



Surface Location: Greeley-Rothe Pad Sec.1-T5N-R67W

North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone

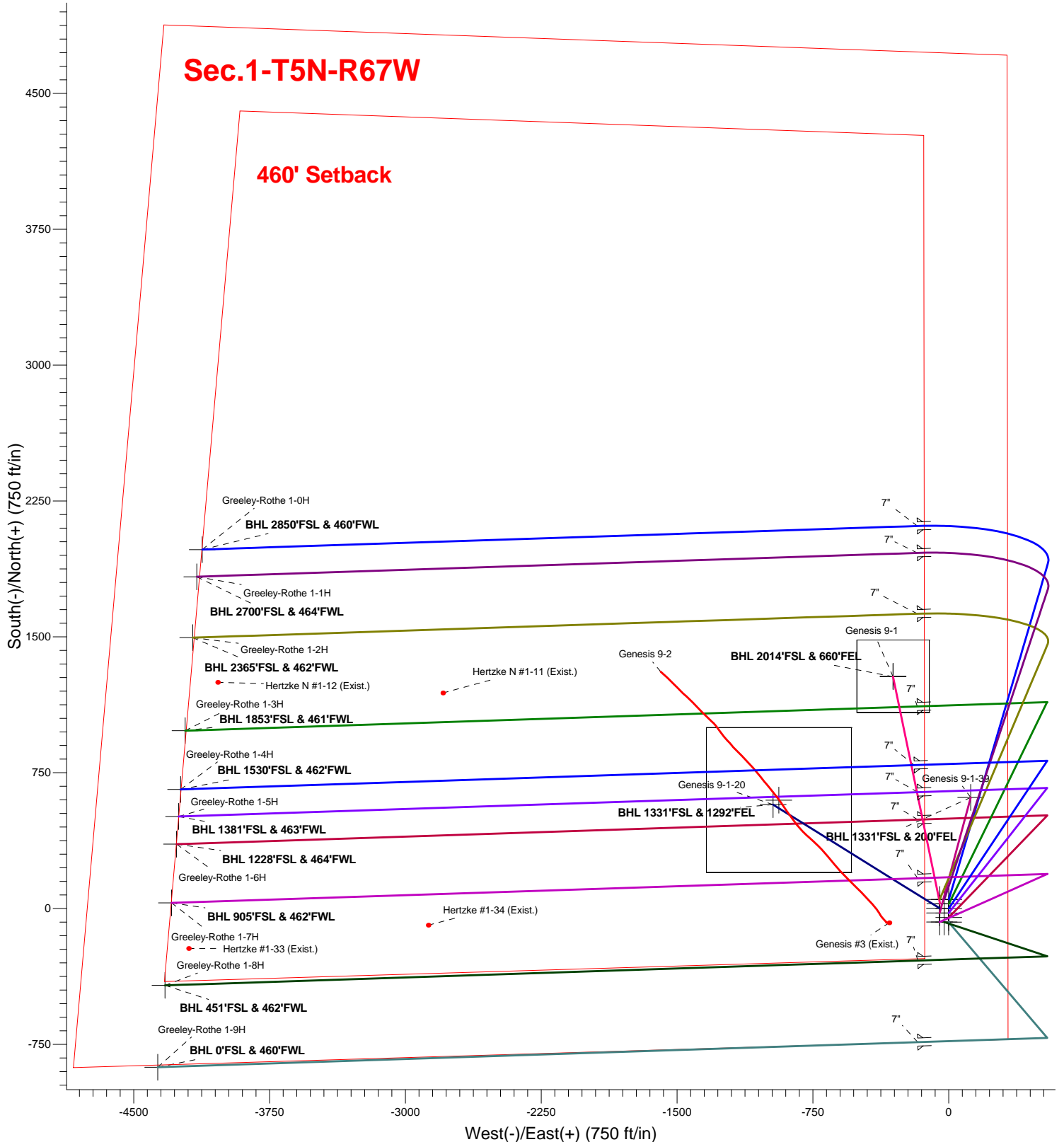
Ground Elevation: 4876.0

| +N/-S | +E/-W | Northing | Easting | Latitude | Longitude | Slot |
|-------|-------|------------|------------|-----------|-------------|------|
| 0.0 | 0.0 | 1397831.58 | 3185528.81 | 40.423536 | -104.833615 | |

Design Version: Plan #2 (6-05-14)

Sec.1-T5N-R67W

460' Setback



KP KAUFFMAN

Well Name: **Greeley-Rothe 1-1H**

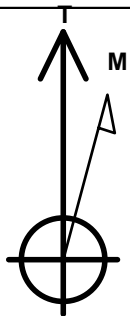
Surface Location: Greeley-Rothe Pad Sec.1-T5N-R67W
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone

Ground Elevation: 4875.0

| +N/-S | +E/-W | Northing | Easting | Latitude | Longitude | Slot |
|---------------------------------------|-------|------------|------------|-----------|-------------|------|
| 0.0 | 0.0 | 1397881.60 | 3185503.82 | 40.423674 | -104.833704 | |
| RKB - 15' WELL @ 4890.0ft (RKB - 15') | | | | | | |

WELLBORE TARGET DETAILS

| Name | TVD | +N/-S | +E/-W | Shape |
|------------------------|--------|--------|---------|-------|
| SHL 774'FSL & 352'FEL | 1.0 | 0.0 | 0.0 | Point |
| BHL 2700'FSL & 464'FWL | 7282.0 | 1781.4 | -4127.7 | Point |



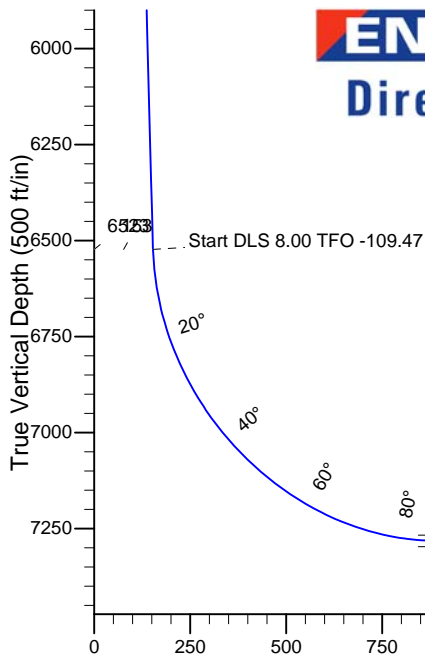
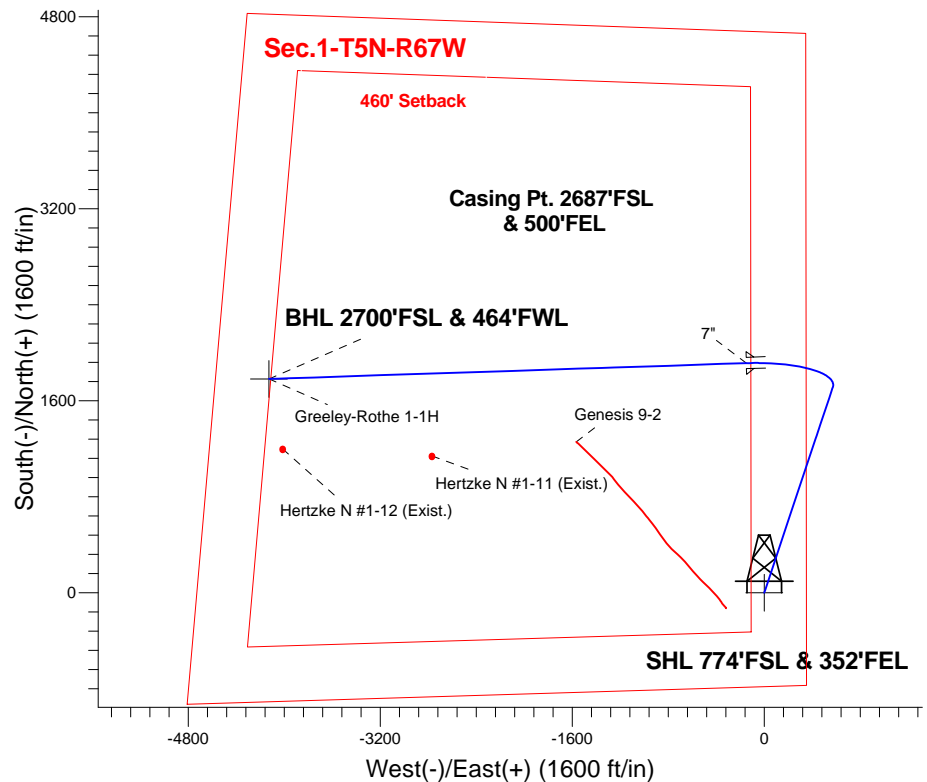
Azimuths to True North
Magnetic North: 8.52°

Magnetic Field
Strength: 52832.6nT
Dip Angle: 66.96°
Date: 5/2/2014
Model: IGRF2010

Greeley-Rothe Pad Sec.1-T5N-R67W
Greeley-Rothe 1-1H
Plan #2 (6-05-14)
14:49, June 06 2014

ANNOTATIONS

| TVD | MD | Annotation |
|--------|---------|----------------------------|
| 400.0 | 400.0 | KOP - Start Build 2.00 |
| 6523.3 | 6795.8 | Start DLS 8.00 TFO -109.47 |
| 7282.0 | 11978.1 | TD at 11978.1 |



ENSIGN
Directional

SECTION DETAILS

| Sec | MD | Inc | Azi | TVD | +N/-S | +E/-W | DLeg | TFace | VSec | Target |
|-----|---------|-------|--------|--------|--------|---------|------|---------|--------|------------------------|
| 1 | 0.0 | 0.00 | 0.00 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.0 | |
| 2 | 400.0 | 0.00 | 0.00 | 400.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.0 | |
| 3 | 1280.9 | 17.62 | 18.47 | 1267.1 | 127.5 | 42.6 | 2.00 | 18.47 | 11.4 | |
| 4 | 6795.8 | 17.62 | 18.47 | 6523.3 | 1710.7 | 571.3 | 0.00 | 0.00 | 153.5 | |
| 5 | 7996.4 | 90.00 | 268.11 | 7282.0 | 1913.0 | -148.0 | 8.00 | -109.47 | 894.0 | |
| 6 | 11978.1 | 90.00 | 268.11 | 7282.0 | 1781.7 | -4127.5 | 0.00 | 0.00 | 4495.7 | BHL 2700'FSL & 464'FWL |

BHL 2700'FSL & 464'FWL

Vertical Section at 293.35° (500 ft/in)



KP KAUFFMAN

SEC.1-T5N-R67W

Greeley-Rothe Pad Sec.1-T5N-R67W

Greeley-Rothe 1-1H

Wellbore #1

Plan: Plan #2 (6-05-14)

