.19 | 895.77 | 2.83 | 2.81 | 128.54 | -33.75 | -45.06 | 68.03 | 62.44 | 5.59 | 12.170 | | |
| 1,000.00 | 994.03 | 994.00 | 993.50 | 3.24 | 3.14 | 141.50 | -30.87 | -42.35 | 80.32 | 74.06 | 6.26 | 12.828 | | |
| 1,100.00 | 1,092.29 | 1,091.81 | 1,091.22 | 3.66 | 3.47 | 150.76 | -28.00 | -39.64 | 95.61 | 88.69 | 6.92 | 13.819 | | |
| 1,200.00 | 1,190.55 | 1,189.62 | 1,188.95 | 4.08 | 3.80 | 157.39 | -25.12 | -36.92 | 112.69 | 105.11 | 7.57 | 14.884 | | |
| 1,300.00 | 1,288.81 | 1,287.43 | 1,286.68 | 4.51 | 4.13 | 162.24 | -22.24 | -34.21 | 130.85 | 122.63 | 8.22 | 15.912 | | |
| 1,400.00 | 1,387.07 | 1,385.23 | 1,384.41 | 4.94 | 4.46 | 165.91 | -19.36 | -31.50 | 149.71 | 140.83 | 8.88 | 16.863 | | |
| 1,500.00 | 1,485.34 | 1,483.04 | 1,482.14 | 5.37 | 4.79 | 168.75 | -16.48 | -28.79 | 169.02 | 159.49 | 9.53 | 17.728 | | |
| 1,600.00 | 1,583.60 | 1,580.85 | 1,579.87 | 5.80 | 5.12 | 171.01 | -13.61 | -26.08 | 188.66 | 178.47 | 10.19 | 18.509 | | |
| 1,700.00 | 1,681.86 | 1,678.66 | 1,677.60 | 6.24 | 5.46 | 172.84 | -10.73 | -23.37 | 208.53 | 197.68 | 10.85 | 19.213 | | |
| 1,800.00 | 1,780.12 | 1,776.47 | 1,775.33 | 6.67 | 5.79 | 174.35 | -7.85 | -20.66 | 228.57 | 217.05 | 11.52 | 19.848 | | |
| 1,900.00 | 1,878.38 | 1,874.28 | 1,873.06 | 7.11 | 6.12 | 175.62 | -4.97 | -17.95 | 248.73 | 236.55 | 12.18 | 20.422 | | |
| 2,000.00 | 1,976.64 | 1,972.09 | 1,970.78 | 7.55 | 6.45 | 176.70 | -2.09 | -15.24 | 269.00 | 256.15 | 12.85 | 20.942 | | |
| 2,100.00 | 2,074.91 | 2,069.90 | 2,068.51 | 7.99 | 6.78 | 177.62 | 0.78 | -12.52 | 289.34 | 275.83 | 13.51 | 21.415 | | |
| 2,200.00 | 2,173.17 | 2,167.71 | 2,166.24 | 8.43 | 7.11 | 178.43 | 3.66 | -9.81 | 309.75 | 295.57 | 14.18 | 21.846 | | |
| 2,300.00 | 2,271.43 | 2,265.51 | 2,263.97 | 8.86 | 7.44 | 179.13 | 6.54 | -7.10 | 330.21 | 315.36 | 14.85 | 22.241 | | |
| 2,400.00 | 2,369.69 | 2,363.32 | 2,361.70 | 9.30 | 7.78 | 179.76 | 9.42 | -4.39 | 350.71 | 335.19 | 15.52 | 22.604 | | |
| 2,500.00 | 2,467.95 | 2,461.13 | 2,459.43 | 9.74 | 8.11 | -179.69 | 12.30 | -1.68 | 371.24 | 355.06 | 16.18 | 22.938 | | |
| 2,600.00 | 2,566.21 | 2,558.94 | 2,557.16 | 10.18 | 8.44 | -179.19 | 15.17 | 1.03 | 391.81 | 374.96 | 16.85 | 23.247 | | |
| 2,700.00 | 2,664.48 | 2,656.75 | 2,654.89 | 10.63 | 8.77 | -178.74 | 18.05 | 3.74 | 412.40 | 394.88 | 17.52 | 23.533 | | |
| 2,800.00 | 2,762.74 | 2,754.56 | 2,752.61 | 11.07 | 9.10 | -178.34 | 20.93 | 6.45 | 433.02 | 414.82 | 18.20 | 23.798 | | |
| 2,900.00 | 2,861.00 | 2,852.37 | 2,850.34 | 11.51 | 9.44 | -177.97 | 23.81 | 9.16 | 453.65 | 434.78 | 18.87 | 24.045 | | |
