



Whiting Petroleum Corp.

Weld County, CO

Sec 30-T10N-R57W

Horsetail #30E-1934

Hz

APD

Anticollision Report

22 October, 2015



WOG

Anticollision Report

| | | | |
|---------------------------|-------------------------|-------------------------------------|--|
| Company: | Whiting Petroleum Corp. | Local Co-ordinate Reference: | Well Horsetail #30E-1934 |
| Project: | Weld County, CO | TVD Reference: | KBE @ 4827.40usft (Original Well Elev) |
| Reference Site: | Sec 30-T10N-R57W | MD Reference: | KBE @ 4827.40usft (Original Well Elev) |
| Site Error: | 0.00 usft | North Reference: | True |
| Reference Well: | Horsetail #30E-1934 | 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 | 10/13/2015 | | |
|---------------------|--------------|-------------------|-----------------|--|--|
| From (usft) | To (usft) | Survey (Wellbore) | Tool Name | Description | |
| 0.00 | 13,851.04 | 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 30-T10N-R57W | | | | | | |
| Horsetail #30E-1901 - Hz - APD | 300.00 | 300.00 | 30.76 | 29.14 | 19.046 | CC |
| Horsetail #30E-1901 - Hz - APD | 500.00 | 499.10 | 31.30 | 28.47 | 11.083 | ES |
| Horsetail #30E-1901 - Hz - APD | 13,851.04 | 13,660.47 | 256.65 | 91.24 | 1.552 | SF |
| Horsetail #30E-1902 - Hz - APD | 300.00 | 300.00 | 29.99 | 28.37 | 18.570 | CC |
| Horsetail #30E-1902 - Hz - APD | 13,851.04 | 13,719.75 | 209.66 | 18.00 | 1.094 | Level 2, ES, SF |
| Horsetail #30E-1903 - Hz - APD | 300.00 | 300.00 | 89.97 | 88.35 | 55.709 | CC, ES |
| Horsetail #30E-1903 - Hz - APD | 13,851.04 | 13,650.75 | 532.81 | 313.39 | 2.428 | SF |
| Horsetail #30E-1904 - Hz - APD | 300.00 | 300.00 | 149.95 | 148.33 | 92.849 | CC, ES |
| Horsetail #30E-1904 - Hz - APD | 13,851.04 | 13,732.32 | 834.86 | 603.86 | 3.614 | SF |
| Horsetail #30E-1935 - Hz - APD | 300.00 | 300.00 | 59.98 | 58.36 | 37.140 | CC |
| Horsetail #30E-1935 - Hz - APD | 400.00 | 400.23 | 60.39 | 58.17 | 27.287 | ES |
| Horsetail #30E-1935 - Hz - APD | 13,851.04 | 13,926.28 | 340.56 | 113.10 | 1.497 | Level 3, SF |
| Horsetail #30E-1936 - Hz - APD | 300.00 | 300.00 | 119.96 | 118.34 | 74.279 | CC, ES |
| Horsetail #30E-1936 - Hz - APD | 13,851.04 | 13,849.49 | 660.33 | 426.75 | 2.827 | SF |
| Horsetail #30E-3103 - Hz - APD | 300.00 | 300.00 | 102.06 | 100.44 | 63.194 | CC, ES |
| Horsetail #30E-3103 - Hz - APD | 5,600.00 | 6,076.21 | 684.13 | 643.48 | 16.831 | SF |
| Horsetail #30E-3104 - Hz - APD | 300.00 | 300.00 | 157.21 | 155.59 | 97.345 | CC, ES |
| Horsetail #30E-3104 - Hz - APD | 5,600.00 | 6,170.48 | 1,018.14 | 977.46 | 25.026 | SF |
| Horsetail #30E-3135 - Hz - APD | 436.58 | 435.62 | 76.98 | 74.51 | 31.116 | CC |
| Horsetail #30E-3135 - Hz - APD | 500.00 | 498.70 | 77.07 | 74.20 | 26.874 | ES |
| Horsetail #30E-3135 - Hz - APD | 6,173.53 | 5,833.16 | 510.17 | 471.10 | 13.060 | SF |
| Horsetail #30E-3136 - Hz - APD | 300.00 | 300.00 | 129.09 | 127.48 | 79.937 | CC, ES |
| Horsetail #30E-3136 - Hz - APD | 5,800.00 | 6,140.59 | 854.62 | 814.56 | 21.335 | SF |
| Horsetail #30E-3137 Dropped - Hz - APD | 300.00 | 300.00 | 185.90 | 184.29 | 115.113 | CC, ES |
| Horsetail #30E-3137 Dropped - Hz - APD | 5,700.00 | 6,250.35 | 1,175.03 | 1,134.63 | 29.082 | SF |
| Horsetail #30E-3138 - Hz - APD | 300.00 | 300.00 | 214.95 | 213.34 | 133.104 | CC, ES |
| Horsetail #30E-3138 - Hz - APD | 5,700.00 | 6,319.14 | 1,521.42 | 1,480.77 | 37.426 | SF |

| | | | | | | | | | | | | | | | |
|--------------------------|--------------------------|---|--------------------------|---------------------|------------------|--------------------------|---|-----------------|---------------------------|----------------------------|------------------------------|--------------------|---------|-----------|--|
| Offset Design | | Sec 30-T10N-R57W - Horsetail #30E-1901 - 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 (usft) | Vertical Depth (usft) | Measured Depth (usft) | Vertical Depth (usft) | Reference (usft) | Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | +E/-W (usft) | Between Centres (usft) | Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning | | |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | -89.99 | 0.00 | -30.76 | 30.76 | | | | | | |

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 #30E-1934 |
| Project: | Weld County, CO | TVD Reference: | KBE @ 4827.40usft (Original Well Elev) |
| Reference Site: | Sec 30-T10N-R57W | MD Reference: | KBE @ 4827.40usft (Original Well Elev) |
| Site Error: | 0.00 usft | North Reference: | True |
| Reference Well: | Horsetail #30E-1934 | 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 | | |
| 100.00 | 100.00 | 100.00 | 100.00 | 0.13 | 0.13 | -89.99 | 0.00 | -30.76 | 30.76 | 30.49 | 0.27 | 115.481 | | |
| 200.00 | 200.00 | 200.00 | 200.00 | 0.47 | 0.47 | -89.99 | 0.00 | -30.76 | 30.76 | 29.82 | 0.94 | 32.699 | | |
| 300.00 | 300.00 | 300.00 | 300.00 | 0.81 | 0.81 | -89.99 | 0.00 | -30.76 | 30.76 | 29.14 | 1.61 | 19.046 CC | | |
| 400.00 | 399.98 | 399.55 | 399.53 | 1.11 | 1.11 | 70.01 | -1.56 | -31.49 | 30.89 | 28.67 | 2.22 | 13.892 | | |
| 500.00 | 499.84 | 499.10 | 498.94 | 1.41 | 1.41 | 70.36 | -6.26 | -33.68 | 31.30 | 28.47 | 2.82 | 11.083 ES | | |
| 600.00 | 599.45 | 598.64 | 598.10 | 1.73 | 1.73 | 70.91 | -14.09 | -37.33 | 31.97 | 28.49 | 3.48 | 9.191 | | |
| 700.00 | 698.70 | 698.18 | 696.90 | 2.07 | 2.07 | 71.64 | -25.03 | -42.44 | 32.92 | 28.74 | 4.18 | 7.878 | | |
| 800.00 | 797.47 | 797.72 | 795.22 | 2.43 | 2.43 | 72.52 | -39.08 | -49.00 | 34.15 | 29.23 | 4.93 | 6.934 | | |
| 900.00 | 895.73 | 897.26 | 892.94 | 2.83 | 2.83 | 72.66 | -56.21 | -56.99 | 35.83 | 30.10 | 5.72 | 6.262 | | |
| 1,000.00 | 993.94 | 997.23 | 990.75 | 3.24 | 3.25 | 70.88 | -74.93 | -65.73 | 38.06 | 31.54 | 6.53 | 5.831 | | |
| 1,100.00 | 1,092.15 | 1,097.20 | 1,088.56 | 3.66 | 3.68 | 69.30 | -93.65 | -74.46 | 40.34 | 32.99 | 7.35 | 5.491 | | |
| 1,200.00 | 1,190.36 | 1,197.16 | 1,186.37 | 4.09 | 4.12 | 67.89 | -112.37 | -83.20 | 42.63 | 34.47 | 8.17 | 5.220 | | |
| 1,300.00 | 1,288.57 | 1,297.13 | 1,284.18 | 4.51 | 4.56 | 66.62 | -131.09 | -91.94 | 44.96 | 35.96 | 8.99 | 4.999 | | |
| 1,400.00 | 1,386.78 | 1,397.10 | 1,381.99 | 4.95 | 5.01 | 65.48 | -149.81 | -100.67 | 47.30 | 37.48 | 9.82 | 4.817 | | |
| 1,500.00 | 1,484.99 | 1,497.07 | 1,479.80 | 5.38 | 5.46 | 64.45 | -168.53 | -109.41 | 49.66 | 39.01 | 10.65 | 4.665 | | |
| 1,600.00 | 1,583.20 | 1,597.04 | 1,577.61 | 5.82 | 5.91 | 63.51 | -187.26 | -118.15 | 52.03 | 40.56 | 11.47 | 4.536 | | |
| 1,700.00 | 1,681.41 | 1,697.01 | 1,675.43 | 6.25 | 6.36 | 62.66 | -205.98 | -126.88 | 54.42 | 42.12 | 12.30 | 4.425 | | |
| 1,800.00 | 1,779.62 | 1,796.97 | 1,773.24 | 6.69 | 6.82 | 61.87 | -224.70 | -135.62 | 56.81 | 43.69 | 13.12 | 4.330 | | |
| 1,900.00 | 1,877.83 | 1,896.94 | 1,871.05 | 7.13 | 7.27 | 61.15 | -243.42 | -144.36 | 59.22 | 45.27 | 13.94 | 4.247 | | |
| 2,000.00 | 1,976.04 | 1,996.91 | 1,968.86 | 7.57 | 7.73 | 60.48 | -262.14 | -153.09 | 61.63 | 46.87 | 14.77 | 4.174 | | |
| 2,100.00 | 2,074.25 | 2,096.88 | 2,066.67 | 8.01 | 8.19 | 59.87 | -280.86 | -161.83 | 64.06 | 48.47 | 15.59 | 4.109 | | |
| 2,200.00 | 2,172.46 | 2,196.85 | 2,164.48 | 8.45 | 8.65 | 59.30 | -299.58 | -170.56 | 66.49 | 50.08 | 16.41 | 4.052 | | |
| 2,300.00 | 2,270.67 | 2,296.82 | 2,262.29 | 8.89 | 9.11 | 58.77 | -318.30 | -179.30 | 68.92 | 51.69 | 17.23 | 4.000 | | |
| 2,400.00 | 2,368.88 | 2,396.78 | 2,360.10 | 9.34 | 9.56 | 58.28 | -337.02 | -188.04 | 71.37 | 53.32 | 18.05 | 3.954 | | |
| 2,500.00 | 2,467.09 | 2,496.75 | 2,457.91 | 9.78 | 10.02 | 57.82 | -355.74 | -196.77 | 73.81 | 54.95 | 18.87 | 3.912 | | |
| 2,600.00 | 2,565.30 | 2,596.72 | 2,555.72 | 10.22 | 10.48 | 57.39 | -374.46 | -205.51 | 76.26 | 56.58 | 19.68 | 3.874 | | |
| 2,700.00 | 2,663.51 | 2,696.69 | 2,653.53 | 10.66 | 10.94 | 56.98 | -393.18 | -214.25 | 78.72 | 58.22 | 20.50 | 3.840 | | |
| 2,800.00 | 2,761.72 | 2,796.66 | 2,751.34 | 11.11 | 11.40 | 56.60 | -411.91 | -222.98 | 81.18 | 59.86 | 21.32 | 3.808 | | |
| 2,900.00 | 2,859.93 | 2,896.63 | 2,849.15 | 11.55 | 11.86 | 56.25 | -430.63 | -231.72 | 83.64 | 61.51 | 22.13 | 3.779 | | |
| 3,000.00 | 2,958.14 | 2,996.59 | 2,946.96 | 11.99 | 12.32 | 55.91 | -449.35 | -240.46 | 86.10 | 63.16 | 22.95 | 3.752 | | |
| 3,100.00 | 3,056.35 | 3,096.56 | 3,044.77 | 12.44 | 12.78 | 55.59 | -468.07 | -249.19 | 88.57 | 64.81 | 23.76 | 3.728 | | |
| 3,200.00 | 3,154.55 | 3,196.53 | 3,142.58 | 12.88 | 13.25 | 55.29 | -486.79 | -257.93 | 91.04 | 66.47 | 24.58 | 3.705 | | |
| 3,300.00 | 3,252.76 | 3,296.50 | 3,240.39 | 13.32 | 13.71 | 55.01 | -505.51 | -266.66 | 93.52 | 68.13 | 25.39 | 3.683 | | |
| 3,400.00 | 3,350.97 | 3,396.47 | 3,338.20 | 13.77 | 14.17 | 54.74 | -524.23 | -275.40 | 95.99 | 69.79 | 26.20 | 3.664 | | |
| 3,500.00 | 3,449.18 | 3,496.44 | 3,436.01 | 14.21 | 14.63 | 54.48 | -542.95 | -284.14 | 98.47 | 71.45 | 27.01 | 3.645 | | |
| 3,600.00 | 3,547.39 | 3,596.40 | 3,533.82 | 14.66 | 15.09 | 54.23 | -561.67 | -292.87 | 100.95 | 73.12 | 27.83 | 3.628 | | |
| 3,700.00 | 3,645.60 | 3,696.37 | 3,631.63 | 15.10 | 15.55 | 54.00 | -580.39 | -301.61 | 103.43 | 74.79 | 28.64 | 3.611 | | |
| 3,800.00 | 3,743.81 | 3,796.34 | 3,729.44 | 15.54 | 16.01 | 53.78 | -599.11 | -310.35 | 105.91 | 76.46 | 29.45 | 3.596 | | |
| 3,900.00 | 3,842.02 | 3,896.31 | 3,827.25 | 15.99 | 16.47 | 53.57 | -617.83 | -319.08 | 108.39 | 78.13 | 30.26 | 3.582 | | |
| 4,000.00 | 3,940.23 | 3,996.28 | 3,925.07 | 16.43 | 16.94 | 53.37 | -636.55 | -327.82 | 110.88 | 79.81 | 31.07 | 3.568 | | |
| 4,100.00 | 4,038.44 | 4,096.25 | 4,022.88 | 16.88 | 17.40 | 53.18 | -655.28 | -336.56 | 113.37 | 81.48 | 31.88 | 3.556 | | |
| 4,200.00 | 4,136.65 | 4,196.22 | 4,120.69 | 17.32 | 17.86 | 52.99 | -674.00 | -345.29 | 115.85 | 83.16 | 32.69 | 3.544 | | |
| 4,300.00 | 4,234.86 | 4,296.18 | 4,218.50 | 17.77 | 18.32 | 52.81 | -692.72 | -354.03 | 118.34 | 84.84 | 33.50 | 3.532 | | |
| 4,400.00 | 4,333.07 | 4,398.84 | 4,319.25 | 18.21 | 18.70 | 53.21 | -710.51 | -362.33 | 119.79 | 85.46 | 34.33 | 3.490 | | |
| 4,500.00 | 4,431.28 | 4,501.57 | 4,420.72 | 18.66 | 18.98 | 54.93 | -725.04 | -369.11 | 118.91 | 83.70 | 35.21 | 3.378 | | |
| 4,600.00 | 4,529.59 | 4,603.99 | 4,522.38 | 19.05 | 19.24 | 57.83 | -736.23 | -374.34 | 116.25 | 80.09 | 36.16 | 3.215 | | |
| 4,700.00 | 4,628.42 | 4,706.14 | 4,624.15 | 19.31 | 19.48 | 60.93 | -744.11 | -378.01 | 113.43 | 76.44 | 36.99 | 3.067 | | |
| 4,800.00 | 4,727.73 | 4,808.04 | 4,725.93 | 19.57 | 19.71 | 64.13 | -748.68 | -380.15 | 110.65 | 72.88 | 37.78 | 2.929 | | |
| 4,900.00 | 4,827.38 | 4,909.51 | 4,827.38 | 19.81 | 19.96 | 67.43 | -750.00 | -380.76 | 107.95 | 69.39 | 38.57 | 2.799 | | |
| 5,000.00 | 4,927.26 | 5,009.39 | 4,927.26 | 20.03 | 20.19 | 69.77 | -750.00 | -380.76 | 106.21 | 66.97 | 39.25 | 2.706 | | |
| 5,096.44 | 5,023.69 | 5,105.78 | 5,023.65 | 20.27 | 20.39 | 70.56 | -749.95 | -380.76 | 105.70 | 65.94 | 39.76 | 2.659 | | |
| 5,100.00 | 5,027.25 | 5,109.32 | 5,027.20 | 20.28 | 20.40 | -89.40 | -749.90 | -380.76 | 105.77 | 66.00 | 39.77 | 2.660 | | |

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



WOG

Anticollision Report

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|---------------------------|-------------------------|-------------------------------------|--|
| Company: | Whiting Petroleum Corp. | Local Co-ordinate Reference: | Well Horsetail #30E-1934 |
| Project: | Weld County, CO | TVD Reference: | KBE @ 4827.40usft (Original Well Elev) |
| Reference Site: | Sec 30-T10N-R57W | MD Reference: | KBE @ 4827.40usft (Original Well Elev) |
| Site Error: | 0.00 usft | North Reference: | True |
| Reference Well: | Horsetail #30E-1934 | 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 | 5,127.25 | 5,207.22 | 5,124.32 | 20.48 | 20.55 | -83.44 | -738.82 | -380.94 | 106.68 | 66.11 | 40.57 | 2.629 | | |
| 5,300.00 | 5,227.25 | 5,298.07 | 5,211.15 | 20.70 | 20.62 | -69.45 | -712.48 | -381.38 | 114.22 | 73.29 | 40.93 | 2.791 | | |
| 5,400.00 | 5,326.36 | 5,382.53 | 5,286.63 | 20.85 | 20.62 | -55.90 | -674.81 | -381.99 | 130.73 | 91.46 | 39.27 | 3.329 | | |
| 5,500.00 | 5,421.35 | 5,463.48 | 5,352.37 | 20.93 | 20.57 | -46.27 | -627.72 | -382.77 | 150.75 | 114.45 | 36.30 | 4.153 | | |
| 5,600.00 | 5,508.72 | 5,541.73 | 5,408.25 | 20.92 | 20.50 | -39.66 | -573.06 | -383.67 | 170.92 | 138.06 | 32.86 | 5.202 | | |
| 5,700.00 | 5,585.26 | 5,617.93 | 5,454.22 | 20.86 | 20.41 | -35.18 | -512.37 | -384.66 | 189.20 | 159.79 | 29.41 | 6.433 | | |
| 5,800.00 | 5,648.17 | 5,692.62 | 5,490.21 | 20.77 | 20.32 | -32.19 | -447.01 | -385.74 | 204.39 | 178.07 | 26.33 | 7.763 | | |
| 5,900.00 | 5,695.14 | 5,766.24 | 5,516.19 | 20.67 | 20.23 | -30.30 | -378.20 | -386.87 | 215.74 | 191.78 | 23.96 | 9.004 | | |
| 6,000.00 | 5,724.43 | 5,839.18 | 5,532.12 | 20.59 | 20.15 | -29.29 | -307.10 | -388.04 | 222.81 | 200.15 | 22.66 | 9.832 | | |
| 6,100.00 | 5,734.97 | 5,911.79 | 5,537.97 | 20.56 | 20.10 | -29.05 | -234.79 | -389.23 | 225.35 | 202.68 | 22.67 | 9.940 | | |
| 6,200.00 | 5,735.00 | 6,009.62 | 5,538.00 | 20.60 | 20.09 | -29.20 | -136.97 | -390.83 | 225.68 | 202.51 | 23.17 | 9.741 | | |
| 6,300.00 | 5,735.00 | 6,109.62 | 5,538.00 | 20.75 | 20.20 | -29.36 | -36.99 | -392.48 | 226.03 | 202.27 | 23.76 | 9.514 | | |
| 6,400.00 | 5,735.00 | 6,209.61 | 5,538.00 | 21.02 | 20.43 | -29.52 | 63.00 | -394.12 | 226.38 | 201.92 | 24.45 | 9.257 | | |
| 6,500.00 | 5,735.00 | 6,309.61 | 5,538.00 | 21.41 | 20.78 | -29.67 | 162.98 | -395.76 | 226.73 | 201.48 | 25.26 | 8.978 | | |
| 6,600.00 | 5,735.00 | 6,409.61 | 5,538.00 | 21.89 | 21.26 | -29.83 | 262.97 | -397.41 | 227.08 | 200.93 | 26.15 | 8.683 | | |
| 6,700.00 | 5,735.00 | 6,509.61 | 5,538.00 | 22.48 | 21.85 | -29.98 | 362.95 | -399.05 | 227.44 | 200.30 | 27.13 | 8.382 | | |
| 6,800.00 | 5,735.00 | 6,609.60 | 5,538.00 | 23.14 | 22.53 | -30.14 | 462.93 | -400.69 | 227.79 | 199.60 | 28.20 | 8.078 | | |
| 6,900.00 | 5,735.00 | 6,709.60 | 5,538.00 | 23.89 | 23.29 | -30.29 | 562.92 | -402.34 | 228.15 | 198.82 | 29.34 | 7.777 | | |
| 7,000.00 | 5,735.00 | 6,809.60 | 5,538.00 | 24.70 | 24.11 | -30.45 | 662.90 | -403.98 | 228.51 | 197.97 | 30.54 | 7.482 | | |
| 7,100.00 | 5,735.00 | 6,909.60 | 5,538.00 | 25.57 | 25.00 | -30.60 | 762.89 | -405.62 | 228.87 | 197.07 | 31.81 | 7.196 | | |
| 7,200.00 | 5,735.00 | 7,009.59 | 5,538.00 | 26.49 | 25.94 | -30.75 | 862.87 | -407.26 | 229.23 | 196.11 | 33.13 | 6.920 | | |
| 7,300.00 | 5,735.00 | 7,109.59 | 5,538.00 | 27.47 | 26.93 | -30.90 | 962.85 | -408.91 | 229.60 | 195.10 | 34.50 | 6.655 | | |
| 7,400.00 | 5,735.00 | 7,209.59 | 5,538.00 | 28.48 | 27.97 | -31.06 | 1,062.84 | -410.55 | 229.97 | 194.05 | 35.92 | 6.403 | | |
| 7,500.00 | 5,735.00 | 7,309.59 | 5,538.00 | 29.54 | 29.04 | -31.21 | 1,162.82 | -412.19 | 230.33 | 192.96 | 37.38 | 6.163 | | |
| 7,600.00 | 5,735.00 | 7,409.58 | 5,538.00 | 30.63 | 30.14 | -31.36 | 1,262.81 | -413.84 | 230.70 | 191.83 | 38.88 | 5.934 | | |
| 7,700.00 | 5,735.00 | 7,509.58 | 5,538.00 | 31.75 | 31.28 | -31.51 | 1,362.79 | -415.48 | 231.07 | 190.66 | 40.41 | 5.718 | | |
| 7,800.00 | 5,735.00 | 7,609.58 | 5,538.00 | 32.90 | 32.44 | -31.66 | 1,462.77 | -417.12 | 231.44 | 189.47 | 41.98 | 5.513 | | |
| 7,900.00 | 5,735.00 | 7,709.58 | 5,538.00 | 34.07 | 33.63 | -31.81 | 1,562.76 | -418.77 | 231.82 | 188.24 | 43.58 | 5.319 | | |
| 8,000.00 | 5,735.00 | 7,809.57 | 5,538.00 | 35.27 | 34.84 | -31.96 | 1,662.74 | -420.41 | 232.19 | 186.99 | 45.21 | 5.136 | | |
| 8,100.00 | 5,735.00 | 7,909.57 | 5,538.00 | 36.48 | 36.07 | -32.11 | 1,762.73 | -422.05 | 232.57 | 185.71 | 46.86 | 4.963 | | |
| 8,200.00 | 5,735.00 | 8,009.57 | 5,538.00 | 37.72 | 37.31 | -32.26 | 1,862.71 | -423.70 | 232.95 | 184.41 | 48.54 | 4.799 | | |
| 8,300.00 | 5,735.00 | 8,109.57 | 5,538.00 | 38.97 | 38.57 | -32.40 | 1,962.69 | -425.34 | 233.33 | 183.08 | 50.25 | 4.644 | | |
| 8,400.00 | 5,735.00 | 8,209.56 | 5,538.00 | 40.23 | 39.85 | -32.55 | 2,062.68 | -426.98 | 233.71 | 181.74 | 51.97 | 4.497 | | |
| 8,500.00 | 5,735.00 | 8,309.56 | 5,538.00 | 41.51 | 41.14 | -32.70 | 2,162.66 | -428.63 | 234.10 | 180.37 | 53.72 | 4.358 | | |
| 8,600.00 | 5,735.00 | 8,409.56 | 5,538.00 | 42.80 | 42.44 | -32.84 | 2,262.65 | -430.27 | 234.48 | 178.99 | 55.49 | 4.226 | | |
| 8,700.00 | 5,735.00 | 8,509.56 | 5,538.00 | 44.11 | 43.75 | -32.99 | 2,362.63 | -431.91 | 234.87 | 177.59 | 57.27 | 4.101 | | |
| 8,800.00 | 5,735.00 | 8,609.55 | 5,538.00 | 45.42 | 45.08 | -33.13 | 2,462.61 | -433.55 | 235.25 | 176.18 | 59.08 | 3.982 | | |
| 8,900.00 | 5,735.00 | 8,709.55 | 5,538.00 | 46.74 | 46.41 | -33.28 | 2,562.60 | -435.20 | 235.64 | 174.74 | 60.90 | 3.869 | | |
| 9,000.00 | 5,735.00 | 8,809.55 | 5,538.00 | 48.07 | 47.75 | -33.42 | 2,662.58 | -436.84 | 236.03 | 173.29 | 62.74 | 3.762 | | |
| 9,100.00 | 5,735.00 | 8,909.55 | 5,538.00 | 49.41 | 49.09 | -33.57 | 2,762.56 | -438.48 | 236.43 | 171.83 | 64.59 | 3.660 | | |
| 9,200.00 | 5,735.00 | 9,009.54 | 5,538.00 | 50.76 | 50.45 | -33.71 | 2,862.55 | -440.13 | 236.82 | 170.36 | 66.46 | 3.563 | | |
| 9,300.00 | 5,735.00 | 9,109.54 | 5,538.00 | 52.11 | 51.81 | -33.85 | 2,962.53 | -441.77 | 237.22 | 168.87 | 68.35 | 3.471 | | |
| 9,400.00 | 5,735.00 | 9,209.54 | 5,538.00 | 53.48 | 53.18 | -33.99 | 3,062.52 | -443.41 | 237.61 | 167.36 | 70.25 | 3.382 | | |
| 9,500.00 | 5,735.00 | 9,309.54 | 5,538.00 | 54.84 | 54.55 | -34.14 | 3,162.50 | -445.06 | 238.01 | 165.85 | 72.16 | 3.298 | | |
| 9,600.00 | 5,735.00 | 9,409.53 | 5,538.00 | 56.21 | 55.93 | -34.28 | 3,262.48 | -446.70 | 238.41 | 164.32 | 74.09 | 3.218 | | |
| 9,700.00 | 5,735.00 | 9,509.53 | 5,538.00 | 57.59 | 57.31 | -34.42 | 3,362.47 | -448.34 | 238.81 | 162.78 | 76.03 | 3.141 | | |
| 9,800.00 | 5,735.00 | 9,609.53 | 5,538.00 | 58.97 | 58.70 | -34.56 | 3,462.45 | -449.99 | 239.21 | 161.23 | 77.98 | 3.068 | | |
| 9,900.00 | 5,735.00 | 9,709.53 | 5,538.00 | 60.36 | 60.09 | -34.70 | 3,562.44 | -451.63 | 239.62 | 159.67 | 79.95 | 2.997 | | |
| 10,000.00 | 5,735.00 | 9,809.52 | 5,538.00 | 61.74 | 61.48 | -34.84 | 3,662.42 | -453.27 | 240.02 | 158.10 | 81.93 | 2.930 | | |
| 10,100.00 | 5,735.00 | 9,909.52 | 5,538.00 | 63.14 | 62.88 | -34.98 | 3,762.40 | -454.92 | 240.43 | 156.51 | 83.92 | 2.865 | | |
| 10,200.00 | 5,735.00 | 10,009.52 | 5,538.00 | 64.54 | 64.29 | -35.12 | 3,862.39 | -456.56 | 240.84 | 154.92 | 85.92 | 2.803 | | |
| 10,300.00 | 5,735.00 | 10,109.52 | 5,538.00 | 65.94 | 65.69 | -35.25 | 3,962.37 | -458.20 | 241.25 | 153.32 | 87.93 | 2.744 | | |

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 #30E-1934 |
| Project: | Weld County, CO | TVD Reference: | KBE @ 4827.40usft (Original Well Elev) |
| Reference Site: | Sec 30-T10N-R57W | MD Reference: | KBE @ 4827.40usft (Original Well Elev) |
| Site Error: | 0.00 usft | North Reference: | True |
| Reference Well: | Horsetail #30E-1934 | 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 | |
| 10,400.00 | 5,735.00 | 10,209.51 | 5,538.00 | 67.34 | 67.10 | -35.39 | 4,062.36 | -459.85 | 241.66 | 151.71 | 89.95 | 2.687 | |
| 10,500.00 | 5,735.00 | 10,309.51 | 5,538.00 | 68.74 | 68.51 | -35.53 | 4,162.34 | -461.49 | 242.07 | 150.08 | 91.99 | 2.632 | |
| 10,600.00 | 5,735.00 | 10,409.51 | 5,538.00 | 70.15 | 69.92 | -35.67 | 4,262.32 | -463.13 | 242.49 | 148.45 | 94.03 | 2.579 | |
| 10,700.00 | 5,735.00 | 10,509.51 | 5,538.00 | 71.57 | 71.34 | -35.80 | 4,362.31 | -464.77 | 242.90 | 146.81 | 96.09 | 2.528 | |
| 10,800.00 | 5,735.00 | 10,609.50 | 5,538.00 | 72.98 | 72.76 | -35.94 | 4,462.29 | -466.42 | 243.32 | 145.16 | 98.15 | 2.479 | |
| 10,900.00 | 5,735.00 | 10,709.50 | 5,538.00 | 74.40 | 74.18 | -36.07 | 4,562.28 | -468.06 | 243.74 | 143.51 | 100.23 | 2.432 | |
| 11,000.00 | 5,735.00 | 10,809.50 | 5,538.00 | 75.81 | 75.60 | -36.21 | 4,662.26 | -469.70 | 244.15 | 141.84 | 102.31 | 2.386 | |
| 11,100.00 | 5,735.00 | 10,909.50 | 5,538.00 | 77.23 | 77.03 | -36.34 | 4,762.24 | -471.35 | 244.58 | 140.17 | 104.41 | 2.342 | |
| 11,200.00 | 5,735.00 | 11,009.49 | 5,538.00 | 78.66 | 78.45 | -36.48 | 4,862.23 | -472.99 | 245.00 | 138.48 | 106.52 | 2.300 | |
| 11,300.00 | 5,735.00 | 11,109.49 | 5,538.00 | 80.08 | 79.88 | -36.61 | 4,962.21 | -474.63 | 245.42 | 136.79 | 108.63 | 2.259 | |
| 11,400.00 | 5,735.00 | 11,209.49 | 5,538.00 | 81.51 | 81.31 | -36.74 | 5,062.20 | -476.28 | 245.85 | 135.09 | 110.75 | 2.220 | |
| 11,500.00 | 5,735.00 | 11,309.49 | 5,538.00 | 82.94 | 82.74 | -36.88 | 5,162.18 | -477.92 | 246.27 | 133.38 | 112.89 | 2.182 | |
| 11,600.00 | 5,735.00 | 11,409.48 | 5,538.00 | 84.37 | 84.18 | -37.01 | 5,262.16 | -479.56 | 246.70 | 131.67 | 115.03 | 2.145 | |
| 11,700.00 | 5,735.00 | 11,509.48 | 5,538.00 | 85.80 | 85.61 | -37.14 | 5,362.15 | -481.21 | 247.13 | 129.95 | 117.18 | 2.109 | |
| 11,800.00 | 5,735.00 | 11,609.48 | 5,538.00 | 87.23 | 87.05 | -37.27 | 5,462.13 | -482.85 | 247.56 | 128.22 | 119.34 | 2.074 | |
| 11,900.00 | 5,735.00 | 11,709.48 | 5,538.00 | 88.66 | 88.49 | -37.40 | 5,562.12 | -484.49 | 247.99 | 126.48 | 121.51 | 2.041 | |
| 12,000.00 | 5,735.00 | 11,809.47 | 5,538.00 | 90.10 | 89.92 | -37.53 | 5,662.10 | -486.14 | 248.42 | 124.74 | 123.69 | 2.008 | |
| 12,100.00 | 5,735.00 | 11,909.47 | 5,538.00 | 91.53 | 91.36 | -37.66 | 5,762.08 | -487.78 | 248.85 | 122.98 | 125.87 | 1.977 | |
| 12,200.00 | 5,735.00 | 12,009.47 | 5,538.00 | 92.97 | 92.80 | -37.79 | 5,862.07 | -489.42 | 249.29 | 121.22 | 128.07 | 1.947 | |
| 12,300.00 | 5,735.00 | 12,109.47 | 5,538.00 | 94.41 | 94.25 | -37.92 | 5,962.05 | -491.06 | 249.73 | 119.46 | 130.27 | 1.917 | |
| 12,400.00 | 5,735.00 | 12,209.46 | 5,538.00 | 95.85 | 95.69 | -38.05 | 6,062.04 | -492.71 | 250.16 | 117.69 | 132.48 | 1.888 | |
| 12,500.00 | 5,735.00 | 12,309.46 | 5,538.00 | 97.29 | 97.13 | -38.18 | 6,162.02 | -494.35 | 250.60 | 115.91 | 134.70 | 1.860 | |
| 12,600.00 | 5,735.00 | 12,409.46 | 5,538.00 | 98.73 | 98.58 | -38.30 | 6,262.00 | -495.99 | 251.04 | 114.12 | 136.92 | 1.833 | |
| 12,700.00 | 5,735.00 | 12,509.46 | 5,538.00 | 100.17 | 100.02 | -38.43 | 6,361.99 | -497.64 | 251.48 | 112.33 | 139.16 | 1.807 | |
| 12,800.00 | 5,735.00 | 12,609.45 | 5,538.00 | 101.62 | 101.47 | -38.56 | 6,461.97 | -499.28 | 251.93 | 110.53 | 141.40 | 1.782 | |
| 12,900.00 | 5,735.00 | 12,709.45 | 5,538.00 | 103.06 | 102.92 | -38.68 | 6,561.96 | -500.92 | 252.37 | 108.72 | 143.65 | 1.757 | |
| 13,000.00 | 5,735.00 | 12,809.45 | 5,538.00 | 104.50 | 104.36 | -38.81 | 6,661.94 | -502.57 | 252.81 | 106.91 | 145.91 | 1.733 | |
| 13,100.00 | 5,735.00 | 12,909.45 | 5,538.00 | 105.95 | 105.81 | -38.93 | 6,761.92 | -504.21 | 253.26 | 105.09 | 148.17 | 1.709 | |
| 13,200.00 | 5,735.00 | 13,009.44 | 5,538.00 | 107.40 | 107.26 | -39.06 | 6,861.91 | -505.85 | 253.71 | 103.26 | 150.44 | 1.686 | |
| 13,300.00 | 5,735.00 | 13,109.44 | 5,538.00 | 108.84 | 108.71 | -39.18 | 6,961.89 | -507.50 | 254.16 | 101.43 | 152.72 | 1.664 | |
| 13,400.00 | 5,735.00 | 13,209.44 | 5,538.00 | 110.29 | 110.16 | -39.31 | 7,061.88 | -509.14 | 254.61 | 99.60 | 155.01 | 1.643 | |
| 13,500.00 | 5,735.00 | 13,309.44 | 5,538.00 | 111.74 | 111.62 | -39.43 | 7,161.86 | -510.78 | 255.06 | 97.75 | 157.30 | 1.621 | |
| 13,600.00 | 5,735.00 | 13,409.43 | 5,538.00 | 113.19 | 113.07 | -39.55 | 7,261.84 | -512.43 | 255.51 | 95.90 | 159.61 | 1.601 | |
| 13,700.00 | 5,735.00 | 13,509.43 | 5,538.00 | 114.64 | 114.52 | -39.68 | 7,361.83 | -514.07 | 255.96 | 94.05 | 161.91 | 1.581 | |
| 13,800.00 | 5,735.00 | 13,609.43 | 5,538.00 | 116.09 | 115.97 | -39.80 | 7,461.81 | -515.71 | 256.42 | 92.19 | 164.23 | 1.561 | |
| 13,851.04 | 5,735.00 | 13,660.47 | 5,538.00 | 116.83 | 116.71 | -39.86 | 7,512.85 | -516.55 | 256.65 | 91.24 | 165.41 | 1.552 SF | |