Standard Planning Report

06 June, 2014

| Plan Sections | | | | | | | | | | |
|---------------------|-----------------|-------------|---------------------|------------|------------|-----------------------|----------------------|---------------------|---------|-------------------|
| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) | TFO (°) | Target |
| 0.0 | 0.00 | 0.00 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 400.0 | 0.00 | 0.00 | 400.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 1,280.9 | 17.62 | 18.47 | 1,267.1 | 127.5 | 42.6 | 2.00 | 2.00 | 0.00 | 18.47 | |
| 6,795.8 | 17.62 | 18.47 | 6,523.3 | 1,710.7 | 571.3 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 7,996.4 | 90.00 | 268.11 | 7,282.0 | 1,913.0 | -148.0 | 8.00 | 6.03 | -9.19 | -109.47 | |
| 11,978.1 | 90.00 | 268.11 | 7,282.0 | 1,781.7 | -4,127.5 | 0.00 | 0.00 | 0.00 | 0.00 | BHL 2700'FSL & 46 |

| | | | |
|------------------|----------------------------------|-------------------------------------|-----------------------------|
| Database: | Landmark | Local Co-ordinate Reference: | Well Greeley-Rothe 1-1H |
| Company: | KP KAUFFMAN | TVD Reference: | WELL @ 4890.0ft (RKB - 15') |
| Project: | SEC.1-T5N-R67W | MD Reference: | WELL @ 4890.0ft (RKB - 15') |
| Site: | Greeley-Rothe Pad Sec.1-T5N-R67W | North Reference: | True |
| Well: | Greeley-Rothe 1-1H | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | Wellbore #1 | | |
| Design: | Plan #2 (6-05-14) | | |

| Planned Survey | | | | | | | | | |
|----------------------------------|-----------------|-------------|---------------------|------------|------------|-----------------------|-----------------------|----------------------|---------------------|
| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) |
| 0.0 | 0.00 | 0.00 | 0.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 1.0 | 0.00 | 0.00 | 1.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| SHL 774'FSL & 352'FEL | | | | | | | | | |
| 100.0 | 0.00 | 0.00 | 100.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 200.0 | 0.00 | 0.00 | 200.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 300.0 | 0.00 | 0.00 | 300.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 400.0 | 0.00 | 0.00 | 400.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| KOP - Start Build 2.00 | | | | | | | | | |
| 500.0 | 2.00 | 18.47 | 500.0 | 1.7 | 0.6 | 0.1 | 2.00 | 2.00 | 0.00 |
| 600.0 | 4.00 | 18.47 | 599.8 | 6.6 | 2.2 | 0.6 | 2.00 | 2.00 | 0.00 |
| 700.0 | 6.00 | 18.47 | 699.5 | 14.9 | 5.0 | 1.3 | 2.00 | 2.00 | 0.00 |
| 800.0 | 8.00 | 18.47 | 798.7 | 26.4 | 8.8 | 2.4 | 2.00 | 2.00 | 0.00 |
| 900.0 | 10.00 | 18.47 | 897.5 | 41.3 | 13.8 | 3.7 | 2.00 | 2.00 | 0.00 |
| 1,000.0 | 12.00 | 18.47 | 995.6 | 59.4 | 19.8 | 5.3 | 2.00 | 2.00 | 0.00 |
| 1,100.0 | 14.00 | 18.47 | 1,093.1 | 80.7 | 27.0 | 7.2 | 2.00 | 2.00 | 0.00 |
| 1,200.0 | 16.00 | 18.47 | 1,189.6 | 105.3 | 35.2 | 9.4 | 2.00 | 2.00 | 0.00 |
| 1,280.9 | 17.62 | 18.47 | 1,267.1 | 127.5 | 42.6 | 11.4 | 2.00 | 2.00 | 0.00 |
| 1,300.0 | 17.62 | 18.47 | 1,285.3 | 132.9 | 44.4 | 11.9 | 0.00 | 0.00 | 0.00 |
| 1,400.0 | 17.62 | 18.47 | 1,380.6 | 161.6 | 54.0 | 14.5 | 0.00 | 0.00 | 0.00 |
| 1,500.0 | 17.62 | 18.47 | 1,475.9 | 190.4 | 63.6 | 17.1 | 0.00 | 0.00 | 0.00 |
| 1,600.0 | 17.62 | 18.47 | 1,571.2 | 219.1 | 73.2 | 19.7 | 0.00 | 0.00 | 0.00 |
| 1,700.0 | 17.62 | 18.47 | 1,666.5 | 247.8 | 82.7 | 22.2 | 0.00 | 0.00 | 0.00 |
| 1,800.0 | 17.62 | 18.47 | 1,761.8 | 276.5 | 92.3 | 24.8 | 0.00 | 0.00 | 0.00 |
| 1,900.0 | 17.62 | 18.47 | 1,857.1 | 305.2 | 101.9 | 27.4 | 0.00 | 0.00 | 0.00 |
| 2,000.0 | 17.62 | 18.47 | 1,952.5 | 333.9 | 111.5 | 30.0 | 0.00 | 0.00 | 0.00 |
| 2,100.0 | 17.62 | 18.47 | 2,047.8 | 362.6 | 121.1 | 32.5 | 0.00 | 0.00 | 0.00 |
| 2,200.0 | 17.62 | 18.47 | 2,143.1 | 391.3 | 130.7 | 35.1 | 0.00 | 0.00 | 0.00 |
| 2,300.0 | 17.62 | 18.47 | 2,238.4 | 420.0 | 140.3 | 37.7 | 0.00 | 0.00 | 0.00 |
| 2,400.0 | 17.62 | 18.47 | 2,333.7 | 448.7 | 149.9 | 40.3 | 0.00 | 0.00 | 0.00 |
| 2,500.0 | 17.62 | 18.47 | 2,429.0 | 477.4 | 159.4 | 42.8 | 0.00 | 0.00 | 0.00 |
| 2,600.0 | 17.62 | 18.47 | 2,524.3 | 506.2 | 169.0 | 45.4 | 0.00 | 0.00 | 0.00 |
| 2,700.0 | 17.62 | 18.47 | 2,619.6 | 534.9 | 178.6 | 48.0 | 0.00 | 0.00 | 0.00 |
| 2,800.0 | 17.62 | 18.47 | 2,714.9 | 563.6 | 188.2 | 50.6 | 0.00 | 0.00 | 0.00 |
| 2,900.0 | 17.62 | 18.47 | 2,810.2 | 592.3 | 197.8 | 53.1 | 0.00 | 0.00 | 0.00 |
| 3,000.0 | 17.62 | 18.47 | 2,905.5 | 621.0 | 207.4 | 55.7 | 0.00 | 0.00 | 0.00 |
| 3,100.0 | 17.62 | 18.47 | 3,000.9 | 649.7 | 217.0 | 58.3 | 0.00 | 0.00 | 0.00 |
| 3,200.0 | 17.62 | 18.47 | 3,096.2 | 678.4 | 226.5 | 60.9 | 0.00 | 0.00 | 0.00 |
| 3,300.0 | 17.62 | 18.47 | 3,191.5 | 707.1 | 236.1 | 63.4 | 0.00 | 0.00 | 0.00 |
| 3,400.0 | 17.62 | 18.47 | 3,286.8 | 735.8 | 245.7 | 66.0 | 0.00 | 0.00 | 0.00 |
| 3,500.0 | 17.62 | 18.47 | 3,382.1 | 764.5 | 255.3 | 68.6 | 0.00 | 0.00 | 0.00 |
| 3,600.0 | 17.62 | 18.47 | 3,477.4 | 793.2 | 264.9 | 71.2 | 0.00 | 0.00 | 0.00 |
| 3,700.0 | 17.62 | 18.47 | 3,572.7 | 821.9 | 274.5 | 73.7 | 0.00 | 0.00 | 0.00 |
| 3,800.0 | 17.62 | 18.47 | 3,668.0 | 850.7 | 284.1 | 76.3 | 0.00 | 0.00 | 0.00 |
| 3,900.0 | 17.62 | 18.47 | 3,763.3 | 879.4 | 293.7 | 78.9 | 0.00 | 0.00 | 0.00 |
| 4,000.0 | 17.62 | 18.47 | 3,858.6 | 908.1 | 303.2 | 81.5 | 0.00 | 0.00 | 0.00 |
| 4,100.0 | 17.62 | 18.47 | 3,954.0 | 936.8 | 312.8 | 84.0 | 0.00 | 0.00 | 0.00 |
| 4,200.0 | 17.62 | 18.47 | 4,049.3 | 965.5 | 322.4 | 86.6 | 0.00 | 0.00 | 0.00 |
| 4,300.0 | 17.62 | 18.47 | 4,144.6 | 994.2 | 332.0 | 89.2 | 0.00 | 0.00 | 0.00 |
| 4,400.0 | 17.62 | 18.47 | 4,239.9 | 1,022.9 | 341.6 | 91.8 | 0.00 | 0.00 | 0.00 |
| 4,500.0 | 17.62 | 18.47 | 4,335.2 | 1,051.6 | 351.2 | 94.3 | 0.00 | 0.00 | 0.00 |
| 4,600.0 | 17.62 | 18.47 | 4,430.5 | 1,080.3 | 360.8 | 96.9 | 0.00 | 0.00 | 0.00 |
| 4,700.0 | 17.62 | 18.47 | 4,525.8 | 1,109.0 | 370.4 | 99.5 | 0.00 | 0.00 | 0.00 |
| 4,800.0 | 17.62 | 18.47 | 4,621.1 | 1,137.7 | 379.9 | 102.1 | 0.00 | 0.00 | 0.00 |
| 4,900.0 | 17.62 | 18.47 | 4,716.4 | 1,166.5 | 389.5 | 104.6 | 0.00 | 0.00 | 0.00 |

| | | | |
|------------------|----------------------------------|-------------------------------------|-----------------------------|
| Database: | Landmark | Local Co-ordinate Reference: | Well Greeley-Rothe 1-1H |
| Company: | KP KAUFFMAN | TVD Reference: | WELL @ 4890.0ft (RKB - 15') |
| Project: | SEC.1-T5N-R67W | MD Reference: | WELL @ 4890.0ft (RKB - 15') |
| Site: | Greeley-Rothe Pad Sec.1-T5N-R67W | North Reference: | True |
| Well: | Greeley-Rothe 1-1H | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | Wellbore #1 | | |
| Design: | Plan #2 (6-05-14) | | |