| 3,000.00 | 2,959.26 | 2,950.18 | 2,948.07 | 11.95 | 9.77 | -177.64 | 26.69 | 11.88 | 474.30 | 454.76 | 19.54 | 24.276 | | |
| 3,100.00 | 3,057.52 | 3,047.98 | 3,045.80 | 12.39 | 10.10 | -177.33 | 29.56 | 14.59 | 494.96 | 474.75 | 20.21 | 24.491 | | |
| 3,200.00 | 3,155.78 | 3,145.79 | 3,143.53 | 12.83 | 10.43 | -177.05 | 32.44 | 17.30 | 515.63 | 494.75 | 20.88 | 24.693 | | |
| 3,300.00 | 3,254.05 | 3,243.60 | 3,241.26 | 13.27 | 10.76 | -176.78 | 35.32 | 20.01 | 536.32 | 514.77 | 21.55 | 24.883 | | |
| 3,400.00 | 3,352.31 | 3,341.41 | 3,338.99 | 13.71 | 11.09 | -176.54 | 38.20 | 22.72 | 557.02 | 534.79 | 22.23 | 25.061 | | |
| 3,500.00 | 3,450.57 | 3,439.22 | 3,436.72 | 14.16 | 11.43 | -176.32 | 41.08 | 25.43 | 577.72 | 554.82 | 22.90 | 25.229 | | |
| 3,600.00 | 3,548.83 | 3,537.03 | 3,534.44 | 14.60 | 11.76 | -176.11 | 43.95 | 28.14 | 598.44 | 574.86 | 23.57 | 25.388 | | |
| 3,700.00 | 3,647.09 | 3,634.84 | 3,632.17 | 15.04 | 12.09 | -175.91 | 46.83 | 30.85 | 619.16 | 594.91 | 24.24 | 25.538 | | |
| 3,800.00 | 3,745.35 | 3,732.65 | 3,729.90 | 15.48 | 12.42 | -175.73 | 49.71 | 33.56 | 639.88 | 614.97 | 24.92 | 25.680 | | |
| 3,900.00 | 3,843.62 | 3,830.45 | 3,827.63 | 15.92 | 12.75 | -175.56 | 52.59 | 36.28 | 660.62 | 635.02 | 25.59 | 25.814 | | |
| 4,000.00 | 3,941.88 | 3,928.26 | 3,925.36 | 16.37 | 13.09 | -175.40 | 55.46 | 38.99 | 681.35 | 655.09 | 26.26 | 25.942 | | |
| 4,100.00 | 4,040.14 | 4,026.07 | 4,023.09 | 16.81 | 13.42 | -175.25 | 58.34 | 41.70 | 702.10 | 675.16 | 26.94 | 26.063 | | |
| 4,200.00 | 4,138.40 | 4,123.88 | 4,120.82 | 17.25 | 13.75 | -175.11 | 61.22 | 44.41 | 722.84 | 695.23 | 27.61 | 26.178 | | |
| 4,300.00 | 4,236.66 | 4,221.69 | 4,218.55 | 17.69 | 14.08 | -174.97 | 64.10 | 47.12 | 743.59 | 715.31 | 28.29 | 26.288 | | |
| 4,400.00 | 4,334.92 | 4,319.50 | 4,316.28 | 18.13 | 14.41 | -174.84 | 66.98 | 49.83 | 764.35 | 735.39 | 28.96 | 26.393 | | |
| 4,500.00 | 4,433.19 | 4,417.31 | 4,414.00 | 18.58 | 14.74 | -174.72 | 69.85 | 52.54 | 785.11 | 755.47 | 29.63 | 26.493 | | |
| 4,600.00 | 4,531.53 | 4,515.20 | 4,511.82 | 18.98 | 15.08 | -174.63 | 72.74 | 55.26 | 805.44 | 775.15 | 30.29 | 26.591 | | |
| 4,700.00 | 4,630.37 | 4,613.66 | 4,610.20 | 19.24 | 15.41 | -174.53 | 75.63 | 57.99 | 822.79 | 791.90 | 30.89 | 26.635 | | |
| 4,800.00 | 4,729.69 | 4,712.66 | 4,709.12 | 19.50 | 15.75 | -174.40 | 78.55 | 60.73 | 836.71 | 805.22 | 31.49 | 26.567 | | |
| 4,900.00 | 4,829.34 | 4,812.08 | 4,808.45 | 19.74 | 16.08 | -174.26 | 81.47 | 63.49 | 847.19 | 815.09 | 32.10 | 26.394 | | |
| 5,000.00 | 4,929.23 | 4,911.78 | 4,908.08 | 19.96 | 16.42 | -174.08 | 84.40 | 66.25 | 854.22 | 821.52 | 32.70 | 26.121 | | |