WOG

Anticollision Report

| | | | |
|---------------------------|-------------------------|-------------------------------------|--|
| Company: | Whiting Petroleum Corp. | Local Co-ordinate Reference: | Well Horsetail #30E-1934 |
| Project: | Weld County, CO | TVD Reference: | KBE @ 4827.40usft (Original Well Elev) |
| Reference Site: | Sec 30-T10N-R57W | MD Reference: | KBE @ 4827.40usft (Original Well Elev) |
| Site Error: | 0.00 usft | North Reference: | True |
| Reference Well: | Horsetail #30E-1934 | 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 | 400.27 | 400.25 | 1.11 | 1.11 | -110.02 | -1.69 | 29.54 | 30.14 | 27.92 | 2.22 | 13.593 | | |
| 500.00 | 499.84 | 500.54 | 500.37 | 1.41 | 1.41 | -109.72 | -6.77 | 28.18 | 30.59 | 27.78 | 2.80 | 10.908 | | |
| 600.00 | 599.45 | 600.80 | 600.25 | 1.73 | 1.74 | -109.24 | -15.24 | 25.93 | 31.34 | 27.89 | 3.45 | 9.090 | | |
| 700.00 | 698.70 | 701.06 | 699.75 | 2.07 | 2.07 | -108.60 | -27.08 | 22.78 | 32.39 | 28.25 | 4.14 | 7.823 | | |
| 800.00 | 797.47 | 801.31 | 798.76 | 2.43 | 2.43 | -107.84 | -42.27 | 18.73 | 33.75 | 28.87 | 4.88 | 6.911 | | |
| 900.00 | 895.73 | 901.41 | 897.11 | 2.83 | 2.83 | -107.03 | -60.24 | 13.95 | 35.36 | 29.69 | 5.67 | 6.240 | | |
| 1,000.00 | 993.94 | 1,001.40 | 995.30 | 3.24 | 3.24 | -106.27 | -78.49 | 9.08 | 37.01 | 30.53 | 6.48 | 5.713 | | |
| 1,100.00 | 1,092.15 | 1,101.38 | 1,093.48 | 3.66 | 3.66 | -105.59 | -96.75 | 4.22 | 38.66 | 31.35 | 7.31 | 5.290 | | |
| 1,200.00 | 1,190.36 | 1,201.37 | 1,191.67 | 4.09 | 4.09 | -104.96 | -115.01 | -0.64 | 40.32 | 32.16 | 8.15 | 4.946 | | |
| 1,300.00 | 1,288.57 | 1,301.35 | 1,289.85 | 4.51 | 4.52 | -104.38 | -133.27 | -5.50 | 41.98 | 32.97 | 9.00 | 4.662 | | |
| 1,400.00 | 1,386.78 | 1,401.34 | 1,388.03 | 4.95 | 4.95 | -103.84 | -151.52 | -10.37 | 43.64 | 33.78 | 9.86 | 4.425 | | |
| 1,500.00 | 1,484.99 | 1,501.32 | 1,486.22 | 5.38 | 5.38 | -103.34 | -169.78 | -15.23 | 45.31 | 34.58 | 10.73 | 4.223 | | |
| 1,600.00 | 1,583.20 | 1,601.31 | 1,584.40 | 5.82 | 5.82 | -102.88 | -188.04 | -20.09 | 46.98 | 35.38 | 11.60 | 4.051 | | |
| 1,700.00 | 1,681.41 | 1,701.29 | 1,682.59 | 6.25 | 6.26 | -102.45 | -206.29 | -24.95 | 48.66 | 36.18 | 12.47 | 3.902 | | |
| 1,800.00 | 1,779.62 | 1,801.28 | 1,780.77 | 6.69 | 6.70 | -102.05 | -224.55 | -29.81 | 50.33 | 36.99 | 13.35 | 3.771 | | |
| 1,900.00 | 1,877.83 | 1,901.26 | 1,878.95 | 7.13 | 7.14 | -101.67 | -242.81 | -34.68 | 52.01 | 37.79 | 14.22 | 3.657 | | |
| 2,000.00 | 1,976.04 | 2,001.25 | 1,977.14 | 7.57 | 7.58 | -101.32 | -261.07 | -39.54 | 53.69 | 38.59 | 15.10 | 3.555 | | |
| 2,100.00 | 2,074.25 | 2,101.24 | 2,075.32 | 8.01 | 8.02 | -100.99 | -279.32 | -44.40 | 55.38 | 39.39 | 15.98 | 3.464 | | |
| 2,200.00 | 2,172.46 | 2,201.22 | 2,173.51 | 8.45 | 8.46 | -100.68 | -297.58 | -49.26 | 57.06 | 40.19 | 16.87 | 3.383 | | |
| 2,300.00 | 2,270.67 | 2,301.21 | 2,271.69 | 8.89 | 8.90 | -100.39 | -315.84 | -54.12 | 58.75 | 41.00 | 17.75 | 3.310 | | |
| 2,400.00 | 2,368.88 | 2,401.19 | 2,369.87 | 9.34 | 9.34 | -100.11 | -334.10 | -58.99 | 60.44 | 41.80 | 18.63 | 3.243 | | |
| 2,500.00 | 2,467.09 | 2,501.18 | 2,468.06 | 9.78 | 9.78 | -99.85 | -352.35 | -63.85 | 62.13 | 42.61 | 19.52 | 3.183 | | |
| 2,600.00 | 2,565.30 | 2,601.16 | 2,566.24 | 10.22 | 10.23 | -99.60 | -370.61 | -68.71 | 63.82 | 43.41 | 20.41 | 3.127 | | |
| 2,700.00 | 2,663.51 | 2,701.15 | 2,664.43 | 10.66 | 10.67 | -99.37 | -388.87 | -73.57 | 65.51 | 44.22 | 21.29 | 3.077 | | |
| 2,800.00 | 2,761.72 | 2,801.13 | 2,762.61 | 11.11 | 11.11 | -99.14 | -407.12 | -78.43 | 67.20 | 45.02 | 22.18 | 3.030 | | |
| 2,900.00 | 2,859.93 | 2,901.12 | 2,860.79 | 11.55 | 11.56 | -98.93 | -425.38 | -83.30 | 68.90 | 45.83 | 23.07 | 2.987 | | |
| 3,000.00 | 2,958.14 | 3,001.10 | 2,958.98 | 11.99 | 12.00 | -98.73 | -443.64 | -88.16 | 70.59 | 46.64 | 23.95 | 2.947 | | |
| 3,100.00 | 3,056.35 | 3,101.09 | 3,057.16 | 12.44 | 12.44 | -98.54 | -461.90 | -93.02 | 72.29 | 47.44 | 24.84 | 2.910 | | |
| 3,200.00 | 3,154.55 | 3,201.07 | 3,155.35 | 12.88 | 12.89 | -98.35 | -480.15 | -97.88 | 73.98 | 48.25 | 25.73 | 2.875 | | |
| 3,300.00 | 3,252.76 | 3,301.06 | 3,253.53 | 13.32 | 13.33 | -98.18 | -498.41 | -102.74 | 75.68 | 49.06 | 26.62 | 2.843 | | |
| 3,400.00 | 3,350.97 | 3,401.04 | 3,351.71 | 13.77 | 13.78 | -98.01 | -516.67 | -107.61 | 77.38 | 49.87 | 27.51 | 2.813 | | |
| 3,500.00 | 3,449.18 | 3,501.03 | 3,449.90 | 14.21 | 14.22 | -97.85 | -534.92 | -112.47 | 79.08 | 50.68 | 28.40 | 2.785 | | |
| 3,600.00 | 3,547.39 | 3,601.02 | 3,548.08 | 14.66 | 14.67 | -97.69 | -553.18 | -117.33 | 80.77 | 51.49 | 29.28 | 2.758 | | |
| 3,700.00 | 3,645.60 | 3,701.00 | 3,646.27 | 15.10 | 15.11 | -97.55 | -571.44 | -122.19 | 82.47 | 52.30 | 30.17 | 2.733 | | |
| 3,800.00 | 3,743.81 | 3,800.99 | 3,744.45 | 15.54 | 15.55 | -97.41 | -589.70 | -127.06 | 84.17 | 53.11 | 31.06 | 2.710 | | |
| 3,900.00 | 3,842.02 | 3,900.97 | 3,842.63 | 15.99 | 16.00 | -97.27 | -607.95 | -131.92 | 85.87 | 53.92 | 31.95 | 2.688 | | |
| 4,000.00 | 3,940.23 | 4,000.96 | 3,940.82 | 16.43 | 16.44 | -97.14 | -626.21 | -136.78 | 87.58 | 54.73 | 32.84 | 2.667 | | |
| 4,100.00 | 4,038.44 | 4,100.94 | 4,039.00 | 16.88 | 16.89 | -97.01 | -644.47 | -141.64 | 89.28 | 55.54 | 33.73 | 2.647 | | |
| 4,200.00 | 4,136.65 | 4,200.93 | 4,137.19 | 17.32 | 17.33 | -96.89 | -662.73 | -146.50 | 90.98 | 56.36 | 34.62 | 2.628 | | |
| 4,300.00 | 4,234.86 | 4,300.91 | 4,235.37 | 17.77 | 17.78 | -96.78 | -680.98 | -151.37 | 92.68 | 57.17 | 35.51 | 2.610 | | |
| 4,400.00 | 4,333.07 | 4,400.90 | 4,333.55 | 18.21 | 18.22 | -96.66 | -699.24 | -156.23 | 94.38 | 57.98 | 36.40 | 2.593 | | |
| 4,500.00 | 4,431.28 | 4,500.78 | 4,431.89 | 18.66 | 18.59 | -97.39 | -716.15 | -160.73 | 96.13 | 58.93 | 37.20 | 2.584 | | |
| 4,600.00 | 4,529.59 | 4,600.47 | 4,530.58 | 19.05 | 18.85 | -99.81 | -729.73 | -164.35 | 98.04 | 60.24 | 37.80 | 2.594 | | |
| 4,700.00 | 4,628.42 | 4,700.00 | 4,629.54 | 19.31 | 19.09 | -102.35 | -739.96 | -167.07 | 99.88 | 61.65 | 38.23 | 2.612 | | |
| 4,800.00 | 4,727.73 | 4,799.39 | 4,728.66 | 19.57 | 19.32 | -104.82 | -746.87 | -168.91 | 101.59 | 62.98 | 38.61 | 2.631 | | |
| 4,900.00 | 4,827.38 | 4,898.61 | 4,827.81 | 19.81 | 19.54 | -107.23 | -750.44 | -169.86 | 103.17 | 64.23 | 38.95 | 2.649 | | |
| 5,000.00 | 4,927.26 | 4,998.07 | 4,927.26 | 20.03 | 19.78 | -109.43 | -750.99 | -170.01 | 104.55 | 65.26 | 39.28 | 2.661 | | |
| 5,100.00 | 5,027.25 | 5,098.05 | 5,027.25 | 20.28 | 19.99 | 90.00 | -750.99 | -170.01 | 104.99 | 65.29 | 39.70 | 2.644 | | |

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 #30E-1934 |
| Project: | Weld County, CO | TVD Reference: | KBE @ 4827.40usft (Original Well Elev) |
| Reference Site: | Sec 30-T10N-R57W | MD Reference: | KBE @ 4827.40usft (Original Well Elev) |
| Site Error: | 0.00 usft | North Reference: | True |
| Reference Well: | Horsetail #30E-1934 | 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 | | |
| 5,172.38 | 5,099.63 | 5,170.44 | 5,099.63 | 20.43 | 20.14 | 89.88 | -750.79 | -170.01 | 104.99 | 64.99 | 40.00 | 2.625 | | |
| 5,200.00 | 5,127.25 | 5,197.98 | 5,127.13 | 20.48 | 20.20 | 89.06 | -749.29 | -170.01 | 105.00 | 64.94 | 40.06 | 2.621 | | |
| 5,300.00 | 5,227.25 | 5,294.76 | 5,222.32 | 20.70 | 20.32 | 80.60 | -732.57 | -170.05 | 106.65 | 67.09 | 39.55 | 2.696 | | |
| 5,400.00 | 5,326.36 | 5,386.68 | 5,308.39 | 20.85 | 20.37 | 69.17 | -700.67 | -170.11 | 113.13 | 75.16 | 37.97 | 2.979 | | |
| 5,500.00 | 5,421.35 | 5,475.39 | 5,384.92 | 20.93 | 20.35 | 59.90 | -656.01 | -170.20 | 122.85 | 87.17 | 35.68 | 3.443 | | |
| 5,600.00 | 5,508.72 | 5,561.51 | 5,450.93 | 20.92 | 20.30 | 52.86 | -600.85 | -170.31 | 133.91 | 100.95 | 32.97 | 4.062 | | |
| 5,700.00 | 5,585.26 | 5,645.57 | 5,505.75 | 20.86 | 20.23 | 47.73 | -537.25 | -170.44 | 144.76 | 114.60 | 30.16 | 4.800 | | |
| 5,800.00 | 5,648.17 | 5,728.06 | 5,548.94 | 20.77 | 20.15 | 44.15 | -467.07 | -170.59 | 154.28 | 126.66 | 27.62 | 5.585 | | |
| 5,900.00 | 5,695.14 | 5,809.41 | 5,580.16 | 20.67 | 20.09 | 41.81 | -392.04 | -170.74 | 161.73 | 135.97 | 25.76 | 6.279 | | |
| 6,000.00 | 5,724.43 | 5,890.01 | 5,599.21 | 20.59 | 20.06 | 40.51 | -313.81 | -170.90 | 166.63 | 141.71 | 24.92 | 6.686 | | |
| 6,100.00 | 5,734.97 | 5,970.23 | 5,605.99 | 20.56 | 20.05 | 40.14 | -233.95 | -171.06 | 168.72 | 143.41 | 25.31 | 6.667 | | |
| 6,200.00 | 5,735.00 | 6,069.24 | 5,606.00 | 20.60 | 20.14 | 40.32 | -134.94 | -171.26 | 169.20 | 143.49 | 25.71 | 6.582 | | |
| 6,300.00 | 5,735.00 | 6,169.24 | 5,606.00 | 20.75 | 20.33 | 40.51 | -34.94 | -171.46 | 169.67 | 143.45 | 26.22 | 6.470 | | |
| 6,400.00 | 5,735.00 | 6,269.24 | 5,606.00 | 21.02 | 20.64 | 40.69 | 65.06 | -171.67 | 170.14 | 143.25 | 26.89 | 6.326 | | |
| 6,500.00 | 5,735.00 | 6,369.24 | 5,606.00 | 21.41 | 21.04 | 40.88 | 165.05 | -171.87 | 170.62 | 142.91 | 27.71 | 6.157 | | |
| 6,600.00 | 5,735.00 | 6,469.23 | 5,606.00 | 21.89 | 21.55 | 41.06 | 265.05 | -172.07 | 171.10 | 142.43 | 28.67 | 5.968 | | |
| 6,700.00 | 5,735.00 | 6,569.23 | 5,606.00 | 22.48 | 22.15 | 41.25 | 365.05 | -172.28 | 171.58 | 141.83 | 29.75 | 5.768 | | |
| 6,800.00 | 5,735.00 | 6,669.23 | 5,606.00 | 23.14 | 22.82 | 41.43 | 465.04 | -172.48 | 172.06 | 141.12 | 30.94 | 5.561 | | |
| 6,900.00 | 5,735.00 | 6,769.23 | 5,606.00 | 23.89 | 23.58 | 41.61 | 565.04 | -172.68 | 172.54 | 140.30 | 32.24 | 5.352 | | |
| 7,000.00 | 5,735.00 | 6,869.22 | 5,606.00 | 24.70 | 24.40 | 41.79 | 665.04 | -172.89 | 173.03 | 139.39 | 33.63 | 5.145 | | |
| 7,100.00 | 5,735.00 | 6,969.22 | 5,606.00 | 25.57 | 25.28 | 41.97 | 765.04 | -173.09 | 173.51 | 138.40 | 35.11 | 4.942 | | |
| 7,200.00 | 5,735.00 | 7,069.22 | 5,606.00 | 26.49 | 26.21 | 42.15 | 865.03 | -173.29 | 174.00 | 137.34 | 36.66 | 4.746 | | |
| 7,300.00 | 5,735.00 | 7,169.21 | 5,606.00 | 27.47 | 27.19 | 42.33 | 965.03 | -173.49 | 174.49 | 136.21 | 38.29 | 4.557 | | |
| 7,400.00 | 5,735.00 | 7,269.21 | 5,606.00 | 28.48 | 28.22 | 42.51 | 1,065.03 | -173.70 | 174.98 | 135.01 | 39.97 | 4.378 | | |
| 7,500.00 | 5,735.00 | 7,369.21 | 5,606.00 | 29.54 | 29.28 | 42.68 | 1,165.02 | -173.90 | 175.48 | 133.76 | 41.71 | 4.207 | | |
| 7,600.00 | 5,735.00 | 7,469.21 | 5,606.00 | 30.63 | 30.38 | 42.86 | 1,265.02 | -174.10 | 175.97 | 132.47 | 43.51 | 4.045 | | |
| 7,700.00 | 5,735.00 | 7,569.20 | 5,606.00 | 31.75 | 31.50 | 43.03 | 1,365.02 | -174.31 | 176.47 | 131.13 | 45.34 | 3.892 | | |
| 7,800.00 | 5,735.00 | 7,669.20 | 5,606.00 | 32.90 | 32.66 | 43.20 | 1,465.02 | -174.51 | 176.97 | 129.74 | 47.22 | 3.747 | | |
| 7,900.00 | 5,735.00 | 7,769.20 | 5,606.00 | 34.07 | 33.84 | 43.37 | 1,565.01 | -174.71 | 177.47 | 128.33 | 49.14 | 3.611 | | |
| 8,000.00 | 5,735.00 | 7,869.20 | 5,606.00 | 35.27 | 35.04 | 43.54 | 1,665.01 | -174.92 | 177.97 | 126.87 | 51.10 | 3.483 | | |
| 8,100.00 | 5,735.00 | 7,969.19 | 5,606.00 | 36.48 | 36.26 | 43.71 | 1,765.01 | -175.12 | 178.47 | 125.39 | 53.09 | 3.362 | | |
| 8,200.00 | 5,735.00 | 8,069.19 | 5,606.00 | 37.72 | 37.50 | 43.88 | 1,865.00 | -175.32 | 178.98 | 123.88 | 55.10 | 3.248 | | |
| 8,300.00 | 5,735.00 | 8,169.19 | 5,606.00 | 38.97 | 38.75 | 44.05 | 1,965.00 | -175.53 | 179.48 | 122.34 | 57.15 | 3.141 | | |
| 8,400.00 | 5,735.00 | 8,269.19 | 5,606.00 | 40.23 | 40.02 | 44.22 | 2,065.00 | -175.73 | 179.99 | 120.77 | 59.22 | 3.039 | | |
| 8,500.00 | 5,735.00 | 8,369.18 | 5,606.00 | 41.51 | 41.31 | 44.38 | 2,165.00 | -175.93 | 180.50 | 119.19 | 61.32 | 2.944 | | |
| 8,600.00 | 5,735.00 | 8,469.18 | 5,606.00 | 42.80 | 42.60 | 44.55 | 2,264.99 | -176.14 | 181.01 | 117.58 | 63.43 | 2.854 | | |
| 8,700.00 | 5,735.00 | 8,569.18 | 5,606.00 | 44.11 | 43.91 | 44.71 | 2,364.99 | -176.34 | 181.52 | 115.95 | 65.57 | 2.768 | | |
| 8,800.00 | 5,735.00 | 8,669.17 | 5,606.00 | 45.42 | 45.23 | 44.87 | 2,464.99 | -176.54 | 182.04 | 114.30 | 67.74 | 2.687 | | |
| 8,900.00 | 5,735.00 | 8,769.17 | 5,606.00 | 46.74 | 46.55 | 45.04 | 2,564.98 | -176.74 | 182.55 | 112.64 | 69.92 | 2.611 | | |
| 9,000.00 | 5,735.00 | 8,869.17 | 5,606.00 | 48.07 | 47.89 | 45.20 | 2,664.98 | -176.95 | 183.07 | 110.96 | 72.11 | 2.539 | | |
| 9,100.00 | 5,735.00 | 8,969.17 | 5,606.00 | 49.41 | 49.23 | 45.36 | 2,764.98 | -177.15 | 183.59 | 109.26 | 74.33 | 2.470 | | |
| 9,200.00 | 5,735.00 | 9,069.16 | 5,606.00 | 50.76 | 50.58 | 45.52 | 2,864.98 | -177.35 | 184.11 | 107.55 | 76.56 | 2.405 | | |
| 9,300.00 | 5,735.00 | 9,169.16 | 5,606.00 | 52.11 | 51.94 | 45.68 | 2,964.97 | -177.56 | 184.63 | 105.82 | 78.81 | 2.343 | | |
| 9,400.00 | 5,735.00 | 9,269.16 | 5,606.00 | 53.48 | 53.30 | 45.83 | 3,064.97 | -177.76 | 185.15 | 104.08 | 81.07 | 2.284 | | |
| 9,500.00 | 5,735.00 | 9,369.16 | 5,606.00 | 54.84 | 54.67 | 45.99 | 3,164.97 | -177.96 | 185.68 | 102.33 | 83.35 | 2.228 | | |
| 9,600.00 | 5,735.00 | 9,469.15 | 5,606.00 | 56.21 | 56.04 | 46.15 | 3,264.96 | -178.17 | 186.20 | 100.56 | 85.64 | 2.174 | | |
| 9,700.00 | 5,735.00 | 9,569.15 | 5,606.00 | 57.59 | 57.42 | 46.30 | 3,364.96 | -178.37 | 186.73 | 98.78 | 87.94 | 2.123 | | |
| 9,800.00 | 5,735.00 | 9,669.15 | 5,606.00 | 58.97 | 58.80 | 46.46 | 3,464.96 | -178.57 | 187.25 | 96.99 | 90.26 | 2.075 | | |
| 9,900.00 | 5,735.00 | 9,769.15 | 5,606.00 | 60.36 | 60.19 | 46.61 | 3,564.96 | -178.78 | 187.78 | 95.19 | 92.59 | 2.028 | | |
| 10,000.00 | 5,735.00 | 9,869.14 | 5,606.00 | 61.74 | 61.58 | 46.76 | 3,664.95 | -178.98 | 188.31 | 93.38 | 94.93 | 1.984 | | |
| 10,100.00 | 5,735.00 | 9,969.14 | 5,606.00 | 63.14 | 62.97 | 46.91 | 3,764.95 | -179.18 | 188.85 | 91.56 | 97.29 | 1.941 | | |
| 10,200.00 | 5,735.00 | 10,069.14 | 5,606.00 | 64.54 | 64.37 | 47.06 | 3,864.95 | -179.38 | 189.38 | 89.73 | 99.65 | 1.900 | | |

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 #30E-1934 |
| Project: | Weld County, CO | TVD Reference: | KBE @ 4827.40usft (Original Well Elev) |
| Reference Site: | Sec 30-T10N-R57W | MD Reference: | KBE @ 4827.40usft (Original Well Elev) |
| Site Error: | 0.00 usft | North Reference: | True |
| Reference Well: | Horsetail #30E-1934 | 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 | 10,169.13 | 5,606.00 | 65.94 | 65.77 | 47.21 | 3,964.94 | -179.59 | 189.91 | 87.89 | 102.03 | 1.861 | | |
| 10,400.00 | 5,735.00 | 10,269.13 | 5,606.00 | 67.34 | 67.18 | 47.36 | 4,064.94 | -179.79 | 190.45 | 86.04 | 104.41 | 1.824 | | |
| 10,500.00 | 5,735.00 | 10,369.13 | 5,606.00 | 68.74 | 68.59 | 47.51 | 4,164.94 | -179.99 | 190.99 | 84.18 | 106.81 | 1.788 | | |
| 10,600.00 | 5,735.00 | 10,469.13 | 5,606.00 | 70.15 | 69.99 | 47.66 | 4,264.94 | -180.20 | 191.53 | 82.31 | 109.22 | 1.754 | | |
| 10,700.00 | 5,735.00 | 10,569.12 | 5,606.00 | 71.57 | 71.41 | 47.80 | 4,364.93 | -180.40 | 192.07 | 80.43 | 111.63 | 1.721 | | |
| 10,800.00 | 5,735.00 | 10,669.12 | 5,606.00 | 72.98 | 72.82 | 47.95 | 4,464.93 | -180.60 | 192.61 | 78.55 | 114.06 | 1.689 | | |
| 10,900.00 | 5,735.00 | 10,769.12 | 5,606.00 | 74.40 | 74.24 | 48.10 | 4,564.93 | -180.81 | 193.15 | 76.66 | 116.49 | 1.658 | | |
| 11,000.00 | 5,735.00 | 10,869.12 | 5,606.00 | 75.81 | 75.66 | 48.24 | 4,664.92 | -181.01 | 193.69 | 74.75 | 118.94 | 1.629 | | |
| 11,100.00 | 5,735.00 | 10,969.11 | 5,606.00 | 77.23 | 77.08 | 48.38 | 4,764.92 | -181.21 | 194.24 | 72.85 | 121.39 | 1.600 | | |
| 11,200.00 | 5,735.00 | 11,069.11 | 5,606.00 | 78.66 | 78.50 | 48.53 | 4,864.92 | -181.42 | 194.78 | 70.93 | 123.85 | 1.573 | | |
| 11,300.00 | 5,735.00 | 11,169.11 | 5,606.00 | 80.08 | 79.93 | 48.67 | 4,964.92 | -181.62 | 195.33 | 69.01 | 126.32 | 1.546 | | |
| 11,400.00 | 5,735.00 | 11,269.11 | 5,606.00 | 81.51 | 81.35 | 48.81 | 5,064.91 | -181.82 | 195.88 | 67.08 | 128.80 | 1.521 | | |
| 11,500.00 | 5,735.00 | 11,369.10 | 5,606.00 | 82.94 | 82.78 | 48.95 | 5,164.91 | -182.02 | 196.43 | 65.14 | 131.29 | 1.496 Level 3 | | |
| 11,600.00 | 5,735.00 | 11,469.10 | 5,606.00 | 84.37 | 84.21 | 49.09 | 5,264.91 | -182.23 | 196.98 | 63.20 | 133.78 | 1.472 Level 3 | | |
| 11,700.00 | 5,735.00 | 11,569.10 | 5,606.00 | 85.80 | 85.64 | 49.23 | 5,364.90 | -182.43 | 197.53 | 61.25 | 136.28 | 1.449 Level 3 | | |
| 11,800.00 | 5,735.00 | 11,669.10 | 5,606.00 | 87.23 | 87.07 | 49.36 | 5,464.90 | -182.63 | 198.08 | 59.29 | 138.79 | 1.427 Level 3 | | |
| 11,900.00 | 5,735.00 | 11,769.09 | 5,606.00 | 88.66 | 88.51 | 49.50 | 5,564.90 | -182.84 | 198.64 | 57.33 | 141.31 | 1.406 Level 3 | | |
| 12,000.00 | 5,735.00 | 11,869.09 | 5,606.00 | 90.10 | 89.94 | 49.64 | 5,664.90 | -183.04 | 199.19 | 55.36 | 143.83 | 1.385 Level 3 | | |
| 12,100.00 | 5,735.00 | 11,969.09 | 5,606.00 | 91.53 | 91.38 | 49.77 | 5,764.89 | -183.24 | 199.75 | 53.39 | 146.36 | 1.365 Level 3 | | |
| 12,200.00 | 5,735.00 | 12,069.08 | 5,606.00 | 92.97 | 92.81 | 49.91 | 5,864.89 | -183.45 | 200.30 | 51.40 | 148.90 | 1.345 Level 3 | | |
| 12,300.00 | 5,735.00 | 12,169.08 | 5,606.00 | 94.41 | 94.25 | 50.04 | 5,964.89 | -183.65 | 200.86 | 49.42 | 151.44 | 1.326 Level 3 | | |
| 12,400.00 | 5,735.00 | 12,269.08 | 5,606.00 | 95.85 | 95.69 | 50.17 | 6,064.88 | -183.85 | 201.42 | 47.43 | 154.00 | 1.308 Level 3 | | |
| 12,500.00 | 5,735.00 | 12,369.08 | 5,606.00 | 97.29 | 97.13 | 50.31 | 6,164.88 | -184.06 | 201.98 | 45.43 | 156.55 | 1.290 Level 3 | | |
| 12,600.00 | 5,735.00 | 12,469.07 | 5,606.00 | 98.73 | 98.57 | 50.44 | 6,264.88 | -184.26 | 202.54 | 43.43 | 159.12 | 1.273 Level 3 | | |
| 12,700.00 | 5,735.00 | 12,569.07 | 5,606.00 | 100.17 | 100.02 | 50.57 | 6,364.88 | -184.46 | 203.11 | 41.42 | 161.69 | 1.256 Level 3 | | |
| 12,800.00 | 5,735.00 | 12,669.07 | 5,606.00 | 101.62 | 101.46 | 50.70 | 6,464.87 | -184.66 | 203.67 | 39.40 | 164.27 | 1.240 Level 2 | | |
| 12,900.00 | 5,735.00 | 12,769.07 | 5,606.00 | 103.06 | 102.90 | 50.83 | 6,564.87 | -184.87 | 204.24 | 37.39 | 166.85 | 1.224 Level 2 | | |
| 13,000.00 | 5,735.00 | 12,869.06 | 5,606.00 | 104.50 | 104.35 | 50.96 | 6,664.87 | -185.07 | 204.80 | 35.36 | 169.44 | 1.209 Level 2 | | |
| 13,100.00 | 5,735.00 | 12,969.06 | 5,606.00 | 105.95 | 105.79 | 51.09 | 6,764.86 | -185.27 | 205.37 | 33.33 | 172.03 | 1.194 Level 2 | | |
| 13,200.00 | 5,735.00 | 13,069.06 | 5,606.00 | 107.40 | 107.24 | 51.21 | 6,864.86 | -185.48 | 205.94 | 31.30 | 174.63 | 1.179 Level 2 | | |
| 13,300.00 | 5,735.00 | 13,169.06 | 5,606.00 | 108.84 | 108.69 | 51.34 | 6,964.86 | -185.68 | 206.51 | 29.26 | 177.24 | 1.165 Level 2 | | |
| 13,400.00 | 5,735.00 | 13,269.05 | 5,606.00 | 110.29 | 110.13 | 51.47 | 7,064.86 | -185.88 | 207.08 | 27.22 | 179.85 | 1.151 Level 2 | | |
| 13,500.00 | 5,735.00 | 13,369.05 | 5,606.00 | 111.74 | 111.58 | 51.59 | 7,164.85 | -186.09 | 207.65 | 25.18 | 182.47 | 1.138 Level 2 | | |
| 13,600.00 | 5,735.00 | 13,469.05 | 5,606.00 | 113.19 | 113.03 | 51.72 | 7,264.85 | -186.29 | 208.22 | 23.12 | 185.09 | 1.125 Level 2 | | |
| 13,700.00 | 5,735.00 | 13,569.04 | 5,606.00 | 114.64 | 114.48 | 51.84 | 7,364.85 | -186.49 | 208.79 | 21.07 | 187.72 | 1.112 Level 2 | | |
| 13,800.00 | 5,735.00 | 13,669.04 | 5,606.00 | 116.09 | 115.93 | 51.96 | 7,464.84 | -186.70 | 209.36 | 19.01 | 190.36 | 1.100 Level 2 | | |
| 13,851.04 | 5,735.00 | 13,719.75 | 5,606.00 | 116.83 | 116.63 | 52.03 | 7,515.55 | -186.80 | 209.66 | 18.00 | 191.66 | 1.094 Level 2, ES, SF | | |



WOG

Anticollision Report

| | | | |
|---------------------------|-------------------------|-------------------------------------|--|
| Company: | Whiting Petroleum Corp. | Local Co-ordinate Reference: | Well Horsetail #30E-1934 |
| Project: | Weld County, CO | TVD Reference: | KBE @ 4827.40usft (Original Well Elev) |
| Reference Site: | Sec 30-T10N-R57W | MD Reference: | KBE @ 4827.40usft (Original Well Elev) |
| Site Error: | 0.00 usft | North Reference: | True |
| Reference Well: | Horsetail #30E-1934 | 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 | 89.99 | 0.01 | 89.97 | 89.97 | | | | | |
| 100.00 | 100.00 | 100.00 | 100.00 | 0.13 | 0.13 | 89.99 | 0.01 | 89.97 | 89.97 | 89.70 | 0.27 | 337.782 | | |
| 200.00 | 200.00 | 200.00 | 200.00 | 0.47 | 0.47 | 89.99 | 0.01 | 89.97 | 89.97 | 89.03 | 0.94 | 95.644 | | |
| 300.00 | 300.00 | 300.00 | 300.00 | 0.81 | 0.81 | 89.99 | 0.01 | 89.97 | 89.97 | 88.35 | 1.61 | 55.709 CC, ES | | |
| 400.00 | 399.98 | 399.77 | 399.75 | 1.11 | 1.11 | -110.04 | -1.72 | 90.09 | 90.69 | 88.48 | 2.21 | 41.006 | | |
| 500.00 | 499.84 | 499.52 | 499.36 | 1.41 | 1.41 | -109.82 | -6.92 | 90.46 | 92.86 | 90.07 | 2.79 | 33.278 | | |
| 600.00 | 599.45 | 599.20 | 598.66 | 1.73 | 1.73 | -109.47 | -15.56 | 91.06 | 96.47 | 93.04 | 3.43 | 28.151 | | |
| 700.00 | 698.70 | 698.79 | 697.50 | 2.07 | 2.06 | -109.03 | -27.63 | 91.91 | 101.52 | 97.40 | 4.11 | 24.675 | | |
| 800.00 | 797.47 | 798.25 | 795.74 | 2.43 | 2.42 | -108.51 | -43.10 | 93.00 | 108.01 | 103.15 | 4.85 | 22.253 | | |
| 900.00 | 895.73 | 897.81 | 893.61 | 2.83 | 2.81 | -108.08 | -61.36 | 94.29 | 115.69 | 110.05 | 5.64 | 20.518 | | |
| 1,000.00 | 993.94 | 997.50 | 991.55 | 3.24 | 3.22 | -107.77 | -79.90 | 95.60 | 123.49 | 117.05 | 6.45 | 19.151 | | |
| 1,100.00 | 1,092.15 | 1,097.20 | 1,089.50 | 3.66 | 3.64 | -107.51 | -98.44 | 96.90 | 131.31 | 124.03 | 7.27 | 18.049 | | |
| 1,200.00 | 1,190.36 | 1,196.89 | 1,187.44 | 4.09 | 4.06 | -107.27 | -116.98 | 98.21 | 139.12 | 131.01 | 8.11 | 17.149 | | |
| 1,300.00 | 1,288.57 | 1,296.58 | 1,285.39 | 4.51 | 4.48 | -107.06 | -135.52 | 99.51 | 146.94 | 137.98 | 8.96 | 16.402 | | |
| 1,400.00 | 1,386.78 | 1,396.27 | 1,383.33 | 4.95 | 4.91 | -106.87 | -154.05 | 100.82 | 154.75 | 144.94 | 9.81 | 15.774 | | |
| 1,500.00 | 1,484.99 | 1,495.97 | 1,481.28 | 5.38 | 5.34 | -106.69 | -172.59 | 102.13 | 162.57 | 151.91 | 10.67 | 15.241 | | |
| 1,600.00 | 1,583.20 | 1,595.66 | 1,579.22 | 5.82 | 5.78 | -106.54 | -191.13 | 103.43 | 170.40 | 158.87 | 11.53 | 14.782 | | |
| 1,700.00 | 1,681.41 | 1,695.35 | 1,677.17 | 6.25 | 6.21 | -106.39 | -209.67 | 104.74 | 178.22 | 165.83 | 12.39 | 14.384 | | |
| 1,800.00 | 1,779.62 | 1,795.05 | 1,775.11 | 6.69 | 6.65 | -106.26 | -228.21 | 106.04 | 186.04 | 172.79 | 13.26 | 14.035 | | |
| 1,900.00 | 1,877.83 | 1,894.74 | 1,873.06 | 7.13 | 7.08 | -106.14 | -246.75 | 107.35 | 193.86 | 179.74 | 14.12 | 13.727 | | |
| 2,000.00 | 1,976.04 | 1,994.43 | 1,971.00 | 7.57 | 7.52 | -106.03 | -265.29 | 108.66 | 201.69 | 186.70 | 14.99 | 13.454 | | |
| 2,100.00 | 2,074.25 | 2,094.12 | 2,068.95 | 8.01 | 7.96 | -105.93 | -283.83 | 109.96 | 209.52 | 193.65 | 15.86 | 13.209 | | |
| 2,200.00 | 2,172.46 | 2,193.82 | 2,166.89 | 8.45 | 8.39 | -105.83 | -302.37 | 111.27 | 217.34 | 200.61 | 16.73 | 12.989 | | |
| 2,300.00 | 2,270.67 | 2,293.51 | 2,264.84 | 8.89 | 8.83 | -105.75 | -320.91 | 112.57 | 225.17 | 207.56 | 17.60 | 12.791 | | |
| 2,400.00 | 2,368.88 | 2,393.20 | 2,362.78 | 9.34 | 9.27 | -105.66 | -339.45 | 113.88 | 233.00 | 214.52 | 18.48 | 12.610 | | |
| 2,500.00 | 2,467.09 | 2,492.89 | 2,460.73 | 9.78 | 9.71 | -105.59 | -357.99 | 115.19 | 240.82 | 221.47 | 19.35 | 12.445 | | |
| 2,600.00 | 2,565.30 | 2,592.59 | 2,558.67 | 10.22 | 10.15 | -105.51 | -376.52 | 116.49 | 248.65 | 228.43 | 20.22 | 12.294 | | |
| 2,700.00 | 2,663.51 | 2,692.28 | 2,656.62 | 10.66 | 10.59 | -105.45 | -395.06 | 117.80 | 256.48 | 235.38 | 21.10 | 12.156 | | |
| 2,800.00 | 2,761.72 | 2,791.97 | 2,754.56 | 11.11 | 11.03 | -105.38 | -413.60 | 119.10 | 264.31 | 242.33 | 21.97 | 12.028 | | |
| 2,900.00 | 2,859.93 | 2,891.66 | 2,852.51 | 11.55 | 11.47 | -105.32 | -432.14 | 120.41 | 272.14 | 249.29 | 22.85 | 11.910 | | |
| 3,000.00 | 2,958.14 | 2,991.36 | 2,950.45 | 11.99 | 11.91 | -105.26 | -450.68 | 121.71 | 279.97 | 256.24 | 23.73 | 11.800 | | |
| 3,100.00 | 3,056.35 | 3,091.05 | 3,048.40 | 12.44 | 12.35 | -105.21 | -469.22 | 123.02 | 287.80 | 263.19 | 24.60 | 11.698 | | |
| 3,200.00 | 3,154.55 | 3,190.74 | 3,146.34 | 12.88 | 12.79 | -105.16 | -487.76 | 124.33 | 295.63 | 270.15 | 25.48 | 11.603 | | |
| 3,300.00 | 3,252.76 | 3,290.44 | 3,244.29 | 13.32 | 13.23 | -105.11 | -506.30 | 125.63 | 303.46 | 277.10 | 26.36 | 11.514 | | |
| 3,400.00 | 3,350.97 | 3,390.13 | 3,342.23 | 13.77 | 13.67 | -105.07 | -524.84 | 126.94 | 311.29 | 284.05 | 27.23 | 11.431 | | |
| 3,500.00 | 3,449.18 | 3,489.82 | 3,440.18 | 14.21 | 14.11 | -105.02 | -543.38 | 128.24 | 319.12 | 291.01 | 28.11 | 11.352 | | |
| 3,600.00 | 3,547.39 | 3,589.51 | 3,538.12 | 14.66 | 14.55 | -104.98 | -561.92 | 129.55 | 326.95 | 297.96 | 28.99 | 11.279 | | |
| 3,700.00 | 3,645.60 | 3,689.21 | 3,636.07 | 15.10 | 14.99 | -104.94 | -580.45 | 130.86 | 334.78 | 304.91 | 29.86 | 11.210 | | |
| 3,800.00 | 3,743.81 | 3,788.90 | 3,734.01 | 15.54 | 15.43 | -104.90 | -598.99 | 132.16 | 342.61 | 311.87 | 30.74 | 11.144 | | |
| 3,900.00 | 3,842.02 | 3,888.59 | 3,831.96 | 15.99 | 15.88 | -104.87 | -617.53 | 133.47 | 350.44 | 318.82 | 31.62 | 11.083 | | |
| 4,000.00 | 3,940.23 | 3,988.28 | 3,929.90 | 16.43 | 16.32 | -104.83 | -636.07 | 134.77 | 358.27 | 325.77 | 32.50 | 11.024 | | |
| 4,100.00 | 4,038.44 | 4,087.98 | 4,027.85 | 16.88 | 16.76 | -104.80 | -654.61 | 136.08 | 366.10 | 332.73 | 33.38 | 10.969 | | |
| 4,200.00 | 4,136.65 | 4,187.67 | 4,125.79 | 17.32 | 17.20 | -104.77 | -673.15 | 137.39 | 373.93 | 339.68 | 34.26 | 10.916 | | |
| 4,300.00 | 4,234.86 | 4,287.36 | 4,223.74 | 17.77 | 17.64 | -104.74 | -691.69 | 138.69 | 381.77 | 346.63 | 35.13 | 10.866 | | |
| 4,400.00 | 4,333.07 | 4,387.91 | 4,322.57 | 18.21 | 18.05 | -104.75 | -710.11 | 139.99 | 389.55 | 353.57 | 35.98 | 10.826 | | |
| 4,500.00 | 4,431.28 | 4,489.73 | 4,423.16 | 18.66 | 18.33 | -105.18 | -728.66 | 141.10 | 396.90 | 360.20 | 36.70 | 10.814 | | |
| 4,600.00 | 4,529.59 | 4,591.35 | 4,524.04 | 19.05 | 18.59 | -106.10 | -738.01 | 141.95 | 403.63 | 366.29 | 37.34 | 10.809 | | |
| 4,700.00 | 4,628.42 | 4,692.84 | 4,625.15 | 19.31 | 18.84 | -107.09 | -746.58 | 142.56 | 409.10 | 371.26 | 37.84 | 10.812 | | |
| 4,800.00 | 4,727.73 | 4,794.18 | 4,726.37 | 19.57 | 19.07 | -108.06 | -751.56 | 142.91 | 413.22 | 374.92 | 38.30 | 10.789 | | |
| 4,900.00 | 4,827.38 | 4,895.21 | 4,827.38 | 19.81 | 19.32 | -109.01 | -752.99 | 143.01 | 415.99 | 377.22 | 38.77 | 10.730 | | |
| 5,000.00 | 4,927.26 | 4,995.09 | 4,927.26 | 20.03 | 19.53 | -109.66 | -752.99 | 143.01 | 417.57 | 378.38 | 39.19 | 10.655 | | |
| 5,100.00 | 5,027.25 | 5,095.11 | 5,027.29 | 20.28 | 19.74 | 90.26 | -752.89 | 143.01 | 418.01 | 378.37 | 39.64 | 10.544 | | |