| Planned Survey | | | | | | | | | |
|----------------------------|-----------------|-------------|---------------------|------------|------------|-----------------------|-----------------------|----------------------|---------------------|
| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) |
| 5,000.0 | 17.62 | 18.47 | 4,811.7 | 1,195.2 | 399.1 | 107.2 | 0.00 | 0.00 | 0.00 |
| 5,100.0 | 17.62 | 18.47 | 4,907.0 | 1,223.9 | 408.7 | 109.8 | 0.00 | 0.00 | 0.00 |
| 5,200.0 | 17.62 | 18.47 | 5,002.4 | 1,252.6 | 418.3 | 112.4 | 0.00 | 0.00 | 0.00 |
| 5,300.0 | 17.62 | 18.47 | 5,097.7 | 1,281.3 | 427.9 | 114.9 | 0.00 | 0.00 | 0.00 |
| 5,400.0 | 17.62 | 18.47 | 5,193.0 | 1,310.0 | 437.5 | 117.5 | 0.00 | 0.00 | 0.00 |
| 5,500.0 | 17.62 | 18.47 | 5,288.3 | 1,338.7 | 447.1 | 120.1 | 0.00 | 0.00 | 0.00 |
| 5,600.0 | 17.62 | 18.47 | 5,383.6 | 1,367.4 | 456.6 | 122.7 | 0.00 | 0.00 | 0.00 |
| 5,700.0 | 17.62 | 18.47 | 5,478.9 | 1,396.1 | 466.2 | 125.3 | 0.00 | 0.00 | 0.00 |
| 5,800.0 | 17.62 | 18.47 | 5,574.2 | 1,424.8 | 475.8 | 127.8 | 0.00 | 0.00 | 0.00 |
| 5,900.0 | 17.62 | 18.47 | 5,669.5 | 1,453.5 | 485.4 | 130.4 | 0.00 | 0.00 | 0.00 |
| 6,000.0 | 17.62 | 18.47 | 5,764.8 | 1,482.3 | 495.0 | 133.0 | 0.00 | 0.00 | 0.00 |
| 6,100.0 | 17.62 | 18.47 | 5,860.1 | 1,511.0 | 504.6 | 135.6 | 0.00 | 0.00 | 0.00 |
| 6,200.0 | 17.62 | 18.47 | 5,955.4 | 1,539.7 | 514.2 | 138.1 | 0.00 | 0.00 | 0.00 |
| 6,300.0 | 17.62 | 18.47 | 6,050.8 | 1,568.4 | 523.7 | 140.7 | 0.00 | 0.00 | 0.00 |
| 6,400.0 | 17.62 | 18.47 | 6,146.1 | 1,597.1 | 533.3 | 143.3 | 0.00 | 0.00 | 0.00 |
| 6,500.0 | 17.62 | 18.47 | 6,241.4 | 1,625.8 | 542.9 | 145.9 | 0.00 | 0.00 | 0.00 |
| 6,600.0 | 17.62 | 18.47 | 6,336.7 | 1,654.5 | 552.5 | 148.4 | 0.00 | 0.00 | 0.00 |
| 6,700.0 | 17.62 | 18.47 | 6,432.0 | 1,683.2 | 562.1 | 151.0 | 0.00 | 0.00 | 0.00 |
| 6,795.8 | 17.62 | 18.47 | 6,523.3 | 1,710.7 | 571.3 | 153.5 | 0.00 | 0.00 | 0.00 |
| Start DLS 8.00 TFO -109.47 | | | | | | | | | |
| 6,800.0 | 17.51 | 17.41 | 6,527.3 | 1,711.9 | 571.7 | 153.6 | 7.99 | -2.60 | -25.03 |
| 6,900.0 | 16.73 | 350.13 | 6,623.0 | 1,740.5 | 573.7 | 163.1 | 8.00 | -0.78 | -27.29 |
| 7,000.0 | 19.44 | 325.64 | 6,718.2 | 1,768.5 | 561.8 | 185.0 | 8.00 | 2.70 | -24.49 |
| 7,100.0 | 24.50 | 308.91 | 6,811.0 | 1,795.3 | 536.3 | 219.1 | 8.00 | 5.06 | -16.73 |
| 7,200.0 | 30.76 | 298.12 | 6,899.6 | 1,820.4 | 497.5 | 264.7 | 8.00 | 6.27 | -10.79 |
| 7,300.0 | 37.64 | 290.82 | 6,982.3 | 1,843.3 | 446.3 | 320.8 | 8.00 | 6.88 | -7.30 |
| 7,400.0 | 44.85 | 285.53 | 7,057.5 | 1,863.7 | 383.7 | 386.3 | 8.00 | 7.21 | -5.29 |
| 7,500.0 | 52.24 | 281.44 | 7,123.6 | 1,881.0 | 310.9 | 460.0 | 8.00 | 7.39 | -4.08 |
| 7,600.0 | 59.75 | 278.11 | 7,179.5 | 1,894.9 | 229.2 | 540.5 | 8.00 | 7.51 | -3.33 |
| 7,700.0 | 67.33 | 275.25 | 7,224.1 | 1,905.3 | 140.4 | 626.2 | 8.00 | 7.58 | -2.86 |
| 7,800.0 | 74.96 | 272.70 | 7,256.4 | 1,911.8 | 46.1 | 715.4 | 8.00 | 7.63 | -2.55 |
| 7,900.0 | 82.61 | 270.32 | 7,275.8 | 1,914.3 | -51.9 | 806.3 | 8.00 | 7.65 | -2.38 |
| 7,996.4 | 90.00 | 268.11 | 7,282.0 | 1,913.0 | -148.0 | 894.1 | 8.00 | 7.66 | -2.29 |
| 7" | | | | | | | | | |
| 8,000.0 | 90.00 | 268.11 | 7,282.0 | 1,912.9 | -151.6 | 897.3 | 0.00 | 0.00 | 0.00 |
| 8,100.0 | 90.00 | 268.11 | 7,282.0 | 1,909.6 | -251.6 | 987.8 | 0.00 | 0.00 | 0.00 |
| 8,200.0 | 90.00 | 268.11 | 7,282.0 | 1,906.3 | -351.5 | 1,078.2 | 0.00 | 0.00 | 0.00 |
| 8,300.0 | 90.00 | 268.11 | 7,282.0 | 1,903.0 | -451.5 | 1,168.7 | 0.00 | 0.00 | 0.00 |
| 8,400.0 | 90.00 | 268.11 | 7,282.0 | 1,899.7 | -551.4 | 1,259.1 | 0.00 | 0.00 | 0.00 |
| 8,500.0 | 90.00 | 268.11 | 7,282.0 | 1,896.4 | -651.4 | 1,349.6 | 0.00 | 0.00 | 0.00 |
| 8,600.0 | 90.00 | 268.11 | 7,282.0 | 1,893.1 | -751.3 | 1,440.0 | 0.00 | 0.00 | 0.00 |
| 8,700.0 | 90.00 | 268.11 | 7,282.0 | 1,889.8 | -851.3 | 1,530.5 | 0.00 | 0.00 | 0.00 |
| 8,800.0 | 90.00 | 268.11 | 7,282.0 | 1,886.5 | -951.2 | 1,621.0 | 0.00 | 0.00 | 0.00 |
| 8,900.0 | 90.00 | 268.11 | 7,282.0 | 1,883.2 | -1,051.2 | 1,711.4 | 0.00 | 0.00 | 0.00 |
| 9,000.0 | 90.00 | 268.11 | 7,282.0 | 1,879.9 | -1,151.1 | 1,801.9 | 0.00 | 0.00 | 0.00 |
| 9,100.0 | 90.00 | 268.11 | 7,282.0 | 1,876.6 | -1,251.0 | 1,892.3 | 0.00 | 0.00 | 0.00 |
| 9,200.0 | 90.00 | 268.11 | 7,282.0 | 1,873.3 | -1,351.0 | 1,982.8 | 0.00 | 0.00 | 0.00 |
| 9,300.0 | 90.00 | 268.11 | 7,282.0 | 1,870.0 | -1,450.9 | 2,073.2 | 0.00 | 0.00 | 0.00 |
| 9,400.0 | 90.00 | 268.11 | 7,282.0 | 1,866.7 | -1,550.9 | 2,163.7 | 0.00 | 0.00 | 0.00 |
| 9,500.0 | 90.00 | 268.11 | 7,282.0 | 1,863.4 | -1,650.8 | 2,254.1 | 0.00 | 0.00 | 0.00 |
| 9,600.0 | 90.00 | 268.11 | 7,282.0 | 1,860.1 | -1,750.8 | 2,344.6 | 0.00 | 0.00 | 0.00 |
| 9,700.0 | 90.00 | 268.11 | 7,282.0 | 1,856.8 | -1,850.7 | 2,435.0 | 0.00 | 0.00 | 0.00 |
| 9,800.0 | 90.00 | 268.11 | 7,282.0 | 1,853.5 | -1,950.7 | 2,525.5 | 0.00 | 0.00 | 0.00 |
| 9,900.0 | 90.00 | 268.11 | 7,282.0 | 1,850.2 | -2,050.6 | 2,616.0 | 0.00 | 0.00 | 0.00 |

| | | | |
|------------------|----------------------------------|-------------------------------------|-----------------------------|
| Database: | Landmark | Local Co-ordinate Reference: | Well Greeley-Rothe 1-1H |
| Company: | KP KAUFFMAN | TVD Reference: | WELL @ 4890.0ft (RKB - 15') |
| Project: | SEC.1-T5N-R67W | MD Reference: | WELL @ 4890.0ft (RKB - 15') |
| Site: | Greeley-Rothe Pad Sec.1-T5N-R67W | North Reference: | True |
| Well: | Greeley-Rothe 1-1H | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | Wellbore #1 | | |
| Design: | Plan #2 (6-05-14) | | |