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



WOG

Anticollision Report

| | | | |
|---------------------------|-------------------------|-------------------------------------|--|
| Company: | Whiting Petroleum Corp. | Local Co-ordinate Reference: | Well Horsetail #30H-1948 |
| Project: | Weld County, CO | TVD Reference: | KBE @ 4746.00usft (Original Well Elev) |
| Reference Site: | Sec 30-T10N-R57W | MD Reference: | KBE @ 4746.00usft (Original Well Elev) |
| Site Error: | 0.00 usft | North Reference: | True |
| Reference Well: | Horsetail #30H-1948 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.00 usft | Output errors are at | 3.00 sigma |
| Reference Wellbore | Hz | Database: | LandmarkEDM |
| Reference Design: | APD | Offset TVD Reference: | Offset Datum |

| Offset Design | | | | | | | | | | | | | Sec 30-T10N-R57W - Horsetail #30H-3147 - Hz - APD | | Offset Site Error: | | 0.00 usft | |
|-----------------------------------|-----------------------|-----------------------|-----------------------|------------------|---------------|-----------------------|-------------------------------------|--------------|------------------------|-------------------------|---------------------------|-------------------|---|---------|--------------------|--|-----------|--|
| Survey Program: 0-MWD+IFR1+MS+sag | | | | | | | | | | | | | Offset Well Error: | | 0.00 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 | | | | | | |
| 5,100.00 | 5,029.22 | 6,446.65 | 5,823.00 | 20.21 | 21.61 | -90.00 | -755.00 | 70.02 | 810.72 | 797.76 | 12.97 | 62.528 | | | | | | |
| 5,200.00 | 5,129.22 | 6,446.65 | 5,823.00 | 20.42 | 21.61 | -90.00 | -755.00 | 70.02 | 712.96 | 699.14 | 13.82 | 51.591 | | | | | | |
| 5,300.00 | 5,229.21 | 6,446.43 | 5,823.00 | 20.63 | 21.61 | -96.13 | -754.78 | 70.02 | 615.93 | 600.94 | 14.99 | 41.093 | | | | | | |
| 5,400.00 | 5,328.28 | 6,433.96 | 5,823.00 | 20.79 | 21.52 | -124.16 | -742.31 | 70.02 | 520.89 | 504.35 | 16.54 | 31.496 | | | | | | |
| 5,500.00 | 5,423.15 | 6,402.83 | 5,823.00 | 20.86 | 21.30 | -135.14 | -711.18 | 70.02 | 431.58 | 412.98 | 18.60 | 23.207 | | | | | | |
| 5,600.00 | 5,510.33 | 6,354.17 | 5,823.00 | 20.86 | 21.00 | -138.11 | -662.52 | 70.02 | 352.06 | 330.68 | 21.38 | 16.470 | | | | | | |
| 5,700.00 | 5,586.64 | 6,289.77 | 5,823.00 | 20.80 | 20.61 | -136.71 | -598.12 | 70.02 | 286.13 | 261.22 | 24.92 | 11.482 | | | | | | |
| 5,800.00 | 5,649.25 | 6,212.00 | 5,823.00 | 20.72 | 20.19 | -132.41 | -520.35 | 70.02 | 236.72 | 207.83 | 28.90 | 8.192 | | | | | | |
| 5,900.00 | 5,695.89 | 6,123.58 | 5,823.00 | 20.64 | 19.80 | -126.57 | -431.93 | 70.02 | 204.65 | 172.22 | 32.43 | 6.310 | | | | | | |
| 6,000.00 | 5,724.82 | 6,007.56 | 5,810.01 | 20.59 | 19.39 | -116.82 | -316.88 | 70.02 | 182.33 | 146.71 | 35.62 | 5.118 | | | | | | |
| 6,099.99 | 5,734.99 | 5,902.92 | 5,776.73 | 20.58 | 19.10 | -104.98 | -217.85 | 70.02 | 166.11 | 127.86 | 38.25 | 4.342 | | | | | | |
| 6,196.09 | 5,735.30 | 5,815.12 | 5,734.01 | 20.66 | 18.90 | -89.90 | -141.28 | 70.02 | 159.23 | 120.05 | 39.18 | 4.065 SF | | | | | | |
| 6,200.00 | 5,735.00 | 5,811.73 | 5,732.10 | 20.66 | 18.89 | -89.32 | -138.47 | 70.02 | 159.24 | 120.08 | 39.16 | 4.066 | | | | | | |
| 6,300.00 | 5,735.00 | 5,738.04 | 5,686.35 | 20.85 | 18.73 | -73.33 | -80.78 | 70.02 | 171.71 | 134.13 | 37.58 | 4.569 | | | | | | |
| 6,400.00 | 5,735.00 | 5,679.45 | 5,644.45 | 21.15 | 18.59 | -60.63 | -39.87 | 70.02 | 209.38 | 173.99 | 35.39 | 5.916 | | | | | | |
| 6,500.00 | 5,735.00 | 5,632.84 | 5,608.00 | 21.55 | 18.48 | -51.62 | -10.85 | 70.02 | 266.98 | 232.57 | 34.41 | 7.758 | | | | | | |
| 6,600.00 | 5,735.00 | 5,600.00 | 5,580.82 | 22.04 | 18.40 | -46.08 | 7.58 | 70.02 | 337.36 | 302.81 | 34.55 | 9.765 | | | | | | |
| 6,700.00 | 5,735.00 | 5,565.05 | 5,550.70 | 22.63 | 18.31 | -40.94 | 25.27 | 70.02 | 415.58 | 380.96 | 34.62 | 12.005 | | | | | | |
| 6,800.00 | 5,735.00 | 5,550.00 | 5,537.36 | 23.30 | 18.27 | -38.96 | 32.27 | 70.02 | 499.17 | 463.94 | 35.23 | 14.168 | | | | | | |
| 6,900.00 | 5,735.00 | 5,519.17 | 5,509.47 | 24.04 | 18.19 | -35.30 | 45.37 | 70.02 | 585.89 | 550.59 | 35.30 | 16.600 | | | | | | |
| 7,000.00 | 5,735.00 | 5,500.00 | 5,491.74 | 24.85 | 18.14 | -33.28 | 52.67 | 70.02 | 675.30 | 639.74 | 35.56 | 18.992 | | | | | | |
| 7,100.00 | 5,735.00 | 5,500.00 | 5,491.74 | 25.72 | 18.14 | -33.28 | 52.67 | 70.02 | 766.82 | 730.81 | 36.01 | 21.295 | | | | | | |
| 7,200.00 | 5,735.00 | 5,473.56 | 5,466.88 | 26.64 | 18.07 | -30.76 | 61.67 | 70.02 | 859.17 | 823.14 | 36.03 | 23.846 | | | | | | |
| 7,300.00 | 5,735.00 | 5,450.00 | 5,444.37 | 27.61 | 18.01 | -28.76 | 68.61 | 70.02 | 953.12 | 917.04 | 36.08 | 26.417 | | | | | | |
| 7,400.00 | 5,735.00 | 5,450.00 | 5,444.37 | 28.62 | 18.01 | -28.76 | 68.61 | 70.02 | 1,047.49 | 1,011.16 | 36.33 | 28.833 | | | | | | |
| 7,500.00 | 5,735.00 | 5,450.00 | 5,444.37 | 29.67 | 18.01 | -28.76 | 68.61 | 70.02 | 1,142.82 | 1,106.30 | 36.52 | 31.289 | | | | | | |
| 7,600.00 | 5,735.00 | 5,450.00 | 5,444.37 | 30.75 | 18.01 | -28.76 | 68.61 | 70.02 | 1,238.89 | 1,202.21 | 36.68 | 33.775 | | | | | | |
| 7,700.00 | 5,735.00 | 5,428.89 | 5,423.95 | 31.87 | 17.95 | -27.14 | 73.96 | 70.02 | 1,334.95 | 1,298.25 | 36.70 | 36.379 | | | | | | |
| 7,800.00 | 5,735.00 | 5,422.63 | 5,417.85 | 33.01 | 17.93 | -26.69 | 75.39 | 70.02 | 1,431.67 | 1,394.88 | 36.79 | 38.915 | | | | | | |
| 7,900.00 | 5,735.00 | 5,400.00 | 5,395.69 | 34.18 | 17.87 | -25.17 | 79.94 | 70.02 | 1,529.09 | 1,492.29 | 36.80 | 41.554 | | | | | | |