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 #30E-1934 |
| Project: | Weld County, CO | TVD Reference: | KBE @ 4827.40usft (Original Well Elev) |
| Reference Site: | Sec 30-T10N-R57W | MD Reference: | KBE @ 4827.40usft (Original Well Elev) |
| Site Error: | 0.00 usft | North Reference: | True |
| Reference Well: | Horsetail #30E-1934 | 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 | | |
| 5,135.28 | 5,062.53 | 5,130.41 | 5,062.53 | 20.35 | 19.80 | 90.00 | -751.00 | 143.01 | 418.01 | 378.24 | 39.77 | 10.510 | | |
| 5,200.00 | 5,127.25 | 5,193.88 | 5,125.26 | 20.48 | 19.89 | 88.71 | -741.62 | 143.01 | 418.12 | 378.16 | 39.96 | 10.465 | | |
| 5,300.00 | 5,227.25 | 5,285.41 | 5,212.67 | 20.70 | 19.96 | 85.57 | -714.85 | 143.01 | 419.81 | 379.78 | 40.03 | 10.486 | | |
| 5,400.00 | 5,326.36 | 5,370.38 | 5,288.47 | 20.85 | 19.96 | 81.18 | -676.68 | 143.01 | 424.40 | 384.59 | 39.81 | 10.661 | | |
| 5,500.00 | 5,421.35 | 5,450.00 | 5,353.00 | 20.93 | 19.92 | 77.23 | -630.17 | 143.01 | 431.04 | 391.75 | 39.29 | 10.971 | | |
| 5,600.00 | 5,508.72 | 5,530.27 | 5,410.12 | 20.92 | 19.87 | 73.63 | -573.89 | 143.01 | 438.77 | 400.20 | 38.57 | 11.375 | | |
| 5,700.00 | 5,585.26 | 5,606.70 | 5,455.88 | 20.86 | 19.81 | 70.66 | -512.76 | 143.01 | 446.70 | 408.95 | 37.74 | 11.835 | | |
| 5,800.00 | 5,648.17 | 5,681.55 | 5,491.55 | 20.77 | 19.76 | 68.29 | -447.03 | 143.01 | 454.00 | 417.05 | 36.96 | 12.285 | | |
| 5,900.00 | 5,695.14 | 5,750.00 | 5,515.63 | 20.67 | 19.72 | 66.61 | -383.00 | 143.01 | 460.07 | 423.72 | 36.35 | 12.658 | | |
| 6,000.00 | 5,724.43 | 5,828.28 | 5,532.62 | 20.59 | 19.72 | 65.46 | -306.66 | 143.01 | 464.28 | 428.21 | 36.07 | 12.873 | | |
| 6,100.00 | 5,734.97 | 5,903.21 | 5,538.00 | 20.56 | 19.75 | 65.02 | -231.99 | 143.01 | 466.46 | 430.33 | 36.13 | 12.912 | | |
| 6,200.00 | 5,735.00 | 6,000.04 | 5,538.00 | 20.60 | 19.87 | 65.07 | -135.16 | 143.01 | 467.30 | 430.91 | 36.39 | 12.841 | | |
| 6,300.00 | 5,735.00 | 6,100.04 | 5,538.00 | 20.75 | 20.10 | 65.11 | -35.16 | 143.01 | 468.15 | 431.31 | 36.84 | 12.708 | | |
| 6,400.00 | 5,735.00 | 6,200.03 | 5,538.00 | 21.02 | 20.43 | 65.16 | 64.83 | 143.01 | 468.99 | 431.52 | 37.48 | 12.514 | | |
| 6,500.00 | 5,735.00 | 6,300.03 | 5,538.00 | 21.41 | 20.86 | 65.21 | 164.83 | 143.01 | 469.84 | 431.54 | 38.30 | 12.268 | | |
| 6,600.00 | 5,735.00 | 6,400.02 | 5,538.00 | 21.89 | 21.39 | 65.26 | 264.82 | 143.01 | 470.69 | 431.39 | 39.29 | 11.979 | | |
| 6,700.00 | 5,735.00 | 6,500.02 | 5,538.00 | 22.48 | 22.00 | 65.30 | 364.82 | 143.01 | 471.53 | 431.09 | 40.45 | 11.658 | | |
| 6,800.00 | 5,735.00 | 6,600.02 | 5,538.00 | 23.14 | 22.69 | 65.35 | 464.81 | 143.01 | 472.38 | 430.64 | 41.74 | 11.316 | | |
| 6,900.00 | 5,735.00 | 6,700.01 | 5,538.00 | 23.89 | 23.45 | 65.40 | 564.81 | 143.01 | 473.23 | 430.05 | 43.18 | 10.960 | | |
| 7,000.00 | 5,735.00 | 6,800.01 | 5,538.00 | 24.70 | 24.28 | 65.45 | 664.81 | 143.01 | 474.08 | 429.34 | 44.73 | 10.598 | | |
| 7,100.00 | 5,735.00 | 6,900.00 | 5,538.00 | 25.57 | 25.17 | 65.49 | 764.80 | 143.00 | 474.92 | 428.53 | 46.39 | 10.237 | | |
| 7,200.00 | 5,735.00 | 7,000.00 | 5,538.00 | 26.49 | 26.11 | 65.54 | 864.80 | 143.00 | 475.77 | 427.62 | 48.16 | 9.880 | | |
| 7,300.00 | 5,735.00 | 7,099.99 | 5,538.00 | 27.47 | 27.10 | 65.59 | 964.79 | 143.00 | 476.62 | 426.61 | 50.00 | 9.532 | | |
| 7,400.00 | 5,735.00 | 7,199.99 | 5,538.00 | 28.48 | 28.13 | 65.63 | 1,064.79 | 143.00 | 477.47 | 425.54 | 51.93 | 9.194 | | |
| 7,500.00 | 5,735.00 | 7,299.99 | 5,538.00 | 29.54 | 29.19 | 65.68 | 1,164.78 | 143.00 | 478.32 | 424.39 | 53.93 | 8.869 | | |
| 7,600.00 | 5,735.00 | 7,399.98 | 5,538.00 | 30.63 | 30.29 | 65.72 | 1,264.78 | 143.00 | 479.17 | 423.17 | 55.99 | 8.558 | | |
| 7,700.00 | 5,735.00 | 7,499.98 | 5,538.00 | 31.75 | 31.43 | 65.77 | 1,364.78 | 143.00 | 480.02 | 421.91 | 58.11 | 8.260 | | |
| 7,800.00 | 5,735.00 | 7,599.97 | 5,538.00 | 32.90 | 32.58 | 65.81 | 1,464.77 | 143.00 | 480.87 | 420.59 | 60.28 | 7.977 | | |
| 7,900.00 | 5,735.00 | 7,699.97 | 5,538.00 | 34.07 | 33.77 | 65.86 | 1,564.77 | 143.00 | 481.72 | 419.22 | 62.50 | 7.708 | | |
| 8,000.00 | 5,735.00 | 7,799.96 | 5,538.00 | 35.27 | 34.97 | 65.91 | 1,664.76 | 143.00 | 482.57 | 417.81 | 64.75 | 7.452 | | |
| 8,100.00 | 5,735.00 | 7,899.96 | 5,538.00 | 36.48 | 36.20 | 65.95 | 1,764.76 | 143.00 | 483.42 | 416.37 | 67.05 | 7.210 | | |
| 8,200.00 | 5,735.00 | 7,999.96 | 5,538.00 | 37.72 | 37.44 | 66.00 | 1,864.75 | 143.00 | 484.27 | 414.89 | 69.38 | 6.980 | | |
| 8,300.00 | 5,735.00 | 8,099.95 | 5,538.00 | 38.97 | 38.70 | 66.04 | 1,964.75 | 143.00 | 485.12 | 413.39 | 71.73 | 6.763 | | |
| 8,400.00 | 5,735.00 | 8,199.95 | 5,538.00 | 40.23 | 39.97 | 66.08 | 2,064.74 | 143.00 | 485.97 | 411.85 | 74.12 | 6.557 | | |
| 8,500.00 | 5,735.00 | 8,299.94 | 5,538.00 | 41.51 | 41.26 | 66.13 | 2,164.74 | 143.00 | 486.82 | 410.29 | 76.53 | 6.361 | | |
| 8,600.00 | 5,735.00 | 8,399.94 | 5,538.00 | 42.80 | 42.56 | 66.17 | 2,264.74 | 143.00 | 487.68 | 408.71 | 78.97 | 6.176 | | |
| 8,700.00 | 5,735.00 | 8,499.93 | 5,538.00 | 44.11 | 43.87 | 66.22 | 2,364.73 | 143.00 | 488.53 | 407.11 | 81.42 | 6.000 | | |
| 8,800.00 | 5,735.00 | 8,599.93 | 5,538.00 | 45.42 | 45.19 | 66.26 | 2,464.73 | 143.00 | 489.38 | 405.48 | 83.90 | 5.833 | | |
| 8,900.00 | 5,735.00 | 8,699.93 | 5,538.00 | 46.74 | 46.51 | 66.31 | 2,564.72 | 143.00 | 490.24 | 403.84 | 86.39 | 5.674 | | |
| 9,000.00 | 5,735.00 | 8,799.92 | 5,538.00 | 48.07 | 47.85 | 66.35 | 2,664.72 | 143.00 | 491.09 | 402.18 | 88.91 | 5.524 | | |
| 9,100.00 | 5,735.00 | 8,899.92 | 5,538.00 | 49.41 | 49.20 | 66.39 | 2,764.71 | 143.00 | 491.94 | 400.51 | 91.43 | 5.380 | | |
| 9,200.00 | 5,735.00 | 8,999.91 | 5,538.00 | 50.76 | 50.55 | 66.44 | 2,864.71 | 143.00 | 492.80 | 398.83 | 93.97 | 5.244 | | |
| 9,300.00 | 5,735.00 | 9,099.91 | 5,538.00 | 52.11 | 51.90 | 66.48 | 2,964.71 | 143.00 | 493.65 | 397.13 | 96.53 | 5.114 | | |
| 9,400.00 | 5,735.00 | 9,199.90 | 5,538.00 | 53.48 | 53.27 | 66.52 | 3,064.70 | 143.00 | 494.51 | 395.41 | 99.09 | 4.990 | | |
| 9,500.00 | 5,735.00 | 9,299.90 | 5,538.00 | 54.84 | 54.64 | 66.57 | 3,164.70 | 143.00 | 495.36 | 393.69 | 101.67 | 4.872 | | |
| 9,600.00 | 5,735.00 | 9,399.89 | 5,538.00 | 56.21 | 56.01 | 66.61 | 3,264.69 | 143.00 | 496.22 | 391.96 | 104.26 | 4.759 | | |
| 9,700.00 | 5,735.00 | 9,499.89 | 5,538.00 | 57.59 | 57.39 | 66.65 | 3,364.69 | 143.00 | 497.07 | 390.22 | 106.86 | 4.652 | | |
| 9,800.00 | 5,735.00 | 9,599.89 | 5,538.00 | 58.97 | 58.78 | 66.69 | 3,464.68 | 143.00 | 497.93 | 388.46 | 109.46 | 4.549 | | |
| 9,900.00 | 5,735.00 | 9,699.88 | 5,538.00 | 60.36 | 60.17 | 66.74 | 3,564.68 | 143.00 | 498.78 | 386.70 | 112.08 | 4.450 | | |
| 10,000.00 | 5,735.00 | 9,799.88 | 5,538.00 | 61.74 | 61.56 | 66.78 | 3,664.68 | 142.99 | 499.64 | 384.93 | 114.71 | 4.356 | | |
| 10,100.00 | 5,735.00 | 9,899.87 | 5,538.00 | 63.14 | 62.95 | 66.82 | 3,764.67 | 142.99 | 500.50 | 383.16 | 117.34 | 4.265 | | |
| 10,200.00 | 5,735.00 | 9,999.87 | 5,538.00 | 64.54 | 64.35 | 66.86 | 3,864.67 | 142.99 | 501.35 | 381.37 | 119.98 | 4.179 | | |

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 #30E-1934 |
| Project: | Weld County, CO | TVD Reference: | KBE @ 4827.40usft (Original Well Elev) |
| Reference Site: | Sec 30-T10N-R57W | MD Reference: | KBE @ 4827.40usft (Original Well Elev) |
| Site Error: | 0.00 usft | North Reference: | True |
| Reference Well: | Horsetail #30E-1934 | 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 #30E-1903 - 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 | | | | | |
| 10,300.00 | 5,735.00 | 10,099.86 | 5,538.00 | 65.94 | 65.76 | 66.90 | 3,964.66 | 142.99 | 502.21 | 379.58 | 122.63 | 4.095 | | | | | |
| 10,400.00 | 5,735.00 | 10,199.86 | 5,538.00 | 67.34 | 67.16 | 66.95 | 4,064.66 | 142.99 | 503.07 | 377.79 | 125.28 | 4.016 | | | | | |
| 10,500.00 | 5,735.00 | 10,299.86 | 5,538.00 | 68.74 | 68.57 | 66.99 | 4,164.65 | 142.99 | 503.93 | 375.98 | 127.94 | 3.939 | | | | | |
| 10,600.00 | 5,735.00 | 10,399.85 | 5,538.00 | 70.15 | 69.98 | 67.03 | 4,264.65 | 142.99 | 504.78 | 374.18 | 130.61 | 3.865 | | | | | |
| 10,700.00 | 5,735.00 | 10,499.85 | 5,538.00 | 71.57 | 71.39 | 67.07 | 4,364.65 | 142.99 | 505.64 | 372.36 | 133.28 | 3.794 | | | | | |
| 10,800.00 | 5,735.00 | 10,599.84 | 5,538.00 | 72.98 | 72.81 | 67.11 | 4,464.64 | 142.99 | 506.50 | 370.54 | 135.96 | 3.725 | | | | | |
| 10,900.00 | 5,735.00 | 10,699.84 | 5,538.00 | 74.40 | 74.23 | 67.15 | 4,564.64 | 142.99 | 507.36 | 368.72 | 138.64 | 3.660 | | | | | |
| 11,000.00 | 5,735.00 | 10,799.83 | 5,538.00 | 75.81 | 75.65 | 67.19 | 4,664.63 | 142.99 | 508.22 | 366.89 | 141.33 | 3.596 | | | | | |
| 11,100.00 | 5,735.00 | 10,899.83 | 5,538.00 | 77.23 | 77.07 | 67.23 | 4,764.63 | 142.99 | 509.08 | 365.06 | 144.02 | 3.535 | | | | | |
| 11,200.00 | 5,735.00 | 10,999.83 | 5,538.00 | 78.66 | 78.49 | 67.27 | 4,864.62 | 142.99 | 509.94 | 363.22 | 146.72 | 3.476 | | | | | |
| 11,300.00 | 5,735.00 | 11,099.82 | 5,538.00 | 80.08 | 79.92 | 67.31 | 4,964.62 | 142.99 | 510.80 | 361.38 | 149.42 | 3.419 | | | | | |
| 11,400.00 | 5,735.00 | 11,199.82 | 5,538.00 | 81.51 | 81.34 | 67.35 | 5,064.61 | 142.99 | 511.66 | 359.53 | 152.12 | 3.363 | | | | | |
| 11,500.00 | 5,735.00 | 11,299.81 | 5,538.00 | 82.94 | 82.77 | 67.39 | 5,164.61 | 142.99 | 512.52 | 357.68 | 154.83 | 3.310 | | | | | |
| 11,600.00 | 5,735.00 | 11,399.81 | 5,538.00 | 84.37 | 84.20 | 67.43 | 5,264.61 | 142.99 | 513.38 | 355.83 | 157.55 | 3.259 | | | | | |
| 11,700.00 | 5,735.00 | 11,499.80 | 5,538.00 | 85.80 | 85.63 | 67.47 | 5,364.60 | 142.99 | 514.24 | 353.97 | 160.26 | 3.209 | | | | | |
| 11,800.00 | 5,735.00 | 11,599.80 | 5,538.00 | 87.23 | 87.07 | 67.51 | 5,464.60 | 142.99 | 515.10 | 352.11 | 162.99 | 3.160 | | | | | |
| 11,900.00 | 5,735.00 | 11,699.79 | 5,538.00 | 88.66 | 88.50 | 67.55 | 5,564.59 | 142.99 | 515.96 | 350.25 | 165.71 | 3.114 | | | | | |
| 12,000.00 | 5,735.00 | 11,799.79 | 5,538.00 | 90.10 | 89.93 | 67.59 | 5,664.59 | 142.99 | 516.82 | 348.38 | 168.44 | 3.068 | | | | | |
| 12,100.00 | 5,735.00 | 11,899.79 | 5,538.00 | 91.53 | 91.37 | 67.63 | 5,764.58 | 142.99 | 517.68 | 346.52 | 171.17 | 3.024 | | | | | |
| 12,200.00 | 5,735.00 | 11,999.78 | 5,538.00 | 92.97 | 92.81 | 67.67 | 5,864.58 | 142.99 | 518.55 | 344.64 | 173.90 | 2.982 | | | | | |
| 12,300.00 | 5,735.00 | 12,099.78 | 5,538.00 | 94.41 | 94.25 | 67.71 | 5,964.58 | 142.99 | 519.41 | 342.77 | 176.64 | 2.941 | | | | | |
| 12,400.00 | 5,735.00 | 12,199.77 | 5,538.00 | 95.85 | 95.69 | 67.75 | 6,064.57 | 142.99 | 520.27 | 340.89 | 179.38 | 2.900 | | | | | |
| 12,500.00 | 5,735.00 | 12,299.77 | 5,538.00 | 97.29 | 97.13 | 67.79 | 6,164.57 | 142.99 | 521.13 | 339.01 | 182.12 | 2.861 | | | | | |
| 12,600.00 | 5,735.00 | 12,399.76 | 5,538.00 | 98.73 | 98.57 | 67.83 | 6,264.56 | 142.99 | 522.00 | 337.13 | 184.87 | 2.824 | | | | | |
| 12,700.00 | 5,735.00 | 12,499.76 | 5,538.00 | 100.17 | 100.01 | 67.87 | 6,364.56 | 142.99 | 522.86 | 335.24 | 187.62 | 2.787 | | | | | |
| 12,800.00 | 5,735.00 | 12,599.76 | 5,538.00 | 101.62 | 101.45 | 67.90 | 6,464.55 | 142.99 | 523.72 | 333.36 | 190.37 | 2.751 | | | | | |
| 12,900.00 | 5,735.00 | 12,699.75 | 5,538.00 | 103.06 | 102.90 | 67.94 | 6,564.55 | 142.98 | 524.59 | 331.47 | 193.12 | 2.716 | | | | | |
| 13,000.00 | 5,735.00 | 12,799.75 | 5,538.00 | 104.50 | 104.34 | 67.98 | 6,664.55 | 142.98 | 525.45 | 329.57 | 195.87 | 2.683 | | | | | |
| 13,100.00 | 5,735.00 | 12,899.74 | 5,538.00 | 105.95 | 105.79 | 68.02 | 6,764.54 | 142.98 | 526.31 | 327.68 | 198.63 | 2.650 | | | | | |
| 13,200.00 | 5,735.00 | 12,999.74 | 5,538.00 | 107.40 | 107.23 | 68.06 | 6,864.54 | 142.98 | 527.18 | 325.78 | 201.39 | 2.618 | | | | | |
| 13,300.00 | 5,735.00 | 13,099.73 | 5,538.00 | 108.84 | 108.68 | 68.09 | 6,964.53 | 142.98 | 528.04 | 323.89 | 204.16 | 2.586 | | | | | |
| 13,400.00 | 5,735.00 | 13,199.73 | 5,538.00 | 110.29 | 110.13 | 68.13 | 7,064.53 | 142.98 | 528.91 | 321.99 | 206.92 | 2.556 | | | | | |
| 13,500.00 | 5,735.00 | 13,299.73 | 5,538.00 | 111.74 | 111.58 | 68.17 | 7,164.52 | 142.98 | 529.77 | 320.08 | 209.69 | 2.526 | | | | | |
| 13,600.00 | 5,735.00 | 13,399.72 | 5,538.00 | 113.19 | 113.03 | 68.21 | 7,264.52 | 142.98 | 530.64 | 318.18 | 212.46 | 2.498 | | | | | |
| 13,700.00 | 5,735.00 | 13,499.72 | 5,538.00 | 114.64 | 114.47 | 68.24 | 7,364.51 | 142.98 | 531.50 | 316.27 | 215.23 | 2.469 | | | | | |
| 13,800.00 | 5,735.00 | 13,599.71 | 5,538.00 | 116.09 | 115.92 | 68.28 | 7,464.51 | 142.98 | 532.37 | 314.37 | 218.00 | 2.442 | | | | | |
| 13,851.04 | 5,735.00 | 13,650.75 | 5,538.00 | 116.83 | 116.66 | 68.30 | 7,515.55 | 142.98 | 532.81 | 313.39 | 219.42 | 2.428 SF | | | | | |



WOG

Anticollision Report

| | | | |
|---------------------------|-------------------------|-------------------------------------|--|
| Company: | Whiting Petroleum Corp. | Local Co-ordinate Reference: | Well Horsetail #30E-1934 |
| Project: | Weld County, CO | TVD Reference: | KBE @ 4827.40usft (Original Well Elev) |
| Reference Site: | Sec 30-T10N-R57W | MD Reference: | KBE @ 4827.40usft (Original Well Elev) |
| Site Error: | 0.00 usft | North Reference: | True |
| Reference Well: | Horsetail #30E-1934 | 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 | 149.95 | 149.95 | | | | | |
| 100.00 | 100.00 | 100.00 | 100.00 | 0.13 | 0.13 | 90.00 | -0.01 | 149.95 | 149.95 | 149.68 | 0.27 | 562.969 | | |
| 200.00 | 200.00 | 200.00 | 200.00 | 0.47 | 0.47 | 90.00 | -0.01 | 149.95 | 149.95 | 149.01 | 0.94 | 159.407 | | |
| 300.00 | 300.00 | 300.00 | 300.00 | 0.81 | 0.81 | 90.00 | -0.01 | 149.95 | 149.95 | 148.33 | 1.61 | 92.849 CC, ES | | |
| 400.00 | 399.98 | 397.97 | 397.95 | 1.11 | 1.10 | -110.11 | -1.55 | 150.60 | 151.22 | 149.00 | 2.22 | 68.157 | | |
| 500.00 | 499.84 | 495.84 | 495.69 | 1.41 | 1.40 | -110.11 | -6.16 | 152.58 | 155.03 | 152.22 | 2.82 | 55.048 | | |
| 600.00 | 599.45 | 593.53 | 593.02 | 1.73 | 1.71 | -110.11 | -13.83 | 155.85 | 161.38 | 157.91 | 3.47 | 46.520 | | |
| 700.00 | 698.70 | 690.95 | 689.73 | 2.07 | 2.04 | -110.10 | -24.50 | 160.42 | 170.25 | 166.08 | 4.17 | 40.862 | | |
| 800.00 | 797.47 | 788.00 | 785.64 | 2.43 | 2.39 | -110.07 | -38.14 | 166.25 | 181.62 | 176.71 | 4.91 | 37.019 | | |
| 900.00 | 895.73 | 884.76 | 880.71 | 2.83 | 2.77 | -110.03 | -54.69 | 173.33 | 195.27 | 189.59 | 5.68 | 34.362 | | |
| 1,000.00 | 993.94 | 983.72 | 977.65 | 3.24 | 3.19 | -109.79 | -72.97 | 181.15 | 209.61 | 203.15 | 6.47 | 32.410 | | |
| 1,100.00 | 1,092.15 | 1,082.69 | 1,074.60 | 3.66 | 3.61 | -109.58 | -91.26 | 188.97 | 223.96 | 216.68 | 7.27 | 30.795 | | |
| 1,200.00 | 1,190.36 | 1,181.65 | 1,171.54 | 4.09 | 4.04 | -109.40 | -109.54 | 196.78 | 238.30 | 230.21 | 8.09 | 29.456 | | |
| 1,300.00 | 1,288.57 | 1,280.61 | 1,268.49 | 4.51 | 4.47 | -109.23 | -127.82 | 204.60 | 252.65 | 243.73 | 8.92 | 28.323 | | |
| 1,400.00 | 1,386.78 | 1,379.58 | 1,365.43 | 4.95 | 4.91 | -109.09 | -146.10 | 212.42 | 267.00 | 257.24 | 9.76 | 27.364 | | |
| 1,500.00 | 1,484.99 | 1,478.54 | 1,462.38 | 5.38 | 5.35 | -108.96 | -164.39 | 220.24 | 281.35 | 270.75 | 10.60 | 26.542 | | |
| 1,600.00 | 1,583.20 | 1,577.50 | 1,559.32 | 5.82 | 5.80 | -108.84 | -182.67 | 228.06 | 295.70 | 284.25 | 11.45 | 25.830 | | |
| 1,700.00 | 1,681.41 | 1,676.46 | 1,656.27 | 6.25 | 6.24 | -108.73 | -200.95 | 235.87 | 310.05 | 297.75 | 12.30 | 25.210 | | |
| 1,800.00 | 1,779.62 | 1,775.43 | 1,753.21 | 6.69 | 6.68 | -108.63 | -219.23 | 243.69 | 324.41 | 311.25 | 13.15 | 24.664 | | |
| 1,900.00 | 1,877.83 | 1,874.39 | 1,850.16 | 7.13 | 7.13 | -108.54 | -237.51 | 251.51 | 338.76 | 324.75 | 14.01 | 24.180 | | |
| 2,000.00 | 1,976.04 | 1,973.35 | 1,947.10 | 7.57 | 7.58 | -108.46 | -255.80 | 259.33 | 353.12 | 338.25 | 14.87 | 23.750 | | |
| 2,100.00 | 2,074.25 | 2,072.32 | 2,044.05 | 8.01 | 8.03 | -108.39 | -274.08 | 267.15 | 367.47 | 351.74 | 15.73 | 23.363 | | |
| 2,200.00 | 2,172.46 | 2,171.28 | 2,140.99 | 8.45 | 8.47 | -108.32 | -292.36 | 274.97 | 381.83 | 365.24 | 16.59 | 23.015 | | |
| 2,300.00 | 2,270.67 | 2,270.24 | 2,237.94 | 8.89 | 8.92 | -108.25 | -310.64 | 282.78 | 396.19 | 378.73 | 17.45 | 22.700 | | |
| 2,400.00 | 2,368.88 | 2,369.21 | 2,334.88 | 9.34 | 9.37 | -108.19 | -328.93 | 290.60 | 410.54 | 392.23 | 18.32 | 22.414 | | |
| 2,500.00 | 2,467.09 | 2,468.17 | 2,431.83 | 9.78 | 9.82 | -108.13 | -347.21 | 298.42 | 424.90 | 405.72 | 19.18 | 22.152 | | |
| 2,600.00 | 2,565.30 | 2,567.13 | 2,528.77 | 10.22 | 10.27 | -108.08 | -365.49 | 306.24 | 439.26 | 419.21 | 20.05 | 21.912 | | |
| 2,700.00 | 2,663.51 | 2,666.09 | 2,625.72 | 10.66 | 10.72 | -108.03 | -383.77 | 314.06 | 453.62 | 432.71 | 20.91 | 21.691 | | |
| 2,800.00 | 2,761.72 | 2,765.06 | 2,722.66 | 11.11 | 11.17 | -107.99 | -402.06 | 321.88 | 467.98 | 446.20 | 21.78 | 21.487 | | |
| 2,900.00 | 2,859.93 | 2,864.02 | 2,819.61 | 11.55 | 11.62 | -107.94 | -420.34 | 329.69 | 482.34 | 459.69 | 22.65 | 21.298 | | |
| 3,000.00 | 2,958.14 | 2,962.98 | 2,916.55 | 11.99 | 12.07 | -107.90 | -438.62 | 337.51 | 496.70 | 473.18 | 23.52 | 21.122 | | |
| 3,100.00 | 3,056.35 | 3,061.95 | 3,013.50 | 12.44 | 12.52 | -107.86 | -456.90 | 345.33 | 511.06 | 486.67 | 24.38 | 20.959 | | |
| 3,200.00 | 3,154.55 | 3,160.91 | 3,110.44 | 12.88 | 12.98 | -107.83 | -475.19 | 353.15 | 525.42 | 500.16 | 25.25 | 20.807 | | |
| 3,300.00 | 3,252.76 | 3,259.87 | 3,207.39 | 13.32 | 13.43 | -107.79 | -493.47 | 360.97 | 539.78 | 513.66 | 26.12 | 20.665 | | |
| 3,400.00 | 3,350.97 | 3,358.84 | 3,304.33 | 13.77 | 13.88 | -107.76 | -511.75 | 368.78 | 554.14 | 527.15 | 26.99 | 20.531 | | |
| 3,500.00 | 3,449.18 | 3,457.80 | 3,401.28 | 14.21 | 14.33 | -107.73 | -530.03 | 376.60 | 568.50 | 540.64 | 27.86 | 20.406 | | |
| 3,600.00 | 3,547.39 | 3,556.76 | 3,498.22 | 14.66 | 14.78 | -107.70 | -548.32 | 384.42 | 582.86 | 554.13 | 28.73 | 20.288 | | |
| 3,700.00 | 3,645.60 | 3,655.72 | 3,595.17 | 15.10 | 15.23 | -107.67 | -566.60 | 392.24 | 597.22 | 567.62 | 29.60 | 20.177 | | |
| 3,800.00 | 3,743.81 | 3,754.69 | 3,692.11 | 15.54 | 15.69 | -107.64 | -584.88 | 400.06 | 611.58 | 581.11 | 30.47 | 20.072 | | |
| 3,900.00 | 3,842.02 | 3,853.65 | 3,789.05 | 15.99 | 16.14 | -107.62 | -603.16 | 407.88 | 625.94 | 594.60 | 31.34 | 19.973 | | |
| 4,000.00 | 3,940.23 | 3,952.61 | 3,886.00 | 16.43 | 16.59 | -107.59 | -621.45 | 415.69 | 640.30 | 608.09 | 32.21 | 19.879 | | |
| 4,100.00 | 4,038.44 | 4,051.58 | 3,982.94 | 16.88 | 17.04 | -107.57 | -639.73 | 423.51 | 654.66 | 621.58 | 33.08 | 19.790 | | |
| 4,200.00 | 4,136.65 | 4,150.54 | 4,079.89 | 17.32 | 17.49 | -107.55 | -658.01 | 431.33 | 669.03 | 635.07 | 33.95 | 19.705 | | |
| 4,300.00 | 4,234.86 | 4,249.50 | 4,176.83 | 17.77 | 17.95 | -107.52 | -676.29 | 439.15 | 683.39 | 648.56 | 34.82 | 19.624 | | |
| 4,400.00 | 4,333.07 | 4,348.47 | 4,273.78 | 18.21 | 18.40 | -107.50 | -694.58 | 446.97 | 697.75 | 662.06 | 35.69 | 19.548 | | |
| 4,500.00 | 4,431.28 | 4,454.78 | 4,378.09 | 18.66 | 18.77 | -107.55 | -713.45 | 455.04 | 711.79 | 675.27 | 36.52 | 19.491 | | |
| 4,600.00 | 4,529.59 | 4,565.64 | 4,487.55 | 19.05 | 19.08 | -107.95 | -729.54 | 461.92 | 724.16 | 686.92 | 37.24 | 19.447 | | |
| 4,700.00 | 4,628.42 | 4,676.88 | 4,597.99 | 19.31 | 19.37 | -108.46 | -741.76 | 467.14 | 733.97 | 696.16 | 37.81 | 19.413 | | |
| 4,800.00 | 4,727.73 | 4,788.37 | 4,709.11 | 19.57 | 19.63 | -108.92 | -750.04 | 470.69 | 741.09 | 702.75 | 38.34 | 19.328 | | |
| 4,900.00 | 4,827.38 | 4,899.97 | 4,820.61 | 19.81 | 19.88 | -109.35 | -754.34 | 472.53 | 745.52 | 706.68 | 38.84 | 19.194 | | |
| 5,000.00 | 4,927.26 | 5,006.64 | 4,927.26 | 20.03 | 20.14 | -109.70 | -755.01 | 472.81 | 747.38 | 708.05 | 39.33 | 19.004 | | |
| 5,100.00 | 5,027.25 | 5,106.62 | 5,027.25 | 20.28 | 20.35 | 90.31 | -755.01 | 472.81 | 747.82 | 708.03 | 39.79 | 18.793 | | |