| Planned Survey | | | | | | | | | | |
|------------------------|-----------------|-------------|---------------------|------------|------------|-----------------------|-----------------------|----------------------|---------------------|--|
| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) | |
| 10,000.0 | 90.00 | 268.11 | 7,282.0 | 1,846.9 | -2,150.6 | 2,706.4 | 0.00 | 0.00 | 0.00 | |
| 10,100.0 | 90.00 | 268.11 | 7,282.0 | 1,843.6 | -2,250.5 | 2,796.9 | 0.00 | 0.00 | 0.00 | |
| 10,200.0 | 90.00 | 268.11 | 7,282.0 | 1,840.3 | -2,350.4 | 2,887.3 | 0.00 | 0.00 | 0.00 | |
| 10,300.0 | 90.00 | 268.11 | 7,282.0 | 1,837.0 | -2,450.4 | 2,977.8 | 0.00 | 0.00 | 0.00 | |
| 10,400.0 | 90.00 | 268.11 | 7,282.0 | 1,833.7 | -2,550.3 | 3,068.2 | 0.00 | 0.00 | 0.00 | |
| 10,500.0 | 90.00 | 268.11 | 7,282.0 | 1,830.4 | -2,650.3 | 3,158.7 | 0.00 | 0.00 | 0.00 | |
| 10,600.0 | 90.00 | 268.11 | 7,282.0 | 1,827.1 | -2,750.2 | 3,249.1 | 0.00 | 0.00 | 0.00 | |
| 10,700.0 | 90.00 | 268.11 | 7,282.0 | 1,823.8 | -2,850.2 | 3,339.6 | 0.00 | 0.00 | 0.00 | |
| 10,800.0 | 90.00 | 268.11 | 7,282.0 | 1,820.5 | -2,950.1 | 3,430.1 | 0.00 | 0.00 | 0.00 | |
| 10,900.0 | 90.00 | 268.11 | 7,282.0 | 1,817.2 | -3,050.1 | 3,520.5 | 0.00 | 0.00 | 0.00 | |
| 11,000.0 | 90.00 | 268.11 | 7,282.0 | 1,813.9 | -3,150.0 | 3,611.0 | 0.00 | 0.00 | 0.00 | |
| 11,100.0 | 90.00 | 268.11 | 7,282.0 | 1,810.6 | -3,250.0 | 3,701.4 | 0.00 | 0.00 | 0.00 | |
| 11,200.0 | 90.00 | 268.11 | 7,282.0 | 1,807.3 | -3,349.9 | 3,791.9 | 0.00 | 0.00 | 0.00 | |
| 11,300.0 | 90.00 | 268.11 | 7,282.0 | 1,804.0 | -3,449.8 | 3,882.3 | 0.00 | 0.00 | 0.00 | |
| 11,400.0 | 90.00 | 268.11 | 7,282.0 | 1,800.7 | -3,549.8 | 3,972.8 | 0.00 | 0.00 | 0.00 | |
| 11,500.0 | 90.00 | 268.11 | 7,282.0 | 1,797.4 | -3,649.7 | 4,063.2 | 0.00 | 0.00 | 0.00 | |
| 11,600.0 | 90.00 | 268.11 | 7,282.0 | 1,794.1 | -3,749.7 | 4,153.7 | 0.00 | 0.00 | 0.00 | |
| 11,700.0 | 90.00 | 268.11 | 7,282.0 | 1,790.9 | -3,849.6 | 4,244.1 | 0.00 | 0.00 | 0.00 | |
| 11,800.0 | 90.00 | 268.11 | 7,282.0 | 1,787.6 | -3,949.6 | 4,334.6 | 0.00 | 0.00 | 0.00 | |
| 11,900.0 | 90.00 | 268.11 | 7,282.0 | 1,784.3 | -4,049.5 | 4,425.1 | 0.00 | 0.00 | 0.00 | |
| 11,978.1 | 90.00 | 268.11 | 7,282.0 | 1,781.7 | -4,127.5 | 4,495.7 | 0.00 | 0.00 | 0.00 | |
| BHL 2700'FSL & 464'FWL | | | | | | | | | | |

| Casing Points | | | | | |
|---------------------|---------------------|------|---------------------|-------------------|--|
| Measured Depth (ft) | Vertical Depth (ft) | Name | Casing Diameter (") | Hole Diameter (") | |
| 7,996.4 | 7,282.0 | 7" | 7 | 7-1/2 | |

| Plan Annotations | | | | | |
|---------------------|---------------------|-------------------|------------|----------------------------|--|
| Measured Depth (ft) | Vertical Depth (ft) | Local Coordinates | | Comment | |
| | | +N/-S (ft) | +E/-W (ft) | | |
| 400.0 | 400.0 | 0.0 | 0.0 | KOP - Start Build 2.00 | |
| 6,795.8 | 6,523.3 | 127.5 | 42.6 | Start DLS 8.00 TFO -109.47 | |
| 11,978.1 | 7,282.0 | 1,710.7 | 571.3 | TD at 11978.1 | |



KP KAUFFMAN

SEC.1-T5N-R67W

Greeley-Rothe Pad Sec.1-T5N-R67W

Greeley-Rothe 1-1H

Wellbore #1

Plan #2 (6-05-14)

Anticollision Report

06 June, 2014

| | | | |
|---------------------------|----------------------------------|-------------------------------------|-----------------------------|
| Company: | KP KAUFFMAN | Local Co-ordinate Reference: | Well Greeley-Rothe 1-1H |
| Project: | SEC.1-T5N-R67W | TVD Reference: | WELL @ 4890.0ft (RKB - 15') |
| Reference Site: | Greeley-Rothe Pad Sec.1-T5N-R67W | MD Reference: | WELL @ 4890.0ft (RKB - 15') |
| Site Error: | 0.0ft | North Reference: | True |
| Reference Well: | Greeley-Rothe 1-1H | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | Wellbore #1 | Database: | Landmark |
| Reference Design: | Plan #2 (6-05-14) | Offset TVD Reference: | Offset Datum |

| | | | |
|-------------------------------------|---|-----------------------|---------------------|
| Reference | Plan #2 (6-05-14) | | |
| Filter type: | NO GLOBAL FILTER: Using user defined selection & filtering criteria | | |
| Interpolation Method: | MD Interval 100.0ft | Error Model: | ISCWSA |
| Depth Range: | Unlimited | Scan Method: | Closest Approach 3D |
| Results Limited by: | Maximum center-center distance of 500.0ft | Error Surface: | Elliptical Conic |
| Warning Levels Evaluated at: | 2.00 Sigma | | |

| | | | | |
|----------------------------|----------------------|---------------------------------|------------------|--------------------|
| Survey Tool Program | Date 6/6/2014 | | | |
| From (ft) | To (ft) | Survey (Wellbore) | Tool Name | Description |
| 0.0 | 11,977.5 | Plan #2 (6-05-14) (Wellbore #1) | MWD | MWD - Standard |

| Summary | | | | | | |
|--|-------------------------------|----------------------------|-------------------------------|--------------------------------|-------------------|-----------------|
| Site Name | Reference Measured Depth (ft) | Offset Measured Depth (ft) | Distance Between Centres (ft) | Distance Between Ellipses (ft) | Separation Factor | Warning |
| Offset Well - Wellbore - Design | | | | | | |
| Genesis 9-1 Pad Sec.1-T5N-R67W | | | | | | |
| Genesis #3 (Exist.) - Wellbore #1 - Wellbore #1 | 400.0 | 405.0 | 330.2 | 321.3 | 37.159 | CC |
| Genesis #3 (Exist.) - Wellbore #1 - Wellbore #1 | 500.0 | 505.0 | 331.4 | 320.3 | 29.834 | ES |
| Genesis #3 (Exist.) - Wellbore #1 - Wellbore #1 | 1,500.0 | 1,480.9 | 486.9 | 454.3 | 14.967 | SF |
| Genesis 9-2 - Wellbore #1 - Wellbore #1 | 189.6 | 192.6 | 343.6 | 343.0 | 537.538 | CC |
| Genesis 9-2 - Wellbore #1 - Wellbore #1 | 200.0 | 202.8 | 343.6 | 342.9 | 502.416 | ES |
| Genesis 9-2 - Wellbore #1 - Wellbore #1 | 1,300.0 | 1,243.9 | 492.1 | 484.6 | 66.382 | SF |
| Greeley-Rothe Pad Sec.1-T5N-R67W | | | | | | |
| Genesis 9-1 - Wellbore #1 - Plan #2 (5-2-14) | 400.0 | 401.0 | 33.4 | 31.8 | 21.176 | CC, ES |
| Genesis 9-1 - Wellbore #1 - Plan #2 (5-2-14) | 3,900.0 | 3,886.2 | 498.7 | 466.0 | 15.243 | SF |
| Genesis 9-1-20 - Wellbore #1 - Plan #1 (5-02-14) | 400.0 | 401.0 | 55.6 | 54.0 | 35.276 | CC, ES |
| Genesis 9-1-20 - Wellbore #1 - Plan #1 (5-02-14) | 700.0 | 700.5 | 71.1 | 68.1 | 24.210 | SF |
| Genesis 9-1-39 - Wellbore #1 - Plan #2 (6-05-14) | 400.0 | 401.0 | 79.0 | 77.5 | 50.165 | CC, ES |
| Genesis 9-1-39 - Wellbore #1 - Plan #2 (6-05-14) | 800.0 | 799.7 | 106.9 | 103.5 | 31.548 | SF |
| Greeley-Rothe 1-0H - Wellbore #1 - Plan #1 (6-5-14) | 200.0 | 200.0 | 25.0 | 24.3 | 37.080 | CC |
| Greeley-Rothe 1-0H - Wellbore #1 - Plan #1 (6-5-14) | 11,931.0 | 12,074.1 | 186.2 | -10.8 | 0.945 | Level 1, ES, SF |
| Greeley-Rothe 1-2H - Wellbore #1 - Plan #2 (6-05-14) | 400.0 | 400.0 | 25.0 | 23.4 | 15.892 | CC, ES |
| Greeley-Rothe 1-2H - Wellbore #1 - Plan #2 (6-05-14) | 11,978.1 | 11,888.2 | 335.6 | 86.6 | 1.348 | Level 3, SF |
| Greeley-Rothe 1-3H - Wellbore #1 - Plan #2 (6-05-14) | 400.0 | 400.0 | 35.3 | 33.8 | 22.464 | CC, ES |
| Greeley-Rothe 1-3H - Wellbore #1 - Plan #2 (6-05-14) | 5,900.0 | 5,895.9 | 442.1 | 403.1 | 11.337 | SF |
| Greeley-Rothe 1-4H - Wellbore #1 - Plan #2 (6-05-14) | 400.0 | 401.0 | 55.9 | 54.3 | 35.485 | CC, ES |
| Greeley-Rothe 1-4H - Wellbore #1 - Plan #2 (6-05-14) | 4,400.0 | 4,416.0 | 379.2 | 343.3 | 10.570 | SF |
| Greeley-Rothe 1-5H - Wellbore #1 - Plan #2 (6-05-14) | 400.0 | 401.0 | 79.1 | 77.5 | 50.177 | CC, ES |
| Greeley-Rothe 1-5H - Wellbore #1 - Plan #2 (6-05-14) | 3,400.0 | 3,410.7 | 496.1 | 476.3 | 25.130 | SF |
| Greeley-Rothe 1-6H - Wellbore #1 - Plan #2 (6-05-14) | 400.0 | 401.0 | 103.1 | 101.5 | 65.422 | CC, ES |
| Greeley-Rothe 1-6H - Wellbore #1 - Plan #2 (6-05-14) | 900.0 | 898.5 | 141.9 | 138.0 | 36.727 | SF |
| Greeley-Rothe 1-7H - Wellbore #1 - Plan #2 (6-05-14) | 400.0 | 401.0 | 127.5 | 125.9 | 80.910 | CC, ES |
| Greeley-Rothe 1-7H - Wellbore #1 - Plan #2 (6-05-14) | 1,000.0 | 996.6 | 189.8 | 185.5 | 44.185 | SF |
| Greeley-Rothe 1-8H - Wellbore #1 - Plan #2 (6-05-14) | 400.0 | 402.0 | 125.0 | 123.4 | 79.221 | CC, ES |
| Greeley-Rothe 1-8H - Wellbore #1 - Plan #2 (6-05-14) | 1,000.0 | 997.6 | 185.5 | 181.2 | 43.061 | SF |
| Greeley-Rothe 1-9H - Wellbore #1 - Plan #2 (6-6-14) | 400.0 | 402.0 | 127.4 | 125.8 | 80.729 | CC, ES |
| Greeley-Rothe 1-9H - Wellbore #1 - Plan #2 (6-6-14) | 1,000.0 | 997.6 | 184.6 | 180.3 | 42.665 | SF |
| Hertzke #1-33 (Exist.) - Wellbore #1 - Wellbore #1 | | | | | | Out of range |
| Hertzke #1-34 (Exist.) - Wellbore #1 - Wellbore #1 | | | | | | Out of range |
| Hertzke N #1-11 (Exist.) - Wellbore #1 - Wellbore #1 | | | | | | Out of range |
| Hertzke N #1-12 (Exist.) - Wellbore #1 - Wellbore #1 | | | | | | Out of range |