WOG

Anticollision Report

| | | | |
|---------------------------|-------------------------|-------------------------------------|--|
| Company: | Whiting Petroleum Corp. | Local Co-ordinate Reference: | Well Horsetail #30H-1948 |
| Project: | Weld County, CO | TVD Reference: | KBE @ 4746.00usft (Original Well Elev) |
| Reference Site: | Sec 30-T10N-R57W | MD Reference: | KBE @ 4746.00usft (Original Well Elev) |
| Site Error: | 0.00 usft | North Reference: | True |
| Reference Well: | Horsetail #30H-1948 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.00 usft | Output errors are at | 3.00 sigma |
| Reference Wellbore | HZ | Database: | LandmarkEDM |
| Reference Design: | APD | Offset TVD Reference: | Offset Datum |

| Offset Design | | | | | | | | | | | | | Offset Site Error: | 0.00 usft |
|-----------------------------------|-----------------------|-----------------------|-----------------------|------------------|---------------|-----------------------|-------------------------------------|--------------|------------------------|-------------------------|---------------------------|-------------------|--------------------|-----------|
| Survey Program: 0-MWD+IFR1+MS+sag | | | | | | | | | | | | | Offset Well Error: | 0.00 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 | | |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 180.00 | -50.60 | 0.00 | 50.61 | | | | | |
| 100.00 | 100.00 | 99.00 | 99.00 | 0.13 | 0.13 | 180.00 | -50.60 | 0.00 | 50.60 | 50.34 | 0.27 | 190.942 | | |
| 200.00 | 200.00 | 199.00 | 199.00 | 0.47 | 0.47 | 180.00 | -50.60 | 0.00 | 50.60 | 49.67 | 0.94 | 53.989 | | |
| 300.00 | 300.00 | 299.00 | 299.00 | 0.81 | 0.80 | 180.00 | -50.60 | 0.00 | 50.60 | 48.99 | 1.61 | 31.400 | | |
| 400.00 | 399.98 | 399.62 | 399.60 | 1.11 | 1.14 | 15.67 | -49.93 | 1.59 | 48.27 | 46.02 | 2.25 | 21.412 | | |
| 500.00 | 499.84 | 499.84 | 499.68 | 1.41 | 1.47 | 10.92 | -47.88 | 6.41 | 41.44 | 38.55 | 2.90 | 14.312 | | |
| 600.00 | 599.45 | 599.18 | 598.73 | 1.73 | 1.81 | 0.51 | -44.91 | 13.39 | 31.17 | 27.64 | 3.53 | 8.821 | | |
| 700.00 | 698.70 | 698.04 | 697.29 | 2.07 | 2.14 | -22.04 | -41.93 | 20.41 | 19.60 | 15.40 | 4.19 | 4.676 | | |
| 777.44 | 775.24 | 774.25 | 773.27 | 2.35 | 2.40 | -66.14 | -39.63 | 25.83 | 14.39 | 9.59 | 4.79 | 3.002 CC, ES | | |
| 800.00 | 797.47 | 796.38 | 795.34 | 2.43 | 2.48 | -82.72 | -38.96 | 27.40 | 15.00 | 10.02 | 4.98 | 3.012 | | |
| 900.00 | 895.77 | 894.23 | 892.90 | 2.83 | 2.81 | -126.88 | -36.01 | 34.35 | 28.41 | 22.74 | 5.68 | 5.005 | | |
| 1,000.00 | 994.03 | 992.05 | 990.43 | 3.24 | 3.15 | -140.06 | -33.05 | 41.29 | 47.46 | 41.14 | 6.32 | 7.505 | | |
| 1,100.00 | 1,092.29 | 1,089.87 | 1,087.95 | 3.66 | 3.49 | -145.59 | -30.10 | 48.24 | 67.54 | 60.55 | 6.98 | 9.671 | | |
| 1,200.00 | 1,190.55 | 1,187.68 | 1,185.48 | 4.08 | 3.83 | -148.57 | -27.15 | 55.19 | 87.94 | 80.29 | 7.65 | 11.492 | | |
| 1,300.00 | 1,288.81 | 1,285.50 | 1,283.00 | 4.51 | 4.18 | -150.43 | -24.20 | 62.13 | 108.49 | 100.16 | 8.33 | 13.028 | | |
| 1,400.00 | 1,387.07 | 1,383.32 | 1,380.53 | 4.94 | 4.52 | -151.70 | -21.24 | 69.08 | 129.11 | 120.11 | 9.01 | 14.336 | | |
| 1,500.00 | 1,485.34 | 1,481.14 | 1,478.05 | 5.37 | 4.86 | -152.62 | -18.29 | 76.03 | 149.78 | 140.09 | 9.69 | 15.461 | | |
| 1,600.00 | 1,583.60 | 1,578.95 | 1,575.58 | 5.80 | 5.20 | -153.31 | -15.34 | 82.97 | 170.47 | 160.10 | 10.37 | 16.436 | | |
| 1,700.00 | 1,681.86 | 1,676.77 | 1,673.10 | 6.24 | 5.55 | -153.86 | -12.39 | 89.92 | 191.19 | 180.13 | 11.06 | 17.290 | | |
| 1,800.00 | 1,780.12 | 1,774.59 | 1,770.63 | 6.67 | 5.89 | -154.30 | -9.43 | 96.87 | 211.91 | 200.17 | 11.74 | 18.043 | | |
| 1,900.00 | 1,878.38 | 1,872.40 | 1,868.15 | 7.11 | 6.23 | -154.66 | -6.48 | 103.81 | 232.65 | 220.22 | 12.43 | 18.712 | | |
| 2,000.00 | 1,976.64 | 1,970.22 | 1,965.68 | 7.55 | 6.57 | -154.96 | -3.53 | 110.76 | 253.39 | 240.27 | 13.12 | 19.310 | | |