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 #30E-1934 |
| Project: | Weld County, CO | TVD Reference: | KBE @ 4827.40usft (Original Well Elev) |
| Reference Site: | Sec 30-T10N-R57W | MD Reference: | KBE @ 4827.40usft (Original Well Elev) |
| Site Error: | 0.00 usft | North Reference: | True |
| Reference Well: | Horsetail #30E-1934 | 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 #30E-1904 - 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 | | | | | |
| 5,200.00 | 5,127.25 | 5,206.86 | 5,127.44 | 20.48 | 20.55 | 90.17 | -753.28 | 472.81 | 747.81 | 707.60 | 40.21 | 18.597 | | | | | |
| 5,220.16 | 5,147.41 | 5,226.97 | 5,147.45 | 20.53 | 20.59 | 90.56 | -751.25 | 472.81 | 747.81 | 707.52 | 40.29 | 18.562 | | | | | |
| 5,300.00 | 5,227.25 | 5,304.31 | 5,223.26 | 20.70 | 20.68 | 89.42 | -736.33 | 472.81 | 747.96 | 707.41 | 40.56 | 18.442 | | | | | |
| 5,400.00 | 5,326.36 | 5,396.77 | 5,309.77 | 20.85 | 20.73 | 87.65 | -704.03 | 472.81 | 748.91 | 708.17 | 40.74 | 18.381 | | | | | |
| 5,500.00 | 5,421.35 | 5,485.93 | 5,386.52 | 20.93 | 20.71 | 85.99 | -658.89 | 472.81 | 750.63 | 709.87 | 40.75 | 18.419 | | | | | |
| 5,600.00 | 5,508.72 | 5,572.40 | 5,452.57 | 20.92 | 20.65 | 84.47 | -603.24 | 472.81 | 752.88 | 712.26 | 40.62 | 18.536 | | | | | |
| 5,700.00 | 5,585.26 | 5,656.73 | 5,507.28 | 20.86 | 20.57 | 83.14 | -539.17 | 472.81 | 755.41 | 715.02 | 40.39 | 18.703 | | | | | |
| 5,800.00 | 5,648.17 | 5,739.43 | 5,550.20 | 20.77 | 20.48 | 82.03 | -468.59 | 472.81 | 757.96 | 717.83 | 40.13 | 18.886 | | | | | |
| 5,900.00 | 5,695.14 | 5,820.91 | 5,581.06 | 20.67 | 20.40 | 81.17 | -393.26 | 472.81 | 760.30 | 720.38 | 39.92 | 19.045 | | | | | |
| 6,000.00 | 5,724.43 | 5,900.00 | 5,599.44 | 20.59 | 20.33 | 80.59 | -316.42 | 472.81 | 762.22 | 722.42 | 39.81 | 19.149 | | | | | |
| 6,100.00 | 5,734.97 | 5,982.76 | 5,606.00 | 20.56 | 20.29 | 80.28 | -234.01 | 472.81 | 763.59 | 723.76 | 39.83 | 19.170 | | | | | |
| 6,200.00 | 5,735.00 | 6,081.61 | 5,606.00 | 20.60 | 20.33 | 80.29 | -135.16 | 472.81 | 764.51 | 724.45 | 40.06 | 19.084 | | | | | |
| 6,300.00 | 5,735.00 | 6,181.61 | 5,606.00 | 20.75 | 20.47 | 80.30 | -35.16 | 472.81 | 765.43 | 724.94 | 40.49 | 18.903 | | | | | |
| 6,400.00 | 5,735.00 | 6,281.60 | 5,606.00 | 21.02 | 20.73 | 80.31 | 64.83 | 472.81 | 766.35 | 725.22 | 41.13 | 18.634 | | | | | |
| 6,500.00 | 5,735.00 | 6,381.60 | 5,606.00 | 21.41 | 21.11 | 80.32 | 164.83 | 472.80 | 767.27 | 725.31 | 41.95 | 18.289 | | | | | |
| 6,600.00 | 5,735.00 | 6,481.59 | 5,606.00 | 21.89 | 21.60 | 80.33 | 264.83 | 472.80 | 768.18 | 725.22 | 42.96 | 17.881 | | | | | |
| 6,700.00 | 5,735.00 | 6,581.59 | 5,606.00 | 22.48 | 22.19 | 80.34 | 364.82 | 472.80 | 769.10 | 724.97 | 44.14 | 17.425 | | | | | |
| 6,800.00 | 5,735.00 | 6,681.58 | 5,606.00 | 23.14 | 22.86 | 80.36 | 464.82 | 472.80 | 770.02 | 724.55 | 45.47 | 16.934 | | | | | |
| 6,900.00 | 5,735.00 | 6,781.58 | 5,606.00 | 23.89 | 23.61 | 80.37 | 564.81 | 472.80 | 770.94 | 723.99 | 46.95 | 16.421 | | | | | |
| 7,000.00 | 5,735.00 | 6,881.58 | 5,606.00 | 24.70 | 24.43 | 80.38 | 664.81 | 472.80 | 771.86 | 723.31 | 48.55 | 15.897 | | | | | |
| 7,100.00 | 5,735.00 | 6,981.57 | 5,606.00 | 25.57 | 25.30 | 80.39 | 764.80 | 472.80 | 772.78 | 722.50 | 50.28 | 15.370 | | | | | |
| 7,200.00 | 5,735.00 | 7,081.57 | 5,606.00 | 26.49 | 26.23 | 80.40 | 864.80 | 472.80 | 773.70 | 721.59 | 52.11 | 14.848 | | | | | |
| 7,300.00 | 5,735.00 | 7,181.56 | 5,606.00 | 27.47 | 27.21 | 80.41 | 964.80 | 472.80 | 774.61 | 720.58 | 54.03 | 14.336 | | | | | |
| 7,400.00 | 5,735.00 | 7,281.56 | 5,606.00 | 28.48 | 28.23 | 80.42 | 1,064.79 | 472.80 | 775.53 | 719.49 | 56.04 | 13.839 | | | | | |
| 7,500.00 | 5,735.00 | 7,381.55 | 5,606.00 | 29.54 | 29.29 | 80.44 | 1,164.79 | 472.80 | 776.45 | 718.32 | 58.13 | 13.358 | | | | | |
| 7,600.00 | 5,735.00 | 7,481.55 | 5,606.00 | 30.63 | 30.39 | 80.45 | 1,264.78 | 472.80 | 777.37 | 717.09 | 60.28 | 12.895 | | | | | |
| 7,700.00 | 5,735.00 | 7,581.55 | 5,606.00 | 31.75 | 31.51 | 80.46 | 1,364.78 | 472.80 | 778.29 | 715.79 | 62.50 | 12.453 | | | | | |
| 7,800.00 | 5,735.00 | 7,681.54 | 5,606.00 | 32.90 | 32.66 | 80.47 | 1,464.77 | 472.80 | 779.21 | 714.44 | 64.77 | 12.030 | | | | | |
| 7,900.00 | 5,735.00 | 7,781.54 | 5,606.00 | 34.07 | 33.84 | 80.48 | 1,564.77 | 472.80 | 780.13 | 713.03 | 67.09 | 11.627 | | | | | |
| 8,000.00 | 5,735.00 | 7,881.53 | 5,606.00 | 35.27 | 35.04 | 80.49 | 1,664.77 | 472.80 | 781.05 | 711.59 | 69.46 | 11.245 | | | | | |
| 8,100.00 | 5,735.00 | 7,981.53 | 5,606.00 | 36.48 | 36.25 | 80.50 | 1,764.76 | 472.80 | 781.96 | 710.10 | 71.87 | 10.881 | | | | | |
| 8,200.00 | 5,735.00 | 8,081.52 | 5,606.00 | 37.72 | 37.49 | 80.52 | 1,864.76 | 472.79 | 782.88 | 708.57 | 74.31 | 10.535 | | | | | |
| 8,300.00 | 5,735.00 | 8,181.52 | 5,606.00 | 38.97 | 38.74 | 80.53 | 1,964.75 | 472.79 | 783.80 | 707.02 | 76.79 | 10.208 | | | | | |
| 8,400.00 | 5,735.00 | 8,281.52 | 5,606.00 | 40.23 | 40.01 | 80.54 | 2,064.75 | 472.79 | 784.72 | 705.43 | 79.29 | 9.897 | | | | | |
| 8,500.00 | 5,735.00 | 8,381.51 | 5,606.00 | 41.51 | 41.29 | 80.55 | 2,164.74 | 472.79 | 785.64 | 703.82 | 81.82 | 9.602 | | | | | |
| 8,600.00 | 5,735.00 | 8,481.51 | 5,606.00 | 42.80 | 42.58 | 80.56 | 2,264.74 | 472.79 | 786.56 | 702.18 | 84.38 | 9.321 | | | | | |
| 8,700.00 | 5,735.00 | 8,581.50 | 5,606.00 | 44.11 | 43.89 | 80.57 | 2,364.73 | 472.79 | 787.48 | 700.52 | 86.96 | 9.055 | | | | | |
| 8,800.00 | 5,735.00 | 8,681.50 | 5,606.00 | 45.42 | 45.20 | 80.58 | 2,464.73 | 472.79 | 788.40 | 698.84 | 89.56 | 8.803 | | | | | |
| 8,900.00 | 5,735.00 | 8,781.49 | 5,606.00 | 46.74 | 46.53 | 80.59 | 2,564.73 | 472.79 | 789.32 | 697.14 | 92.18 | 8.563 | | | | | |
| 9,000.00 | 5,735.00 | 8,881.49 | 5,606.00 | 48.07 | 47.86 | 80.60 | 2,664.72 | 472.79 | 790.24 | 695.42 | 94.82 | 8.334 | | | | | |
| 9,100.00 | 5,735.00 | 8,981.49 | 5,606.00 | 49.41 | 49.20 | 80.62 | 2,764.72 | 472.79 | 791.16 | 693.68 | 97.47 | 8.117 | | | | | |
| 9,200.00 | 5,735.00 | 9,081.48 | 5,606.00 | 50.76 | 50.55 | 80.63 | 2,864.71 | 472.79 | 792.07 | 691.94 | 100.14 | 7.910 | | | | | |
| 9,300.00 | 5,735.00 | 9,181.48 | 5,606.00 | 52.11 | 51.90 | 80.64 | 2,964.71 | 472.79 | 792.99 | 690.17 | 102.82 | 7.712 | | | | | |
| 9,400.00 | 5,735.00 | 9,281.47 | 5,606.00 | 53.48 | 53.26 | 80.65 | 3,064.70 | 472.79 | 793.91 | 688.40 | 105.51 | 7.524 | | | | | |
| 9,500.00 | 5,735.00 | 9,381.47 | 5,606.00 | 54.84 | 54.63 | 80.66 | 3,164.70 | 472.79 | 794.83 | 686.61 | 108.22 | 7.345 | | | | | |
| 9,600.00 | 5,735.00 | 9,481.46 | 5,606.00 | 56.21 | 56.00 | 80.67 | 3,264.70 | 472.79 | 795.75 | 684.82 | 110.94 | 7.173 | | | | | |
| 9,700.00 | 5,735.00 | 9,581.46 | 5,606.00 | 57.59 | 57.38 | 80.68 | 3,364.69 | 472.79 | 796.67 | 683.01 | 113.66 | 7.009 | | | | | |
| 9,800.00 | 5,735.00 | 9,681.45 | 5,606.00 | 58.97 | 58.76 | 80.69 | 3,464.69 | 472.79 | 797.59 | 681.19 | 116.40 | 6.852 | | | | | |
| 9,900.00 | 5,735.00 | 9,781.45 | 5,606.00 | 60.36 | 60.14 | 80.70 | 3,564.68 | 472.78 | 798.51 | 679.37 | 119.14 | 6.702 | | | | | |
| 10,000.00 | 5,735.00 | 9,881.45 | 5,606.00 | 61.74 | 61.53 | 80.71 | 3,664.68 | 472.78 | 799.43 | 677.54 | 121.89 | 6.558 | | | | | |
| 10,100.00 | 5,735.00 | 9,981.44 | 5,606.00 | 63.14 | 62.92 | 80.72 | 3,764.67 | 472.78 | 800.35 | 675.70 | 124.65 | 6.421 | | | | | |
| 10,200.00 | 5,735.00 | 10,081.44 | 5,606.00 | 64.54 | 64.32 | 80.73 | 3,864.67 | 472.78 | 801.27 | 673.85 | 127.42 | 6.288 | | | | | |

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 #30E-1934 |
| Project: | Weld County, CO | TVD Reference: | KBE @ 4827.40usft (Original Well Elev) |
| Reference Site: | Sec 30-T10N-R57W | MD Reference: | KBE @ 4827.40usft (Original Well Elev) |
| Site Error: | 0.00 usft | North Reference: | True |
| Reference Well: | Horsetail #30E-1934 | 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 | 10,181.43 | 5,606.00 | 65.94 | 65.72 | 80.75 | 3,964.67 | 472.78 | 802.19 | 672.00 | 130.19 | 6.162 | | |
| 10,400.00 | 5,735.00 | 10,281.43 | 5,606.00 | 67.34 | 67.12 | 80.76 | 4,064.66 | 472.78 | 803.11 | 670.14 | 132.97 | 6.040 | | |
| 10,500.00 | 5,735.00 | 10,381.42 | 5,606.00 | 68.74 | 68.53 | 80.77 | 4,164.66 | 472.78 | 804.03 | 668.27 | 135.76 | 5.923 | | |
| 10,600.00 | 5,735.00 | 10,481.42 | 5,606.00 | 70.15 | 69.94 | 80.78 | 4,264.65 | 472.78 | 804.95 | 666.40 | 138.55 | 5.810 | | |
| 10,700.00 | 5,735.00 | 10,581.42 | 5,606.00 | 71.57 | 71.35 | 80.79 | 4,364.65 | 472.78 | 805.87 | 664.52 | 141.34 | 5.701 | | |
| 10,800.00 | 5,735.00 | 10,681.41 | 5,606.00 | 72.98 | 72.76 | 80.80 | 4,464.64 | 472.78 | 806.79 | 662.64 | 144.15 | 5.597 | | |
| 10,900.00 | 5,735.00 | 10,781.41 | 5,606.00 | 74.40 | 74.18 | 80.81 | 4,564.64 | 472.78 | 807.71 | 660.75 | 146.95 | 5.496 | | |
| 11,000.00 | 5,735.00 | 10,881.40 | 5,606.00 | 75.81 | 75.59 | 80.82 | 4,664.64 | 472.78 | 808.63 | 658.86 | 149.76 | 5.399 | | |
| 11,100.00 | 5,735.00 | 10,981.40 | 5,606.00 | 77.23 | 77.01 | 80.83 | 4,764.63 | 472.78 | 809.55 | 656.97 | 152.58 | 5.306 | | |
| 11,200.00 | 5,735.00 | 11,081.39 | 5,606.00 | 78.66 | 78.43 | 80.84 | 4,864.63 | 472.78 | 810.47 | 655.07 | 155.39 | 5.216 | | |
| 11,300.00 | 5,735.00 | 11,181.39 | 5,606.00 | 80.08 | 79.86 | 80.85 | 4,964.62 | 472.78 | 811.39 | 653.17 | 158.22 | 5.128 | | |
| 11,400.00 | 5,735.00 | 11,281.39 | 5,606.00 | 81.51 | 81.28 | 80.86 | 5,064.62 | 472.78 | 812.31 | 651.26 | 161.04 | 5.044 | | |
| 11,500.00 | 5,735.00 | 11,381.38 | 5,606.00 | 82.94 | 82.71 | 80.87 | 5,164.61 | 472.78 | 813.23 | 649.36 | 163.87 | 4.963 | | |
| 11,600.00 | 5,735.00 | 11,481.38 | 5,606.00 | 84.37 | 84.14 | 80.88 | 5,264.61 | 472.77 | 814.15 | 647.44 | 166.70 | 4.884 | | |
| 11,700.00 | 5,735.00 | 11,581.37 | 5,606.00 | 85.80 | 85.57 | 80.89 | 5,364.60 | 472.77 | 815.07 | 645.53 | 169.54 | 4.808 | | |
| 11,800.00 | 5,735.00 | 11,681.37 | 5,606.00 | 87.23 | 87.00 | 80.90 | 5,464.60 | 472.77 | 815.99 | 643.61 | 172.38 | 4.734 | | |
| 11,900.00 | 5,735.00 | 11,781.36 | 5,606.00 | 88.66 | 88.43 | 80.91 | 5,564.60 | 472.77 | 816.91 | 641.69 | 175.22 | 4.662 | | |
| 12,000.00 | 5,735.00 | 11,881.36 | 5,606.00 | 90.10 | 89.86 | 80.92 | 5,664.59 | 472.77 | 817.83 | 639.77 | 178.06 | 4.593 | | |
| 12,100.00 | 5,735.00 | 11,981.36 | 5,606.00 | 91.53 | 91.30 | 80.93 | 5,764.59 | 472.77 | 818.75 | 637.84 | 180.91 | 4.526 | | |
| 12,200.00 | 5,735.00 | 12,081.35 | 5,606.00 | 92.97 | 92.73 | 80.94 | 5,864.58 | 472.77 | 819.67 | 635.91 | 183.75 | 4.461 | | |
| 12,300.00 | 5,735.00 | 12,181.35 | 5,606.00 | 94.41 | 94.17 | 80.95 | 5,964.58 | 472.77 | 820.59 | 633.98 | 186.60 | 4.397 | | |
| 12,400.00 | 5,735.00 | 12,281.34 | 5,606.00 | 95.85 | 95.61 | 80.97 | 6,064.57 | 472.77 | 821.51 | 632.05 | 189.46 | 4.336 | | |
| 12,500.00 | 5,735.00 | 12,381.34 | 5,606.00 | 97.29 | 97.05 | 80.98 | 6,164.57 | 472.77 | 822.43 | 630.11 | 192.31 | 4.277 | | |
| 12,600.00 | 5,735.00 | 12,481.33 | 5,606.00 | 98.73 | 98.49 | 80.99 | 6,264.57 | 472.77 | 823.35 | 628.18 | 195.17 | 4.219 | | |
| 12,700.00 | 5,735.00 | 12,581.33 | 5,606.00 | 100.17 | 99.93 | 81.00 | 6,364.56 | 472.77 | 824.27 | 626.24 | 198.03 | 4.162 | | |
| 12,800.00 | 5,735.00 | 12,681.32 | 5,606.00 | 101.62 | 101.37 | 81.01 | 6,464.56 | 472.77 | 825.19 | 624.30 | 200.89 | 4.108 | | |
| 12,900.00 | 5,735.00 | 12,781.32 | 5,606.00 | 103.06 | 102.82 | 81.02 | 6,564.55 | 472.77 | 826.11 | 622.36 | 203.75 | 4.054 | | |
| 13,000.00 | 5,735.00 | 12,881.32 | 5,606.00 | 104.50 | 104.26 | 81.03 | 6,664.55 | 472.77 | 827.03 | 620.41 | 206.62 | 4.003 | | |
| 13,100.00 | 5,735.00 | 12,981.31 | 5,606.00 | 105.95 | 105.70 | 81.04 | 6,764.54 | 472.77 | 827.95 | 618.47 | 209.48 | 3.952 | | |
| 13,200.00 | 5,735.00 | 13,081.31 | 5,606.00 | 107.40 | 107.15 | 81.05 | 6,864.54 | 472.77 | 828.87 | 616.52 | 212.35 | 3.903 | | |
| 13,300.00 | 5,735.00 | 13,181.30 | 5,606.00 | 108.84 | 108.59 | 81.06 | 6,964.54 | 472.76 | 829.79 | 614.57 | 215.22 | 3.856 | | |
| 13,400.00 | 5,735.00 | 13,281.30 | 5,606.00 | 110.29 | 110.04 | 81.07 | 7,064.53 | 472.76 | 830.71 | 612.62 | 218.09 | 3.809 | | |
| 13,500.00 | 5,735.00 | 13,381.29 | 5,606.00 | 111.74 | 111.49 | 81.08 | 7,164.53 | 472.76 | 831.63 | 610.67 | 220.96 | 3.764 | | |
| 13,600.00 | 5,735.00 | 13,481.29 | 5,606.00 | 113.19 | 112.93 | 81.09 | 7,264.52 | 472.76 | 832.55 | 608.72 | 223.83 | 3.720 | | |
| 13,700.00 | 5,735.00 | 13,581.29 | 5,606.00 | 114.64 | 114.38 | 81.10 | 7,364.52 | 472.76 | 833.47 | 606.76 | 226.71 | 3.676 | | |
| 13,800.00 | 5,735.00 | 13,681.28 | 5,606.00 | 116.09 | 115.83 | 81.11 | 7,464.51 | 472.76 | 834.39 | 604.81 | 229.58 | 3.634 | | |
| 13,851.04 | 5,735.00 | 13,732.32 | 5,606.00 | 116.83 | 116.52 | 81.11 | 7,515.55 | 472.76 | 834.86 | 603.86 | 231.00 | 3.614 SF | | |



WOG

Anticollision Report

| | | | |
|---------------------------|-------------------------|-------------------------------------|--|
| Company: | Whiting Petroleum Corp. | Local Co-ordinate Reference: | Well Horsetail #30E-1934 |
| Project: | Weld County, CO | TVD Reference: | KBE @ 4827.40usft (Original Well Elev) |
| Reference Site: | Sec 30-T10N-R57W | MD Reference: | KBE @ 4827.40usft (Original Well Elev) |
| Site Error: | 0.00 usft | North Reference: | True |
| Reference Well: | Horsetail #30E-1934 | 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 | 59.98 | 59.98 | | | | | |
| 100.00 | 100.00 | 100.00 | 100.00 | 0.13 | 0.13 | 90.00 | 0.00 | 59.98 | 59.98 | 59.71 | 0.27 | 225.188 | | |
| 200.00 | 200.00 | 200.00 | 200.00 | 0.47 | 0.47 | 90.00 | 0.00 | 59.98 | 59.98 | 59.04 | 0.94 | 63.763 | | |
| 300.00 | 300.00 | 300.00 | 300.00 | 0.81 | 0.81 | 90.00 | 0.00 | 59.98 | 59.98 | 58.36 | 1.61 | 37.140 CC | | |
| 400.00 | 399.98 | 400.23 | 400.21 | 1.11 | 1.11 | -110.01 | -1.74 | 59.79 | 60.39 | 58.17 | 2.21 | 27.287 ES | | |
| 500.00 | 499.84 | 500.44 | 500.28 | 1.41 | 1.41 | -109.71 | -6.97 | 59.22 | 61.62 | 58.83 | 2.79 | 22.064 | | |
| 600.00 | 599.45 | 600.64 | 600.08 | 1.73 | 1.73 | -109.23 | -15.67 | 58.26 | 63.67 | 60.24 | 3.43 | 18.564 | | |
| 700.00 | 698.70 | 700.80 | 699.49 | 2.07 | 2.07 | -108.62 | -27.82 | 56.93 | 66.54 | 62.42 | 4.12 | 16.160 | | |
| 800.00 | 797.47 | 800.91 | 798.36 | 2.43 | 2.43 | -107.89 | -43.42 | 55.22 | 70.24 | 65.38 | 4.86 | 14.459 | | |
| 900.00 | 895.73 | 900.81 | 896.75 | 2.83 | 2.82 | -108.15 | -60.61 | 53.34 | 74.72 | 69.08 | 5.64 | 13.247 | | |
| 1,000.00 | 993.94 | 1,000.70 | 995.14 | 3.24 | 3.22 | -108.62 | -77.79 | 51.46 | 79.30 | 72.86 | 6.44 | 12.305 | | |
| 1,100.00 | 1,092.15 | 1,100.59 | 1,093.52 | 3.66 | 3.63 | -109.05 | -94.98 | 49.58 | 83.89 | 76.62 | 7.26 | 11.551 | | |
| 1,200.00 | 1,190.36 | 1,200.49 | 1,191.91 | 4.09 | 4.04 | -109.43 | -112.16 | 47.69 | 88.48 | 80.39 | 8.09 | 10.937 | | |
| 1,300.00 | 1,288.57 | 1,300.38 | 1,290.30 | 4.51 | 4.46 | -109.77 | -129.35 | 45.81 | 93.07 | 84.15 | 8.92 | 10.430 | | |
| 1,400.00 | 1,386.78 | 1,400.27 | 1,388.68 | 4.95 | 4.88 | -110.08 | -146.53 | 43.93 | 97.67 | 87.91 | 9.76 | 10.005 | | |
| 1,500.00 | 1,484.99 | 1,500.17 | 1,487.07 | 5.38 | 5.30 | -110.36 | -163.72 | 42.05 | 102.27 | 91.67 | 10.60 | 9.645 | | |
| 1,600.00 | 1,583.20 | 1,600.06 | 1,585.45 | 5.82 | 5.72 | -110.62 | -180.90 | 40.17 | 106.87 | 95.42 | 11.45 | 9.335 | | |
| 1,700.00 | 1,681.41 | 1,699.95 | 1,683.84 | 6.25 | 6.15 | -110.86 | -198.09 | 38.28 | 111.48 | 99.18 | 12.30 | 9.067 | | |
| 1,800.00 | 1,779.62 | 1,799.85 | 1,782.22 | 6.69 | 6.57 | -111.07 | -215.28 | 36.40 | 116.08 | 102.94 | 13.14 | 8.832 | | |
| 1,900.00 | 1,877.83 | 1,899.74 | 1,880.61 | 7.13 | 6.99 | -111.27 | -232.46 | 34.52 | 120.69 | 106.70 | 13.99 | 8.625 | | |
| 2,000.00 | 1,976.04 | 1,999.63 | 1,978.99 | 7.57 | 7.42 | -111.46 | -249.65 | 32.64 | 125.30 | 110.46 | 14.84 | 8.441 | | |
| 2,100.00 | 2,074.25 | 2,099.52 | 2,077.38 | 8.01 | 7.85 | -111.63 | -266.83 | 30.76 | 129.91 | 114.21 | 15.70 | 8.277 | | |
| 2,200.00 | 2,172.46 | 2,199.42 | 2,175.77 | 8.45 | 8.27 | -111.80 | -284.02 | 28.87 | 134.52 | 117.97 | 16.55 | 8.129 | | |
| 2,300.00 | 2,270.67 | 2,299.31 | 2,274.15 | 8.89 | 8.70 | -111.95 | -301.20 | 26.99 | 139.13 | 121.73 | 17.40 | 7.996 | | |
| 2,400.00 | 2,368.88 | 2,399.20 | 2,372.54 | 9.34 | 9.13 | -112.09 | -318.39 | 25.11 | 143.75 | 125.49 | 18.25 | 7.875 | | |
| 2,500.00 | 2,467.09 | 2,499.10 | 2,470.92 | 9.78 | 9.56 | -112.22 | -335.57 | 23.23 | 148.36 | 129.25 | 19.11 | 7.765 | | |
| 2,600.00 | 2,565.30 | 2,598.99 | 2,569.31 | 10.22 | 9.99 | -112.34 | -352.76 | 21.34 | 152.98 | 133.01 | 19.96 | 7.664 | | |
| 2,700.00 | 2,663.51 | 2,698.88 | 2,667.69 | 10.66 | 10.41 | -112.46 | -369.94 | 19.46 | 157.59 | 136.78 | 20.82 | 7.571 | | |
| 2,800.00 | 2,761.72 | 2,798.77 | 2,766.08 | 11.11 | 10.84 | -112.57 | -387.13 | 17.58 | 162.21 | 140.54 | 21.67 | 7.485 | | |
| 2,900.00 | 2,859.93 | 2,898.67 | 2,864.46 | 11.55 | 11.27 | -112.68 | -404.31 | 15.70 | 166.82 | 144.30 | 22.53 | 7.406 | | |
| 3,000.00 | 2,958.14 | 2,998.56 | 2,962.85 | 11.99 | 11.70 | -112.77 | -421.50 | 13.82 | 171.44 | 148.06 | 23.38 | 7.333 | | |
| 3,100.00 | 3,056.35 | 3,098.45 | 3,061.24 | 12.44 | 12.13 | -112.87 | -438.69 | 11.93 | 176.06 | 151.82 | 24.24 | 7.265 | | |
| 3,200.00 | 3,154.55 | 3,198.35 | 3,159.62 | 12.88 | 12.56 | -112.96 | -455.87 | 10.05 | 180.68 | 155.59 | 25.09 | 7.201 | | |
| 3,300.00 | 3,252.76 | 3,298.24 | 3,258.01 | 13.32 | 12.99 | -113.04 | -473.06 | 8.17 | 185.30 | 159.35 | 25.95 | 7.142 | | |
| 3,400.00 | 3,350.97 | 3,398.13 | 3,356.39 | 13.77 | 13.42 | -113.12 | -490.24 | 6.29 | 189.91 | 163.11 | 26.80 | 7.086 | | |
| 3,500.00 | 3,449.18 | 3,498.02 | 3,454.78 | 14.21 | 13.85 | -113.20 | -507.43 | 4.41 | 194.53 | 166.88 | 27.66 | 7.034 | | |
| 3,600.00 | 3,547.39 | 3,597.92 | 3,553.16 | 14.66 | 14.28 | -113.27 | -524.61 | 2.52 | 199.15 | 170.64 | 28.51 | 6.985 | | |
| 3,700.00 | 3,645.60 | 3,697.81 | 3,651.55 | 15.10 | 14.71 | -113.34 | -541.80 | 0.64 | 203.77 | 174.40 | 29.37 | 6.939 | | |
| 3,800.00 | 3,743.81 | 3,797.70 | 3,749.93 | 15.54 | 15.14 | -113.41 | -558.98 | -1.24 | 208.39 | 178.17 | 30.22 | 6.895 | | |
| 3,900.00 | 3,842.02 | 3,897.60 | 3,848.32 | 15.99 | 15.57 | -113.47 | -576.17 | -3.12 | 213.01 | 181.93 | 31.08 | 6.854 | | |
| 4,000.00 | 3,940.23 | 3,997.49 | 3,946.70 | 16.43 | 16.00 | -113.53 | -593.35 | -5.00 | 217.63 | 185.70 | 31.94 | 6.815 | | |
| 4,100.00 | 4,038.44 | 4,097.38 | 4,045.09 | 16.88 | 16.43 | -113.59 | -610.54 | -6.89 | 222.25 | 189.46 | 32.79 | 6.778 | | |
| 4,200.00 | 4,136.65 | 4,197.28 | 4,143.48 | 17.32 | 16.86 | -113.64 | -627.73 | -8.77 | 226.88 | 193.23 | 33.65 | 6.743 | | |
| 4,300.00 | 4,234.86 | 4,297.17 | 4,241.86 | 17.77 | 17.29 | -113.70 | -644.91 | -10.65 | 231.50 | 196.99 | 34.50 | 6.709 | | |
| 4,400.00 | 4,333.07 | 4,397.06 | 4,340.25 | 18.21 | 17.72 | -113.75 | -662.10 | -12.53 | 236.12 | 200.76 | 35.36 | 6.678 | | |
| 4,500.00 | 4,431.28 | 4,496.95 | 4,438.63 | 18.66 | 18.15 | -113.80 | -679.28 | -14.42 | 240.74 | 204.52 | 36.22 | 6.647 | | |
| 4,600.00 | 4,529.59 | 4,596.85 | 4,537.03 | 19.05 | 18.58 | -113.77 | -696.47 | -16.30 | 245.14 | 208.11 | 37.03 | 6.620 | | |
| 4,700.00 | 4,628.42 | 4,696.29 | 4,635.00 | 19.31 | 18.98 | -113.14 | -713.40 | -18.15 | 248.32 | 210.59 | 37.73 | 6.581 | | |
| 4,800.00 | 4,727.73 | 4,794.86 | 4,732.52 | 19.57 | 19.24 | -112.38 | -727.60 | -19.71 | 250.60 | 212.32 | 38.29 | 6.546 | | |
| 4,900.00 | 4,827.38 | 4,893.56 | 4,830.60 | 19.81 | 19.49 | -111.66 | -738.47 | -20.90 | 252.12 | 213.31 | 38.81 | 6.496 | | |
| 5,000.00 | 4,927.26 | 4,992.37 | 4,929.12 | 20.03 | 19.72 | -110.97 | -745.99 | -21.72 | 252.86 | 213.56 | 39.30 | 6.433 | | |
| 5,100.00 | 5,027.25 | 5,091.30 | 5,027.96 | 20.28 | 19.94 | 89.80 | -750.12 | -22.17 | 252.83 | 213.02 | 39.81 | 6.351 | | |

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 #30E-1934 |
| Project: | Weld County, CO | TVD Reference: | KBE @ 4827.40usft (Original Well Elev) |
| Reference Site: | Sec 30-T10N-R57W | MD Reference: | KBE @ 4827.40usft (Original Well Elev) |
| Site Error: | 0.00 usft | North Reference: | True |
| Reference Well: | Horsetail #30E-1934 | 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 | 5,127.25 | 5,190.60 | 5,127.25 | 20.48 | 20.19 | 90.00 | -751.00 | -22.27 | 252.73 | 212.46 | 40.27 | 6.275 | | |
| 5,206.21 | 5,133.46 | 5,196.82 | 5,133.46 | 20.50 | 20.21 | 90.54 | -751.00 | -22.27 | 252.73 | 212.43 | 40.30 | 6.271 | | |
| 5,300.00 | 5,227.25 | 5,290.60 | 5,227.25 | 20.70 | 20.40 | 90.57 | -751.00 | -22.27 | 252.73 | 212.03 | 40.70 | 6.209 | | |
| 5,400.00 | 5,326.36 | 5,390.35 | 5,326.98 | 20.85 | 20.61 | 93.10 | -750.25 | -22.27 | 253.11 | 211.92 | 41.18 | 6.146 | | |
| 5,500.00 | 5,421.35 | 5,492.91 | 5,428.20 | 20.93 | 20.76 | 96.64 | -734.73 | -22.27 | 254.63 | 213.13 | 41.51 | 6.135 | | |
| 5,600.00 | 5,508.72 | 5,598.94 | 5,527.54 | 20.92 | 20.83 | 99.94 | -698.20 | -22.27 | 257.19 | 215.65 | 41.53 | 6.192 | | |
| 5,700.00 | 5,585.26 | 5,708.49 | 5,620.23 | 20.86 | 20.81 | 102.86 | -640.18 | -22.27 | 260.43 | 219.19 | 41.24 | 6.316 | | |
| 5,800.00 | 5,648.17 | 5,821.41 | 5,700.93 | 20.77 | 20.75 | 105.24 | -561.51 | -22.27 | 263.92 | 223.24 | 40.67 | 6.489 | | |
| 5,900.00 | 5,695.14 | 5,937.26 | 5,764.14 | 20.67 | 20.67 | 106.98 | -464.71 | -22.27 | 267.15 | 227.13 | 40.02 | 6.676 | | |
| 6,000.00 | 5,724.43 | 6,055.32 | 5,804.98 | 20.59 | 20.63 | 108.01 | -354.21 | -22.27 | 269.68 | 230.16 | 39.52 | 6.824 | | |
| 6,100.00 | 5,734.97 | 6,174.58 | 5,819.96 | 20.56 | 20.66 | 108.27 | -236.16 | -22.27 | 271.20 | 231.80 | 39.40 | 6.883 | | |
| 6,200.00 | 5,735.00 | 6,275.58 | 5,820.00 | 20.60 | 20.79 | 108.20 | -135.16 | -22.27 | 272.09 | 232.42 | 39.67 | 6.859 | | |
| 6,300.00 | 5,735.00 | 6,375.57 | 5,820.00 | 20.75 | 21.01 | 108.14 | -35.16 | -22.27 | 272.97 | 232.85 | 40.12 | 6.803 | | |
| 6,400.00 | 5,735.00 | 6,475.57 | 5,820.00 | 21.02 | 21.33 | 108.08 | 64.83 | -22.27 | 273.86 | 233.09 | 40.77 | 6.717 | | |
| 6,500.00 | 5,735.00 | 6,575.56 | 5,820.00 | 21.41 | 21.74 | 108.02 | 164.83 | -22.27 | 274.75 | 233.15 | 41.60 | 6.605 | | |
| 6,600.00 | 5,735.00 | 6,675.56 | 5,820.00 | 21.89 | 22.25 | 107.96 | 264.82 | -22.27 | 275.63 | 233.03 | 42.60 | 6.470 | | |
| 6,700.00 | 5,735.00 | 6,775.55 | 5,820.00 | 22.48 | 22.84 | 107.90 | 364.82 | -22.27 | 276.52 | 232.76 | 43.76 | 6.319 | | |
| 6,800.00 | 5,735.00 | 6,875.55 | 5,820.00 | 23.14 | 23.51 | 107.84 | 464.81 | -22.27 | 277.41 | 232.34 | 45.07 | 6.155 | | |
| 6,900.00 | 5,735.00 | 6,975.55 | 5,820.00 | 23.89 | 24.25 | 107.78 | 564.81 | -22.27 | 278.29 | 231.78 | 46.51 | 5.984 | | |
| 7,000.00 | 5,735.00 | 7,075.54 | 5,820.00 | 24.70 | 25.05 | 107.73 | 664.80 | -22.27 | 279.18 | 231.10 | 48.08 | 5.807 | | |
| 7,100.00 | 5,735.00 | 7,175.54 | 5,820.00 | 25.57 | 25.92 | 107.67 | 764.80 | -22.27 | 280.07 | 230.31 | 49.76 | 5.629 | | |
| 7,200.00 | 5,735.00 | 7,275.53 | 5,820.00 | 26.49 | 26.84 | 107.61 | 864.80 | -22.27 | 280.96 | 229.42 | 51.54 | 5.452 | | |
| 7,300.00 | 5,735.00 | 7,375.53 | 5,820.00 | 27.47 | 27.80 | 107.55 | 964.79 | -22.27 | 281.85 | 228.44 | 53.41 | 5.277 | | |
| 7,400.00 | 5,735.00 | 7,475.52 | 5,820.00 | 28.48 | 28.81 | 107.50 | 1,064.79 | -22.27 | 282.73 | 227.37 | 55.36 | 5.107 | | |
| 7,500.00 | 5,735.00 | 7,575.52 | 5,820.00 | 29.54 | 29.85 | 107.44 | 1,164.78 | -22.28 | 283.62 | 226.23 | 57.39 | 4.942 | | |
| 7,600.00 | 5,735.00 | 7,675.52 | 5,820.00 | 30.63 | 30.94 | 107.38 | 1,264.78 | -22.28 | 284.51 | 225.02 | 59.49 | 4.782 | | |
| 7,700.00 | 5,735.00 | 7,775.51 | 5,820.00 | 31.75 | 32.05 | 107.33 | 1,364.77 | -22.28 | 285.40 | 223.75 | 61.65 | 4.630 | | |
| 7,800.00 | 5,735.00 | 7,875.51 | 5,820.00 | 32.90 | 33.19 | 107.27 | 1,464.77 | -22.28 | 286.29 | 222.43 | 63.86 | 4.483 | | |
| 7,900.00 | 5,735.00 | 7,975.50 | 5,820.00 | 34.07 | 34.35 | 107.22 | 1,564.77 | -22.28 | 287.18 | 221.06 | 66.12 | 4.343 | | |
| 8,000.00 | 5,735.00 | 8,075.50 | 5,820.00 | 35.27 | 35.54 | 107.16 | 1,664.76 | -22.28 | 288.07 | 219.65 | 68.42 | 4.210 | | |
| 8,100.00 | 5,735.00 | 8,175.49 | 5,820.00 | 36.48 | 36.75 | 107.11 | 1,764.76 | -22.28 | 288.96 | 218.20 | 70.77 | 4.083 | | |
| 8,200.00 | 5,735.00 | 8,275.49 | 5,820.00 | 37.72 | 37.98 | 107.05 | 1,864.75 | -22.28 | 289.85 | 216.71 | 73.15 | 3.963 | | |
| 8,300.00 | 5,735.00 | 8,375.49 | 5,820.00 | 38.97 | 39.22 | 107.00 | 1,964.75 | -22.28 | 290.75 | 215.18 | 75.56 | 3.848 | | |
| 8,400.00 | 5,735.00 | 8,475.48 | 5,820.00 | 40.23 | 40.48 | 106.95 | 2,064.74 | -22.28 | 291.64 | 213.63 | 78.01 | 3.739 | | |
| 8,500.00 | 5,735.00 | 8,575.48 | 5,820.00 | 41.51 | 41.75 | 106.89 | 2,164.74 | -22.28 | 292.53 | 212.05 | 80.48 | 3.635 | | |
| 8,600.00 | 5,735.00 | 8,675.47 | 5,820.00 | 42.80 | 43.04 | 106.84 | 2,264.74 | -22.28 | 293.42 | 210.45 | 82.97 | 3.536 | | |
| 8,700.00 | 5,735.00 | 8,775.47 | 5,820.00 | 44.11 | 44.34 | 106.79 | 2,364.73 | -22.28 | 294.31 | 208.82 | 85.49 | 3.442 | | |
| 8,800.00 | 5,735.00 | 8,875.46 | 5,820.00 | 45.42 | 45.65 | 106.74 | 2,464.73 | -22.28 | 295.20 | 207.17 | 88.04 | 3.353 | | |
| 8,900.00 | 5,735.00 | 8,975.46 | 5,820.00 | 46.74 | 46.96 | 106.68 | 2,564.72 | -22.28 | 296.10 | 205.50 | 90.60 | 3.268 | | |
| 9,000.00 | 5,735.00 | 9,075.46 | 5,820.00 | 48.07 | 48.29 | 106.63 | 2,664.72 | -22.28 | 296.99 | 203.82 | 93.17 | 3.187 | | |
| 9,100.00 | 5,735.00 | 9,175.45 | 5,820.00 | 49.41 | 49.62 | 106.58 | 2,764.71 | -22.28 | 297.88 | 202.11 | 95.77 | 3.110 | | |
| 9,200.00 | 5,735.00 | 9,275.45 | 5,820.00 | 50.76 | 50.97 | 106.53 | 2,864.71 | -22.28 | 298.78 | 200.40 | 98.38 | 3.037 | | |
| 9,300.00 | 5,735.00 | 9,375.44 | 5,820.00 | 52.11 | 52.32 | 106.48 | 2,964.71 | -22.28 | 299.67 | 198.66 | 101.01 | 2.967 | | |
| 9,400.00 | 5,735.00 | 9,475.44 | 5,820.00 | 53.48 | 53.67 | 106.43 | 3,064.70 | -22.28 | 300.56 | 196.92 | 103.64 | 2.900 | | |
| 9,500.00 | 5,735.00 | 9,575.43 | 5,820.00 | 54.84 | 55.03 | 106.38 | 3,164.70 | -22.28 | 301.46 | 195.16 | 106.30 | 2.836 | | |
| 9,600.00 | 5,735.00 | 9,675.43 | 5,820.00 | 56.21 | 56.40 | 106.33 | 3,264.69 | -22.28 | 302.35 | 193.40 | 108.96 | 2.775 | | |
| 9,700.00 | 5,735.00 | 9,775.42 | 5,820.00 | 57.59 | 57.77 | 106.28 | 3,364.69 | -22.28 | 303.25 | 191.62 | 111.63 | 2.717 | | |
| 9,800.00 | 5,735.00 | 9,875.42 | 5,820.00 | 58.97 | 59.15 | 106.23 | 3,464.68 | -22.28 | 304.14 | 189.83 | 114.31 | 2.661 | | |
| 9,900.00 | 5,735.00 | 9,975.42 | 5,820.00 | 60.36 | 60.53 | 106.18 | 3,564.68 | -22.28 | 305.04 | 188.03 | 117.01 | 2.607 | | |
| 10,000.00 | 5,735.00 | 10,075.41 | 5,820.00 | 61.74 | 61.92 | 106.13 | 3,664.67 | -22.28 | 305.93 | 186.22 | 119.71 | 2.556 | | |
| 10,100.00 | 5,735.00 | 10,175.41 | 5,820.00 | 63.14 | 63.31 | 106.08 | 3,764.67 | -22.28 | 306.83 | 184.41 | 122.42 | 2.506 | | |
| 10,200.00 | 5,735.00 | 10,275.40 | 5,820.00 | 64.54 | 64.70 | 106.04 | 3,864.67 | -22.28 | 307.72 | 182.59 | 125.14 | 2.459 | | |