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

| Offset Design Genesis 9-1 Pad Sec.1-T5N-R67W - Genesis #3 (Exist.) - Wellbore #1 - Wellbore #1 | | | | | | | | | | | | | Offset Site Error: | 0.0 ft |
|---|---------------------|---------------------|---------------------|-----------------|-------------|-----------------------|-----------------------------------|------------|----------------------|-----------------------|-------------------------|-------------------|--------------------|---------|
| Survey Program: 7800-UNKNOWN | | | | | | | | | | | | | Offset Well Error: | 0.0 ft |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | | Warning |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | +E/-W (ft) | Between Centres (ft) | Between Ellipses (ft) | Minimum Separation (ft) | Separation Factor | | |
| 0.0 | 0.0 | 5.0 | 5.0 | 0.0 | 0.1 | -112.97 | -128.8 | -304.1 | 330.2 | 330.1 | 0.10 | 3,295.711 | | |
| 100.0 | 100.0 | 105.0 | 105.0 | 0.1 | 2.1 | -112.97 | -128.8 | -304.1 | 330.2 | 328.0 | 2.21 | 149.251 | | |
| 200.0 | 200.0 | 205.0 | 205.0 | 0.3 | 4.1 | -112.97 | -128.8 | -304.1 | 330.2 | 325.8 | 4.44 | 74.421 | | |
| 300.0 | 300.0 | 305.0 | 305.0 | 0.6 | 6.1 | -112.97 | -128.8 | -304.1 | 330.2 | 323.6 | 6.66 | 49.568 | | |
| 400.0 | 400.0 | 405.0 | 405.0 | 0.8 | 8.1 | -112.97 | -128.8 | -304.1 | 330.2 | 321.3 | 8.89 | 37.159 CC | | |
| 500.0 | 500.0 | 505.0 | 505.0 | 1.0 | 10.1 | -131.64 | -128.8 | -304.1 | 331.4 | 320.3 | 11.11 | 29.834 ES | | |
| 600.0 | 599.8 | 604.8 | 604.8 | 1.2 | 12.1 | -132.26 | -128.8 | -304.1 | 334.9 | 321.6 | 13.32 | 25.143 | | |
| 700.0 | 699.5 | 704.5 | 704.5 | 1.5 | 14.1 | -133.25 | -128.8 | -304.1 | 340.8 | 325.3 | 15.52 | 21.958 | | |
| 800.0 | 798.7 | 803.7 | 803.7 | 1.7 | 16.1 | -134.58 | -128.8 | -304.1 | 349.3 | 331.6 | 17.71 | 19.722 | | |
| 900.0 | 897.5 | 902.5 | 902.5 | 2.0 | 18.0 | -136.19 | -128.8 | -304.1 | 360.5 | 340.6 | 19.88 | 18.130 | | |
| 1,000.0 | 995.6 | 1,000.6 | 1,000.6 | 2.4 | 20.0 | -138.00 | -128.8 | -304.1 | 374.6 | 352.6 | 22.03 | 17.003 | | |
| 1,100.0 | 1,093.1 | 1,098.1 | 1,098.1 | 2.8 | 22.0 | -139.96 | -128.8 | -304.1 | 391.8 | 367.6 | 24.14 | 16.227 | | |
| 1,200.0 | 1,189.6 | 1,194.6 | 1,194.6 | 3.3 | 23.9 | -141.99 | -128.8 | -304.1 | 412.2 | 385.9 | 26.21 | 15.727 | | |
| 1,300.0 | 1,285.3 | 1,290.3 | 1,290.3 | 3.8 | 25.8 | -144.09 | -128.8 | -304.1 | 435.8 | 407.6 | 28.24 | 15.433 | | |
| 1,400.0 | 1,380.6 | 1,385.6 | 1,385.6 | 4.3 | 27.7 | -146.26 | -128.8 | -304.1 | 461.1 | 430.7 | 30.39 | 15.173 | | |
| 1,500.0 | 1,475.9 | 1,480.9 | 1,480.9 | 4.9 | 29.6 | -148.21 | -128.8 | -304.1 | 486.9 | 454.3 | 32.53 | 14.967 SF | | |

| | | | |
|---------------------------|----------------------------------|-------------------------------------|-----------------------------|
| Company: | KP KAUFFMAN | Local Co-ordinate Reference: | Well Greeley-Rothe 1-1H |
| Project: | SEC.1-T5N-R67W | TVD Reference: | WELL @ 4890.0ft (RKB - 15') |
| Reference Site: | Greeley-Rothe Pad Sec.1-T5N-R67W | MD Reference: | WELL @ 4890.0ft (RKB - 15') |
| Site Error: | 0.0ft | North Reference: | True |
| Reference Well: | Greeley-Rothe 1-1H | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | Wellbore #1 | Database: | Landmark |
| Reference Design: | Plan #2 (6-05-14) | Offset TVD Reference: | Offset Datum |

| Offset Design Genesis 9-1 Pad Sec.1-T5N-R67W - Genesis 9-2 - Wellbore #1 - Wellbore #1 | | | | | | | | | | | | Offset Site Error: | 0.0 ft |
|---|---------------------|---------------------|---------------------|----------------|-------------|-----------------------|-----------------------------------|------------|----------------------|-----------------------|-------------------------|---------------------------|---------|
| Survey Program: 78-MWD | | | | | | | | | | | | Offset Well Error: | 0.0 ft |
| Reference | Offset | Semi Major Axis | | Distance | | | | | | | | | Warning |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | +E/-W (ft) | Between Centres (ft) | Between Ellipses (ft) | Minimum Separation (ft) | Separation Factor | |
| 0.0 | 0.0 | 3.1 | 3.1 | 0.0 | 0.0 | -111.99 | -128.9 | -319.1 | 344.1 | 344.1 | 0.00 | N/A | |
| 100.0 | 100.0 | 104.4 | 104.4 | 0.1 | 0.1 | -112.10 | -129.4 | -318.6 | 343.8 | 343.6 | 0.25 | 1,348.458 | |
| 189.6 | 189.6 | 192.6 | 192.6 | 0.3 | 0.3 | -112.03 | -128.9 | -318.5 | 343.6 | 343.0 | 0.64 | 537.538 CC | |
| 200.0 | 200.0 | 202.8 | 202.7 | 0.3 | 0.3 | -112.00 | -128.7 | -318.6 | 343.6 | 342.9 | 0.68 | 502.416 ES | |
| 300.0 | 300.0 | 298.7 | 298.7 | 0.6 | 0.6 | -111.42 | -125.7 | -320.4 | 344.2 | 343.1 | 1.12 | 307.828 | |
| 400.0 | 400.0 | 393.1 | 392.9 | 0.8 | 0.8 | -110.47 | -121.1 | -324.3 | 346.3 | 344.7 | 1.57 | 221.181 | |
| 500.0 | 500.0 | 488.3 | 487.6 | 1.0 | 1.0 | -127.64 | -114.0 | -330.5 | 351.0 | 349.0 | 2.04 | 172.115 | |
| 600.0 | 599.8 | 585.6 | 584.1 | 1.2 | 1.3 | -126.41 | -105.3 | -338.5 | 359.1 | 356.6 | 2.54 | 141.265 | |
| 700.0 | 699.5 | 687.4 | 685.1 | 1.5 | 1.6 | -125.44 | -95.2 | -347.2 | 369.4 | 366.3 | 3.08 | 119.880 | |
| 800.0 | 798.7 | 789.1 | 785.4 | 1.7 | 2.0 | -124.39 | -81.3 | -355.8 | 380.6 | 376.9 | 3.66 | 103.953 | |
| 900.0 | 897.5 | 880.1 | 874.7 | 2.0 | 2.3 | -123.33 | -66.1 | -365.2 | 394.8 | 390.5 | 4.28 | 92.226 | |
| 1,000.0 | 995.6 | 965.5 | 957.8 | 2.4 | 2.7 | -122.34 | -50.3 | -376.6 | 413.4 | 408.4 | 4.95 | 83.465 | |
| 1,100.0 | 1,093.1 | 1,051.5 | 1,040.9 | 2.8 | 3.1 | -121.46 | -33.7 | -391.2 | 437.1 | 431.4 | 5.69 | 76.840 | |
| 1,200.0 | 1,189.6 | 1,146.3 | 1,132.0 | 3.3 | 3.6 | -120.70 | -14.4 | -408.7 | 463.7 | 457.2 | 6.53 | 71.004 | |
| 1,300.0 | 1,285.3 | 1,243.9 | 1,225.7 | 3.8 | 4.1 | -120.32 | 6.1 | -426.9 | 492.1 | 484.6 | 7.41 | 66.382 SF | |