| 2,100.00 | 2,074.91 | 2,068.04 | 2,063.20 | 7.99 | 6.92 | -155.21 | -0.58 | 117.71 | 274.14 | 260.33 | 13.81 | 19.848 | | |
| 2,200.00 | 2,173.17 | 2,165.85 | 2,160.73 | 8.43 | 7.26 | -155.43 | 2.37 | 124.65 | 294.90 | 280.39 | 14.50 | 20.334 | | |
| 2,300.00 | 2,271.43 | 2,263.67 | 2,258.26 | 8.86 | 7.60 | -155.62 | 5.33 | 131.60 | 315.65 | 300.46 | 15.19 | 20.775 | | |
| 2,400.00 | 2,369.69 | 2,361.49 | 2,355.78 | 9.30 | 7.95 | -155.79 | 8.28 | 138.54 | 336.41 | 320.53 | 15.89 | 21.177 | | |
| 2,500.00 | 2,467.95 | 2,459.30 | 2,453.31 | 9.74 | 8.29 | -155.94 | 11.23 | 145.49 | 357.18 | 340.60 | 16.58 | 21.545 | | |
| 2,600.00 | 2,566.21 | 2,557.12 | 2,550.83 | 10.18 | 8.63 | -156.07 | 14.18 | 152.44 | 377.94 | 360.67 | 17.27 | 21.883 | | |
| 2,700.00 | 2,664.48 | 2,654.94 | 2,648.36 | 10.63 | 8.98 | -156.19 | 17.14 | 159.38 | 398.71 | 380.74 | 17.96 | 22.195 | | |
| 2,800.00 | 2,762.74 | 2,752.75 | 2,745.88 | 11.07 | 9.32 | -156.29 | 20.09 | 166.33 | 419.48 | 400.82 | 18.66 | 22.484 | | |
| 2,900.00 | 2,861.00 | 2,850.57 | 2,843.41 | 11.51 | 9.66 | -156.39 | 23.04 | 173.28 | 440.24 | 420.89 | 19.35 | 22.751 | | |
| 3,000.00 | 2,959.26 | 2,948.39 | 2,940.93 | 11.95 | 10.01 | -156.48 | 25.99 | 180.22 | 461.01 | 440.97 | 20.04 | 23.000 | | |
| 3,100.00 | 3,057.52 | 3,046.21 | 3,038.46 | 12.39 | 10.35 | -156.56 | 28.94 | 187.17 | 481.79 | 461.05 | 20.74 | 23.232 | | |
| 3,200.00 | 3,155.78 | 3,144.02 | 3,135.98 | 12.83 | 10.69 | -156.63 | 31.90 | 194.12 | 502.56 | 481.13 | 21.43 | 23.449 | | |
| 3,300.00 | 3,254.05 | 3,241.84 | 3,233.51 | 13.27 | 11.04 | -156.70 | 34.85 | 201.06 | 523.33 | 501.20 | 22.13 | 23.652 | | |
| 3,400.00 | 3,352.31 | 3,339.66 | 3,331.03 | 13.71 | 11.38 | -156.76 | 37.80 | 208.01 | 544.10 | 521.28 | 22.82 | 23.843 | | |
| 3,500.00 | 3,450.57 | 3,437.47 | 3,428.56 | 14.16 | 11.73 | -156.82 | 40.75 | 214.96 | 564.88 | 541.36 | 23.52 | 24.022 | | |
| 3,600.00 | 3,548.83 | 3,535.29 | 3,526.08 | 14.60 | 12.07 | -156.87 | 43.71 | 221.90 | 585.65 | 561.44 | 24.21 | 24.191 | | |
| 3,700.00 | 3,647.09 | 3,633.11 | 3,623.61 | 15.04 | 12.41 | -156.92 | 46.66 | 228.85 | 606.43 | 581.52 | 24.90 | 24.350 | | |
| 3,800.00 | 3,745.35 | 3,730.92 | 3,721.13 | 15.48 | 12.76 | -156.97 | 49.61 | 235.80 | 627.20 | 601.60 | 25.60 | 24.500 | | |
| 3,900.00 | 3,843.62 | 3,828.74 | 3,818.66 | 15.92 | 13.10 | -157.01 | 52.56 | 242.74 | 647.98 | 621.68 | 26.29 | 24.643 | | |
| 4,000.00 | 3,941.88 | 3,926.56 | 3,916.18 | 16.37 | 13.44 | -157.05 | 55.52 | 249.69 | 668.75 | 641.76 | 26.99 | 24.778 | | |
| 4,100.00 | 4,040.14 | 4,024.37 | 4,013.71 | 16.81 | 13.79 | -157.09 | 58.47 | 256.64 | 689.53 | 661.84 | 27.69 | 24.906 | | |
| 4,200.00 | 4,138.40 | 4,122.19 | 4,111.24 | 17.25 | 14.13 | -157.13 | 61.42 | 263.58 | 710.31 | 681.93 | 28.38 | 25.028 | | |
| 4,300.00 | 4,236.66 | 4,220.01 | 4,208.76 | 17.69 | 14.47 | -157.16 | 64.37 | 270.53 | 731.08 | 702.01 | 29.08 | 25.144 | | |
| 4,400.00 | 4,334.92 | 4,317.83 | 4,306.29 | 18.13 | 14.82 | -157.20 | 67.32 | 277.48 | 751.86 | 722.09 | 29.77 | 25.254 | | |
| 4,500.00 | 4,433.19 | 4,415.64 | 4,403.81 | 18.58 | 15.16 | -157.23 | 70.28 | 284.42 | 772.64 | 742.17 | 30.47 | 25.359 | | |
| 4,600.00 | 4,531.53 | 4,513.54 | 4,501.42 | 18.98 | 15.51 | -157.32 | 73.23 | 291.37 | 793.02 | 761.88 | 31.14 | 25.464 | | |
| 4,700.00 | 4,630.37 | 4,611.97 | 4,599.55 | 19.24 | 15.85 | -157.39 | 76.20 | 298.36 | 810.63 | 778.87 | 31.76 | 25.524 | | |
| 4,800.00 | 4,729.69 | 4,710.89 | 4,698.18 | 19.50 | 16.20 | -157.34 | 79.19 | 305.39 | 825.07 | 792.69 | 32.38 | 25.481 | | |
| 4,900.00 | 4,829.34 | 4,810.88 | 4,797.87 | 19.74 | 16.55 | -157.18 | 82.20 | 312.49 | 836.31 | 803.31 | 33.00 | 25.341 | | |
| 5,000.00 | 4,929.23 | 4,910.88 | 4,897.87 | 19.96 | 16.90 | -88.38 | -753.80 | 320.00 | 811.82 | 802.46 | 9.35 | 86.795 | | |