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 #30E-1934 |
| Project: | Weld County, CO | TVD Reference: | KBE @ 4827.40usft (Original Well Elev) |
| Reference Site: | Sec 30-T10N-R57W | MD Reference: | KBE @ 4827.40usft (Original Well Elev) |
| Site Error: | 0.00 usft | North Reference: | True |
| Reference Well: | Horsetail #30E-1934 | 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 | 10,375.40 | 5,820.00 | 65.94 | 66.10 | 105.99 | 3,964.66 | -22.28 | 308.62 | 180.76 | 127.86 | 2.414 | | |
| 10,400.00 | 5,735.00 | 10,475.39 | 5,820.00 | 67.34 | 67.50 | 105.94 | 4,064.66 | -22.28 | 309.52 | 178.92 | 130.59 | 2.370 | | |
| 10,500.00 | 5,735.00 | 10,575.39 | 5,820.00 | 68.74 | 68.90 | 105.89 | 4,164.65 | -22.28 | 310.41 | 177.08 | 133.33 | 2.328 | | |
| 10,600.00 | 5,735.00 | 10,675.39 | 5,820.00 | 70.15 | 70.30 | 105.85 | 4,264.65 | -22.28 | 311.31 | 175.23 | 136.08 | 2.288 | | |
| 10,700.00 | 5,735.00 | 10,775.38 | 5,820.00 | 71.57 | 71.71 | 105.80 | 4,364.64 | -22.28 | 312.20 | 173.38 | 138.83 | 2.249 | | |
| 10,800.00 | 5,735.00 | 10,875.38 | 5,820.00 | 72.98 | 73.12 | 105.75 | 4,464.64 | -22.28 | 313.10 | 171.52 | 141.59 | 2.211 | | |
| 10,900.00 | 5,735.00 | 10,975.37 | 5,820.00 | 74.40 | 74.54 | 105.71 | 4,564.64 | -22.28 | 314.00 | 169.65 | 144.35 | 2.175 | | |
| 11,000.00 | 5,735.00 | 11,075.37 | 5,820.00 | 75.81 | 75.95 | 105.66 | 4,664.63 | -22.28 | 314.90 | 167.78 | 147.11 | 2.140 | | |
| 11,100.00 | 5,735.00 | 11,175.36 | 5,820.00 | 77.23 | 77.37 | 105.62 | 4,764.63 | -22.29 | 315.79 | 165.91 | 149.89 | 2.107 | | |
| 11,200.00 | 5,735.00 | 11,275.36 | 5,820.00 | 78.66 | 78.79 | 105.57 | 4,864.62 | -22.29 | 316.69 | 164.03 | 152.66 | 2.074 | | |
| 11,300.00 | 5,735.00 | 11,375.36 | 5,820.00 | 80.08 | 80.21 | 105.52 | 4,964.62 | -22.29 | 317.59 | 162.14 | 155.45 | 2.043 | | |
| 11,400.00 | 5,735.00 | 11,475.35 | 5,820.00 | 81.51 | 81.63 | 105.48 | 5,064.61 | -22.29 | 318.49 | 160.26 | 158.23 | 2.013 | | |
| 11,500.00 | 5,735.00 | 11,575.35 | 5,820.00 | 82.94 | 83.06 | 105.44 | 5,164.61 | -22.29 | 319.39 | 158.37 | 161.02 | 1.984 | | |
| 11,600.00 | 5,735.00 | 11,675.34 | 5,820.00 | 84.37 | 84.48 | 105.39 | 5,264.61 | -22.29 | 320.28 | 156.47 | 163.81 | 1.955 | | |
| 11,700.00 | 5,735.00 | 11,775.34 | 5,820.00 | 85.80 | 85.91 | 105.35 | 5,364.60 | -22.29 | 321.18 | 154.57 | 166.61 | 1.928 | | |
| 11,800.00 | 5,735.00 | 11,875.33 | 5,820.00 | 87.23 | 87.34 | 105.30 | 5,464.60 | -22.29 | 322.08 | 152.67 | 169.41 | 1.901 | | |
| 11,900.00 | 5,735.00 | 11,975.33 | 5,820.00 | 88.66 | 88.77 | 105.26 | 5,564.59 | -22.29 | 322.98 | 150.77 | 172.22 | 1.875 | | |
| 12,000.00 | 5,735.00 | 12,075.32 | 5,820.00 | 90.10 | 90.20 | 105.22 | 5,664.59 | -22.29 | 323.88 | 148.86 | 175.02 | 1.851 | | |
| 12,100.00 | 5,735.00 | 12,175.32 | 5,820.00 | 91.53 | 91.64 | 105.17 | 5,764.58 | -22.29 | 324.78 | 146.95 | 177.83 | 1.826 | | |
| 12,200.00 | 5,735.00 | 12,275.32 | 5,820.00 | 92.97 | 93.07 | 105.13 | 5,864.58 | -22.29 | 325.68 | 145.03 | 180.65 | 1.803 | | |
| 12,300.00 | 5,735.00 | 12,375.31 | 5,820.00 | 94.41 | 94.51 | 105.09 | 5,964.57 | -22.29 | 326.58 | 143.12 | 183.46 | 1.780 | | |
| 12,400.00 | 5,735.00 | 12,475.31 | 5,820.00 | 95.85 | 95.94 | 105.04 | 6,064.57 | -22.29 | 327.48 | 141.20 | 186.28 | 1.758 | | |
| 12,500.00 | 5,735.00 | 12,575.30 | 5,820.00 | 97.29 | 97.38 | 105.00 | 6,164.57 | -22.29 | 328.38 | 139.27 | 189.10 | 1.736 | | |
| 12,600.00 | 5,735.00 | 12,675.30 | 5,820.00 | 98.73 | 98.82 | 104.96 | 6,264.56 | -22.29 | 329.28 | 137.35 | 191.93 | 1.716 | | |
| 12,700.00 | 5,735.00 | 12,775.29 | 5,820.00 | 100.17 | 100.26 | 104.92 | 6,364.56 | -22.29 | 330.18 | 135.42 | 194.76 | 1.695 | | |
| 12,800.00 | 5,735.00 | 12,875.29 | 5,820.00 | 101.62 | 101.70 | 104.88 | 6,464.55 | -22.29 | 331.08 | 133.49 | 197.59 | 1.676 | | |
| 12,900.00 | 5,735.00 | 12,975.29 | 5,820.00 | 103.06 | 103.14 | 104.84 | 6,564.55 | -22.29 | 331.98 | 131.56 | 200.42 | 1.656 | | |
| 13,000.00 | 5,735.00 | 13,075.28 | 5,820.00 | 104.50 | 104.58 | 104.79 | 6,664.54 | -22.29 | 332.88 | 129.63 | 203.25 | 1.638 | | |
| 13,100.00 | 5,735.00 | 13,175.28 | 5,820.00 | 105.95 | 106.03 | 104.75 | 6,764.54 | -22.29 | 333.78 | 127.69 | 206.09 | 1.620 | | |
| 13,200.00 | 5,735.00 | 13,275.27 | 5,820.00 | 107.40 | 107.47 | 104.71 | 6,864.54 | -22.29 | 334.69 | 125.76 | 208.93 | 1.602 | | |
| 13,300.00 | 5,735.00 | 13,375.27 | 5,820.00 | 108.84 | 108.92 | 104.67 | 6,964.53 | -22.29 | 335.59 | 123.82 | 211.77 | 1.585 | | |
| 13,400.00 | 5,735.00 | 13,475.26 | 5,820.00 | 110.29 | 110.36 | 104.63 | 7,064.53 | -22.29 | 336.49 | 121.88 | 214.61 | 1.568 | | |
| 13,500.00 | 5,735.00 | 13,575.26 | 5,820.00 | 111.74 | 111.81 | 104.59 | 7,164.52 | -22.29 | 337.39 | 119.93 | 217.46 | 1.552 | | |
| 13,600.00 | 5,735.00 | 13,675.26 | 5,820.00 | 113.19 | 113.25 | 104.55 | 7,264.52 | -22.29 | 338.29 | 117.99 | 220.30 | 1.536 | | |
| 13,700.00 | 5,735.00 | 13,775.25 | 5,820.00 | 114.64 | 114.70 | 104.51 | 7,364.51 | -22.29 | 339.19 | 116.04 | 223.15 | 1.520 | | |
| 13,800.00 | 5,735.00 | 13,875.25 | 5,820.00 | 116.09 | 116.15 | 104.47 | 7,464.51 | -22.29 | 340.10 | 114.10 | 226.00 | 1.505 | | |
| 13,851.04 | 5,735.00 | 13,926.28 | 5,820.00 | 116.83 | 116.89 | 104.45 | 7,515.55 | -22.29 | 340.56 | 113.10 | 227.46 | 1.497 | Level 3, SF | |



WOG

Anticollision Report

| | | | |
|---------------------------|-------------------------|-------------------------------------|--|
| Company: | Whiting Petroleum Corp. | Local Co-ordinate Reference: | Well Horsetail #30E-1934 |
| Project: | Weld County, CO | TVD Reference: | KBE @ 4827.40usft (Original Well Elev) |
| Reference Site: | Sec 30-T10N-R57W | MD Reference: | KBE @ 4827.40usft (Original Well Elev) |
| Site Error: | 0.00 usft | North Reference: | True |
| Reference Well: | Horsetail #30E-1934 | 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 | |
| Measured Depth (usft) | Vertical Depth (usft) | Measured Depth (usft) | Vertical Depth (usft) | Reference (usft) | Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | +E/-W (usft) | Between Centres (usft) | Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 90.00 | 0.00 | 119.96 | 119.96 | | | | |
| 100.00 | 100.00 | 100.00 | 100.00 | 0.13 | 0.13 | 90.00 | 0.00 | 119.96 | 119.96 | 119.69 | 0.27 | 450.375 | |
| 200.00 | 200.00 | 200.00 | 200.00 | 0.47 | 0.47 | 90.00 | 0.00 | 119.96 | 119.96 | 119.02 | 0.94 | 127.526 | |
| 300.00 | 300.00 | 300.00 | 300.00 | 0.81 | 0.81 | 90.00 | 0.00 | 119.96 | 119.96 | 118.34 | 1.61 | 74.279 CC, ES | |
| 400.00 | 399.98 | 398.99 | 398.97 | 1.11 | 1.11 | -110.08 | -1.66 | 120.37 | 120.98 | 118.76 | 2.21 | 54.643 | |
| 500.00 | 499.84 | 497.91 | 497.75 | 1.41 | 1.40 | -109.97 | -6.63 | 121.61 | 124.03 | 121.23 | 2.80 | 44.300 | |
| 600.00 | 599.45 | 596.71 | 596.18 | 1.73 | 1.72 | -109.80 | -14.89 | 123.68 | 129.11 | 125.67 | 3.44 | 37.507 | |
| 700.00 | 698.70 | 695.34 | 694.09 | 2.07 | 2.05 | -109.57 | -26.42 | 126.56 | 136.22 | 132.09 | 4.13 | 32.954 | |
| 800.00 | 797.47 | 793.73 | 791.29 | 2.43 | 2.41 | -109.31 | -41.17 | 130.24 | 145.34 | 140.47 | 4.87 | 29.826 | |
| 900.00 | 895.73 | 892.74 | 888.67 | 2.83 | 2.80 | -109.22 | -58.54 | 134.58 | 156.07 | 150.43 | 5.65 | 27.640 | |
| 1,000.00 | 993.94 | 992.15 | 986.41 | 3.24 | 3.20 | -109.26 | -76.14 | 138.98 | 166.96 | 160.52 | 6.44 | 25.919 | |
| 1,100.00 | 1,092.15 | 1,091.55 | 1,084.14 | 3.66 | 3.61 | -109.29 | -93.74 | 143.37 | 177.84 | 170.59 | 7.25 | 24.519 | |
| 1,200.00 | 1,190.36 | 1,190.96 | 1,181.88 | 4.09 | 4.03 | -109.32 | -111.34 | 147.77 | 188.73 | 180.65 | 8.08 | 23.367 | |
| 1,300.00 | 1,288.57 | 1,290.37 | 1,279.62 | 4.51 | 4.45 | -109.34 | -128.94 | 152.17 | 199.61 | 190.70 | 8.91 | 22.406 | |
| 1,400.00 | 1,386.78 | 1,389.77 | 1,377.35 | 4.95 | 4.88 | -109.37 | -146.54 | 156.56 | 210.50 | 200.75 | 9.75 | 21.595 | |
| 1,500.00 | 1,484.99 | 1,489.18 | 1,475.09 | 5.38 | 5.30 | -109.39 | -164.15 | 160.96 | 221.38 | 210.79 | 10.59 | 20.903 | |
| 1,600.00 | 1,583.20 | 1,588.58 | 1,572.82 | 5.82 | 5.73 | -109.41 | -181.75 | 165.36 | 232.26 | 220.83 | 11.44 | 20.306 | |
| 1,700.00 | 1,681.41 | 1,687.99 | 1,670.56 | 6.25 | 6.16 | -109.42 | -199.35 | 169.75 | 243.15 | 230.86 | 12.29 | 19.787 | |
| 1,800.00 | 1,779.62 | 1,787.39 | 1,768.30 | 6.69 | 6.59 | -109.44 | -216.95 | 174.15 | 254.03 | 240.89 | 13.14 | 19.331 | |
| 1,900.00 | 1,877.83 | 1,886.80 | 1,866.03 | 7.13 | 7.02 | -109.45 | -234.55 | 178.55 | 264.92 | 250.92 | 14.00 | 18.929 | |
| 2,000.00 | 1,976.04 | 1,986.21 | 1,963.77 | 7.57 | 7.46 | -109.47 | -252.15 | 182.94 | 275.80 | 260.95 | 14.85 | 18.570 | |
| 2,100.00 | 2,074.25 | 2,085.61 | 2,061.51 | 8.01 | 7.89 | -109.48 | -269.75 | 187.34 | 286.69 | 270.98 | 15.71 | 18.249 | |
| 2,200.00 | 2,172.46 | 2,185.02 | 2,159.24 | 8.45 | 8.32 | -109.49 | -287.36 | 191.74 | 297.57 | 281.00 | 16.57 | 17.961 | |
| 2,300.00 | 2,270.67 | 2,284.42 | 2,256.98 | 8.89 | 8.76 | -109.50 | -304.96 | 196.13 | 308.46 | 291.03 | 17.43 | 17.699 | |
| 2,400.00 | 2,368.88 | 2,383.83 | 2,354.71 | 9.34 | 9.19 | -109.51 | -322.56 | 200.53 | 319.34 | 301.05 | 18.29 | 17.462 | |
| 2,500.00 | 2,467.09 | 2,483.24 | 2,452.45 | 9.78 | 9.62 | -109.52 | -340.16 | 204.93 | 330.23 | 311.08 | 19.15 | 17.245 | |
| 2,600.00 | 2,565.30 | 2,582.64 | 2,550.19 | 10.22 | 10.06 | -109.53 | -357.76 | 209.32 | 341.11 | 321.10 | 20.01 | 17.046 | |
| 2,700.00 | 2,663.51 | 2,682.05 | 2,647.92 | 10.66 | 10.49 | -109.54 | -375.36 | 213.72 | 352.00 | 331.12 | 20.87 | 16.863 | |
| 2,800.00 | 2,761.72 | 2,781.45 | 2,745.66 | 11.11 | 10.93 | -109.55 | -392.97 | 218.12 | 362.88 | 341.14 | 21.74 | 16.694 | |
| 2,900.00 | 2,859.93 | 2,880.86 | 2,843.40 | 11.55 | 11.37 | -109.55 | -410.57 | 222.51 | 373.77 | 351.17 | 22.60 | 16.538 | |
| 3,000.00 | 2,958.14 | 2,980.26 | 2,941.13 | 11.99 | 11.80 | -109.56 | -428.17 | 226.91 | 384.65 | 361.19 | 23.46 | 16.393 | |
| 3,100.00 | 3,056.35 | 3,079.67 | 3,038.87 | 12.44 | 12.24 | -109.57 | -445.77 | 231.31 | 395.54 | 371.21 | 24.33 | 16.258 | |
| 3,200.00 | 3,154.55 | 3,179.08 | 3,136.60 | 12.88 | 12.67 | -109.57 | -463.37 | 235.70 | 406.42 | 381.23 | 25.19 | 16.133 | |
| 3,300.00 | 3,252.76 | 3,278.48 | 3,234.34 | 13.32 | 13.11 | -109.58 | -480.97 | 240.10 | 417.31 | 391.25 | 26.06 | 16.015 | |
| 3,400.00 | 3,350.97 | 3,377.89 | 3,332.08 | 13.77 | 13.54 | -109.58 | -498.58 | 244.50 | 428.19 | 401.27 | 26.92 | 15.905 | |
| 3,500.00 | 3,449.18 | 3,477.29 | 3,429.81 | 14.21 | 13.98 | -109.59 | -516.18 | 248.89 | 439.08 | 411.29 | 27.79 | 15.801 | |
| 3,600.00 | 3,547.39 | 3,576.70 | 3,527.55 | 14.66 | 14.42 | -109.59 | -533.78 | 253.29 | 449.96 | 421.31 | 28.65 | 15.704 | |
| 3,700.00 | 3,645.60 | 3,676.11 | 3,625.29 | 15.10 | 14.85 | -109.60 | -551.38 | 257.69 | 460.85 | 431.33 | 29.52 | 15.612 | |
| 3,800.00 | 3,743.81 | 3,775.51 | 3,723.02 | 15.54 | 15.29 | -109.60 | -568.98 | 262.08 | 471.73 | 441.35 | 30.38 | 15.526 | |
| 3,900.00 | 3,842.02 | 3,874.92 | 3,820.76 | 15.99 | 15.73 | -109.61 | -586.58 | 266.48 | 482.61 | 451.36 | 31.25 | 15.444 | |
| 4,000.00 | 3,940.23 | 3,974.32 | 3,918.49 | 16.43 | 16.16 | -109.61 | -604.19 | 270.88 | 493.50 | 461.38 | 32.12 | 15.366 | |
| 4,100.00 | 4,038.44 | 4,073.73 | 4,016.23 | 16.88 | 16.60 | -109.62 | -621.79 | 275.27 | 504.38 | 471.40 | 32.98 | 15.293 | |
| 4,200.00 | 4,136.65 | 4,173.13 | 4,113.97 | 17.32 | 17.04 | -109.62 | -639.39 | 279.67 | 515.27 | 481.42 | 33.85 | 15.223 | |
| 4,300.00 | 4,234.86 | 4,272.54 | 4,211.70 | 17.77 | 17.47 | -109.62 | -656.99 | 284.07 | 526.15 | 491.44 | 34.71 | 15.156 | |
| 4,400.00 | 4,333.07 | 4,371.95 | 4,309.44 | 18.21 | 17.91 | -109.63 | -674.59 | 288.46 | 537.04 | 501.46 | 35.58 | 15.093 | |
| 4,500.00 | 4,431.28 | 4,471.35 | 4,407.18 | 18.66 | 18.35 | -109.63 | -692.19 | 292.86 | 547.92 | 511.48 | 36.45 | 15.033 | |
| 4,600.00 | 4,529.59 | 4,571.47 | 4,505.62 | 19.05 | 18.77 | -109.69 | -709.88 | 297.28 | 558.62 | 521.36 | 37.26 | 14.992 | |
| 4,700.00 | 4,628.42 | 4,676.04 | 4,608.85 | 19.31 | 19.08 | -109.74 | -726.06 | 301.32 | 567.70 | 529.86 | 37.84 | 15.003 | |
| 4,800.00 | 4,727.73 | 4,780.91 | 4,712.90 | 19.57 | 19.35 | -109.77 | -738.60 | 304.46 | 574.72 | 536.34 | 38.37 | 14.978 | |
| 4,900.00 | 4,827.38 | 4,885.99 | 4,817.59 | 19.81 | 19.60 | -109.80 | -747.46 | 306.67 | 579.66 | 540.79 | 38.88 | 14.911 | |
| 5,000.00 | 4,927.26 | 4,991.22 | 4,922.67 | 20.03 | 19.84 | -109.81 | -752.59 | 307.95 | 582.52 | 543.17 | 39.35 | 14.804 | |
| 5,100.00 | 5,027.25 | 5,095.81 | 5,027.25 | 20.28 | 20.10 | 90.29 | -754.00 | 308.30 | 583.31 | 543.45 | 39.86 | 14.633 | |

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 #30E-1934 |
| Project: | Weld County, CO | TVD Reference: | KBE @ 4827.40usft (Original Well Elev) |
| Reference Site: | Sec 30-T10N-R57W | MD Reference: | KBE @ 4827.40usft (Original Well Elev) |
| Site Error: | 0.00 usft | North Reference: | True |
| Reference Well: | Horsetail #30E-1934 | 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 | 5,127.25 | 5,195.81 | 5,127.25 | 20.48 | 20.31 | 90.29 | -754.00 | 308.30 | 583.31 | 543.02 | 40.29 | 14.479 | | |
| 5,206.02 | 5,133.27 | 5,201.83 | 5,133.27 | 20.50 | 20.32 | 90.83 | -754.00 | 308.30 | 583.31 | 543.00 | 40.31 | 14.470 | | |
| 5,300.00 | 5,227.25 | 5,295.89 | 5,227.33 | 20.70 | 20.52 | 90.83 | -753.83 | 308.30 | 583.31 | 542.60 | 40.71 | 14.327 | | |
| 5,400.00 | 5,326.36 | 5,396.46 | 5,327.00 | 20.85 | 20.68 | 90.81 | -741.60 | 308.30 | 583.42 | 542.39 | 41.03 | 14.220 | | |
| 5,500.00 | 5,421.35 | 5,497.01 | 5,422.45 | 20.93 | 20.75 | 90.76 | -710.48 | 308.30 | 583.71 | 542.54 | 41.17 | 14.179 | | |
| 5,600.00 | 5,508.72 | 5,597.51 | 5,510.12 | 20.92 | 20.75 | 90.68 | -661.66 | 308.30 | 584.16 | 543.00 | 41.16 | 14.193 | | |
| 5,700.00 | 5,585.26 | 5,697.95 | 5,586.76 | 20.86 | 20.70 | 90.58 | -596.99 | 308.30 | 584.75 | 543.70 | 41.05 | 14.246 | | |
| 5,800.00 | 5,648.17 | 5,798.31 | 5,649.55 | 20.77 | 20.62 | 90.46 | -518.90 | 308.30 | 585.47 | 544.58 | 40.90 | 14.316 | | |
| 5,900.00 | 5,695.14 | 5,898.57 | 5,696.19 | 20.67 | 20.55 | 90.32 | -430.32 | 308.30 | 586.29 | 545.53 | 40.77 | 14.381 | | |
| 6,000.00 | 5,724.43 | 5,998.74 | 5,725.01 | 20.59 | 20.51 | 90.16 | -334.55 | 308.30 | 587.18 | 546.47 | 40.71 | 14.423 | | |
| 6,100.00 | 5,734.97 | 6,098.79 | 5,735.00 | 20.56 | 20.52 | 90.01 | -235.15 | 308.30 | 588.11 | 547.34 | 40.77 | 14.427 | | |
| 6,200.00 | 5,735.00 | 6,198.78 | 5,735.00 | 20.60 | 20.61 | 90.00 | -135.16 | 308.30 | 589.04 | 548.04 | 40.99 | 14.369 | | |
| 6,300.00 | 5,735.00 | 6,298.78 | 5,735.00 | 20.75 | 20.82 | 90.00 | -35.16 | 308.30 | 589.97 | 548.54 | 41.43 | 14.239 | | |
| 6,400.00 | 5,735.00 | 6,398.78 | 5,735.00 | 21.02 | 21.13 | 90.00 | 64.83 | 308.30 | 590.90 | 548.83 | 42.07 | 14.045 | | |
| 6,500.00 | 5,735.00 | 6,498.77 | 5,735.00 | 21.41 | 21.54 | 90.00 | 164.83 | 308.30 | 591.83 | 548.93 | 42.91 | 13.794 | | |
| 6,600.00 | 5,735.00 | 6,598.77 | 5,735.00 | 21.89 | 22.04 | 90.00 | 264.82 | 308.29 | 592.77 | 548.84 | 43.92 | 13.496 | | |
| 6,700.00 | 5,735.00 | 6,698.76 | 5,735.00 | 22.48 | 22.63 | 90.00 | 364.82 | 308.29 | 593.70 | 548.59 | 45.11 | 13.162 | | |
| 6,800.00 | 5,735.00 | 6,798.76 | 5,735.00 | 23.14 | 23.31 | 90.00 | 464.82 | 308.29 | 594.63 | 548.18 | 46.45 | 12.802 | | |
| 6,900.00 | 5,735.00 | 6,898.75 | 5,735.00 | 23.89 | 24.05 | 90.00 | 564.81 | 308.29 | 595.56 | 547.63 | 47.94 | 12.424 | | |
| 7,000.00 | 5,735.00 | 6,998.75 | 5,735.00 | 24.70 | 24.86 | 90.00 | 664.81 | 308.29 | 596.49 | 546.94 | 49.55 | 12.038 | | |
| 7,100.00 | 5,735.00 | 7,098.75 | 5,735.00 | 25.57 | 25.73 | 90.00 | 764.80 | 308.29 | 597.42 | 546.14 | 51.29 | 11.649 | | |
| 7,200.00 | 5,735.00 | 7,198.74 | 5,735.00 | 26.49 | 26.65 | 90.00 | 864.80 | 308.29 | 598.36 | 545.23 | 53.13 | 11.263 | | |
| 7,300.00 | 5,735.00 | 7,298.74 | 5,735.00 | 27.47 | 27.62 | 90.00 | 964.79 | 308.29 | 599.29 | 544.22 | 55.07 | 10.883 | | |
| 7,400.00 | 5,735.00 | 7,398.73 | 5,735.00 | 28.48 | 28.64 | 90.00 | 1,064.79 | 308.29 | 600.22 | 543.13 | 57.09 | 10.514 | | |
| 7,500.00 | 5,735.00 | 7,498.73 | 5,735.00 | 29.54 | 29.69 | 90.00 | 1,164.79 | 308.29 | 601.15 | 541.96 | 59.19 | 10.156 | | |
| 7,600.00 | 5,735.00 | 7,598.72 | 5,735.00 | 30.63 | 30.77 | 90.00 | 1,264.78 | 308.29 | 602.08 | 540.72 | 61.36 | 9.812 | | |
| 7,700.00 | 5,735.00 | 7,698.72 | 5,735.00 | 31.75 | 31.89 | 90.00 | 1,364.78 | 308.29 | 603.02 | 539.42 | 63.59 | 9.482 | | |
| 7,800.00 | 5,735.00 | 7,798.72 | 5,735.00 | 32.90 | 33.03 | 90.00 | 1,464.77 | 308.29 | 603.95 | 538.06 | 65.88 | 9.167 | | |
| 7,900.00 | 5,735.00 | 7,898.71 | 5,735.00 | 34.07 | 34.20 | 90.00 | 1,564.77 | 308.29 | 604.88 | 536.66 | 68.22 | 8.866 | | |
| 8,000.00 | 5,735.00 | 7,998.71 | 5,735.00 | 35.27 | 35.39 | 90.00 | 1,664.76 | 308.29 | 605.81 | 535.20 | 70.61 | 8.580 | | |
| 8,100.00 | 5,735.00 | 8,098.70 | 5,735.00 | 36.48 | 36.61 | 90.00 | 1,764.76 | 308.29 | 606.74 | 533.71 | 73.03 | 8.308 | | |
| 8,200.00 | 5,735.00 | 8,198.70 | 5,735.00 | 37.72 | 37.84 | 90.00 | 1,864.76 | 308.29 | 607.67 | 532.18 | 75.50 | 8.049 | | |
| 8,300.00 | 5,735.00 | 8,298.69 | 5,735.00 | 38.97 | 39.08 | 90.00 | 1,964.75 | 308.29 | 608.61 | 530.61 | 77.99 | 7.803 | | |
| 8,400.00 | 5,735.00 | 8,398.69 | 5,735.00 | 40.23 | 40.35 | 90.00 | 2,064.75 | 308.29 | 609.54 | 529.02 | 80.52 | 7.570 | | |
| 8,500.00 | 5,735.00 | 8,498.68 | 5,735.00 | 41.51 | 41.62 | 90.00 | 2,164.74 | 308.28 | 610.47 | 527.40 | 83.07 | 7.349 | | |
| 8,600.00 | 5,735.00 | 8,598.68 | 5,735.00 | 42.80 | 42.91 | 90.00 | 2,264.74 | 308.28 | 611.40 | 525.75 | 85.65 | 7.138 | | |
| 8,700.00 | 5,735.00 | 8,698.68 | 5,735.00 | 44.11 | 44.21 | 90.00 | 2,364.73 | 308.28 | 612.33 | 524.08 | 88.25 | 6.938 | | |
| 8,800.00 | 5,735.00 | 8,798.67 | 5,735.00 | 45.42 | 45.52 | 90.00 | 2,464.73 | 308.28 | 613.26 | 522.39 | 90.88 | 6.748 | | |
| 8,900.00 | 5,735.00 | 8,898.67 | 5,735.00 | 46.74 | 46.84 | 90.00 | 2,564.72 | 308.28 | 614.20 | 520.68 | 93.52 | 6.568 | | |
| 9,000.00 | 5,735.00 | 8,998.66 | 5,735.00 | 48.07 | 48.17 | 90.00 | 2,664.72 | 308.28 | 615.13 | 518.95 | 96.18 | 6.396 | | |
| 9,100.00 | 5,735.00 | 9,098.66 | 5,735.00 | 49.41 | 49.51 | 90.00 | 2,764.72 | 308.28 | 616.06 | 517.21 | 98.85 | 6.232 | | |
| 9,200.00 | 5,735.00 | 9,198.65 | 5,735.00 | 50.76 | 50.85 | 90.00 | 2,864.71 | 308.28 | 616.99 | 515.45 | 101.55 | 6.076 | | |
| 9,300.00 | 5,735.00 | 9,298.65 | 5,735.00 | 52.11 | 52.20 | 90.00 | 2,964.71 | 308.28 | 617.92 | 513.67 | 104.25 | 5.927 | | |
| 9,400.00 | 5,735.00 | 9,398.65 | 5,735.00 | 53.48 | 53.56 | 90.00 | 3,064.70 | 308.28 | 618.86 | 511.89 | 106.97 | 5.785 | | |
| 9,500.00 | 5,735.00 | 9,498.64 | 5,735.00 | 54.84 | 54.92 | 90.00 | 3,164.70 | 308.28 | 619.79 | 510.09 | 109.70 | 5.650 | | |
| 9,600.00 | 5,735.00 | 9,598.64 | 5,735.00 | 56.21 | 56.29 | 90.00 | 3,264.69 | 308.28 | 620.72 | 508.28 | 112.44 | 5.521 | | |
| 9,700.00 | 5,735.00 | 9,698.63 | 5,735.00 | 57.59 | 57.66 | 90.00 | 3,364.69 | 308.28 | 621.65 | 506.46 | 115.19 | 5.397 | | |
| 9,800.00 | 5,735.00 | 9,798.63 | 5,735.00 | 58.97 | 59.04 | 90.00 | 3,464.69 | 308.28 | 622.58 | 504.64 | 117.95 | 5.279 | | |
| 9,900.00 | 5,735.00 | 9,898.62 | 5,735.00 | 60.36 | 60.42 | 90.00 | 3,564.68 | 308.28 | 623.51 | 502.80 | 120.71 | 5.165 | | |
| 10,000.00 | 5,735.00 | 9,998.62 | 5,735.00 | 61.74 | 61.81 | 90.00 | 3,664.68 | 308.28 | 624.45 | 500.95 | 123.49 | 5.057 | | |
| 10,100.00 | 5,735.00 | 10,098.62 | 5,735.00 | 63.14 | 63.20 | 90.00 | 3,764.67 | 308.28 | 625.38 | 499.10 | 126.28 | 4.952 | | |
| 10,200.00 | 5,735.00 | 10,198.61 | 5,735.00 | 64.54 | 64.60 | 90.00 | 3,864.67 | 308.28 | 626.31 | 497.24 | 129.07 | 4.853 | | |

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 #30E-1934 |
| Project: | Weld County, CO | TVD Reference: | KBE @ 4827.40usft (Original Well Elev) |
| Reference Site: | Sec 30-T10N-R57W | MD Reference: | KBE @ 4827.40usft (Original Well Elev) |
| Site Error: | 0.00 usft | North Reference: | True |
| Reference Well: | Horsetail #30E-1934 | 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 | | | | | | | |
| Measured Depth (usft) | Vertical Depth (usft) | Measured Depth (usft) | Vertical Depth (usft) | Reference (usft) | Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | +E/-W (usft) | Between Centres (usft) | Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
| 10,300.00 | 5,735.00 | 10,298.61 | 5,735.00 | 65.94 | 65.99 | 90.00 | 3,964.66 | 308.27 | 627.24 | 495.38 | 131.87 | 4.757 | |
| 10,400.00 | 5,735.00 | 10,398.60 | 5,735.00 | 67.34 | 67.39 | 90.00 | 4,064.66 | 308.27 | 628.17 | 493.50 | 134.67 | 4.665 | |
| 10,500.00 | 5,735.00 | 10,498.60 | 5,735.00 | 68.74 | 68.80 | 90.00 | 4,164.66 | 308.27 | 629.10 | 491.62 | 137.48 | 4.576 | |
| 10,600.00 | 5,735.00 | 10,598.59 | 5,735.00 | 70.15 | 70.21 | 90.00 | 4,264.65 | 308.27 | 630.04 | 489.74 | 140.30 | 4.491 | |
| 10,700.00 | 5,735.00 | 10,698.59 | 5,735.00 | 71.57 | 71.61 | 90.00 | 4,364.65 | 308.27 | 630.97 | 487.85 | 143.12 | 4.409 | |
| 10,800.00 | 5,735.00 | 10,798.58 | 5,735.00 | 72.98 | 73.03 | 90.00 | 4,464.64 | 308.27 | 631.90 | 485.96 | 145.94 | 4.330 | |
| 10,900.00 | 5,735.00 | 10,898.58 | 5,735.00 | 74.40 | 74.44 | 90.00 | 4,564.64 | 308.27 | 632.83 | 484.06 | 148.77 | 4.254 | |
| 11,000.00 | 5,735.00 | 10,998.58 | 5,735.00 | 75.81 | 75.86 | 90.00 | 4,664.63 | 308.27 | 633.76 | 482.16 | 151.61 | 4.180 | |
| 11,100.00 | 5,735.00 | 11,098.57 | 5,735.00 | 77.23 | 77.27 | 90.00 | 4,764.63 | 308.27 | 634.70 | 480.25 | 154.45 | 4.109 | |
| 11,200.00 | 5,735.00 | 11,198.57 | 5,735.00 | 78.66 | 78.69 | 90.00 | 4,864.63 | 308.27 | 635.63 | 478.34 | 157.29 | 4.041 | |
| 11,300.00 | 5,735.00 | 11,298.56 | 5,735.00 | 80.08 | 80.12 | 90.00 | 4,964.62 | 308.27 | 636.56 | 476.42 | 160.14 | 3.975 | |
| 11,400.00 | 5,735.00 | 11,398.56 | 5,735.00 | 81.51 | 81.54 | 90.00 | 5,064.62 | 308.27 | 637.49 | 474.50 | 162.99 | 3.911 | |
| 11,500.00 | 5,735.00 | 11,498.55 | 5,735.00 | 82.94 | 82.97 | 90.00 | 5,164.61 | 308.27 | 638.42 | 472.58 | 165.84 | 3.850 | |
| 11,600.00 | 5,735.00 | 11,598.55 | 5,735.00 | 84.37 | 84.39 | 90.00 | 5,264.61 | 308.27 | 639.35 | 470.66 | 168.70 | 3.790 | |
| 11,700.00 | 5,735.00 | 11,698.55 | 5,735.00 | 85.80 | 85.82 | 90.00 | 5,364.60 | 308.27 | 640.29 | 468.73 | 171.56 | 3.732 | |
| 11,800.00 | 5,735.00 | 11,798.54 | 5,735.00 | 87.23 | 87.25 | 90.00 | 5,464.60 | 308.27 | 641.22 | 466.80 | 174.42 | 3.676 | |
| 11,900.00 | 5,735.00 | 11,898.54 | 5,735.00 | 88.66 | 88.68 | 90.00 | 5,564.59 | 308.27 | 642.15 | 464.87 | 177.28 | 3.622 | |
| 12,000.00 | 5,735.00 | 11,998.53 | 5,735.00 | 90.10 | 90.11 | 90.00 | 5,664.59 | 308.27 | 643.08 | 462.93 | 180.15 | 3.570 | |
| 12,100.00 | 5,735.00 | 12,098.53 | 5,735.00 | 91.53 | 91.55 | 90.00 | 5,764.59 | 308.27 | 644.01 | 460.99 | 183.02 | 3.519 | |
| 12,200.00 | 5,735.00 | 12,198.52 | 5,735.00 | 92.97 | 92.98 | 90.00 | 5,864.58 | 308.26 | 644.94 | 459.05 | 185.89 | 3.469 | |
| 12,300.00 | 5,735.00 | 12,298.52 | 5,735.00 | 94.41 | 94.42 | 90.00 | 5,964.58 | 308.26 | 645.88 | 457.11 | 188.77 | 3.422 | |
| 12,400.00 | 5,735.00 | 12,398.52 | 5,735.00 | 95.85 | 95.86 | 90.00 | 6,064.57 | 308.26 | 646.81 | 455.16 | 191.65 | 3.375 | |
| 12,500.00 | 5,735.00 | 12,498.51 | 5,735.00 | 97.29 | 97.29 | 90.00 | 6,164.57 | 308.26 | 647.74 | 453.22 | 194.52 | 3.330 | |
| 12,600.00 | 5,735.00 | 12,598.51 | 5,735.00 | 98.73 | 98.73 | 90.00 | 6,264.56 | 308.26 | 648.67 | 451.27 | 197.41 | 3.286 | |
| 12,700.00 | 5,735.00 | 12,698.50 | 5,735.00 | 100.17 | 100.17 | 90.00 | 6,364.56 | 308.26 | 649.60 | 449.31 | 200.29 | 3.243 | |
| 12,800.00 | 5,735.00 | 12,798.50 | 5,735.00 | 101.62 | 101.61 | 90.00 | 6,464.56 | 308.26 | 650.54 | 447.36 | 203.17 | 3.202 | |
| 12,900.00 | 5,735.00 | 12,898.49 | 5,735.00 | 103.06 | 103.06 | 90.00 | 6,564.55 | 308.26 | 651.47 | 445.41 | 206.06 | 3.162 | |
| 13,000.00 | 5,735.00 | 12,998.49 | 5,735.00 | 104.50 | 104.50 | 90.00 | 6,664.55 | 308.26 | 652.40 | 443.45 | 208.95 | 3.122 | |
| 13,100.00 | 5,735.00 | 13,098.49 | 5,735.00 | 105.95 | 105.94 | 90.00 | 6,764.54 | 308.26 | 653.33 | 441.49 | 211.84 | 3.084 | |
| 13,200.00 | 5,735.00 | 13,198.48 | 5,735.00 | 107.40 | 107.39 | 90.00 | 6,864.54 | 308.26 | 654.26 | 439.53 | 214.73 | 3.047 | |
| 13,300.00 | 5,735.00 | 13,298.48 | 5,735.00 | 108.84 | 108.83 | 90.00 | 6,964.53 | 308.26 | 655.19 | 437.57 | 217.62 | 3.011 | |
| 13,400.00 | 5,735.00 | 13,398.47 | 5,735.00 | 110.29 | 110.28 | 90.00 | 7,064.53 | 308.26 | 656.13 | 435.61 | 220.51 | 2.975 | |
| 13,500.00 | 5,735.00 | 13,498.47 | 5,735.00 | 111.74 | 111.72 | 90.00 | 7,164.53 | 308.26 | 657.06 | 433.65 | 223.41 | 2.941 | |
| 13,600.00 | 5,735.00 | 13,598.46 | 5,735.00 | 113.19 | 113.17 | 90.00 | 7,264.52 | 308.26 | 657.99 | 431.68 | 226.31 | 2.908 | |
| 13,700.00 | 5,735.00 | 13,698.46 | 5,735.00 | 114.64 | 114.62 | 90.00 | 7,364.52 | 308.26 | 658.92 | 429.72 | 229.20 | 2.875 | |
| 13,800.00 | 5,735.00 | 13,798.45 | 5,735.00 | 116.09 | 116.07 | 90.00 | 7,464.51 | 308.26 | 659.85 | 427.75 | 232.10 | 2.843 | |
| 13,851.04 | 5,735.00 | 13,849.49 | 5,735.00 | 116.83 | 116.81 | 90.00 | 7,515.55 | 308.26 | 660.33 | 426.75 | 233.58 | 2.827 SF | |