| Greeley-Rothe Pad Sec.1-T5N-R67W - Genesis 9-1 - Wellbore #1 - Plan #2 (5-2-14) | | | | | | | | | | | | | Offset Site Error: | 0.0 ft |
|---|---------------------|---------------------|---------------------|-----------------|-------------|-----------------------|-----------------------------------|------------|----------------------|-----------------------|-------------------------|-------------------|--------------------|---------------|
| Survey Program: 0-MWD | | | | | | | | | | | | | Offset Well Error: | 0.0 ft |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | | Warning |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | +E/-W (ft) | Between Centres (ft) | Between Ellipses (ft) | Minimum Separation (ft) | Separation Factor | | |
| 0.0 | 0.0 | 1.0 | 1.0 | 0.0 | 0.0 | -134.07 | -23.2 | -24.0 | 33.4 | 33.4 | 0.00 | N/A | 21.176 CC, ES | |
| 100.0 | 100.0 | 101.0 | 101.0 | 0.1 | 0.1 | -134.07 | -23.2 | -24.0 | 33.4 | 33.1 | 0.23 | 146.974 | | |
| 200.0 | 200.0 | 201.0 | 201.0 | 0.3 | 0.3 | -134.07 | -23.2 | -24.0 | 33.4 | 32.7 | 0.68 | 49.317 | | |
| 300.0 | 300.0 | 301.0 | 301.0 | 0.6 | 0.6 | -134.07 | -23.2 | -24.0 | 33.4 | 32.2 | 1.13 | 29.629 | | |
| 400.0 | 400.0 | 401.0 | 401.0 | 0.8 | 0.8 | -134.07 | -23.2 | -24.0 | 33.4 | 31.8 | 1.58 | 21.176 CC, ES | | |
| 500.0 | 500.0 | 501.0 | 501.0 | 1.0 | 1.0 | -153.84 | -23.2 | -24.0 | 34.9 | 32.9 | 2.03 | 17.228 | | |
| 600.0 | 599.8 | 600.8 | 600.8 | 1.2 | 1.2 | -157.14 | -23.2 | -24.0 | 39.7 | 37.2 | 2.48 | 15.999 | 21.176 CC, ES | |
| 700.0 | 699.5 | 700.5 | 700.5 | 1.5 | 1.5 | -161.14 | -23.2 | -24.0 | 47.8 | 44.9 | 2.94 | 16.298 | | |
| 800.0 | 798.7 | 799.7 | 799.7 | 1.7 | 1.7 | -164.87 | -23.2 | -24.0 | 59.5 | 56.1 | 3.39 | 17.553 | | |
| 900.0 | 897.5 | 900.4 | 900.3 | 2.0 | 1.9 | -167.07 | -21.5 | -24.3 | 73.5 | 69.6 | 3.84 | 19.111 | | |
| 1,000.0 | 995.6 | 1,001.4 | 1,001.2 | 2.4 | 2.1 | -167.46 | -16.3 | -25.4 | 88.3 | 84.0 | 4.30 | 20.537 | | |
| 1,100.0 | 1,093.1 | 1,102.6 | 1,102.1 | 2.8 | 2.4 | -166.81 | -7.6 | -27.2 | 103.9 | 99.1 | 4.77 | 21.798 | | 21.176 CC, ES |
| 1,200.0 | 1,189.6 | 1,204.1 | 1,202.8 | 3.3 | 2.6 | -165.51 | 4.7 | -29.7 | 120.3 | 115.1 | 5.26 | 22.883 | | |
| 1,300.0 | 1,285.3 | 1,305.8 | 1,303.2 | 3.8 | 2.9 | -163.83 | 20.4 | -33.0 | 137.6 | 131.8 | 5.80 | 23.745 | | |
| 1,400.0 | 1,380.6 | 1,407.9 | 1,403.4 | 4.3 | 3.2 | -161.72 | 39.7 | -37.0 | 153.7 | 147.2 | 6.41 | 23.962 | | |
| 1,500.0 | 1,475.9 | 1,510.4 | 1,503.2 | 4.9 | 3.6 | -159.06 | 62.6 | -41.7 | 167.6 | 160.5 | 7.11 | 23.569 | | |
| 1,600.0 | 1,571.2 | 1,613.1 | 1,602.3 | 5.5 | 4.1 | -155.89 | 89.0 | -47.2 | 179.7 | 171.8 | 7.91 | 22.719 | | |
| 1,700.0 | 1,666.5 | 1,712.0 | 1,697.2 | 6.0 | 4.5 | -152.77 | 116.2 | -52.8 | 191.2 | 182.4 | 8.79 | 21.759 | 21.176 CC, ES | |
| 1,800.0 | 1,761.8 | 1,810.8 | 1,792.0 | 6.6 | 5.0 | -150.02 | 143.3 | -58.4 | 203.2 | 193.5 | 9.72 | 20.911 | | |
| 1,900.0 | 1,857.1 | 1,909.7 | 1,886.9 | 7.2 | 5.5 | -147.58 | 170.5 | -64.0 | 215.6 | 204.9 | 10.69 | 20.167 | | |
| 2,000.0 | 1,952.5 | 2,008.5 | 1,981.7 | 7.8 | 6.0 | -145.40 | 197.6 | -69.6 | 228.4 | 216.7 | 11.70 | 19.521 | | |
| 2,100.0 | 2,047.8 | 2,107.3 | 2,076.6 | 8.4 | 6.5 | -143.45 | 224.8 | -75.2 | 241.5 | 228.7 | 12.73 | 18.961 | | |
| 2,200.0 | 2,143.1 | 2,206.1 | 2,171.5 | 9.0 | 7.1 | -141.71 | 251.9 | -80.8 | 254.8 | 241.0 | 13.79 | 18.476 | | |
| 2,300.0 | 2,238.4 | 2,305.0 | 2,266.3 | 9.6 | 7.6 | -140.14 | 279.0 | -86.4 | 268.3 | 253.4 | 14.86 | 18.054 | 21.176 CC, ES | |
| 2,400.0 | 2,333.7 | 2,403.8 | 2,361.2 | 10.2 | 8.1 | -138.72 | 306.2 | -92.0 | 282.0 | 266.1 | 15.94 | 17.687 | | |
| 2,500.0 | 2,429.0 | 2,502.6 | 2,456.0 | 10.8 | 8.7 | -137.43 | 333.3 | -97.6 | 295.9 | 278.8 | 17.04 | 17.366 | | |
| 2,600.0 | 2,524.3 | 2,601.4 | 2,550.9 | 11.4 | 9.2 | -136.26 | 360.5 | -103.2 | 309.8 | 291.7 | 18.14 | 17.084 | | |
| 2,700.0 | 2,619.6 | 2,700.3 | 2,645.8 | 12.0 | 9.7 | -135.19 | 387.6 | -108.8 | 324.0 | 304.7 | 19.24 | 16.835 | | |
| 2,800.0 | 2,714.9 | 2,799.1 | 2,740.6 | 12.6 | 10.3 | -134.21 | 414.8 | -114.5 | 338.2 | 317.8 | 20.35 | 16.614 | | |
| 2,900.0 | 2,810.2 | 2,897.9 | 2,835.5 | 13.2 | 10.8 | -133.30 | 441.9 | -120.1 | 352.5 | 331.0 | 21.47 | 16.417 | 21.176 CC, ES | |
| 3,000.0 | 2,905.5 | 2,996.7 | 2,930.3 | 13.8 | 11.4 | -132.47 | 469.0 | -125.7 | 366.8 | 344.3 | 22.59 | 16.241 | | |
| 3,100.0 | 3,000.9 | 3,095.6 | 3,025.2 | 14.4 | 11.9 | -131.70 | 496.2 | -131.3 | 381.3 | 357.6 | 23.71 | 16.083 | | |
| 3,200.0 | 3,096.2 | 3,194.4 | 3,120.1 | 15.0 | 12.5 | -130.99 | 523.3 | -136.9 | 395.8 | 371.0 | 24.83 | 15.941 | | |
| 3,300.0 | 3,191.5 | 3,293.2 | 3,214.9 | 15.6 | 13.1 | -130.32 | 550.5 | -142.5 | 410.4 | 384.4 | 25.95 | 15.812 | | |
| 3,400.0 | 3,286.8 | 3,392.0 | 3,309.8 | 16.2 | 13.6 | -129.71 | 577.6 | -148.1 | 425.0 | 397.9 | 27.08 | 15.695 | | |
| 3,500.0 | 3,382.1 | 3,490.9 | 3,404.6 | 16.8 | 14.2 | -129.13 | 604.7 | -153.7 | 439.6 | 411.4 | 28.20 | 15.588 | 21.176 CC, ES | |
| 3,600.0 | 3,477.4 | 3,589.7 | 3,499.5 | 17.4 | 14.7 | -128.59 | 631.9 | -159.3 | 454.4 | 425.0 | 29.33 | 15.490 | | |
| 3,700.0 | 3,572.7 | 3,688.5 | 3,594.4 | 18.0 | 15.3 | -128.09 | 659.0 | -164.9 | 469.1 | 438.6 | 30.46 | 15.401 | | |
| 3,800.0 | 3,668.0 | 3,787.3 | 3,689.2 | 18.6 | 15.8 | -127.61 | 686.2 | -170.5 | 483.9 | 452.3 | 31.59 | 15.318 | | |
| 3,900.0 | 3,763.3 | 3,886.2 | 3,784.1 | 19.2 | 16.4 | -127.16 | 713.3 | -176.1 | 498.7 | 466.0 | 32.72 | 15.243 SF | | |