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



WOG

Anticollision Report

| | | | |
|---------------------------|-------------------------|-------------------------------------|--|
| Company: | Whiting Petroleum Corp. | Local Co-ordinate Reference: | Well Horsetail #30H-1948 |
| Project: | Weld County, CO | TVD Reference: | KBE @ 4746.00usft (Original Well Elev) |
| Reference Site: | Sec 30-T10N-R57W | MD Reference: | KBE @ 4746.00usft (Original Well Elev) |
| Site Error: | 0.00 usft | North Reference: | True |
| Reference Well: | Horsetail #30H-1948 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.00 usft | Output errors are at | 3.00 sigma |
| Reference Wellbore | Hz | Database: | LandmarkEDM |
| Reference Design: | APD | Offset TVD Reference: | Offset Datum |

| Offset Design | | | | | | | | | | | | Offset Site Error: | 0.00 usft |
|-----------------------------------|-----------------------|-----------------------|-----------------------|------------------|---------------|-----------------------|-------------------------------------|--------------|------------------------|-------------------------|---------------------------|--------------------|-----------|
| Survey Program: 0-MWD+IFR1+MS+sag | | | | | | | | | | | | Offset Well Error: | 0.00 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 | |
| 5,100.00 | 5,029.22 | 6,365.05 | 5,735.00 | 20.21 | 21.91 | 90.00 | -755.00 | 320.00 | 712.49 | 702.92 | 9.57 | 74.448 | |
| 5,200.00 | 5,129.22 | 6,365.05 | 5,735.00 | 20.42 | 21.91 | 90.00 | -755.00 | 320.00 | 613.42 | 603.51 | 9.91 | 61.886 | |
| 5,300.00 | 5,229.21 | 6,364.83 | 5,735.00 | 20.63 | 21.91 | 99.41 | -754.78 | 320.00 | 514.72 | 504.24 | 10.48 | 49.126 | |
| 5,400.00 | 5,328.28 | 6,352.36 | 5,735.00 | 20.79 | 21.82 | 134.85 | -742.31 | 320.00 | 417.54 | 406.19 | 11.35 | 36.783 | |
| 5,500.00 | 5,423.15 | 6,321.23 | 5,735.00 | 20.86 | 21.60 | 144.38 | -711.18 | 320.00 | 325.56 | 312.73 | 12.83 | 25.376 | |
| 5,600.00 | 5,510.33 | 6,272.57 | 5,735.00 | 20.86 | 21.29 | 144.95 | -662.52 | 320.00 | 242.99 | 227.40 | 15.59 | 15.589 | |
| 5,700.00 | 5,586.64 | 6,208.17 | 5,735.00 | 20.80 | 20.89 | 139.85 | -598.12 | 320.00 | 174.48 | 153.92 | 20.56 | 8.486 | |
| 5,800.00 | 5,649.25 | 6,130.40 | 5,735.00 | 20.72 | 20.48 | 128.78 | -520.35 | 320.00 | 125.21 | 97.02 | 28.18 | 4.443 | |
| 5,900.00 | 5,695.89 | 6,041.83 | 5,734.99 | 20.64 | 20.06 | 112.27 | -431.77 | 320.00 | 98.89 | 63.13 | 35.76 | 2.766 | |
| 6,000.00 | 5,724.82 | 5,945.62 | 5,725.45 | 20.59 | 19.69 | 90.99 | -336.18 | 320.00 | 90.53 | 51.07 | 39.45 | 2.294 | |
| 6,003.62 | 5,725.52 | 5,942.27 | 5,724.80 | 20.59 | 19.68 | 90.18 | -332.89 | 320.00 | 90.52 | 51.04 | 39.47 | 2.293 SF | |
| 6,099.99 | 5,734.99 | 5,855.72 | 5,700.80 | 20.58 | 19.39 | 69.93 | -249.84 | 320.00 | 97.35 | 59.88 | 37.46 | 2.598 | |
| 6,200.00 | 5,735.00 | 5,774.19 | 5,665.91 | 20.66 | 19.16 | 53.11 | -176.24 | 320.00 | 120.00 | 86.69 | 33.31 | 3.603 | |
| 6,300.00 | 5,735.00 | 5,700.00 | 5,624.54 | 20.85 | 18.97 | 39.67 | -114.74 | 320.00 | 162.04 | 131.79 | 30.25 | 5.357 | |
| 6,400.00 | 5,735.00 | 5,650.00 | 5,591.91 | 21.15 | 18.84 | 32.59 | -76.88 | 320.00 | 219.07 | 188.25 | 30.82 | 7.108 | |
| 6,500.00 | 5,735.00 | 5,600.00 | 5,555.80 | 21.55 | 18.72 | 27.02 | -42.32 | 320.00 | 286.61 | 255.18 | 31.43 | 9.118 | |
| 6,600.00 | 5,735.00 | 5,560.68 | 5,525.17 | 22.04 | 18.62 | 23.52 | -17.67 | 320.00 | 361.41 | 328.98 | 32.42 | 11.146 | |
| 6,700.00 | 5,735.00 | 5,528.01 | 5,498.37 | 22.63 | 18.54 | 21.10 | 1.00 | 320.00 | 441.35 | 408.03 | 33.32 | 13.246 | |
| 6,800.00 | 5,735.00 | 5,500.00 | 5,474.50 | 23.30 | 18.47 | 19.31 | 15.65 | 320.00 | 525.05 | 491.01 | 34.04 | 15.424 | |
| 6,900.00 | 5,735.00 | 5,477.42 | 5,454.71 | 24.04 | 18.41 | 18.04 | 26.51 | 320.00 | 611.59 | 576.92 | 34.66 | 17.645 | |
| 7,000.00 | 5,735.00 | 5,450.00 | 5,430.07 | 24.85 | 18.34 | 16.66 | 38.53 | 320.00 | 700.39 | 665.39 | 35.00 | 20.011 | |
| 7,100.00 | 5,735.00 | 5,450.00 | 5,430.07 | 25.72 | 18.34 | 16.66 | 38.53 | 320.00 | 790.84 | 755.16 | 35.68 | 22.166 | |
| 7,200.00 | 5,735.00 | 5,425.73 | 5,407.75 | 26.64 | 18.27 | 15.58 | 48.07 | 320.00 | 882.46 | 846.60 | 35.86 | 24.609 | |
| 7,300.00 | 5,735.00 | 5,400.00 | 5,383.64 | 27.61 | 18.21 | 14.56 | 57.04 | 320.00 | 975.54 | 939.56 | 35.99 | 27.108 | |
| 7,400.00 | 5,735.00 | 5,400.00 | 5,383.64 | 28.62 | 18.21 | 14.56 | 57.04 | 320.00 | 1,069.05 | 1,032.71 | 36.34 | 29.417 | |
| 7,500.00 | 5,735.00 | 5,400.00 | 5,383.64 | 29.67 | 18.21 | 14.56 | 57.04 | 320.00 | 1,163.63 | 1,127.02 | 36.62 | 31.778 | |
| 7,600.00 | 5,735.00 | 5,382.07 | 5,366.59 | 30.75 | 18.16 | 13.91 | 62.58 | 320.00 | 1,258.62 | 1,221.91 | 36.72 | 34.281 | |
| 7,700.00 | 5,735.00 | 5,373.93 | 5,358.78 | 31.87 | 18.14 | 13.63 | 64.91 | 320.00 | 1,354.24 | 1,317.37 | 36.86 | 36.737 | |
| 7,800.00 | 5,735.00 | 5,350.00 | 5,335.65 | 33.01 | 18.07 | 12.87 | 71.02 | 320.00 | 1,450.66 | 1,413.75 | 36.90 | 39.312 | |
| 7,900.00 | 5,735.00 | 5,350.00 | 5,335.65 | 34.18 | 18.07 | 12.87 | 71.02 | 320.00 | 1,546.86 | 1,509.80 | 37.06 | 41.734 | |