WOG

Anticollision Report

| | | | |
|---------------------------|-------------------------|-------------------------------------|--|
| Company: | Whiting Petroleum Corp. | Local Co-ordinate Reference: | Well Horsetail #30E-1934 |
| Project: | Weld County, CO | TVD Reference: | KBE @ 4827.40usft (Original Well Elev) |
| Reference Site: | Sec 30-T10N-R57W | MD Reference: | KBE @ 4827.40usft (Original Well Elev) |
| Site Error: | 0.00 usft | North Reference: | True |
| Reference Well: | Horsetail #30E-1934 | 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 | 119.07 | -49.59 | 89.20 | 102.06 | | | | | |
| 100.00 | 100.00 | 100.00 | 100.00 | 0.13 | 0.13 | 119.07 | -49.59 | 89.20 | 102.06 | 101.79 | 0.27 | 383.164 | | |
| 200.00 | 200.00 | 200.00 | 200.00 | 0.47 | 0.47 | 119.07 | -49.59 | 89.20 | 102.06 | 101.11 | 0.94 | 108.495 | | |
| 300.00 | 300.00 | 300.00 | 300.00 | 0.81 | 0.81 | 119.07 | -49.59 | 89.20 | 102.06 | 100.44 | 1.61 | 63.194 CC, ES | | |
| 400.00 | 399.98 | 397.78 | 397.76 | 1.11 | 1.13 | -82.70 | -48.92 | 90.73 | 102.87 | 100.61 | 2.26 | 45.546 | | |
| 500.00 | 499.84 | 494.97 | 494.82 | 1.41 | 1.46 | -87.46 | -46.95 | 95.28 | 105.83 | 102.90 | 2.93 | 36.132 | | |
| 600.00 | 599.45 | 592.84 | 592.39 | 1.73 | 1.79 | -94.56 | -43.90 | 102.32 | 111.82 | 108.21 | 3.61 | 31.003 | | |
| 700.00 | 698.70 | 691.09 | 690.31 | 2.07 | 2.12 | -102.48 | -40.75 | 109.60 | 120.36 | 116.08 | 4.28 | 28.133 | | |
| 800.00 | 797.47 | 788.66 | 787.57 | 2.43 | 2.45 | -110.53 | -37.62 | 116.82 | 132.20 | 127.23 | 4.97 | 26.609 | | |
| 900.00 | 895.73 | 885.58 | 884.17 | 2.83 | 2.79 | -118.20 | -34.50 | 124.00 | 147.72 | 142.05 | 5.67 | 26.075 | | |
| 1,000.00 | 993.94 | 982.42 | 980.69 | 3.24 | 3.12 | -124.56 | -31.40 | 131.18 | 165.64 | 159.29 | 6.35 | 26.093 | | |
| 1,100.00 | 1,092.15 | 1,079.26 | 1,077.22 | 3.66 | 3.46 | -129.66 | -28.29 | 138.35 | 185.20 | 178.17 | 7.02 | 26.372 | | |
| 1,200.00 | 1,190.36 | 1,176.10 | 1,173.75 | 4.09 | 3.80 | -133.78 | -25.18 | 145.52 | 205.92 | 198.22 | 7.69 | 26.761 | | |
| 1,300.00 | 1,288.57 | 1,272.94 | 1,270.27 | 4.51 | 4.14 | -137.14 | -22.07 | 152.69 | 227.48 | 219.12 | 8.36 | 27.196 | | |
| 1,400.00 | 1,386.78 | 1,369.78 | 1,366.80 | 4.95 | 4.48 | -139.92 | -18.96 | 159.87 | 249.68 | 240.64 | 9.03 | 27.638 | | |
| 1,500.00 | 1,484.99 | 1,466.63 | 1,463.32 | 5.38 | 4.82 | -142.25 | -15.85 | 167.04 | 272.35 | 262.64 | 9.70 | 28.068 | | |
| 1,600.00 | 1,583.20 | 1,563.47 | 1,559.85 | 5.82 | 5.16 | -144.23 | -12.75 | 174.21 | 295.38 | 285.01 | 10.37 | 28.476 | | |
| 1,700.00 | 1,681.41 | 1,660.31 | 1,656.37 | 6.25 | 5.50 | -145.91 | -9.64 | 181.39 | 318.70 | 307.66 | 11.04 | 28.858 | | |
| 1,800.00 | 1,779.62 | 1,757.15 | 1,752.90 | 6.69 | 5.84 | -147.37 | -6.53 | 188.56 | 342.25 | 330.53 | 11.72 | 29.214 | | |
| 1,900.00 | 1,877.83 | 1,853.99 | 1,849.42 | 7.13 | 6.18 | -148.64 | -3.42 | 195.73 | 365.98 | 353.59 | 12.39 | 29.545 | | |
| 2,000.00 | 1,976.04 | 1,950.83 | 1,945.95 | 7.57 | 6.52 | -149.76 | -0.31 | 202.90 | 389.86 | 376.80 | 13.06 | 29.852 | | |
| 2,100.00 | 2,074.25 | 2,047.67 | 2,042.47 | 8.01 | 6.86 | -150.75 | 2.80 | 210.08 | 413.87 | 400.14 | 13.73 | 30.136 | | |
| 2,200.00 | 2,172.46 | 2,144.52 | 2,139.00 | 8.45 | 7.21 | -151.63 | 5.90 | 217.25 | 437.98 | 423.57 | 14.41 | 30.399 | | |
| 2,300.00 | 2,270.67 | 2,241.36 | 2,235.53 | 8.89 | 7.55 | -152.41 | 9.01 | 224.42 | 462.18 | 447.09 | 15.08 | 30.644 | | |
| 2,400.00 | 2,368.88 | 2,338.20 | 2,332.05 | 9.34 | 7.89 | -153.12 | 12.12 | 231.60 | 486.45 | 470.69 | 15.76 | 30.871 | | |
| 2,500.00 | 2,467.09 | 2,435.04 | 2,428.58 | 9.78 | 8.23 | -153.77 | 15.23 | 238.77 | 510.78 | 494.35 | 16.43 | 31.083 | | |
| 2,600.00 | 2,565.30 | 2,531.88 | 2,525.10 | 10.22 | 8.57 | -154.35 | 18.34 | 245.94 | 535.18 | 518.07 | 17.11 | 31.280 | | |
| 2,700.00 | 2,663.51 | 2,628.72 | 2,621.63 | 10.66 | 8.91 | -154.88 | 21.45 | 253.11 | 559.61 | 541.83 | 17.79 | 31.464 | | |
| 2,800.00 | 2,761.72 | 2,725.57 | 2,718.15 | 11.11 | 9.25 | -155.37 | 24.56 | 260.29 | 584.09 | 565.63 | 18.46 | 31.637 | | |
| 2,900.00 | 2,859.93 | 2,822.41 | 2,814.68 | 11.55 | 9.59 | -155.82 | 27.66 | 267.46 | 608.61 | 589.47 | 19.14 | 31.798 | | |
| 3,000.00 | 2,958.14 | 2,919.25 | 2,911.20 | 11.99 | 9.94 | -156.24 | 30.77 | 274.63 | 633.16 | 613.34 | 19.82 | 31.950 | | |
| 3,100.00 | 3,056.35 | 3,016.09 | 3,007.73 | 12.44 | 10.28 | -156.62 | 33.88 | 281.81 | 657.74 | 637.25 | 20.49 | 32.093 | | |
| 3,200.00 | 3,154.55 | 3,112.93 | 3,104.25 | 12.88 | 10.62 | -156.98 | 36.99 | 288.98 | 682.35 | 661.17 | 21.17 | 32.227 | | |
| 3,300.00 | 3,252.76 | 3,209.77 | 3,200.78 | 13.32 | 10.96 | -157.31 | 40.10 | 296.15 | 706.97 | 685.12 | 21.85 | 32.354 | | |
| 3,400.00 | 3,350.97 | 3,306.61 | 3,297.31 | 13.77 | 11.30 | -157.62 | 43.21 | 303.32 | 731.62 | 709.09 | 22.53 | 32.474 | | |
| 3,500.00 | 3,449.18 | 3,403.46 | 3,393.83 | 14.21 | 11.64 | -157.91 | 46.31 | 310.50 | 756.29 | 733.08 | 23.21 | 32.587 | | |
| 3,600.00 | 3,547.39 | 3,500.30 | 3,490.36 | 14.66 | 11.98 | -158.18 | 49.42 | 317.67 | 780.97 | 757.09 | 23.89 | 32.694 | | |
| 3,700.00 | 3,645.60 | 3,597.14 | 3,586.88 | 15.10 | 12.33 | -158.43 | 52.53 | 324.84 | 805.67 | 781.11 | 24.57 | 32.796 | | |
| 3,800.00 | 3,743.81 | 3,693.98 | 3,683.41 | 15.54 | 12.67 | -158.67 | 55.64 | 332.02 | 830.39 | 805.14 | 25.25 | 32.892 | | |
| 3,900.00 | 3,842.02 | 3,790.82 | 3,779.93 | 15.99 | 13.01 | -158.90 | 58.75 | 339.19 | 855.11 | 829.19 | 25.93 | 32.984 | | |
| 4,000.00 | 3,940.23 | 3,887.66 | 3,876.46 | 16.43 | 13.35 | -159.11 | 61.86 | 346.36 | 879.85 | 853.25 | 26.60 | 33.071 | | |
| 4,100.00 | 4,038.44 | 3,984.50 | 3,972.98 | 16.88 | 13.69 | -159.31 | 64.96 | 353.54 | 904.60 | 877.32 | 27.28 | 33.154 | | |
| 4,200.00 | 4,136.65 | 4,081.35 | 4,069.51 | 17.32 | 14.03 | -159.50 | 68.07 | 360.71 | 929.36 | 901.39 | 27.96 | 33.234 | | |
| 4,300.00 | 4,234.86 | 4,178.19 | 4,166.03 | 17.77 | 14.38 | -159.68 | 71.18 | 367.88 | 954.13 | 925.48 | 28.64 | 33.309 | | |
| 4,400.00 | 4,333.07 | 4,275.03 | 4,262.56 | 18.21 | 14.72 | -159.85 | 74.29 | 375.05 | 978.90 | 949.58 | 29.32 | 33.382 | | |
| 4,500.00 | 4,431.28 | 4,371.87 | 4,359.09 | 18.66 | 15.06 | -160.02 | 77.40 | 382.23 | 1,003.69 | 973.68 | 30.00 | 33.451 | | |
| 4,600.00 | 4,529.59 | 4,468.84 | 4,455.74 | 19.05 | 15.40 | -160.25 | 80.51 | 389.41 | 1,027.98 | 997.32 | 30.66 | 33.529 | | |
| 4,700.00 | 4,628.42 | 4,566.51 | 4,553.09 | 19.31 | 15.75 | -160.48 | 83.65 | 396.64 | 1,049.38 | 1,018.13 | 31.25 | 33.577 | | |
| 4,800.00 | 4,727.73 | 4,654.11 | 4,638.00 | 19.57 | 16.12 | -160.68 | -737.53 | 407.65 | 1,056.34 | 1,030.28 | 26.05 | 40.547 | | |
| 4,900.00 | 4,827.38 | 4,748.86 | 4,730.00 | 19.81 | 16.48 | -160.85 | -745.28 | 407.65 | 983.94 | 955.80 | 28.14 | 34.967 | | |
| 5,000.00 | 4,927.26 | 4,836.34 | 4,816.00 | 20.03 | 16.81 | -161.00 | -749.76 | 407.65 | 915.64 | 885.27 | 30.37 | 30.152 | | |
| 5,100.00 | 5,027.25 | 4,926.58 | 4,906.00 | 20.28 | 17.12 | -161.13 | -751.00 | 407.65 | 852.57 | 819.85 | 32.72 | 26.053 | | |

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 #30E-1934 |
| Project: | Weld County, CO | TVD Reference: | KBE @ 4827.40usft (Original Well Elev) |
| Reference Site: | Sec 30-T10N-R57W | MD Reference: | KBE @ 4827.40usft (Original Well Elev) |
| Site Error: | 0.00 usft | North Reference: | True |
| Reference Well: | Horsetail #30E-1934 | 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 | 5,127.25 | 6,167.58 | 5,538.00 | 20.48 | 21.32 | 90.00 | -751.00 | 407.65 | 796.70 | 761.59 | 35.10 | 22.696 | | |
| 5,300.00 | 5,227.25 | 6,167.41 | 5,538.00 | 20.70 | 21.32 | 91.20 | -750.83 | 407.65 | 750.05 | 712.64 | 37.41 | 20.047 | | |
| 5,400.00 | 5,326.36 | 6,155.32 | 5,538.00 | 20.85 | 21.23 | 94.34 | -738.74 | 407.65 | 714.81 | 675.52 | 39.30 | 18.189 | | |
| 5,500.00 | 5,421.35 | 6,124.54 | 5,538.00 | 20.93 | 21.01 | 94.38 | -707.96 | 407.65 | 692.94 | 652.54 | 40.41 | 17.149 | | |
| 5,600.00 | 5,508.72 | 6,076.21 | 5,538.00 | 20.92 | 20.69 | 91.83 | -659.63 | 407.65 | 684.13 | 643.48 | 40.65 | 16.831 SF | | |
| 5,630.14 | 5,533.06 | 6,058.45 | 5,538.00 | 20.90 | 20.57 | 90.68 | -641.87 | 407.65 | 683.69 | 643.12 | 40.56 | 16.854 | | |
| 5,700.00 | 5,585.26 | 6,012.10 | 5,538.00 | 20.86 | 20.29 | 87.56 | -595.53 | 407.65 | 685.73 | 645.57 | 40.16 | 17.075 | | |
| 5,800.00 | 5,648.17 | 5,934.57 | 5,538.00 | 20.77 | 19.86 | 82.65 | -517.99 | 407.65 | 693.63 | 654.36 | 39.27 | 17.665 | | |
| 5,900.00 | 5,695.14 | 5,849.16 | 5,538.00 | 20.67 | 19.45 | 78.33 | -432.59 | 407.65 | 703.42 | 665.13 | 38.29 | 18.369 | | |
| 6,000.00 | 5,724.43 | 5,777.34 | 5,533.06 | 20.59 | 19.15 | 75.23 | -360.99 | 407.65 | 713.20 | 675.65 | 37.55 | 18.994 | | |
| 6,100.00 | 5,734.97 | 5,709.35 | 5,519.35 | 20.56 | 18.90 | 72.62 | -294.45 | 407.65 | 722.92 | 685.91 | 37.00 | 19.536 | | |
| 6,200.00 | 5,735.00 | 5,650.00 | 5,500.39 | 20.60 | 18.72 | 71.16 | -238.24 | 407.65 | 734.54 | 697.86 | 36.68 | 20.026 | | |
| 6,300.00 | 5,735.00 | 5,585.78 | 5,472.83 | 20.75 | 18.53 | 69.14 | -180.28 | 407.65 | 751.64 | 715.30 | 36.33 | 20.688 | | |
| 6,400.00 | 5,735.00 | 5,533.51 | 5,445.27 | 21.02 | 18.39 | 67.17 | -135.89 | 407.65 | 775.04 | 738.90 | 36.14 | 21.448 | | |
| 6,500.00 | 5,735.00 | 5,487.60 | 5,417.50 | 21.41 | 18.28 | 65.25 | -99.35 | 407.65 | 805.20 | 769.15 | 36.05 | 22.338 | | |
| 6,600.00 | 5,735.00 | 5,450.00 | 5,392.43 | 21.89 | 18.18 | 63.56 | -71.34 | 407.65 | 842.25 | 806.16 | 36.09 | 23.336 | | |
| 6,700.00 | 5,735.00 | 5,400.00 | 5,356.08 | 22.48 | 18.06 | 61.20 | -37.03 | 407.65 | 886.22 | 850.23 | 35.99 | 24.625 | | |
| 6,800.00 | 5,735.00 | 5,382.35 | 5,342.49 | 23.14 | 18.02 | 60.34 | -25.77 | 407.65 | 936.14 | 899.81 | 36.33 | 25.767 | | |
| 6,900.00 | 5,735.00 | 5,350.00 | 5,316.62 | 23.89 | 17.94 | 58.75 | -6.36 | 407.65 | 992.06 | 955.60 | 36.46 | 27.207 | | |
| 7,000.00 | 5,735.00 | 5,332.63 | 5,302.25 | 24.70 | 17.89 | 57.89 | 3.39 | 407.65 | 1,053.07 | 1,016.30 | 36.77 | 28.642 | | |
| 7,100.00 | 5,735.00 | 5,300.00 | 5,274.40 | 25.57 | 17.81 | 56.27 | 20.39 | 407.65 | 1,118.84 | 1,081.98 | 36.86 | 30.352 | | |
| 7,200.00 | 5,735.00 | 5,300.00 | 5,274.40 | 26.49 | 17.81 | 56.27 | 20.39 | 407.65 | 1,188.27 | 1,150.99 | 37.28 | 31.876 | | |
| 7,300.00 | 5,735.00 | 5,278.07 | 5,255.11 | 27.47 | 17.75 | 55.18 | 30.82 | 407.65 | 1,261.23 | 1,223.80 | 37.43 | 33.698 | | |
| 7,400.00 | 5,735.00 | 5,250.00 | 5,229.81 | 28.48 | 17.68 | 53.79 | 42.97 | 407.65 | 1,337.44 | 1,299.92 | 37.52 | 35.651 | | |
| 7,500.00 | 5,735.00 | 5,250.00 | 5,229.81 | 29.54 | 17.68 | 53.79 | 42.97 | 407.65 | 1,415.77 | 1,377.96 | 37.81 | 37.448 | | |
| 7,600.00 | 5,735.00 | 5,250.00 | 5,229.81 | 30.63 | 17.68 | 53.79 | 42.97 | 407.65 | 1,496.68 | 1,458.63 | 38.05 | 39.333 | | |



WOG

Anticollision Report

| | | | |
|---------------------------|-------------------------|-------------------------------------|--|
| Company: | Whiting Petroleum Corp. | Local Co-ordinate Reference: | Well Horsetail #30E-1934 |
| Project: | Weld County, CO | TVD Reference: | KBE @ 4827.40usft (Original Well Elev) |
| Reference Site: | Sec 30-T10N-R57W | MD Reference: | KBE @ 4827.40usft (Original Well Elev) |
| Site Error: | 0.00 usft | North Reference: | True |
| Reference Well: | Horsetail #30E-1934 | 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 #30E-3104 - 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 | Measured | Vertical | Reference | Offset | Highside | Offset Wellbore Centre | Between | Between | Minimum | Separation | Warning | | | | | | |
| Depth | Depth | Depth | Depth | | | Toolface | +N/-S | +E/-W | Centres | Ellipses | Separation | Factor | | | | | | |
| (usft) | (usft) | (usft) | (usft) | (usft) | (usft) | (°) | (usft) | (usft) | (usft) | (usft) | (usft) | | | | | | | |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 108.39 | -49.60 | 149.18 | 157.21 | | | | | | | | | |
| 100.00 | 100.00 | 100.00 | 100.00 | 0.13 | 0.13 | 108.39 | -49.60 | 149.18 | 157.21 | 156.94 | 0.27 | 590.233 | | | | | | |
| 200.00 | 200.00 | 200.00 | 200.00 | 0.47 | 0.47 | 108.39 | -49.60 | 149.18 | 157.21 | 156.27 | 0.94 | 167.127 | | | | | | |
| 300.00 | 300.00 | 300.00 | 300.00 | 0.81 | 0.81 | 108.39 | -49.60 | 149.18 | 157.21 | 155.59 | 1.61 | 97.345 | CC, ES | | | | | |
| 400.00 | 399.98 | 395.44 | 395.42 | 1.11 | 1.12 | -92.59 | -49.24 | 150.73 | 158.70 | 156.43 | 2.27 | 69.949 | | | | | | |
| 500.00 | 499.84 | 490.37 | 490.23 | 1.41 | 1.43 | -95.08 | -48.18 | 155.34 | 163.42 | 160.46 | 2.96 | 55.205 | | | | | | |
| 600.00 | 599.45 | 584.30 | 583.84 | 1.73 | 1.75 | -98.86 | -46.43 | 162.91 | 171.98 | 168.27 | 3.71 | 46.376 | | | | | | |
| 700.00 | 698.70 | 676.75 | 675.67 | 2.07 | 2.08 | -103.43 | -44.03 | 173.28 | 185.17 | 180.68 | 4.49 | 41.225 | | | | | | |
| 800.00 | 797.47 | 771.12 | 769.09 | 2.43 | 2.42 | -108.45 | -41.03 | 186.24 | 203.20 | 198.01 | 5.19 | 39.133 | | | | | | |
| 900.00 | 895.73 | 866.93 | 863.91 | 2.83 | 2.77 | -113.54 | -37.94 | 199.62 | 224.15 | 218.31 | 5.85 | 38.334 | | | | | | |
| 1,000.00 | 993.94 | 962.65 | 958.65 | 3.24 | 3.13 | -117.97 | -34.86 | 212.98 | 246.81 | 240.31 | 6.50 | 37.968 | | | | | | |
| 1,100.00 | 1,092.15 | 1,058.37 | 1,053.38 | 3.66 | 3.49 | -121.65 | -31.77 | 226.34 | 270.66 | 263.50 | 7.16 | 37.814 | | | | | | |
| 1,200.00 | 1,190.36 | 1,154.09 | 1,148.11 | 4.09 | 3.86 | -124.75 | -28.68 | 239.70 | 295.43 | 287.61 | 7.82 | 37.785 | | | | | | |
| 1,300.00 | 1,288.57 | 1,249.81 | 1,242.85 | 4.51 | 4.23 | -127.37 | -25.59 | 253.06 | 320.89 | 312.40 | 8.49 | 37.813 | | | | | | |
| 1,400.00 | 1,386.78 | 1,345.54 | 1,337.58 | 4.95 | 4.59 | -129.60 | -22.50 | 266.42 | 346.90 | 337.74 | 9.16 | 37.881 | | | | | | |
| 1,500.00 | 1,484.99 | 1,441.26 | 1,432.32 | 5.38 | 4.96 | -131.53 | -19.42 | 279.78 | 373.34 | 363.50 | 9.83 | 37.969 | | | | | | |
| 1,600.00 | 1,583.20 | 1,536.98 | 1,527.05 | 5.82 | 5.33 | -133.20 | -16.33 | 293.14 | 400.12 | 389.61 | 10.51 | 38.067 | | | | | | |
| 1,700.00 | 1,681.41 | 1,632.70 | 1,621.79 | 6.25 | 5.70 | -134.67 | -13.24 | 306.50 | 427.19 | 416.00 | 11.19 | 38.169 | | | | | | |
| 1,800.00 | 1,779.62 | 1,728.42 | 1,716.52 | 6.69 | 6.07 | -135.96 | -10.15 | 319.86 | 454.48 | 442.61 | 11.88 | 38.271 | | | | | | |
| 1,900.00 | 1,877.83 | 1,824.15 | 1,811.26 | 7.13 | 6.45 | -137.11 | -7.07 | 333.22 | 481.97 | 469.41 | 12.56 | 38.370 | | | | | | |
| 2,000.00 | 1,976.04 | 1,919.87 | 1,905.99 | 7.57 | 6.82 | -138.13 | -3.98 | 346.58 | 509.62 | 496.37 | 13.25 | 38.466 | | | | | | |
| 2,100.00 | 2,074.25 | 2,015.59 | 2,000.73 | 8.01 | 7.19 | -139.05 | -0.89 | 359.94 | 537.40 | 523.47 | 13.94 | 38.558 | | | | | | |
| 2,200.00 | 2,172.46 | 2,111.31 | 2,095.46 | 8.45 | 7.56 | -139.88 | 2.20 | 373.30 | 565.30 | 550.67 | 14.63 | 38.645 | | | | | | |
| 2,300.00 | 2,270.67 | 2,207.03 | 2,190.19 | 8.89 | 7.94 | -140.63 | 5.29 | 386.66 | 593.30 | 577.98 | 15.32 | 38.728 | | | | | | |
| 2,400.00 | 2,368.88 | 2,302.76 | 2,284.93 | 9.34 | 8.31 | -141.31 | 8.37 | 400.02 | 621.39 | 605.37 | 16.01 | 38.806 | | | | | | |
| 2,500.00 | 2,467.09 | 2,398.48 | 2,379.66 | 9.78 | 8.68 | -141.93 | 11.46 | 413.39 | 649.55 | 632.84 | 16.71 | 38.880 | | | | | | |
| 2,600.00 | 2,565.30 | 2,494.20 | 2,474.40 | 10.22 | 9.05 | -142.51 | 14.55 | 426.75 | 677.77 | 660.37 | 17.40 | 38.950 | | | | | | |
| 2,700.00 | 2,663.51 | 2,589.92 | 2,569.13 | 10.66 | 9.43 | -143.03 | 17.64 | 440.11 | 706.05 | 687.96 | 18.10 | 39.016 | | | | | | |
| 2,800.00 | 2,761.72 | 2,685.64 | 2,663.87 | 11.11 | 9.80 | -143.52 | 20.73 | 453.47 | 734.39 | 715.59 | 18.79 | 39.079 | | | | | | |
| 2,900.00 | 2,859.93 | 2,781.37 | 2,758.60 | 11.55 | 10.17 | -143.97 | 23.81 | 466.83 | 762.77 | 743.28 | 19.49 | 39.138 | | | | | | |
| 3,000.00 | 2,958.14 | 2,877.09 | 2,853.34 | 11.99 | 10.55 | -144.39 | 26.90 | 480.19 | 791.19 | 771.00 | 20.19 | 39.194 | | | | | | |
| 3,100.00 | 3,056.35 | 2,972.81 | 2,948.07 | 12.44 | 10.92 | -144.78 | 29.99 | 493.55 | 819.64 | 798.76 | 20.88 | 39.247 | | | | | | |
| 3,200.00 | 3,154.55 | 3,068.53 | 3,042.81 | 12.88 | 11.30 | -145.14 | 33.08 | 506.91 | 848.13 | 826.55 | 21.58 | 39.297 | | | | | | |
| 3,300.00 | 3,252.76 | 3,164.25 | 3,137.54 | 13.32 | 11.67 | -145.48 | 36.17 | 520.27 | 876.65 | 854.37 | 22.28 | 39.345 | | | | | | |
| 3,400.00 | 3,350.97 | 3,259.97 | 3,232.27 | 13.77 | 12.04 | -145.80 | 39.25 | 533.63 | 905.19 | 882.21 | 22.98 | 39.390 | | | | | | |
| 3,500.00 | 3,449.18 | 3,355.70 | 3,327.01 | 14.21 | 12.42 | -146.10 | 42.34 | 546.99 | 933.76 | 910.08 | 23.68 | 39.433 | | | | | | |
| 3,600.00 | 3,547.39 | 3,451.42 | 3,421.74 | 14.66 | 12.79 | -146.38 | 45.43 | 560.35 | 962.35 | 937.97 | 24.38 | 39.474 | | | | | | |
| 3,700.00 | 3,645.60 | 3,547.14 | 3,516.48 | 15.10 | 13.16 | -146.65 | 48.52 | 573.71 | 990.96 | 965.88 | 25.08 | 39.513 | | | | | | |
| 3,800.00 | 3,743.81 | 3,642.86 | 3,611.21 | 15.54 | 13.54 | -146.90 | 51.61 | 587.07 | 1,019.59 | 993.81 | 25.78 | 39.550 | | | | | | |
| 3,900.00 | 3,842.02 | 3,738.58 | 3,705.95 | 15.99 | 13.91 | -147.13 | 54.69 | 600.43 | 1,048.23 | 1,021.75 | 26.48 | 39.585 | | | | | | |
| 4,000.00 | 3,940.23 | 3,834.31 | 3,800.68 | 16.43 | 14.29 | -147.36 | 57.78 | 613.79 | 1,076.89 | 1,049.71 | 27.18 | 39.619 | | | | | | |
| 4,100.00 | 4,038.44 | 3,930.03 | 3,895.42 | 16.88 | 14.66 | -147.57 | 60.87 | 627.15 | 1,105.57 | 1,077.69 | 27.88 | 39.651 | | | | | | |
| 4,200.00 | 4,136.65 | 4,025.75 | 3,990.15 | 17.32 | 15.03 | -147.77 | 63.96 | 640.51 | 1,134.26 | 1,105.68 | 28.58 | 39.682 | | | | | | |
| 4,300.00 | 4,234.86 | 4,121.47 | 4,084.89 | 17.77 | 15.41 | -147.96 | 67.04 | 653.87 | 1,162.96 | 1,133.67 | 29.29 | 39.712 | | | | | | |
| 4,400.00 | 4,333.07 | 4,217.19 | 4,179.62 | 18.21 | 15.78 | -148.15 | 70.13 | 667.24 | 1,191.67 | 1,161.69 | 29.99 | 39.740 | | | | | | |
| 4,500.00 | 4,431.28 | 4,312.92 | 4,274.36 | 18.66 | 16.16 | -148.32 | 73.22 | 680.60 | 1,220.40 | 1,189.71 | 30.69 | 39.767 | | | | | | |
| 4,600.00 | 4,529.59 | 4,408.78 | 4,369.23 | 19.05 | 16.53 | -148.64 | 76.31 | 693.98 | 1,248.68 | 1,217.32 | 31.36 | 39.817 | | | | | | |
| 4,700.00 | 4,628.42 | 4,505.41 | 4,464.86 | 19.31 | 16.91 | -148.99 | 79.43 | 707.46 | 1,274.37 | 1,242.41 | 31.96 | 39.876 | | | | | | |
| 4,800.00 | 4,727.73 | 4,602.39 | 4,560.70 | 19.57 | 17.40 | -149.25 | 83.65 | 725.72 | 1,295.15 | 1,262.31 | 32.83 | 39.945 | | | | | | |
| 4,900.00 | 4,827.38 | 4,698.13 | 4,606.00 | 19.81 | 22.50 | -112.73 | -745.28 | 737.63 | 1,275.71 | 1,244.10 | 31.61 | 40.355 | | | | | | |
| 5,000.00 | 4,927.26 | 4,798.61 | 4,706.00 | 20.03 | 22.53 | -111.19 | -749.76 | 737.63 | 1,218.68 | 1,185.31 | 33.37 | 36.517 | | | | | | |
| 5,100.00 | 5,027.25 | 4,898.84 | 4,806.00 | 20.28 | 22.54 | 90.00 | -750.99 | 737.63 | 1,166.35 | 1,131.21 | 35.14 | 33.193 | | | | | | |

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 #30E-1934 |
| Project: | Weld County, CO | TVD Reference: | KBE @ 4827.40usft (Original Well Elev) |
| Reference Site: | Sec 30-T10N-R57W | MD Reference: | KBE @ 4827.40usft (Original Well Elev) |
| Site Error: | 0.00 usft | North Reference: | True |
| Reference Well: | Horsetail #30E-1934 | 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 #30E-3104 - 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 | | | | | |
| 5,200.00 | 5,127.25 | 6,261.84 | 5,606.00 | 20.48 | 22.54 | 90.00 | -750.99 | 737.63 | 1,120.10 | 1,083.28 | 36.82 | 30.419 | | | | | |
| 5,300.00 | 5,227.25 | 6,261.68 | 5,606.00 | 20.70 | 22.54 | 91.08 | -750.83 | 737.63 | 1,081.15 | 1,042.74 | 38.41 | 28.148 | | | | | |
| 5,400.00 | 5,326.36 | 6,249.58 | 5,606.00 | 20.85 | 22.46 | 93.93 | -738.73 | 737.63 | 1,050.64 | 1,010.97 | 39.68 | 26.480 | | | | | |
| 5,500.00 | 5,421.35 | 6,218.81 | 5,606.00 | 20.93 | 22.25 | 94.64 | -707.96 | 737.63 | 1,029.72 | 989.29 | 40.44 | 25.465 | | | | | |
| 5,600.00 | 5,508.72 | 6,170.48 | 5,606.00 | 20.92 | 21.95 | 93.55 | -659.63 | 737.63 | 1,018.14 | 977.46 | 40.68 | 25,026 SF | | | | | |
| 5,700.00 | 5,585.26 | 6,106.37 | 5,606.00 | 20.86 | 21.57 | 91.21 | -595.52 | 737.63 | 1,014.29 | 973.81 | 40.48 | 25,054 | | | | | |
| 5,715.28 | 5,595.82 | 6,095.33 | 5,606.00 | 20.85 | 21.51 | 90.78 | -584.48 | 737.63 | 1,014.23 | 973.81 | 40.43 | 25,089 | | | | | |
| 5,800.00 | 5,648.17 | 6,028.84 | 5,606.00 | 20.77 | 21.17 | 88.31 | -517.99 | 737.63 | 1,015.68 | 975.66 | 40.02 | 25,381 | | | | | |
| 5,900.00 | 5,695.14 | 5,941.42 | 5,605.98 | 20.67 | 20.78 | 85.58 | -430.57 | 737.63 | 1,019.53 | 980.09 | 39.44 | 25,850 | | | | | |
| 6,000.00 | 5,724.43 | 5,864.49 | 5,599.72 | 20.59 | 20.49 | 83.47 | -353.97 | 737.63 | 1,024.32 | 985.35 | 38.96 | 26,288 | | | | | |
| 6,100.00 | 5,734.97 | 5,790.33 | 5,583.08 | 20.56 | 20.25 | 81.54 | -281.76 | 737.63 | 1,029.77 | 991.18 | 38.59 | 26,687 | | | | | |
| 6,200.00 | 5,735.00 | 5,720.53 | 5,558.20 | 20.60 | 20.05 | 80.14 | -216.60 | 737.63 | 1,036.81 | 998.46 | 38.35 | 27,039 | | | | | |
| 6,300.00 | 5,735.00 | 5,658.36 | 5,528.89 | 20.75 | 19.89 | 78.55 | -161.82 | 737.63 | 1,047.62 | 1,009.39 | 38.23 | 27,406 | | | | | |
| 6,400.00 | 5,735.00 | 5,600.00 | 5,495.61 | 21.02 | 19.75 | 76.77 | -113.91 | 737.63 | 1,063.08 | 1,024.88 | 38.19 | 27,833 | | | | | |
| 6,500.00 | 5,735.00 | 5,550.00 | 5,462.99 | 21.41 | 19.64 | 75.05 | -76.04 | 737.63 | 1,083.88 | 1,045.61 | 38.27 | 28,322 | | | | | |
| 6,600.00 | 5,735.00 | 5,517.18 | 5,439.67 | 21.89 | 19.56 | 73.84 | -52.96 | 737.63 | 1,110.35 | 1,071.84 | 38.51 | 28,833 | | | | | |
| 6,700.00 | 5,735.00 | 5,482.74 | 5,413.68 | 22.48 | 19.48 | 72.50 | -30.36 | 737.63 | 1,142.80 | 1,104.04 | 38.77 | 29,479 | | | | | |
| 6,800.00 | 5,735.00 | 5,450.00 | 5,387.65 | 23.14 | 19.41 | 71.19 | -10.52 | 737.63 | 1,181.14 | 1,142.10 | 39.04 | 30,252 | | | | | |
| 6,900.00 | 5,735.00 | 5,427.50 | 5,369.06 | 23.89 | 19.36 | 70.26 | 2.15 | 737.63 | 1,225.11 | 1,185.70 | 39.41 | 31,087 | | | | | |
| 7,000.00 | 5,735.00 | 5,400.00 | 5,345.62 | 24.70 | 19.30 | 69.10 | 16.53 | 737.63 | 1,274.44 | 1,234.75 | 39.69 | 32,107 | | | | | |
| 7,100.00 | 5,735.00 | 5,400.00 | 5,345.62 | 25.57 | 19.30 | 69.10 | 16.53 | 737.63 | 1,328.82 | 1,288.66 | 40.15 | 33,093 | | | | | |
| 7,200.00 | 5,735.00 | 5,368.72 | 5,318.08 | 26.49 | 19.22 | 67.77 | 31.36 | 737.63 | 1,387.30 | 1,346.92 | 40.37 | 34,362 | | | | | |
| 7,300.00 | 5,735.00 | 5,350.00 | 5,301.20 | 27.47 | 19.18 | 66.96 | 39.43 | 737.63 | 1,450.02 | 1,409.36 | 40.65 | 35,668 | | | | | |
| 7,400.00 | 5,735.00 | 5,350.00 | 5,301.20 | 28.48 | 19.18 | 66.96 | 39.43 | 737.63 | 1,516.42 | 1,475.42 | 41.00 | 36,983 | | | | | |