| Greeley-Rothe Pad Sec.1-T5N-R67W - Genesis 9-1-20 - Wellbore #1 - Plan #1 (5-02-14) | | | | | | | | | | | | | Offset Site Error: | 0.0 ft |
|---|----------------|----------------|----------------|-----------------|--------|-------------------|------------------------|------------|-----------------|------------------|--------------------|-------------------|--------------------|---------|
| Survey Program: 0-MWD | | | | | | | | | | | | | Offset Well Error: | 0.0 ft |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | | Warning |
| Measured Depth | Vertical Depth | Measured Depth | Vertical Depth | Reference | Offset | Highside Toolface | Offset Wellbore Centre | | Between Centres | Between Ellipses | Minimum Separation | Separation Factor | | |
| (ft) | (ft) | (ft) | (ft) | (ft) | (ft) | (°) | +N/-S (ft) | +E/-W (ft) | (ft) | (ft) | (ft) | | | |
| 0.0 | 0.0 | 1.0 | 1.0 | 0.0 | 0.0 | -151.22 | -48.7 | -26.8 | 55.6 | 55.6 | 0.00 | N/A | | |
| 100.0 | 100.0 | 101.0 | 101.0 | 0.1 | 0.1 | -151.22 | -48.7 | -26.8 | 55.6 | 55.4 | 0.23 | 244.836 | | |
| 200.0 | 200.0 | 201.0 | 201.0 | 0.3 | 0.3 | -151.22 | -48.7 | -26.8 | 55.6 | 54.9 | 0.68 | 82.154 | | |
| 300.0 | 300.0 | 301.0 | 301.0 | 0.6 | 0.6 | -151.22 | -48.7 | -26.8 | 55.6 | 54.5 | 1.13 | 49.358 | | |
| 400.0 | 400.0 | 401.0 | 401.0 | 0.8 | 0.8 | -151.22 | -48.7 | -26.8 | 55.6 | 54.0 | 1.58 | 35.276 CC, ES | | |
| 500.0 | 500.0 | 501.0 | 501.0 | 1.0 | 1.0 | -170.00 | -48.7 | -26.8 | 57.3 | 55.3 | 2.03 | 28.256 | | |
| 600.0 | 599.8 | 600.8 | 600.8 | 1.2 | 1.2 | -170.81 | -48.7 | -26.8 | 62.5 | 60.0 | 2.48 | 25.165 | | |
| 700.0 | 699.5 | 700.5 | 700.5 | 1.5 | 1.5 | -171.91 | -48.7 | -26.8 | 71.1 | 68.1 | 2.94 | 24.210 SF | | |
| 800.0 | 798.7 | 799.7 | 799.7 | 1.7 | 1.7 | -173.06 | -48.7 | -26.8 | 83.2 | 79.8 | 3.39 | 24.539 | | |
| 900.0 | 897.5 | 898.5 | 898.5 | 2.0 | 1.9 | -174.13 | -48.7 | -26.8 | 98.7 | 94.9 | 3.84 | 25.696 | | |
| 1,000.0 | 995.6 | 996.6 | 996.6 | 2.4 | 2.1 | -175.04 | -48.7 | -26.8 | 117.7 | 113.4 | 4.29 | 27.415 | | |
| 1,100.0 | 1,093.1 | 1,094.8 | 1,094.8 | 2.8 | 2.3 | -175.16 | -47.9 | -28.1 | 139.9 | 135.1 | 4.74 | 29.503 | | |
| 1,200.0 | 1,189.6 | 1,192.3 | 1,192.1 | 3.3 | 2.6 | -174.15 | -45.3 | -32.2 | 165.0 | 159.8 | 5.19 | 31.780 | | |
| 1,300.0 | 1,285.3 | 1,288.9 | 1,288.4 | 3.8 | 2.8 | -172.50 | -41.0 | -39.1 | 193.0 | 187.3 | 5.66 | 34.086 | | |
| 1,400.0 | 1,380.6 | 1,385.0 | 1,383.9 | 4.3 | 3.0 | -170.50 | -35.1 | -48.7 | 221.9 | 215.7 | 6.18 | 35.892 | | |
| 1,500.0 | 1,475.9 | 1,480.8 | 1,478.5 | 4.9 | 3.3 | -168.20 | -27.4 | -60.9 | 250.9 | 244.1 | 6.75 | 37.184 | | |
| 1,600.0 | 1,571.2 | 1,575.9 | 1,572.0 | 5.5 | 3.6 | -165.71 | -18.2 | -75.7 | 280.1 | 272.8 | 7.37 | 38.033 | | |
| 1,700.0 | 1,666.5 | 1,670.2 | 1,664.1 | 6.0 | 3.9 | -163.11 | -7.5 | -93.0 | 309.9 | 301.9 | 8.05 | 38.507 | | |
| 1,800.0 | 1,761.8 | 1,764.2 | 1,755.3 | 6.6 | 4.3 | -160.52 | 4.5 | -112.3 | 340.4 | 331.6 | 8.79 | 38.727 | | |
| 1,900.0 | 1,857.1 | 1,858.3 | 1,846.5 | 7.2 | 4.7 | -158.31 | 16.7 | -131.9 | 371.5 | 361.9 | 9.57 | 38.818 | | |
| 2,000.0 | 1,952.5 | 1,952.4 | 1,937.8 | 7.8 | 5.1 | -156.44 | 28.9 | -151.4 | 403.0 | 392.6 | 10.38 | 38.821 | | |
| 2,100.0 | 2,047.8 | 2,046.6 | 2,029.1 | 8.4 | 5.5 | -154.83 | 41.1 | -171.0 | 434.8 | 423.6 | 11.20 | 38.813 | | |
| 2,200.0 | 2,143.1 | 2,140.7 | 2,120.3 | 9.0 | 5.9 | -153.45 | 53.2 | -190.5 | 466.9 | 454.9 | 12.04 | 38.776 | | |
| 2,300.0 | 2,238.4 | 2,234.8 | 2,211.6 | 9.6 | 6.4 | -152.24 | 65.4 | -210.1 | 499.3 | 486.4 | 12.89 | 38.727 | | |

| | | | |
|---------------------------|----------------------------------|-------------------------------------|-----------------------------|
| Company: | KP KAUFFMAN | Local Co-ordinate Reference: | Well Greeley-Rothe 1-1H |
| Project: | SEC.1-T5N-R67W | TVD Reference: | WELL @ 4890.0ft (RKB - 15') |
| Reference Site: | Greeley-Rothe Pad Sec.1-T5N-R67W | MD Reference: | WELL @ 4890.0ft (RKB - 15') |
| Site Error: | 0.0ft | North Reference: | True |
| Reference Well: | Greeley-Rothe 1-1H | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | Wellbore #1 | Database: | Landmark |
| Reference Design: | Plan #2 (6-05-14) | Offset TVD Reference: | Offset Datum |

| Offset Design Greeley-Rothe Pad Sec.1-T5N-R67W - Genesis 9-1-39 - Wellbore #1 - Plan #2 (6-05-14) | | | | | | | | | | | | Offset Site Error: 0.0 ft | |
|---|----------------|----------------|----------------|-----------------|--------|-------------------|------------------------|------------|-----------------|------------------|--------------------|---------------------------|---------|
| Survey Program: 0-MWD | | | | | | | | | | | | Offset Well Error: 0.0 ft | |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | |
| Measured Depth | Vertical Depth | Measured Depth | Vertical Depth | Reference | Offset | Highside Toolface | Offset Wellbore Centre | | Between Centres | Between Ellipses | Minimum Separation | Separation Factor | Warning |
| (ft) | (ft) | (ft) | (ft) | (ft) | (ft) | (°) | +N/-S (ft) | +E/-W (ft) | (ft) | (ft) | (ft) | | |
| 0.0 | 0.0 | 1.0 | 1.0 | 0.0 | 0.0 | -161.13 | -74.8 | -25.6 | 79.0 | 79.0 | 0.00 | N/A | |
| 100.0 | 100.0 | 101.0 | 101.0 | 0.1 | 0.1 | -161.13 | -74.8 | -25.6 | 79.0 | 78.8 | 0.23 | 348.174 | |
| 200.0 | 200.0 | 201.0 | 201.0 | 0.3 | 0.3 | -161.13 | -74.8 | -25.6 | 79.0 | 78.4 | 0.68 | 116.829 | |
| 300.0 | 300.0 | 301.0 | 301.0 | 0.6 | 0.6 | -161.13 | -74.8 | -25.6 | 79.0 | 77.9 | 1.13 | 70.191 | |
| 400.0 | 400.0 | 401.0 | 401.0 | 0.8 | 0.8 | -161.13 | -74.8 | -25.6 | 79.0 | 77.5 | 1.58 | 50.165 | CC, ES |
| 500.0 | 500.0 | 501.0 | 501.0 | 1.0 | 1.0 | -179.61 | -74.8 | -25.6 | 80.8 | 78.8 | 2.03 | 39.833 | |
| 600.0 | 599.8 | 600.8 | 600.8 | 1.2 | 1.2 | -179.63 | -74.8 | -25.6 | 86.0 | 83.5 | 2.48 | 34.650 | |
| 700.0 | 699.5 | 700.5 | 700.5 | 1.5 | 1.5 | -179.66 | -74.8 | -25.6 | 94.7 | 91.8 | 2.94 | 32.263 | |
| 800.0 | 798.7 | 799.7 | 799.7 | 1.7 | 1.7 | -179.70 | -74.8 | -25.6 | 106.9 | 103.5 | 3.39 | 31.548 | SF |
| 900.0 | 897.5 | 898.5 | 898.5 | 2.0 | 1.9 | -179.74 | -74.8 | -25.6 | 122.6 | 118.7 | 3.84 | 31.907 | |
| 1,000.0 | 995.6 | 996.6 | 996.6 | 2.4 | 2.1 | -179.77 | -74.8 | -25.6 | 141.6 | 137.3 | 4.29 | 32.995 | |
| 1,100.0 | 1,093.1 | 1,094.1 | 1,094.1 | 2.8 | 2.3 | -179.80 | -74.8 | -25.6 | 164.1 | 159.4 | 4.74 | 34.595 | |
| 1,200.0 | 1,189.6 | 1,190.6 | 1,190.6 | 3.3 | 2.6 | -179.83 | -74.8 | -25.6 | 190.0 | 184.8 | 5.20 | 36.567 | |
| 1,300.0 | 1,285.3 | 1,286.3 | 1,286.3 | 3.8 | 2.8 | -179.85 | -74.8 | -25.6 | 219.2 | 213.5 | 5.65 | 38.770 | |
| 1,400.0 | 1,380.6 | 1,381.6 | 1,381.6 | 4.3 | 3.0 | -179.87 | -74.8 | -25.6 | 249.5 | 243.3 | 6.13 | 40.663 | |
| 1,500.0 | 1,475.9 | 1,476.9 | 1,476.9 | 4.9 | 3.2 | -179.88 | -74.8 | -25.6 | 279.7 | 273.1 | 6.62 | 42.244 | |
| 1,600.0 | 1,571.2 | 1,572.2 | 1,572.2 | 5.5 | 3.4 | -179.89 | -74.8 | -25.6 | 310.0 | 302.9 | 7.11 | 43.581 | |
| 1,700.0 | 1,666.5 | 1,667.5 | 1,667.5 | 6.0 | 3.6 | -179.90 | -74.8 | -25.6 | 340.3 | 332.7 | 7.61 | 44.725 | |
| 1,800.0 | 1,761.8 | 1,762.8 | 1,762.8 | 6.6 | 3.8 | -179.91 | -74.8 | -25.6 | 370.5 | 362.4 | 8.11 | 45.713 | |
| 1,900.0 | 1,857.1 | 1,858.1 | 1,858.1 | 7.2 | 4.1 | -179.92 | -74.8 | -25.6 | 400.8 | 392.2 | 8.61 | 46.573 | |
| 2,000.0 | 1,952.5 | 1,953.5 | 1,953.5 | 7.8 | 4.3 | -179.92 | -74.8 | -25.6 | 431.1 | 422.0 | 9.11 | 47.330 | |
| 2,100.0 | 2,047.8 | 2,048.8 | 2,048.8 | 8.4 | 4.5 | -179.93 | -74.8 | -25.6 | 461.3 | 451.7 | 9.61 | 47.999 | |
| 2,200.0 | 2,143.1 | 2,144.1 | 2,144.1 | 9.0 | 4.7 | -179.93 | -74.8 | -25.6 | 491.6 | 481.5 | 10.12 | 48.594 | |