WOG

Anticollision Report

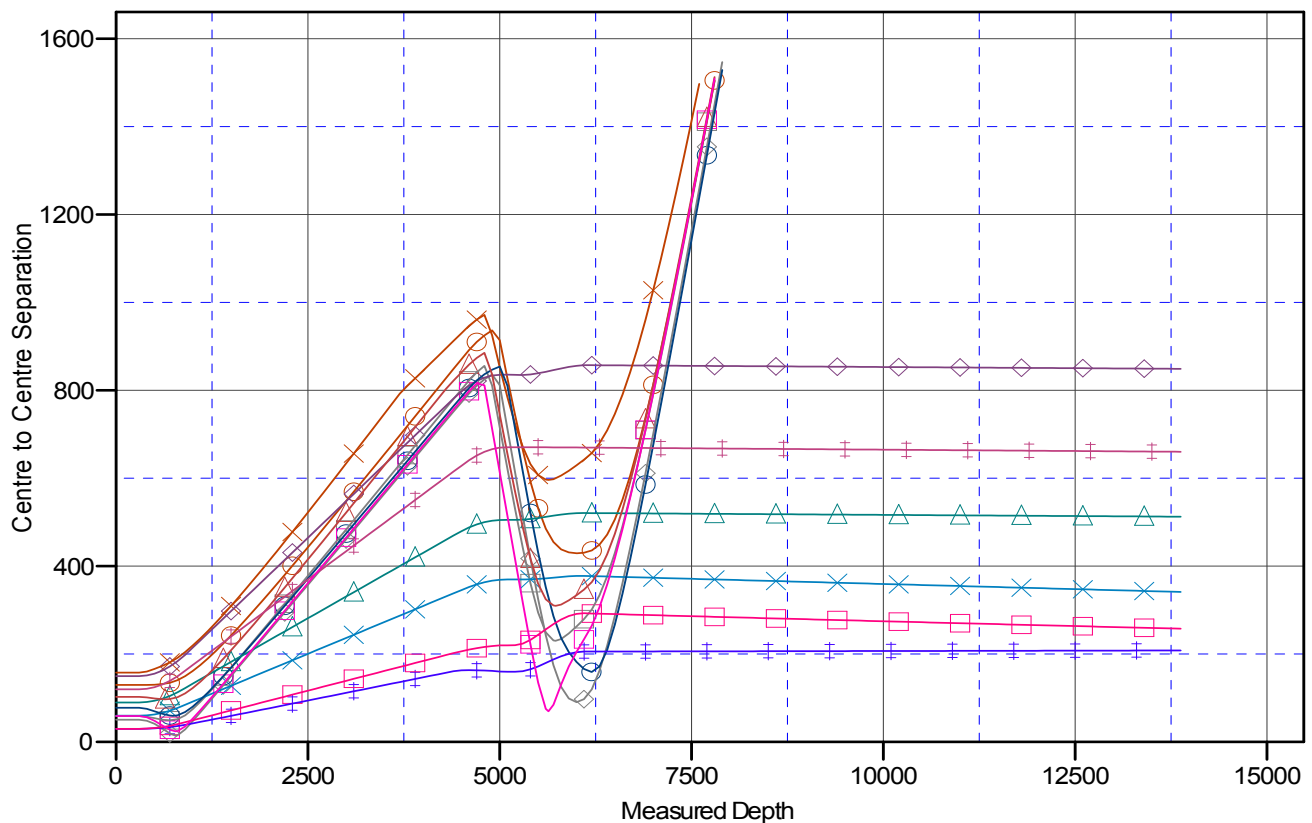
Company: Whiting Petroleum Corp.
Project: Weld County, CO
Reference Site: Sec 30-T10N-R57W
Site Error: 0.00 usft
Reference Well: Horsetail #30H-1948
Well Error: 0.00 usft
Reference Wellbore: Hz
Reference Design: APD

Local Co-ordinate Reference: Well Horsetail #30H-1948
TVD Reference: KBE @ 4746.00usft (Original Well Elev)
MD Reference: KBE @ 4746.00usft (Original Well Elev)
North Reference: True
Survey Calculation Method: Minimum Curvature
Output errors are at 3.00 sigma
Database: LandmarkEDM
Offset TVD Reference: Offset Datum