WOG

Anticollision Report

| | | | |
|---------------------------|-------------------------|-------------------------------------|--|
| Company: | Whiting Petroleum Corp. | Local Co-ordinate Reference: | Well Horsetail #30E-1934 |
| Project: | Weld County, CO | TVD Reference: | KBE @ 4827.40usft (Original Well Elev) |
| Reference Site: | Sec 30-T10N-R57W | MD Reference: | KBE @ 4827.40usft (Original Well Elev) |
| Site Error: | 0.00 usft | North Reference: | True |
| Reference Well: | Horsetail #30E-1934 | 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 | 129.95 | -49.59 | 59.21 | 77.23 | | | | | |
| 100.00 | 100.00 | 100.00 | 100.00 | 0.13 | 0.13 | 129.95 | -49.59 | 59.21 | 77.23 | 76.96 | 0.27 | 289.962 | | |
| 200.00 | 200.00 | 200.00 | 200.00 | 0.47 | 0.47 | 129.95 | -49.59 | 59.21 | 77.23 | 76.29 | 0.94 | 82.104 | | |
| 300.00 | 300.00 | 300.00 | 300.00 | 0.81 | 0.81 | 129.95 | -49.59 | 59.21 | 77.23 | 75.62 | 1.61 | 47.823 | | |
| 400.00 | 399.98 | 399.39 | 399.37 | 1.11 | 1.14 | -72.64 | -48.50 | 60.54 | 77.04 | 74.79 | 2.25 | 34.304 | | |
| 436.58 | 436.53 | 435.62 | 435.57 | 1.22 | 1.27 | -74.78 | -47.56 | 61.69 | 76.98 | 74.51 | 2.47 | 31.116 CC | | |
| 500.00 | 499.84 | 498.70 | 498.58 | 1.41 | 1.47 | -79.56 | -45.68 | 63.99 | 77.07 | 74.20 | 2.87 | 26.874 ES | | |
| 600.00 | 599.45 | 597.86 | 597.63 | 1.73 | 1.80 | -89.00 | -42.73 | 67.60 | 78.20 | 74.68 | 3.52 | 22.208 | | |
| 700.00 | 698.70 | 696.50 | 696.16 | 2.07 | 2.13 | -100.21 | -39.79 | 71.19 | 81.96 | 77.75 | 4.20 | 19.498 | | |
| 800.00 | 797.47 | 794.52 | 794.08 | 2.43 | 2.46 | -112.00 | -36.87 | 74.76 | 89.88 | 84.97 | 4.91 | 18.318 | | |
| 900.00 | 895.73 | 891.93 | 891.38 | 2.83 | 2.79 | -122.95 | -33.97 | 78.31 | 102.65 | 97.04 | 5.61 | 18.288 | | |
| 1,000.00 | 993.94 | 989.27 | 988.61 | 3.24 | 3.12 | -131.49 | -31.07 | 81.85 | 118.61 | 112.31 | 6.30 | 18.837 | | |
| 1,100.00 | 1,092.15 | 1,086.61 | 1,085.84 | 3.66 | 3.45 | -137.94 | -28.18 | 85.39 | 136.56 | 129.60 | 6.97 | 19.600 | | |
| 1,200.00 | 1,190.36 | 1,183.95 | 1,183.07 | 4.09 | 3.78 | -142.87 | -25.28 | 88.94 | 155.82 | 148.19 | 7.63 | 20.419 | | |
| 1,300.00 | 1,288.57 | 1,281.29 | 1,280.30 | 4.51 | 4.11 | -146.71 | -22.38 | 92.48 | 175.96 | 167.67 | 8.29 | 21.221 | | |
| 1,400.00 | 1,386.78 | 1,378.63 | 1,377.53 | 4.95 | 4.44 | -149.76 | -19.48 | 96.02 | 196.71 | 187.76 | 8.95 | 21.974 | | |
| 1,500.00 | 1,484.99 | 1,475.97 | 1,474.76 | 5.38 | 4.77 | -152.22 | -16.59 | 99.57 | 217.90 | 208.28 | 9.61 | 22.669 | | |
| 1,600.00 | 1,583.20 | 1,573.30 | 1,571.99 | 5.82 | 5.11 | -154.25 | -13.69 | 103.11 | 239.40 | 229.13 | 10.27 | 23.304 | | |
| 1,700.00 | 1,681.41 | 1,670.64 | 1,669.23 | 6.25 | 5.44 | -155.95 | -10.79 | 106.66 | 261.14 | 250.21 | 10.93 | 23.882 | | |
| 1,800.00 | 1,779.62 | 1,767.98 | 1,766.46 | 6.69 | 5.77 | -157.38 | -7.89 | 110.20 | 283.07 | 271.48 | 11.60 | 24.409 | | |
| 1,900.00 | 1,877.83 | 1,865.32 | 1,863.69 | 7.13 | 6.10 | -158.61 | -4.99 | 113.74 | 305.15 | 292.89 | 12.26 | 24.889 | | |
| 2,000.00 | 1,976.04 | 1,962.66 | 1,960.92 | 7.57 | 6.43 | -159.67 | -2.10 | 117.29 | 327.34 | 314.41 | 12.92 | 25.327 | | |
| 2,100.00 | 2,074.25 | 2,060.00 | 2,058.15 | 8.01 | 6.76 | -160.60 | 0.80 | 120.83 | 349.62 | 336.03 | 13.59 | 25.727 | | |
| 2,200.00 | 2,172.46 | 2,157.34 | 2,155.38 | 8.45 | 7.09 | -161.42 | 3.70 | 124.37 | 371.98 | 357.73 | 14.26 | 26.094 | | |
| 2,300.00 | 2,270.67 | 2,254.67 | 2,252.61 | 8.89 | 7.43 | -162.14 | 6.60 | 127.92 | 394.41 | 379.49 | 14.92 | 26.432 | | |
| 2,400.00 | 2,368.88 | 2,352.01 | 2,349.84 | 9.34 | 7.76 | -162.79 | 9.49 | 131.46 | 416.89 | 401.30 | 15.59 | 26.744 | | |
| 2,500.00 | 2,467.09 | 2,449.35 | 2,447.07 | 9.78 | 8.09 | -163.37 | 12.39 | 135.00 | 439.41 | 423.16 | 16.26 | 27.031 | | |
| 2,600.00 | 2,565.30 | 2,546.69 | 2,544.30 | 10.22 | 8.42 | -163.89 | 15.29 | 138.55 | 461.97 | 445.05 | 16.92 | 27.298 | | |
| 2,700.00 | 2,663.51 | 2,644.03 | 2,641.53 | 10.66 | 8.75 | -164.37 | 18.19 | 142.09 | 484.57 | 466.98 | 17.59 | 27.546 | | |
| 2,800.00 | 2,761.72 | 2,741.37 | 2,738.76 | 11.11 | 9.08 | -164.80 | 21.08 | 145.64 | 507.19 | 488.93 | 18.26 | 27.777 | | |
| 2,900.00 | 2,859.93 | 2,838.70 | 2,836.00 | 11.55 | 9.42 | -165.20 | 23.98 | 149.18 | 529.84 | 510.92 | 18.93 | 27.992 | | |
| 3,000.00 | 2,958.14 | 2,936.04 | 2,933.23 | 11.99 | 9.75 | -165.56 | 26.88 | 152.72 | 552.52 | 532.92 | 19.60 | 28.193 | | |
| 3,100.00 | 3,056.35 | 3,033.38 | 3,030.46 | 12.44 | 10.08 | -165.90 | 29.78 | 156.27 | 575.21 | 554.94 | 20.27 | 28.381 | | |
| 3,200.00 | 3,154.55 | 3,130.72 | 3,127.69 | 12.88 | 10.41 | -166.21 | 32.67 | 159.81 | 597.92 | 576.98 | 20.94 | 28.558 | | |
| 3,300.00 | 3,252.76 | 3,228.06 | 3,224.92 | 13.32 | 10.74 | -166.49 | 35.57 | 163.35 | 620.64 | 599.03 | 21.61 | 28.725 | | |
| 3,400.00 | 3,350.97 | 3,325.40 | 3,322.15 | 13.77 | 11.07 | -166.76 | 38.47 | 166.90 | 643.38 | 621.10 | 22.28 | 28.881 | | |
| 3,500.00 | 3,449.18 | 3,422.74 | 3,419.38 | 14.21 | 11.41 | -167.01 | 41.37 | 170.44 | 666.13 | 643.18 | 22.95 | 29.029 | | |
| 3,600.00 | 3,547.39 | 3,520.07 | 3,516.61 | 14.66 | 11.74 | -167.24 | 44.26 | 173.98 | 688.89 | 665.27 | 23.62 | 29.169 | | |
| 3,700.00 | 3,645.60 | 3,617.41 | 3,613.84 | 15.10 | 12.07 | -167.46 | 47.16 | 177.53 | 711.66 | 687.37 | 24.29 | 29.301 | | |
| 3,800.00 | 3,743.81 | 3,714.75 | 3,711.07 | 15.54 | 12.40 | -167.66 | 50.06 | 181.07 | 734.44 | 709.48 | 24.96 | 29.426 | | |
| 3,900.00 | 3,842.02 | 3,812.09 | 3,808.30 | 15.99 | 12.73 | -167.85 | 52.96 | 184.62 | 757.23 | 731.60 | 25.63 | 29.545 | | |
| 4,000.00 | 3,940.23 | 3,909.43 | 3,905.53 | 16.43 | 13.07 | -168.03 | 55.86 | 188.16 | 780.03 | 753.72 | 26.30 | 29.658 | | |
| 4,100.00 | 4,038.44 | 4,006.77 | 4,002.77 | 16.88 | 13.40 | -168.20 | 58.75 | 191.70 | 802.83 | 775.86 | 26.97 | 29.766 | | |
| 4,200.00 | 4,136.65 | 4,104.11 | 4,100.00 | 17.32 | 13.73 | -168.36 | 61.65 | 195.25 | 825.64 | 797.99 | 27.64 | 29.868 | | |
| 4,300.00 | 4,234.86 | 4,201.44 | 4,197.23 | 17.77 | 14.06 | -168.52 | 64.55 | 198.79 | 848.45 | 820.14 | 28.31 | 29.965 | | |
| 4,400.00 | 4,333.07 | 4,298.78 | 4,294.46 | 18.21 | 14.39 | -168.66 | 67.45 | 202.33 | 871.27 | 842.29 | 28.99 | 30.058 | | |
| 4,500.00 | 4,431.28 | 4,396.12 | 4,391.69 | 18.66 | 14.72 | -168.80 | 70.34 | 205.88 | 894.10 | 864.44 | 29.66 | 30.147 | | |
| 4,600.00 | 4,529.59 | 4,493.58 | 4,489.04 | 19.05 | 15.06 | -168.97 | 73.24 | 209.43 | 916.40 | 886.10 | 30.31 | 30.238 | | |
| 4,700.00 | 4,628.42 | 4,591.69 | 4,587.04 | 19.31 | 15.39 | -169.12 | 76.17 | 213.00 | 938.68 | 904.78 | 30.90 | 30.282 | | |
| 4,800.00 | 4,727.73 | 4,690.41 | 4,685.66 | 19.57 | 15.73 | -169.22 | 79.10 | 216.59 | 961.58 | 920.09 | 31.49 | 30.214 | | |
| 4,900.00 | 4,827.38 | 4,789.62 | 4,784.76 | 19.81 | 16.07 | -169.26 | 82.06 | 220.20 | 984.09 | 932.00 | 32.09 | 30.041 | | |
| 5,000.00 | 4,927.26 | 4,889.20 | 4,884.22 | 20.03 | 16.41 | -169.25 | 85.02 | 223.83 | 1006.40 | 940.50 | 32.69 | 29.770 | | |

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 #30E-1934 |
| Project: | Weld County, CO | TVD Reference: | KBE @ 4827.40usft (Original Well Elev) |
| Reference Site: | Sec 30-T10N-R57W | MD Reference: | KBE @ 4827.40usft (Original Well Elev) |
| Site Error: | 0.00 usft | North Reference: | True |
| Reference Well: | Horsetail #30E-1934 | 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 | 5,027.25 | 6,441.07 | 5,820.00 | 20.28 | 21.69 | 89.90 | -750.16 | 230.60 | 940.26 | 916.68 | 23.58 | 39.880 | | |
| 5,200.00 | 5,127.25 | 6,441.07 | 5,820.00 | 20.48 | 21.69 | 89.90 | -750.16 | 230.60 | 857.63 | 831.98 | 25.65 | 33.439 | | |
| 5,300.00 | 5,227.25 | 6,440.91 | 5,820.00 | 20.70 | 21.69 | 92.15 | -749.99 | 230.60 | 779.09 | 751.03 | 28.06 | 27.768 | | |
| 5,400.00 | 5,326.36 | 6,428.81 | 5,820.00 | 20.85 | 21.61 | 102.30 | -737.90 | 230.58 | 706.69 | 676.00 | 30.68 | 23.032 | | |
| 5,500.00 | 5,421.35 | 6,398.04 | 5,820.00 | 20.93 | 21.39 | 107.78 | -707.12 | 230.53 | 644.12 | 610.83 | 33.29 | 19.351 | | |
| 5,600.00 | 5,508.72 | 6,349.71 | 5,820.00 | 20.92 | 21.09 | 109.50 | -658.79 | 230.45 | 594.34 | 558.72 | 35.62 | 16.685 | | |
| 5,700.00 | 5,585.26 | 6,285.60 | 5,820.00 | 20.86 | 20.70 | 108.54 | -594.68 | 230.34 | 558.51 | 521.13 | 37.38 | 14.940 | | |
| 5,800.00 | 5,648.17 | 6,208.07 | 5,820.00 | 20.77 | 20.29 | 105.98 | -517.15 | 230.21 | 535.69 | 497.23 | 38.46 | 13.929 | | |
| 5,900.00 | 5,695.14 | 6,119.16 | 5,819.99 | 20.67 | 19.89 | 102.91 | -428.24 | 230.06 | 523.17 | 484.27 | 38.91 | 13.446 | | |
| 6,000.00 | 5,724.43 | 6,004.55 | 5,806.71 | 20.59 | 19.48 | 98.67 | -314.64 | 229.87 | 515.75 | 476.72 | 39.03 | 13.214 | | |
| 6,100.00 | 5,734.97 | 5,901.11 | 5,773.67 | 20.56 | 19.18 | 94.33 | -216.80 | 229.71 | 511.32 | 472.25 | 39.07 | 13.088 | | |
| 6,173.53 | 5,735.43 | 5,833.16 | 5,741.70 | 20.59 | 19.01 | 90.70 | -156.89 | 229.61 | 510.17 | 471.10 | 39.06 | 13.060 SF | | |
| 6,200.00 | 5,735.00 | 5,810.72 | 5,729.46 | 20.60 | 18.96 | 89.38 | -138.09 | 229.58 | 510.36 | 471.32 | 39.04 | 13.074 | | |
| 6,300.00 | 5,735.00 | 5,737.51 | 5,684.11 | 20.75 | 18.78 | 84.31 | -80.68 | 229.48 | 515.70 | 476.78 | 38.91 | 13.252 | | |
| 6,400.00 | 5,735.00 | 5,679.15 | 5,642.48 | 21.02 | 18.64 | 79.74 | -39.84 | 229.41 | 530.74 | 492.03 | 38.71 | 13.711 | | |
| 6,500.00 | 5,735.00 | 5,632.64 | 5,606.19 | 21.41 | 18.53 | 75.86 | -10.78 | 229.37 | 557.23 | 518.74 | 38.49 | 14.478 | | |
| 6,600.00 | 5,735.00 | 5,600.00 | 5,579.23 | 21.89 | 18.45 | 73.06 | 7.63 | 229.34 | 595.32 | 556.94 | 38.38 | 15.512 | | |
| 6,700.00 | 5,735.00 | 5,564.85 | 5,548.98 | 22.48 | 18.36 | 70.02 | 25.52 | 229.31 | 643.93 | 605.73 | 38.20 | 16.858 | | |
| 6,800.00 | 5,735.00 | 5,550.00 | 5,535.86 | 23.14 | 18.32 | 68.73 | 32.46 | 229.29 | 701.75 | 663.48 | 38.28 | 18.333 | | |
| 6,900.00 | 5,735.00 | 5,518.85 | 5,507.71 | 23.89 | 18.24 | 66.05 | 45.78 | 229.27 | 766.72 | 728.59 | 38.13 | 20.109 | | |
| 7,000.00 | 5,735.00 | 5,500.00 | 5,490.30 | 24.70 | 18.19 | 64.44 | 53.02 | 229.26 | 837.81 | 799.68 | 38.12 | 21.976 | | |
| 7,100.00 | 5,735.00 | 5,500.00 | 5,490.30 | 25.57 | 18.19 | 64.44 | 53.02 | 229.26 | 913.91 | 875.62 | 38.30 | 23.864 | | |
| 7,200.00 | 5,735.00 | 5,473.04 | 5,464.98 | 26.49 | 18.12 | 62.18 | 62.27 | 229.24 | 993.30 | 955.11 | 38.19 | 26.009 | | |
| 7,300.00 | 5,735.00 | 5,450.00 | 5,442.98 | 27.47 | 18.05 | 60.30 | 69.12 | 229.23 | 1,076.17 | 1,038.04 | 38.13 | 28.224 | | |
| 7,400.00 | 5,735.00 | 5,450.00 | 5,442.98 | 28.48 | 18.05 | 60.30 | 69.12 | 229.23 | 1,161.13 | 1,122.89 | 38.25 | 30.359 | | |
| 7,500.00 | 5,735.00 | 5,450.00 | 5,442.98 | 29.54 | 18.05 | 60.30 | 69.12 | 229.23 | 1,248.33 | 1,209.99 | 38.34 | 32.562 | | |
| 7,600.00 | 5,735.00 | 5,450.00 | 5,442.98 | 30.63 | 18.05 | 60.30 | 69.12 | 229.23 | 1,337.32 | 1,298.91 | 38.41 | 34.818 | | |
| 7,700.00 | 5,735.00 | 5,428.11 | 5,421.83 | 31.75 | 18.00 | 58.54 | 74.73 | 229.22 | 1,427.17 | 1,388.81 | 38.36 | 37.206 | | |
| 7,800.00 | 5,735.00 | 5,421.80 | 5,415.69 | 32.90 | 17.98 | 58.05 | 76.18 | 229.22 | 1,518.43 | 1,480.04 | 38.39 | 39.551 | | |



WOG

Anticollision Report

| | | | |
|---------------------------|-------------------------|-------------------------------------|--|
| Company: | Whiting Petroleum Corp. | Local Co-ordinate Reference: | Well Horsetail #30E-1934 |
| Project: | Weld County, CO | TVD Reference: | KBE @ 4827.40usft (Original Well Elev) |
| Reference Site: | Sec 30-T10N-R57W | MD Reference: | KBE @ 4827.40usft (Original Well Elev) |
| Site Error: | 0.00 usft | North Reference: | True |
| Reference Well: | Horsetail #30E-1934 | 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 #30E-3136 - 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 | 112.59 | -49.59 | 119.19 | 129.09 | | | | | | | |
| 100.00 | 100.00 | 100.00 | 100.00 | 0.13 | 0.13 | 112.59 | -49.59 | 119.19 | 129.09 | 128.83 | 0.27 | 484.683 | | | | |
| 200.00 | 200.00 | 200.00 | 200.00 | 0.47 | 0.47 | 112.59 | -49.59 | 119.19 | 129.09 | 128.15 | 0.94 | 137.240 | | | | |
| 300.00 | 300.00 | 300.00 | 300.00 | 0.81 | 0.81 | 112.59 | -49.59 | 119.19 | 129.09 | 127.48 | 1.61 | 79.937 | CC, ES | | | |
| 400.00 | 399.98 | 396.54 | 396.52 | 1.11 | 1.12 | -88.69 | -49.13 | 120.75 | 130.35 | 128.09 | 2.27 | 57.518 | | | | |
| 500.00 | 499.84 | 492.54 | 492.39 | 1.41 | 1.44 | -92.02 | -47.74 | 125.38 | 134.46 | 131.51 | 2.95 | 45.550 | | | | |
| 600.00 | 599.45 | 587.47 | 586.99 | 1.73 | 1.77 | -97.03 | -45.46 | 132.99 | 142.30 | 138.60 | 3.70 | 38.440 | | | | |
| 700.00 | 698.70 | 684.54 | 683.51 | 2.07 | 2.10 | -103.10 | -42.50 | 142.87 | 154.08 | 149.70 | 4.38 | 35.200 | | | | |
| 800.00 | 797.47 | 781.73 | 780.14 | 2.43 | 2.44 | -109.32 | -39.52 | 152.82 | 168.68 | 163.64 | 5.05 | 33.426 | | | | |
| 900.00 | 895.73 | 878.25 | 876.11 | 2.83 | 2.78 | -115.39 | -36.55 | 162.70 | 186.35 | 180.62 | 5.73 | 32.533 | | | | |
| 1,000.00 | 993.94 | 974.69 | 972.00 | 3.24 | 3.13 | -120.58 | -33.59 | 172.58 | 205.99 | 199.59 | 6.40 | 32.175 | | | | |
| 1,100.00 | 1,092.15 | 1,071.13 | 1,067.89 | 3.66 | 3.48 | -124.87 | -30.64 | 182.45 | 227.02 | 219.94 | 7.07 | 32.096 | | | | |
| 1,200.00 | 1,190.36 | 1,167.58 | 1,163.78 | 4.09 | 3.83 | -128.43 | -27.68 | 192.33 | 249.07 | 241.33 | 7.75 | 32.150 | | | | |
| 1,300.00 | 1,288.57 | 1,264.02 | 1,259.67 | 4.51 | 4.18 | -131.41 | -24.72 | 202.20 | 271.92 | 263.50 | 8.42 | 32.290 | | | | |
| 1,400.00 | 1,386.78 | 1,360.46 | 1,355.55 | 4.95 | 4.53 | -133.94 | -21.76 | 212.08 | 295.36 | 286.26 | 9.10 | 32.472 | | | | |
| 1,500.00 | 1,484.99 | 1,456.90 | 1,451.44 | 5.38 | 4.88 | -136.09 | -18.80 | 221.95 | 319.27 | 309.50 | 9.77 | 32.673 | | | | |
| 1,600.00 | 1,583.20 | 1,553.34 | 1,547.33 | 5.82 | 5.23 | -137.95 | -15.84 | 231.83 | 343.55 | 333.11 | 10.45 | 32.879 | | | | |
| 1,700.00 | 1,681.41 | 1,649.78 | 1,643.22 | 6.25 | 5.58 | -139.56 | -12.88 | 241.70 | 368.14 | 357.01 | 11.13 | 33.084 | | | | |
| 1,800.00 | 1,779.62 | 1,746.22 | 1,739.11 | 6.69 | 5.93 | -140.97 | -9.92 | 251.58 | 392.96 | 381.15 | 11.81 | 33.282 | | | | |
| 1,900.00 | 1,877.83 | 1,842.66 | 1,835.00 | 7.13 | 6.28 | -142.21 | -6.96 | 261.45 | 417.98 | 405.49 | 12.49 | 33.472 | | | | |
| 2,000.00 | 1,976.04 | 1,939.10 | 1,930.88 | 7.57 | 6.64 | -143.32 | -4.00 | 271.33 | 443.16 | 430.00 | 13.17 | 33.653 | | | | |
| 2,100.00 | 2,074.25 | 2,035.54 | 2,026.77 | 8.01 | 6.99 | -144.30 | -1.04 | 281.20 | 468.49 | 454.64 | 13.85 | 33.823 | | | | |
| 2,200.00 | 2,172.46 | 2,131.98 | 2,122.66 | 8.45 | 7.34 | -145.19 | 1.92 | 291.08 | 493.93 | 479.40 | 14.53 | 33.984 | | | | |
| 2,300.00 | 2,270.67 | 2,228.43 | 2,218.55 | 8.89 | 7.69 | -145.99 | 4.88 | 300.95 | 519.47 | 504.25 | 15.22 | 34.135 | | | | |
| 2,400.00 | 2,368.88 | 2,324.87 | 2,314.44 | 9.34 | 8.05 | -146.71 | 7.83 | 310.82 | 545.10 | 529.20 | 15.90 | 34.278 | | | | |
| 2,500.00 | 2,467.09 | 2,421.31 | 2,410.33 | 9.78 | 8.40 | -147.37 | 10.79 | 320.70 | 570.80 | 554.21 | 16.59 | 34.412 | | | | |
| 2,600.00 | 2,565.30 | 2,517.75 | 2,506.21 | 10.22 | 8.75 | -147.97 | 13.75 | 330.57 | 596.57 | 579.29 | 17.27 | 34.538 | | | | |
| 2,700.00 | 2,663.51 | 2,614.19 | 2,602.10 | 10.66 | 9.10 | -148.52 | 16.71 | 340.45 | 622.39 | 604.43 | 17.96 | 34.657 | | | | |
| 2,800.00 | 2,761.72 | 2,710.63 | 2,697.99 | 11.11 | 9.46 | -149.03 | 19.67 | 350.32 | 648.26 | 629.62 | 18.65 | 34.769 | | | | |
| 2,900.00 | 2,859.93 | 2,807.07 | 2,793.88 | 11.55 | 9.81 | -149.50 | 22.63 | 360.20 | 674.18 | 654.85 | 19.33 | 34.874 | | | | |
| 3,000.00 | 2,958.14 | 2,903.51 | 2,889.77 | 11.99 | 10.16 | -149.94 | 25.59 | 370.07 | 700.13 | 680.12 | 20.02 | 34.974 | | | | |
| 3,100.00 | 3,056.35 | 2,999.95 | 2,985.66 | 12.44 | 10.52 | -150.34 | 28.55 | 379.95 | 726.13 | 705.42 | 20.71 | 35.068 | | | | |
| 3,200.00 | 3,154.55 | 3,096.39 | 3,081.54 | 12.88 | 10.87 | -150.72 | 31.51 | 389.82 | 752.15 | 730.75 | 21.39 | 35.157 | | | | |
| 3,300.00 | 3,252.76 | 3,192.83 | 3,177.43 | 13.32 | 11.22 | -151.07 | 34.47 | 399.70 | 778.20 | 756.12 | 22.08 | 35.241 | | | | |
| 3,400.00 | 3,350.97 | 3,289.28 | 3,273.32 | 13.77 | 11.58 | -151.39 | 37.43 | 409.57 | 804.27 | 781.50 | 22.77 | 35.321 | | | | |
| 3,500.00 | 3,449.18 | 3,385.72 | 3,369.21 | 14.21 | 11.93 | -151.70 | 40.39 | 419.45 | 830.37 | 806.92 | 23.46 | 35.397 | | | | |
| 3,600.00 | 3,547.39 | 3,482.16 | 3,465.10 | 14.66 | 12.28 | -151.99 | 43.35 | 429.32 | 856.49 | 832.35 | 24.15 | 35.470 | | | | |
| 3,700.00 | 3,645.60 | 3,578.60 | 3,560.99 | 15.10 | 12.64 | -152.26 | 46.30 | 439.20 | 882.63 | 857.80 | 24.84 | 35.538 | | | | |
| 3,800.00 | 3,743.81 | 3,675.04 | 3,656.87 | 15.54 | 12.99 | -152.52 | 49.26 | 449.07 | 908.79 | 883.27 | 25.53 | 35.604 | | | | |
| 3,900.00 | 3,842.02 | 3,771.48 | 3,752.76 | 15.99 | 13.34 | -152.76 | 52.22 | 458.95 | 934.96 | 908.75 | 26.21 | 35.666 | | | | |
| 4,000.00 | 3,940.23 | 3,867.92 | 3,848.65 | 16.43 | 13.70 | -152.99 | 55.18 | 468.82 | 961.15 | 934.25 | 26.90 | 35.725 | | | | |
| 4,100.00 | 4,038.44 | 3,964.36 | 3,944.54 | 16.88 | 14.05 | -153.21 | 58.14 | 478.70 | 987.35 | 959.76 | 27.59 | 35.782 | | | | |
| 4,200.00 | 4,136.65 | 4,060.80 | 4,040.43 | 17.32 | 14.40 | -153.41 | 61.10 | 488.57 | 1,013.57 | 985.28 | 28.28 | 35.836 | | | | |
| 4,300.00 | 4,234.86 | 4,157.24 | 4,136.32 | 17.77 | 14.76 | -153.61 | 64.06 | 498.44 | 1,039.79 | 1,010.82 | 28.97 | 35.888 | | | | |
| 4,400.00 | 4,333.07 | 4,253.68 | 4,232.20 | 18.21 | 15.11 | -153.79 | 67.02 | 508.32 | 1,066.03 | 1,036.36 | 29.66 | 35.938 | | | | |
| 4,500.00 | 4,431.28 | 4,350.13 | 4,328.09 | 18.66 | 15.46 | -153.97 | 69.98 | 518.19 | 1,092.27 | 1,061.92 | 30.35 | 35.985 | | | | |
| 4,600.00 | 4,529.59 | 4,446.70 | 4,424.12 | 19.05 | 15.82 | -154.25 | 72.94 | 528.08 | 1,118.05 | 1,087.03 | 31.02 | 36.048 | | | | |
| 4,700.00 | 4,628.42 | 4,544.00 | 4,520.85 | 19.31 | 16.17 | -154.54 | 75.93 | 538.05 | 1,141.07 | 1,109.46 | 31.61 | 36.098 | | | | |
| 4,800.00 | 4,727.73 | 4,641.98 | 4,618.28 | 19.57 | 16.53 | -154.71 | 78.93 | 548.08 | 1,161.02 | 1,128.81 | 32.21 | 36.047 | | | | |
| 4,900.00 | 4,827.38 | 4,745.40 | 4,721.10 | 19.81 | 16.91 | -154.78 | 82.10 | 558.64 | 1,177.85 | 1,145.01 | 32.84 | 35.872 | | | | |
| 5,000.00 | 4,927.26 | 4,845.36 | 4,821.00 | 20.03 | 17.28 | -154.84 | -749.76 | 573.02 | 1,170.82 | 1,141.13 | 29.69 | 39.438 | | | | |
| 5,100.00 | 5,027.25 | 4,945.39 | 4,921.00 | 20.28 | 17.63 | 90.00 | -751.00 | 573.02 | 1,104.56 | 1,072.94 | 31.62 | 34.933 | | | | |

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 #30E-1934 |
| Project: | Weld County, CO | TVD Reference: | KBE @ 4827.40usft (Original Well Elev) |
| Reference Site: | Sec 30-T10N-R57W | MD Reference: | KBE @ 4827.40usft (Original Well Elev) |
| Site Error: | 0.00 usft | North Reference: | True |
| Reference Well: | Horsetail #30E-1934 | 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 #30E-3136 - 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 | | | | | |
| 5,200.00 | 5,127.25 | 6,373.59 | 5,735.00 | 20.48 | 22.33 | 90.00 | -751.00 | 573.02 | 1,043.31 | 1,009.72 | 33.60 | 31.055 | | | | | |
| 5,300.00 | 5,227.25 | 6,373.43 | 5,735.00 | 20.70 | 22.33 | 91.41 | -750.83 | 573.02 | 988.41 | 952.80 | 35.61 | 27.753 | | | | | |
| 5,400.00 | 5,326.36 | 6,361.33 | 5,735.00 | 20.85 | 22.25 | 96.45 | -738.74 | 573.02 | 941.45 | 904.00 | 37.45 | 25.139 | | | | | |
| 5,500.00 | 5,421.35 | 6,330.56 | 5,735.00 | 20.93 | 22.04 | 98.85 | -707.96 | 573.02 | 904.54 | 865.68 | 38.86 | 23.275 | | | | | |
| 5,600.00 | 5,508.72 | 6,282.23 | 5,735.00 | 20.92 | 21.73 | 99.01 | -659.63 | 573.02 | 878.52 | 838.77 | 39.75 | 22.101 | | | | | |
| 5,700.00 | 5,585.26 | 6,218.12 | 5,735.00 | 20.86 | 21.35 | 97.53 | -595.52 | 573.02 | 862.57 | 822.46 | 40.11 | 21.505 | | | | | |
| 5,800.00 | 5,648.17 | 6,140.59 | 5,735.00 | 20.77 | 20.94 | 95.16 | -517.99 | 573.02 | 854.62 | 814.56 | 40.06 | 21.335 SF | | | | | |
| 5,900.00 | 5,695.14 | 6,052.09 | 5,734.98 | 20.67 | 20.53 | 92.67 | -429.49 | 573.02 | 851.95 | 812.20 | 39.75 | 21.432 | | | | | |
| 5,952.04 | 5,712.67 | 6,001.32 | 5,732.01 | 20.63 | 20.33 | 91.36 | -378.83 | 573.02 | 851.69 | 812.13 | 39.57 | 21.526 | | | | | |
| 6,000.00 | 5,724.43 | 5,956.24 | 5,725.25 | 20.59 | 20.16 | 90.16 | -334.27 | 573.02 | 851.90 | 812.51 | 39.39 | 21.627 | | | | | |
| 6,100.00 | 5,734.97 | 5,866.71 | 5,700.57 | 20.56 | 19.87 | 87.70 | -248.32 | 573.02 | 853.62 | 814.54 | 39.08 | 21.842 | | | | | |
| 6,200.00 | 5,735.00 | 5,785.42 | 5,665.71 | 20.60 | 19.64 | 85.36 | -174.98 | 573.02 | 857.49 | 818.62 | 38.87 | 22.058 | | | | | |
| 6,300.00 | 5,735.00 | 5,716.42 | 5,627.47 | 20.75 | 19.47 | 82.82 | -117.60 | 573.02 | 865.37 | 826.59 | 38.77 | 22.319 | | | | | |
| 6,400.00 | 5,735.00 | 5,659.01 | 5,590.11 | 21.02 | 19.33 | 80.37 | -74.06 | 573.02 | 878.85 | 840.09 | 38.76 | 22.674 | | | | | |
| 6,500.00 | 5,735.00 | 5,611.59 | 5,555.78 | 21.41 | 19.21 | 78.16 | -41.37 | 573.02 | 899.07 | 860.24 | 38.83 | 23.155 | | | | | |
| 6,600.00 | 5,735.00 | 5,572.37 | 5,525.24 | 21.89 | 19.12 | 76.21 | -16.77 | 573.02 | 926.60 | 887.64 | 38.96 | 23.782 | | | | | |
| 6,700.00 | 5,735.00 | 5,550.00 | 5,507.02 | 22.48 | 19.07 | 75.07 | -3.80 | 573.02 | 961.63 | 922.41 | 39.22 | 24.516 | | | | | |
| 6,800.00 | 5,735.00 | 5,500.00 | 5,464.39 | 23.14 | 18.94 | 72.44 | 22.30 | 573.02 | 1,003.76 | 964.51 | 39.25 | 25.574 | | | | | |
| 6,900.00 | 5,735.00 | 5,500.00 | 5,464.39 | 23.89 | 18.94 | 72.44 | 22.30 | 573.02 | 1,052.45 | 1,012.79 | 39.66 | 26.538 | | | | | |
| 7,000.00 | 5,735.00 | 5,469.37 | 5,437.11 | 24.70 | 18.87 | 70.80 | 36.22 | 573.02 | 1,107.05 | 1,067.26 | 39.78 | 27.828 | | | | | |
| 7,100.00 | 5,735.00 | 5,450.00 | 5,419.46 | 25.57 | 18.82 | 69.75 | 44.19 | 573.02 | 1,167.11 | 1,127.13 | 39.98 | 29.192 | | | | | |
| 7,200.00 | 5,735.00 | 5,450.00 | 5,419.46 | 26.49 | 18.82 | 69.75 | 44.19 | 573.02 | 1,232.02 | 1,191.76 | 40.27 | 30.596 | | | | | |
| 7,300.00 | 5,735.00 | 5,424.49 | 5,395.78 | 27.47 | 18.76 | 68.37 | 53.67 | 573.02 | 1,300.67 | 1,260.32 | 40.35 | 32.234 | | | | | |
| 7,400.00 | 5,735.00 | 5,400.00 | 5,372.63 | 28.48 | 18.69 | 67.05 | 61.67 | 573.02 | 1,373.20 | 1,332.78 | 40.42 | 33.971 | | | | | |
| 7,500.00 | 5,735.00 | 5,400.00 | 5,372.63 | 29.54 | 18.69 | 67.05 | 61.67 | 573.02 | 1,448.42 | 1,407.80 | 40.62 | 35.661 | | | | | |
| 7,600.00 | 5,735.00 | 5,400.00 | 5,372.63 | 30.63 | 18.69 | 67.05 | 61.67 | 573.02 | 1,526.48 | 1,485.70 | 40.78 | 37.433 | | | | | |



WOG

Anticollision Report

| | | | |
|---------------------------|-------------------------|-------------------------------------|--|
| Company: | Whiting Petroleum Corp. | Local Co-ordinate Reference: | Well Horsetail #30E-1934 |
| Project: | Weld County, CO | TVD Reference: | KBE @ 4827.40usft (Original Well Elev) |
| Reference Site: | Sec 30-T10N-R57W | MD Reference: | KBE @ 4827.40usft (Original Well Elev) |
| Site Error: | 0.00 usft | North Reference: | True |
| Reference Well: | Horsetail #30E-1934 | 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 | 105.47 | -49.59 | 179.17 | 185.90 | | | | | |
| 100.00 | 100.00 | 100.00 | 100.00 | 0.13 | 0.13 | 105.47 | -49.59 | 179.17 | 185.90 | 185.64 | 0.27 | 697.964 | | |
| 200.00 | 200.00 | 200.00 | 200.00 | 0.47 | 0.47 | 105.47 | -49.59 | 179.17 | 185.90 | 184.96 | 0.94 | 197.632 | | |
| 300.00 | 300.00 | 300.00 | 300.00 | 0.81 | 0.81 | 105.47 | -49.59 | 179.17 | 185.90 | 184.29 | 1.61 | 115.113 CC, ES | | |
| 400.00 | 399.98 | 394.42 | 394.40 | 1.11 | 1.11 | -95.32 | -49.30 | 180.69 | 187.54 | 185.27 | 2.27 | 82.664 | | |
| 500.00 | 499.84 | 488.35 | 488.22 | 1.41 | 1.42 | -97.27 | -48.43 | 185.25 | 192.61 | 189.65 | 2.96 | 65.042 | | |
| 600.00 | 599.45 | 581.32 | 580.87 | 1.73 | 1.74 | -100.26 | -47.01 | 192.73 | 201.59 | 197.88 | 3.71 | 54.390 | | |
| 700.00 | 698.70 | 672.88 | 671.83 | 2.07 | 2.06 | -103.92 | -45.06 | 202.97 | 215.08 | 210.60 | 4.48 | 47.987 | | |
| 800.00 | 797.47 | 762.60 | 760.59 | 2.43 | 2.39 | -107.88 | -42.62 | 215.78 | 233.68 | 228.41 | 5.27 | 44.342 | | |
| 900.00 | 895.73 | 856.06 | 852.73 | 2.83 | 2.74 | -112.23 | -39.70 | 231.17 | 256.81 | 250.87 | 5.94 | 43.213 | | |
| 1,000.00 | 993.94 | 951.23 | 946.54 | 3.24 | 3.11 | -116.15 | -36.70 | 246.93 | 281.55 | 274.97 | 6.58 | 42.807 | | |
| 1,100.00 | 1,092.15 | 1,046.41 | 1,040.36 | 3.66 | 3.48 | -119.45 | -33.70 | 262.68 | 307.36 | 300.13 | 7.23 | 42.540 | | |
| 1,200.00 | 1,190.36 | 1,141.58 | 1,134.17 | 4.09 | 3.86 | -122.24 | -30.71 | 278.44 | 333.99 | 326.12 | 7.87 | 42.442 | | |
| 1,300.00 | 1,288.57 | 1,236.76 | 1,227.98 | 4.51 | 4.24 | -124.62 | -27.71 | 294.20 | 361.27 | 352.74 | 8.53 | 42.350 | | |
| 1,400.00 | 1,386.78 | 1,331.93 | 1,321.80 | 4.95 | 4.63 | -126.67 | -24.72 | 309.96 | 389.06 | 379.86 | 9.20 | 42.302 | | |
| 1,500.00 | 1,484.99 | 1,427.11 | 1,415.61 | 5.38 | 5.01 | -128.46 | -21.72 | 325.72 | 417.25 | 407.39 | 9.87 | 42.278 | | |
| 1,600.00 | 1,583.20 | 1,522.29 | 1,509.43 | 5.82 | 5.40 | -130.01 | -18.72 | 341.47 | 445.78 | 435.23 | 10.55 | 42.269 | | |
| 1,700.00 | 1,681.41 | 1,617.46 | 1,603.24 | 6.25 | 5.78 | -131.39 | -15.73 | 357.23 | 474.57 | 463.34 | 11.23 | 42.269 | | |
| 1,800.00 | 1,779.62 | 1,712.64 | 1,697.05 | 6.69 | 6.17 | -132.60 | -12.73 | 372.99 | 503.59 | 491.68 | 11.91 | 42.275 | | |
| 1,900.00 | 1,877.83 | 1,807.81 | 1,790.87 | 7.13 | 6.56 | -133.69 | -9.73 | 388.75 | 532.79 | 520.19 | 12.60 | 42.286 | | |
| 2,000.00 | 1,976.04 | 1,902.99 | 1,884.68 | 7.57 | 6.95 | -134.66 | -6.74 | 404.51 | 562.15 | 548.86 | 13.29 | 42.299 | | |
| 2,100.00 | 2,074.25 | 1,998.16 | 1,978.49 | 8.01 | 7.34 | -135.53 | -3.74 | 420.26 | 591.65 | 577.67 | 13.98 | 42.313 | | |
| 2,200.00 | 2,172.46 | 2,093.34 | 2,072.31 | 8.45 | 7.73 | -136.33 | -0.74 | 436.02 | 621.26 | 606.59 | 14.68 | 42.328 | | |
| 2,300.00 | 2,270.67 | 2,188.51 | 2,166.12 | 8.89 | 8.12 | -137.05 | 2.25 | 451.78 | 650.97 | 635.60 | 15.37 | 42.343 | | |
| 2,400.00 | 2,368.88 | 2,283.69 | 2,259.94 | 9.34 | 8.51 | -137.71 | 5.25 | 467.54 | 680.77 | 664.70 | 16.07 | 42.359 | | |
| 2,500.00 | 2,467.09 | 2,378.86 | 2,353.75 | 9.78 | 8.90 | -138.31 | 8.25 | 483.30 | 710.65 | 693.87 | 16.77 | 42.374 | | |
| 2,600.00 | 2,565.30 | 2,474.04 | 2,447.56 | 10.22 | 9.29 | -138.87 | 11.24 | 499.06 | 740.59 | 723.11 | 17.47 | 42.389 | | |
| 2,700.00 | 2,663.51 | 2,569.21 | 2,541.38 | 10.66 | 9.68 | -139.38 | 14.24 | 514.81 | 770.58 | 752.41 | 18.17 | 42.404 | | |
| 2,800.00 | 2,761.72 | 2,664.39 | 2,635.19 | 11.11 | 10.07 | -139.85 | 17.24 | 530.57 | 800.64 | 781.76 | 18.87 | 42.418 | | |
| 2,900.00 | 2,859.93 | 2,759.56 | 2,729.01 | 11.55 | 10.46 | -140.29 | 20.23 | 546.33 | 830.73 | 811.15 | 19.58 | 42.431 | | |
| 3,000.00 | 2,958.14 | 2,854.74 | 2,822.82 | 11.99 | 10.85 | -140.70 | 23.23 | 562.09 | 860.87 | 840.59 | 20.28 | 42.445 | | |
| 3,100.00 | 3,056.35 | 2,949.92 | 2,916.63 | 12.44 | 11.24 | -141.09 | 26.23 | 577.85 | 891.05 | 870.06 | 20.99 | 42.457 | | |
| 3,200.00 | 3,154.55 | 3,045.09 | 3,010.45 | 12.88 | 11.63 | -141.44 | 29.22 | 593.60 | 921.26 | 899.57 | 21.69 | 42.469 | | |
| 3,300.00 | 3,252.76 | 3,140.27 | 3,104.26 | 13.32 | 12.02 | -141.78 | 32.22 | 609.36 | 951.50 | 929.10 | 22.40 | 42.481 | | |
| 3,400.00 | 3,350.97 | 3,235.44 | 3,198.08 | 13.77 | 12.41 | -142.09 | 35.22 | 625.12 | 981.77 | 958.66 | 23.10 | 42.492 | | |
| 3,500.00 | 3,449.18 | 3,330.62 | 3,291.89 | 14.21 | 12.80 | -142.39 | 38.21 | 640.88 | 1,012.06 | 988.25 | 23.81 | 42.503 | | |
| 3,600.00 | 3,547.39 | 3,425.79 | 3,385.70 | 14.66 | 13.19 | -142.66 | 41.21 | 656.64 | 1,042.38 | 1,017.86 | 24.52 | 42.513 | | |
| 3,700.00 | 3,645.60 | 3,520.97 | 3,479.52 | 15.10 | 13.58 | -142.93 | 44.20 | 672.39 | 1,072.71 | 1,047.49 | 25.23 | 42.523 | | |
| 3,800.00 | 3,743.81 | 3,616.14 | 3,573.33 | 15.54 | 13.98 | -143.17 | 47.20 | 688.15 | 1,103.07 | 1,077.14 | 25.93 | 42.533 | | |
| 3,900.00 | 3,842.02 | 3,711.32 | 3,667.14 | 15.99 | 14.37 | -143.41 | 50.20 | 703.91 | 1,133.44 | 1,106.80 | 26.64 | 42.542 | | |
| 4,000.00 | 3,940.23 | 3,806.49 | 3,760.96 | 16.43 | 14.76 | -143.63 | 53.19 | 719.67 | 1,163.84 | 1,136.48 | 27.35 | 42.550 | | |
| 4,100.00 | 4,038.44 | 3,901.67 | 3,854.77 | 16.88 | 15.15 | -143.84 | 56.19 | 735.43 | 1,194.24 | 1,166.18 | 28.06 | 42.559 | | |
| 4,200.00 | 4,136.65 | 3,996.84 | 3,948.59 | 17.32 | 15.54 | -144.04 | 59.19 | 751.19 | 1,224.66 | 1,195.89 | 28.77 | 42.566 | | |
| 4,300.00 | 4,234.86 | 4,092.02 | 4,042.40 | 17.77 | 15.93 | -144.23 | 62.18 | 766.94 | 1,255.09 | 1,225.61 | 29.48 | 42.574 | | |
| 4,400.00 | 4,333.07 | 4,187.19 | 4,136.21 | 18.21 | 16.32 | -144.41 | 65.18 | 782.70 | 1,285.54 | 1,255.35 | 30.19 | 42.581 | | |
| 4,500.00 | 4,431.28 | 4,282.37 | 4,230.03 | 18.66 | 16.72 | -144.59 | 68.18 | 798.46 | 1,315.99 | 1,285.09 | 30.90 | 42.588 | | |
| 4,600.00 | 4,529.59 | 4,377.69 | 4,323.99 | 19.05 | 17.11 | -144.94 | 71.18 | 814.24 | 1,346.03 | 1,314.45 | 31.58 | 42.624 | | |
| 4,700.00 | 4,628.42 | 4,473.80 | 4,418.72 | 19.31 | 17.50 | -145.33 | 74.20 | 830.15 | 1,373.60 | 1,341.42 | 32.18 | 42.686 | | |
| 4,800.00 | 4,727.73 | 4,570.67 | 4,514.20 | 19.57 | 17.90 | -145.60 | 77.25 | 846.19 | 1,398.40 | 1,365.62 | 32.78 | 42.660 | | |
| 4,900.00 | 4,827.38 | 4,734.46 | 4,676.23 | 19.81 | 18.41 | -145.73 | 81.71 | 869.62 | 1,418.50 | 1,384.83 | 33.67 | 42.130 | | |
| 5,000.00 | 4,927.26 | 4,804.59 | 4,734.00 | 20.03 | 23.51 | -111.22 | -749.77 | 889.13 | 1,415.97 | 1,382.86 | 33.11 | 42.762 | | |
| 5,100.00 | 5,027.25 | 4,805.82 | 4,734.00 | 20.28 | 23.51 | 90.00 | -751.01 | 889.13 | 1,361.87 | 1,327.16 | 34.71 | 39.235 | | |

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 #30E-1934 |
| Project: | Weld County, CO | TVD Reference: | KBE @ 4827.40usft (Original Well Elev) |
| Reference Site: | Sec 30-T10N-R57W | MD Reference: | KBE @ 4827.40usft (Original Well Elev) |
| Site Error: | 0.00 usft | North Reference: | True |
| Reference Well: | Horsetail #30E-1934 | 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 #30E-3137 Dropped - 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 | | | | | | |
| 5,200.00 | 5,127.25 | 6,405.82 | 5,734.00 | 20.48 | 23.51 | 90.00 | -751.01 | 889.13 | 1,312.76 | 1,276.51 | 36.26 | 36.209 | | | | | | |
| 5,300.00 | 5,227.25 | 6,405.66 | 5,734.00 | 20.70 | 23.51 | 91.17 | -750.84 | 889.13 | 1,269.65 | 1,231.89 | 37.76 | 33.626 | | | | | | |
| 5,400.00 | 5,326.36 | 6,393.57 | 5,734.00 | 20.85 | 23.44 | 94.84 | -738.75 | 889.13 | 1,233.55 | 1,194.52 | 39.02 | 31.611 | | | | | | |
| 5,500.00 | 5,421.35 | 6,362.79 | 5,734.00 | 20.93 | 23.24 | 96.58 | -707.97 | 889.13 | 1,205.77 | 1,165.88 | 39.90 | 30.223 | | | | | | |
| 5,600.00 | 5,508.72 | 6,314.46 | 5,734.00 | 20.92 | 22.95 | 96.68 | -659.64 | 889.13 | 1,186.57 | 1,146.23 | 40.33 | 29.418 | | | | | | |
| 5,700.00 | 5,585.26 | 6,250.35 | 5,734.00 | 20.86 | 22.60 | 95.57 | -595.54 | 889.13 | 1,175.03 | 1,134.63 | 40.40 | 29.082 SF | | | | | | |
| 5,800.00 | 5,648.17 | 6,172.82 | 5,734.00 | 20.77 | 22.22 | 93.80 | -518.00 | 889.13 | 1,169.46 | 1,129.27 | 40.19 | 29.097 | | | | | | |
| 5,900.00 | 5,695.14 | 6,084.26 | 5,733.96 | 20.67 | 21.85 | 91.96 | -429.44 | 889.13 | 1,167.77 | 1,127.94 | 39.83 | 29.317 | | | | | | |
| 5,932.12 | 5,706.54 | 6,052.77 | 5,732.64 | 20.64 | 21.73 | 91.36 | -397.98 | 889.13 | 1,167.70 | 1,127.98 | 39.72 | 29.402 | | | | | | |
| 6,000.00 | 5,724.43 | 5,988.68 | 5,724.10 | 20.59 | 21.52 | 90.09 | -334.51 | 889.13 | 1,168.02 | 1,128.54 | 39.47 | 29.591 | | | | | | |
| 6,100.00 | 5,734.97 | 5,900.00 | 5,699.60 | 20.56 | 21.26 | 88.28 | -249.39 | 889.13 | 1,169.56 | 1,130.38 | 39.19 | 29.846 | | | | | | |
| 6,200.00 | 5,735.00 | 5,818.33 | 5,664.56 | 20.60 | 21.06 | 86.55 | -175.71 | 889.13 | 1,172.70 | 1,133.67 | 39.03 | 30.047 | | | | | | |
| 6,300.00 | 5,735.00 | 5,750.00 | 5,626.70 | 20.75 | 20.90 | 84.71 | -118.89 | 889.13 | 1,178.78 | 1,139.77 | 39.02 | 30.211 | | | | | | |
| 6,400.00 | 5,735.00 | 5,692.21 | 5,589.10 | 21.02 | 20.78 | 82.89 | -75.04 | 889.13 | 1,189.04 | 1,149.91 | 39.13 | 30.387 | | | | | | |
| 6,500.00 | 5,735.00 | 5,650.00 | 5,558.69 | 21.41 | 20.69 | 81.44 | -45.79 | 889.13 | 1,204.41 | 1,165.04 | 39.37 | 30.591 | | | | | | |
| 6,600.00 | 5,735.00 | 5,600.00 | 5,519.75 | 21.89 | 20.58 | 79.58 | -14.46 | 889.13 | 1,225.43 | 1,185.80 | 39.63 | 30.925 | | | | | | |
| 6,700.00 | 5,735.00 | 5,573.10 | 5,497.61 | 22.48 | 20.52 | 78.54 | 0.81 | 889.13 | 1,252.36 | 1,212.32 | 40.04 | 31.281 | | | | | | |
| 6,800.00 | 5,735.00 | 5,550.00 | 5,477.98 | 23.14 | 20.47 | 77.62 | 13.00 | 889.13 | 1,285.27 | 1,244.81 | 40.46 | 31.768 | | | | | | |
| 6,900.00 | 5,735.00 | 5,522.58 | 5,454.02 | 23.89 | 20.41 | 76.51 | 26.32 | 889.14 | 1,323.95 | 1,283.09 | 40.86 | 32.401 | | | | | | |
| 7,000.00 | 5,735.00 | 5,500.00 | 5,433.78 | 24.70 | 20.36 | 75.58 | 36.33 | 889.14 | 1,368.15 | 1,326.86 | 41.29 | 33.137 | | | | | | |
| 7,100.00 | 5,735.00 | 5,500.00 | 5,433.78 | 25.57 | 20.36 | 75.58 | 36.33 | 889.14 | 1,417.65 | 1,375.86 | 41.79 | 33.923 | | | | | | |
| 7,200.00 | 5,735.00 | 5,470.90 | 5,407.09 | 26.49 | 20.29 | 74.36 | 47.92 | 889.14 | 1,471.51 | 1,429.39 | 42.12 | 34.938 | | | | | | |
| 7,300.00 | 5,735.00 | 5,450.00 | 5,387.55 | 27.47 | 20.25 | 73.48 | 55.31 | 889.14 | 1,529.90 | 1,487.44 | 42.45 | 36.036 | | | | | | |



WOG

Anticollision Report

| | | | |
|---------------------------|-------------------------|-------------------------------------|--|
| Company: | Whiting Petroleum Corp. | Local Co-ordinate Reference: | Well Horsetail #30E-1934 |
| Project: | Weld County, CO | TVD Reference: | KBE @ 4827.40usft (Original Well Elev) |
| Reference Site: | Sec 30-T10N-R57W | MD Reference: | KBE @ 4827.40usft (Original Well Elev) |
| Site Error: | 0.00 usft | North Reference: | True |
| Reference Well: | Horsetail #30E-1934 | 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 | 103.34 | -49.59 | 209.16 | 214.95 | | | | | |
| 100.00 | 100.00 | 100.00 | 100.00 | 0.13 | 0.13 | 103.34 | -49.59 | 209.16 | 214.95 | 214.69 | 0.27 | 807.045 | | |
| 200.00 | 200.00 | 200.00 | 200.00 | 0.47 | 0.47 | 103.34 | -49.59 | 209.16 | 214.95 | 214.01 | 0.94 | 228.518 | | |
| 300.00 | 300.00 | 300.00 | 300.00 | 0.81 | 0.81 | 103.34 | -49.59 | 209.16 | 214.95 | 213.34 | 1.61 | 133.104 CC, ES | | |
| 400.00 | 399.98 | 393.36 | 393.35 | 1.11 | 1.11 | -97.31 | -49.40 | 210.66 | 216.70 | 214.43 | 2.27 | 95.565 | | |
| 500.00 | 499.84 | 486.27 | 486.14 | 1.41 | 1.42 | -98.85 | -48.82 | 215.16 | 222.05 | 219.09 | 2.96 | 75.002 | | |
| 600.00 | 599.45 | 578.27 | 577.84 | 1.73 | 1.73 | -101.23 | -47.86 | 222.55 | 231.35 | 227.65 | 3.70 | 62.482 | | |
| 700.00 | 698.70 | 668.94 | 667.92 | 2.07 | 2.04 | -104.18 | -46.56 | 232.68 | 245.07 | 240.60 | 4.47 | 54.804 | | |
| 800.00 | 797.47 | 757.87 | 755.93 | 2.43 | 2.37 | -107.43 | -44.92 | 245.37 | 263.66 | 258.41 | 5.25 | 50.205 | | |
| 900.00 | 895.73 | 844.85 | 841.57 | 2.83 | 2.70 | -110.90 | -42.98 | 260.39 | 287.29 | 281.26 | 6.03 | 47.676 | | |
| 1,000.00 | 993.94 | 930.26 | 925.19 | 3.24 | 3.05 | -114.06 | -40.75 | 277.64 | 315.06 | 308.29 | 6.77 | 46.543 | | |
| 1,100.00 | 1,092.15 | 1,014.09 | 1,006.72 | 3.66 | 3.41 | -116.70 | -38.25 | 296.97 | 346.55 | 339.06 | 7.49 | 46.298 | | |
| 1,200.00 | 1,190.36 | 1,104.82 | 1,094.52 | 4.09 | 3.82 | -119.09 | -35.33 | 319.64 | 380.60 | 372.50 | 8.10 | 46.966 | | |
| 1,300.00 | 1,288.57 | 1,197.65 | 1,184.34 | 4.51 | 4.25 | -121.14 | -32.32 | 342.89 | 415.24 | 406.53 | 8.71 | 47.671 | | |
| 1,400.00 | 1,386.78 | 1,290.48 | 1,274.16 | 4.95 | 4.68 | -122.89 | -29.32 | 366.15 | 450.28 | 440.95 | 9.33 | 48.238 | | |
| 1,500.00 | 1,484.99 | 1,383.31 | 1,363.98 | 5.38 | 5.12 | -124.38 | -26.32 | 389.40 | 485.65 | 475.67 | 9.97 | 48.686 | | |
| 1,600.00 | 1,583.20 | 1,476.14 | 1,453.80 | 5.82 | 5.57 | -125.67 | -23.31 | 412.66 | 521.26 | 510.64 | 10.63 | 49.059 | | |
| 1,700.00 | 1,681.41 | 1,568.97 | 1,543.62 | 6.25 | 6.02 | -126.80 | -20.31 | 435.91 | 557.08 | 545.80 | 11.29 | 49.361 | | |
| 1,800.00 | 1,779.62 | 1,661.80 | 1,633.44 | 6.69 | 6.47 | -127.79 | -17.31 | 459.16 | 593.07 | 581.12 | 11.95 | 49.609 | | |
| 1,900.00 | 1,877.83 | 1,754.63 | 1,723.26 | 7.13 | 6.92 | -128.68 | -14.31 | 482.42 | 629.20 | 616.57 | 12.63 | 49.813 | | |
| 2,000.00 | 1,976.04 | 1,847.46 | 1,813.08 | 7.57 | 7.37 | -129.46 | -11.30 | 505.67 | 665.44 | 652.13 | 13.31 | 49.982 | | |
| 2,100.00 | 2,074.25 | 1,940.29 | 1,902.90 | 8.01 | 7.82 | -130.17 | -8.30 | 528.93 | 701.78 | 687.78 | 14.00 | 50.122 | | |
| 2,200.00 | 2,172.46 | 2,033.12 | 1,992.72 | 8.45 | 8.28 | -130.80 | -5.30 | 552.18 | 738.21 | 723.51 | 14.69 | 50.239 | | |
| 2,300.00 | 2,270.67 | 2,125.95 | 2,082.54 | 8.89 | 8.74 | -131.38 | -2.29 | 575.43 | 774.70 | 759.31 | 15.39 | 50.336 | | |
| 2,400.00 | 2,368.88 | 2,218.78 | 2,172.36 | 9.34 | 9.19 | -131.90 | 0.71 | 598.69 | 811.26 | 795.17 | 16.09 | 50.418 | | |
| 2,500.00 | 2,467.09 | 2,311.61 | 2,262.18 | 9.78 | 9.65 | -132.38 | 3.71 | 621.94 | 847.88 | 831.08 | 16.79 | 50.487 | | |
| 2,600.00 | 2,565.30 | 2,404.44 | 2,352.00 | 10.22 | 10.11 | -132.82 | 6.71 | 645.19 | 884.54 | 867.04 | 17.50 | 50.545 | | |
| 2,700.00 | 2,663.51 | 2,497.27 | 2,441.82 | 10.66 | 10.57 | -133.23 | 9.72 | 668.45 | 921.24 | 903.03 | 18.21 | 50.595 | | |
| 2,800.00 | 2,761.72 | 2,590.10 | 2,531.65 | 11.11 | 11.03 | -133.60 | 12.72 | 691.70 | 957.98 | 939.06 | 18.92 | 50.636 | | |
| 2,900.00 | 2,859.93 | 2,682.93 | 2,621.47 | 11.55 | 11.49 | -133.95 | 15.72 | 714.96 | 994.75 | 975.12 | 19.63 | 50.671 | | |
| 3,000.00 | 2,958.14 | 2,775.76 | 2,711.29 | 11.99 | 11.94 | -134.27 | 18.73 | 738.21 | 1,031.55 | 1,011.21 | 20.35 | 50.701 | | |
| 3,100.00 | 3,056.35 | 2,868.60 | 2,801.11 | 12.44 | 12.40 | -134.57 | 21.73 | 761.46 | 1,068.38 | 1,047.32 | 21.06 | 50.727 | | |
| 3,200.00 | 3,154.55 | 2,961.43 | 2,890.93 | 12.88 | 12.86 | -134.85 | 24.73 | 784.72 | 1,105.23 | 1,083.46 | 21.78 | 50.748 | | |
| 3,300.00 | 3,252.76 | 3,054.26 | 2,980.75 | 13.32 | 13.33 | -135.11 | 27.73 | 807.97 | 1,142.11 | 1,119.61 | 22.50 | 50.766 | | |
| 3,400.00 | 3,350.97 | 3,147.09 | 3,070.57 | 13.77 | 13.79 | -135.36 | 30.74 | 831.22 | 1,179.00 | 1,155.78 | 23.22 | 50.782 | | |
| 3,500.00 | 3,449.18 | 3,239.92 | 3,160.39 | 14.21 | 14.25 | -135.59 | 33.74 | 854.48 | 1,215.91 | 1,191.97 | 23.94 | 50.794 | | |
| 3,600.00 | 3,547.39 | 3,332.75 | 3,250.21 | 14.66 | 14.71 | -135.81 | 36.74 | 877.73 | 1,252.84 | 1,228.18 | 24.66 | 50.805 | | |
| 3,700.00 | 3,645.60 | 3,425.58 | 3,340.03 | 15.10 | 15.17 | -136.01 | 39.75 | 900.99 | 1,289.78 | 1,264.39 | 25.38 | 50.814 | | |
| 3,800.00 | 3,743.81 | 3,518.41 | 3,429.85 | 15.54 | 15.63 | -136.21 | 42.75 | 924.24 | 1,326.73 | 1,300.63 | 26.11 | 50.821 | | |
| 3,900.00 | 3,842.02 | 3,611.24 | 3,519.67 | 15.99 | 16.09 | -136.39 | 45.75 | 947.49 | 1,363.70 | 1,336.87 | 26.83 | 50.827 | | |
| 4,000.00 | 3,940.23 | 3,704.07 | 3,609.49 | 16.43 | 16.55 | -136.56 | 48.75 | 970.75 | 1,400.68 | 1,373.12 | 27.56 | 50.831 | | |
| 4,100.00 | 4,038.44 | 3,796.90 | 3,699.31 | 16.88 | 17.01 | -136.73 | 51.76 | 994.00 | 1,437.67 | 1,409.38 | 28.28 | 50.835 | | |
| 4,200.00 | 4,136.65 | 3,889.73 | 3,789.13 | 17.32 | 17.48 | -136.88 | 54.76 | 1,017.25 | 1,474.66 | 1,445.66 | 29.01 | 50.837 | | |
| 4,300.00 | 4,234.86 | 3,982.56 | 3,878.96 | 17.77 | 17.94 | -137.03 | 57.76 | 1,040.51 | 1,511.67 | 1,481.94 | 29.73 | 50.839 | | |
| 4,400.00 | 4,333.07 | 4,075.39 | 3,968.78 | 18.21 | 18.40 | -137.17 | 60.77 | 1,063.76 | 1,548.69 | 1,518.23 | 30.46 | 50.840 | | |
| 5,500.00 | 5,421.35 | 6,431.58 | 5,735.00 | 20.93 | 25.54 | 95.32 | -711.46 | 1,237.32 | 1,544.90 | 1,504.42 | 40.48 | 38.166 | | |
| 5,600.00 | 5,508.72 | 6,383.25 | 5,735.00 | 20.92 | 25.30 | 95.38 | -663.13 | 1,237.43 | 1,530.11 | 1,489.40 | 40.71 | 37.584 | | |
| 5,700.00 | 5,585.26 | 6,319.14 | 5,735.00 | 20.86 | 24.99 | 94.50 | -599.02 | 1,237.58 | 1,521.42 | 1,480.77 | 40.65 | 37.426 SF | | |
| 5,800.00 | 5,648.17 | 6,241.61 | 5,735.00 | 20.77 | 24.67 | 93.10 | -521.49 | 1,237.76 | 1,517.42 | 1,477.03 | 40.39 | 37.569 | | |
| 5,895.95 | 5,693.57 | 6,157.21 | 5,735.00 | 20.67 | 24.38 | 91.70 | -437.09 | 1,237.95 | 1,516.48 | 1,476.45 | 40.04 | 37.878 | | |
| 5,900.00 | 5,695.14 | 6,153.16 | 5,734.98 | 20.67 | 24.37 | 91.64 | -433.04 | 1,237.96 | 1,516.48 | 1,476.46 | 40.02 | 37.893 | | |
| 6,000.00 | 5,724.43 | 6,057.26 | 5,725.35 | 20.59 | 24.09 | 90.17 | -337.76 | 1,238.18 | 1,517.07 | 1,477.40 | 39.67 | 38.243 | | |

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 #30E-1934 |
| Project: | Weld County, CO | TVD Reference: | KBE @ 4827.40usft (Original Well Elev) |
| Reference Site: | Sec 30-T10N-R57W | MD Reference: | KBE @ 4827.40usft (Original Well Elev) |
| Site Error: | 0.00 usft | North Reference: | True |
| Reference Well: | Horsetail #30E-1934 | 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 #30E-3138 - 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 | |
| 6,100.00 | 5,734.97 | 5,967.67 | 5,700.73 | 20.56 | 23.88 | 88.72 | -251.74 | 1,238.38 | 1,518.67 | 1,479.26 | 39.40 | 38.542 | |
| 6,200.00 | 5,735.00 | 5,886.32 | 5,665.91 | 20.60 | 23.71 | 87.40 | -178.31 | 1,238.55 | 1,521.47 | 1,482.20 | 39.28 | 38.737 | |
| 6,300.00 | 5,735.00 | 5,817.26 | 5,627.67 | 20.75 | 23.58 | 85.96 | -120.85 | 1,238.68 | 1,526.55 | 1,487.23 | 39.32 | 38.824 | |
| 6,400.00 | 5,735.00 | 5,759.80 | 5,590.30 | 21.02 | 23.48 | 84.56 | -77.25 | 1,238.78 | 1,534.85 | 1,495.34 | 39.51 | 38.850 | |
| 6,500.00 | 5,735.00 | 5,712.33 | 5,555.95 | 21.41 | 23.39 | 83.28 | -44.51 | 1,238.86 | 1,547.12 | 1,507.30 | 39.82 | 38.850 | |



WOG

Anticollision Report

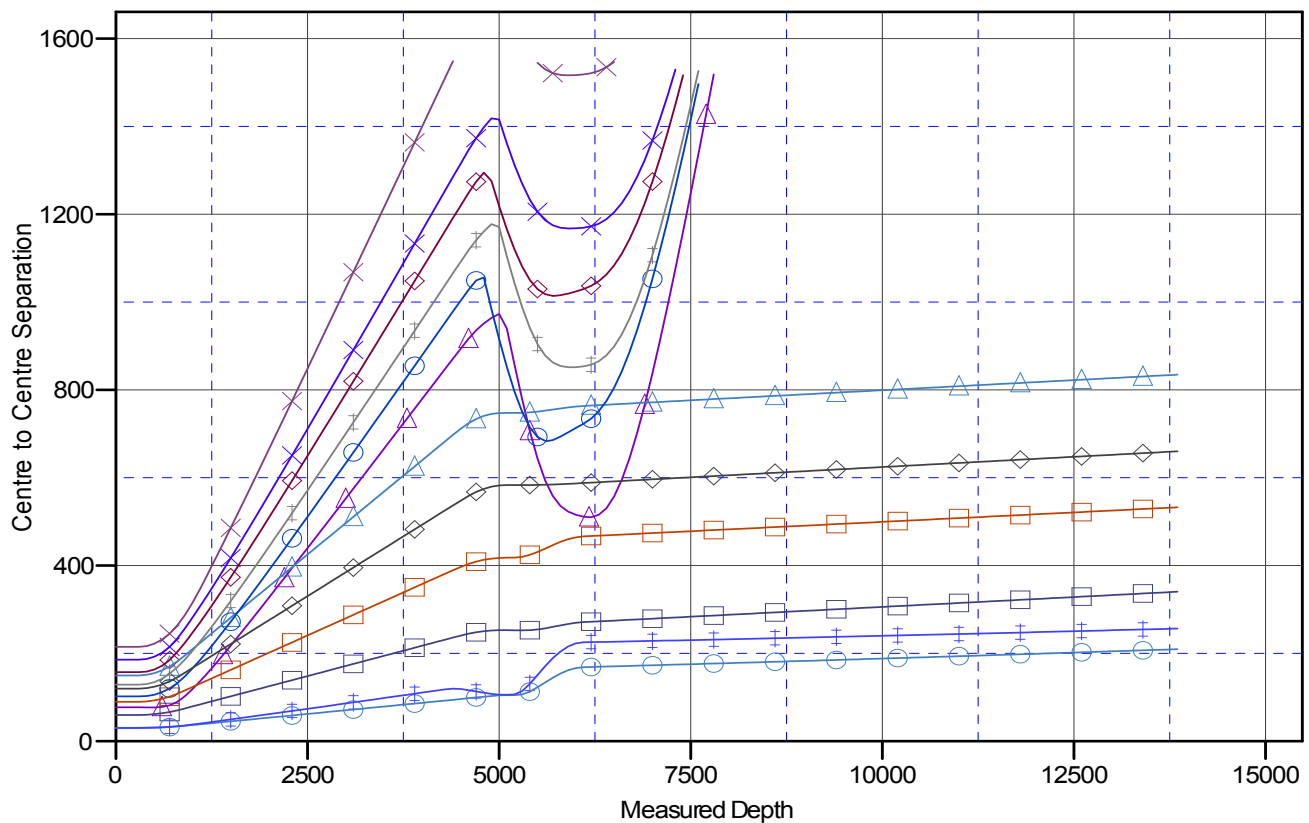
Company: Whiting Petroleum Corp.
Project: Weld County, CO
Reference Site: Sec 30-T10N-R57W
Site Error: 0.00 usft
Reference Well: Horsetail #30E-1934
Well Error: 0.00 usft
Reference Wellbore: Hz
Reference Design: APD

Local Co-ordinate Reference: Well Horsetail #30E-1934
TVD Reference: KBE @ 4827.40usft (Original Well Elev)
MD Reference: KBE @ 4827.40usft (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 @ 4827.40usft (Original Well Ele)
Offset Depths are relative to Offset Datum
Central Meridian is 105° 30' 0.000 W

Coordinates are relative to: Horsetail #30E-1934
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 1.10°

Ladder Plot



LEGEND

- | | | |
|--|--------------------------------|--------------------------------|
| Horsetail #30E-1935, Hz, APDV0 | Horsetail #30E-3135, Hz, APDV0 | Horsetail #30E-1901, Hz, APDV0 |
| Horsetail #30E-1902, Hz, APDV0 | Horsetail #30E-3138, Hz, APDV0 | Horsetail #30E-1903, Hz, APDV0 |
| Horsetail #30E-3104, Hz, APDV0 | Horsetail #30E-1904, Hz, APDV0 | Horsetail #30E-3103, Hz, APDV0 |
| Horsetail #30E-3137 Dropped, Hz, APDV0 | Horsetail #30E-3136, Hz, APDV0 | Horsetail #30E-1936, Hz, APDV0 |



WOG

Anticollision Report

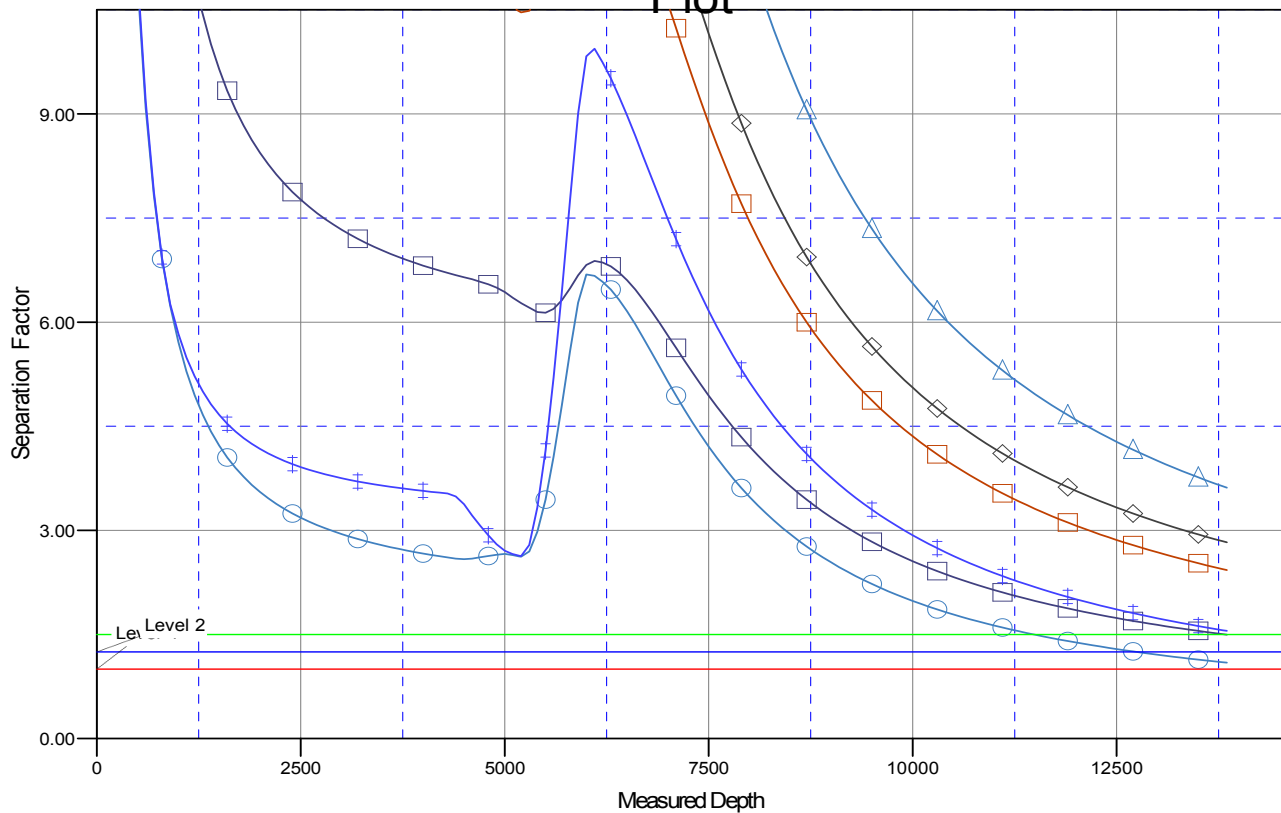
Company: Whiting Petroleum Corp.
Project: Weld County, CO
Reference Site: Sec 30-T10N-R57W
Site Error: 0.00 usft
Reference Well: Horsetail #30E-1934
Well Error: 0.00 usft
Reference Wellbore: Hz
Reference Design: APD

Local Co-ordinate Reference: Well Horsetail #30E-1934
TVD Reference: KBE @ 4827.40usft (Original Well Elev)
MD Reference: KBE @ 4827.40usft (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 @ 4827.40usft (Original Well Ele)
Offset Depths are relative to Offset Datum
Central Meridian is 105° 30' 0.000 W

Coordinates are relative to: Horsetail #30E-1934
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 1.10°

Separation Factor Plot



LEGEND

- | | | |
|---|---------------------------------|---------------------------------|
| Horsetail #30E-1935, Hz, APD V0 | Horsetail #30E-3135, Hz, APD V0 | Horsetail #30E-1901, Hz, APD V0 |
| Horsetail #30E-1902, Hz, APD V0 | Horsetail #30E-3138, Hz, APD V0 | Horsetail #30E-1903, Hz, APD V0 |
| Horsetail #30E-3104, Hz, APD V0 | Horsetail #30E-1904, Hz, APD V0 | Horsetail #30E-3103, Hz, APD V0 |
| Horsetail #30E-3137 Dropped, Hz, APD V0 | Horsetail #30E-3136, Hz, APD V0 | Horsetail #30E-1936, Hz, APD V0 |