Reference Depths are relative to KBE @ 4746.00usft (Original Well Ele)
Offset Depths are relative to Offset Datum
Central Meridian is 105° 30' 0.000 W

Coordinates are relative to: Horsetail #30H-1948
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 1.11°

Ladder Plot



LEGEND

- Horsetail #30H-3116, Hz, APD V0
- Horsetail #30H-1947, Hz, APD V0
- Horsetail #30H-1915, Hz, APD V0
- Horsetail #30H-3146, Hz, APD V0
- Horsetail #30H-3147, Hz, APD V0
- Horsetail #30H-1946, Hz, APD V0
- Horsetail #30H-3148, Hz, APD V0
- Horsetail #30H-1914, Hz, APD V0
- Horsetail #30H-3115, Hz, APD V0
- Horsetail #30H-1913, Hz, APD V0
- Horsetail #30H-1916, Hz, APD V0
- Horsetail #30H-3113, Hz, APD V0
- Horsetail #30H-3114, Hz, APD V0



WOG

Anticollision Report

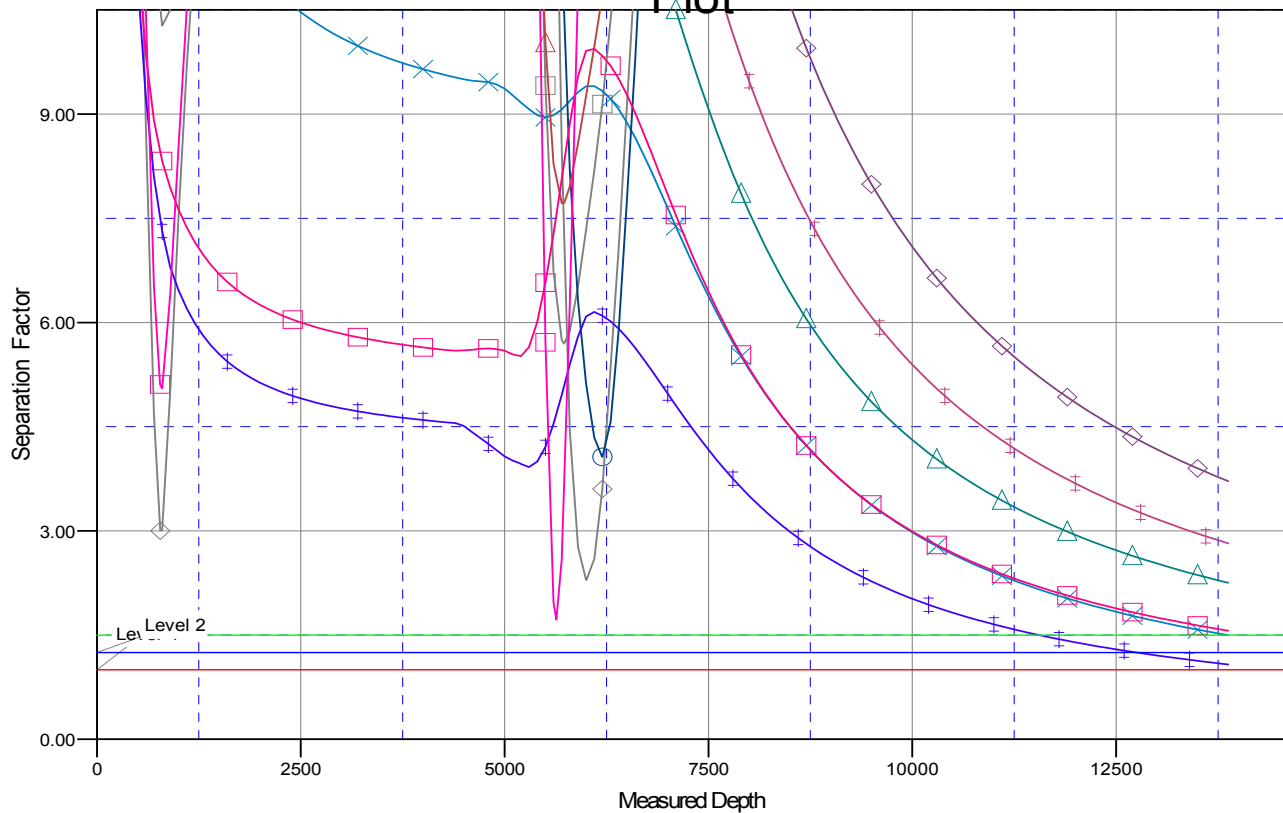
Company: Whiting Petroleum Corp.
Project: Weld County, CO
Reference Site: Sec 30-T10N-R57W
Site Error: 0.00 usft
Reference Well: Horsetail #30H-1948
Well Error: 0.00 usft
Reference Wellbore: Hz
Reference Design: APD

Local Co-ordinate Reference: Well Horsetail #30H-1948
TVD Reference: KBE @ 4746.00usft (Original Well Elev)
MD Reference: KBE @ 4746.00usft (Original Well Elev)
North Reference: True
Survey Calculation Method: Minimum Curvature
Output errors are at 3.00 sigma
Database: LandmarkEDM
Offset TVD Reference: Offset Datum

Reference Depths are relative to KBE @ 4746.00usft (Original Well Ele)
Offset Depths are relative to Offset Datum
Central Meridian is 105° 30' 0.000 W

Coordinates are relative to: Horsetail #30H-1948
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 1.11°

Separation Factor Plot



LEGEND

- Horsetail #30H-3116, Hz, APDV0
- Horsetail #30H-3146, Hz, APDV0
- Horsetail #30H-3148, Hz, APDV0
- Horsetail #30H-1913, Hz, APDV0
- Horsetail #30H-3113, Hz, APDV0
- Horsetail #30H-1947, Hz, APDV0
- Horsetail #30H-3147, Hz, APDV0
- Horsetail #30H-1914, Hz, APDV0
- Horsetail #30H-1916, Hz, APDV0
- Horsetail #30H-3114, Hz, APDV0
- Horsetail #30H-1915, Hz, APDV0
- Horsetail #30H-1946, Hz, APDV0
- Horsetail #30H-3115, Hz, APDV0