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

| | | | |
|---------------------------|----------------------------------|-------------------------------------|-----------------------------|
| Company: | KP KAUFFMAN | Local Co-ordinate Reference: | Well Greeley-Rothe 1-1H |
| Project: | SEC.1-T5N-R67W | TVD Reference: | WELL @ 4890.0ft (RKB - 15') |
| Reference Site: | Greeley-Rothe Pad Sec.1-T5N-R67W | MD Reference: | WELL @ 4890.0ft (RKB - 15') |
| Site Error: | 0.0ft | North Reference: | True |
| Reference Well: | Greeley-Rothe 1-1H | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | Wellbore #1 | Database: | Landmark |
| Reference Design: | Plan #2 (6-05-14) | Offset TVD Reference: | Offset Datum |

| Offset Design | | | | | | | | | | | | Offset Site Error: | 0.0 ft |
|------------------------|---------------------|---------------------|---------------------|-----------------|-------------|-----------------------|-----------------------------------|------------|----------------------|-----------------------|-------------------------|--------------------|---------|
| Survey Program: 0-MWID | | | | | | | | | | | | Offset Well Error: | 0.0 ft |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | Warning |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | +E/-W (ft) | Between Centres (ft) | Between Ellipses (ft) | Minimum Separation (ft) | Separation Factor | |
| 5,200.0 | 5,002.4 | 5,187.9 | 4,975.5 | 27.1 | 28.3 | -16.65 | 1,338.9 | 419.8 | 90.4 | 57.9 | 32.57 | 2.777 | |
| 5,300.0 | 5,097.7 | 5,287.9 | 5,070.6 | 27.7 | 29.0 | -17.22 | 1,368.4 | 428.5 | 91.2 | 57.8 | 33.44 | 2.728 | |
| 5,400.0 | 5,193.0 | 5,387.9 | 5,165.8 | 28.3 | 29.6 | -17.79 | 1,397.9 | 437.2 | 92.0 | 57.7 | 34.32 | 2.680 | |
| 5,500.0 | 5,288.3 | 5,487.9 | 5,261.0 | 28.9 | 30.2 | -18.34 | 1,427.3 | 445.9 | 92.7 | 57.5 | 35.20 | 2.634 | |
| 5,600.0 | 5,383.6 | 5,587.9 | 5,356.1 | 29.5 | 30.8 | -18.89 | 1,456.8 | 454.6 | 93.5 | 57.4 | 36.10 | 2.591 | |
| 5,700.0 | 5,478.9 | 5,687.9 | 5,451.3 | 30.1 | 31.4 | -19.43 | 1,486.3 | 463.2 | 94.3 | 57.3 | 37.01 | 2.549 | |
| 5,800.0 | 5,574.2 | 5,787.9 | 5,546.4 | 30.7 | 32.0 | -19.96 | 1,515.7 | 471.9 | 95.1 | 57.2 | 37.93 | 2.508 | |
| 5,900.0 | 5,669.5 | 5,887.9 | 5,641.6 | 31.3 | 32.6 | -20.48 | 1,545.2 | 480.6 | 95.9 | 57.1 | 38.85 | 2.469 | |
| 6,000.0 | 5,764.8 | 5,987.9 | 5,736.7 | 31.9 | 33.3 | -20.99 | 1,574.7 | 489.3 | 96.7 | 57.0 | 39.79 | 2.432 | |
| 6,100.0 | 5,860.1 | 6,087.8 | 5,831.9 | 32.5 | 33.9 | -21.49 | 1,604.1 | 498.0 | 97.6 | 56.8 | 40.73 | 2.396 | |
| 6,200.0 | 5,955.4 | 6,187.8 | 5,927.0 | 33.1 | 34.5 | -21.99 | 1,633.6 | 506.7 | 98.4 | 56.7 | 41.68 | 2.361 | |
| 6,300.0 | 6,050.8 | 6,287.8 | 6,022.2 | 33.7 | 35.1 | -22.47 | 1,663.1 | 515.4 | 99.2 | 56.6 | 42.64 | 2.327 | |
| 6,400.0 | 6,146.1 | 6,387.8 | 6,117.4 | 34.3 | 35.7 | -22.95 | 1,692.5 | 524.1 | 100.1 | 56.5 | 43.61 | 2.295 | |
| 6,500.0 | 6,241.4 | 6,487.8 | 6,212.5 | 34.9 | 36.3 | -23.42 | 1,722.0 | 532.7 | 100.9 | 56.4 | 44.58 | 2.264 | |
| 6,600.0 | 6,336.7 | 6,587.8 | 6,307.7 | 35.6 | 36.9 | -23.88 | 1,751.5 | 541.4 | 101.8 | 56.2 | 45.56 | 2.234 | |
| 6,700.0 | 6,432.0 | 6,687.8 | 6,402.8 | 36.2 | 37.5 | -24.34 | 1,780.9 | 550.1 | 102.7 | 56.1 | 46.55 | 2.205 | |
| 6,800.0 | 6,527.3 | 6,787.8 | 6,498.0 | 36.8 | 38.2 | -23.78 | 1,810.4 | 558.8 | 103.5 | 56.0 | 47.54 | 2.178 | |
| 6,900.0 | 6,623.0 | 6,887.5 | 6,592.9 | 37.2 | 38.8 | 6.01 | 1,839.8 | 567.5 | 103.9 | 57.7 | 46.23 | 2.248 | |
| 7,000.0 | 6,718.2 | 6,986.3 | 6,687.0 | 37.6 | 39.3 | 39.42 | 1,868.9 | 574.6 | 105.9 | 63.2 | 42.67 | 2.482 | |
| 7,100.0 | 6,811.0 | 7,087.9 | 6,784.0 | 38.0 | 39.8 | 65.34 | 1,898.4 | 569.7 | 111.8 | 70.4 | 41.39 | 2.701 | |
| 7,200.0 | 6,899.6 | 7,192.7 | 6,882.4 | 38.2 | 40.2 | 83.88 | 1,928.0 | 549.7 | 120.8 | 78.9 | 41.94 | 2.880 | |
| 7,300.0 | 6,982.3 | 7,301.0 | 6,980.2 | 38.4 | 40.6 | 97.26 | 1,956.8 | 513.6 | 131.9 | 89.3 | 42.57 | 3.098 | |
| 7,400.0 | 7,057.5 | 7,412.8 | 7,074.7 | 38.5 | 40.8 | 107.03 | 1,984.0 | 460.6 | 143.8 | 101.6 | 42.26 | 3.403 | |
| 7,500.0 | 7,123.6 | 7,528.2 | 7,162.9 | 38.6 | 41.0 | 114.18 | 2,008.7 | 390.5 | 155.6 | 114.7 | 40.86 | 3.808 | |
| 7,600.0 | 7,179.5 | 7,646.9 | 7,241.3 | 38.6 | 41.1 | 119.36 | 2,029.9 | 304.1 | 166.3 | 127.6 | 38.71 | 4.296 | |
| 7,700.0 | 7,224.1 | 7,768.7 | 7,306.6 | 38.6 | 41.2 | 123.00 | 2,046.6 | 202.8 | 175.2 | 138.7 | 36.46 | 4.804 | |
| 7,800.0 | 7,256.4 | 7,892.9 | 7,355.4 | 38.6 | 41.3 | 125.39 | 2,057.8 | 89.3 | 181.7 | 146.9 | 34.84 | 5.216 | |
| 7,900.0 | 7,275.8 | 8,018.8 | 7,385.1 | 38.6 | 41.3 | 126.68 | 2,062.9 | -32.7 | 185.4 | 150.9 | 34.52 | 5.372 | |
| 8,000.0 | 7,282.0 | 8,143.1 | 7,394.0 | 38.7 | 41.4 | 126.98 | 2,061.5 | -156.5 | 186.2 | 150.3 | 35.93 | 5.181 | |
| 8,100.0 | 7,282.0 | 8,243.1 | 7,394.0 | 38.8 | 41.5 | 126.98 | 2,058.2 | -256.5 | 186.2 | 148.0 | 38.22 | 4.872 | |
| 8,200.0 | 7,282.0 | 8,343.1 | 7,394.0 | 39.1 | 41.8 | 126.98 | 2,054.9 | -356.4 | 186.2 | 145.3 | 40.87 | 4.556 | |
| 8,263.2 | 7,282.0 | 8,406.3 | 7,394.0 | 39.3 | 42.0 | 126.98 | 2,052.9 | -419.6 | 186.2 | 143.5 | 42.71 | 4.359 | |
| 8,300.0 | 7,282.0 | 8,443.1 | 7,394.0 | 39.5 | 42.2 | 126.98 | 2,051.6 | -456.4 | 186.2 | 142.4 | 43.83 | 4.248 | |
| 8,400.0 | 7,282.0 | 8,543.1 | 7,394.0 | 40.2 | 42.8 | 126.98 | 2,048.3 | -556.3 | 186.2 | 139.1 | 47.05 | 3.957 | |
| 8,500.0 | 7,282.0 | 8,643.1 | 7,394.0 | 41.2 | 43.7 | 126.98 | 2,045.0 | -656.3 | 186.2 | 135.7 | 50.47 | 3.689 | |
| 8,600.0 | 7,282.0 | 8,743.1 | 7,394.0 | 42.5 | 44.8 | 126.98 | 2,041.7 | -756.2 | 186.2 | 132.1 | 54.06 | 3.444 | |
| 8,700.0 | 7,282.0 | 8,843.1 | 7,394.0 | 44.1 | 46.2 | 126.98 | 2,038.4 | -856.2 | 186.2 | 128.4 | 57.79 | 3.222 | |
| 8,726.8 | 7,282.0 | 8,869.9 | 7,394.0 | 44.5 | 46.6 | 126.98 | 2,037.6 | -882.9 | 186.2 | 127.4 | 58.81 | 3.166 | |
| 8,800.0 | 7,282.0 | 8,943.1 | 7,394.0 | 45.8 | 47.8 | 126.98 | 2,035.2 | -956.1 | 186.2 | 124.6 | 61.63 | 3.021 | |
| 8,871.6 | 7,282.0 | 9,014.7 | 7,394.0 | 47.2 | 49.1 | 126.98 | 2,032.8 | -1,027.7 | 186.2 | 121.8 | 64.44 | 2.889 | |
| 8,900.0 | 7,282.0 | 9,043.1 | 7,394.0 | 47.8 | 49.6 | 126.98 | 2,031.9 | -1,056.1 | 186.2 | 120.6 | 65.56 | 2.840 | |
| 9,000.0 | 7,282.0 | 9,143.1 | 7,394.0 | 49.9 | 51.5 | 126.98 | 2,028.6 | -1,156.0 | 186.2 | 116.6 | 69.57 | 2.676 | |
| 9,100.0 | 7,282.0 | 9,243.1 | 7,394.0 | 52.0 | 53.6 | 126.98 | 2,025.3 | -1,256.0 | 186.2 | 112.6 | 73.64 | 2.528 | |
| 9,165.3 | 7,282.0 | 9,308.5 | 7,394.0 | 53.5 | 55.0 | 126.98 | 2,023.1 | -1,321.3 | 186.2 | 109.9 | 76.33 | 2.439 | |
| 9,200.0 | 7,282.0 | 9,343.1 | 7,394.0 | 54.3 | 55.7 | 126.98 | 2,022.0 | -1,355.9 | 186.2 | 108.4 | 77.76 | 2.394 | |
| 9,300.0 | 7,282.0 | 9,443.1 | 7,394.0 | 56.6 | 58.0 | 126.98 | 2,018.7 | -1,455.8 | 186.2 | 104.3 | 81.93 | 2.273 | |
| 9,400.0 | 7,282.0 | 9,543.1 | 7,394.0 | 59.0 | 60.3 | 126.98 | 2,015.4 | -1,555.8 | 186.2 | 100.1 | 86.14 | 2.161 | |
| 9,464.6 | 7,282.0 | 9,607.7 | 7,394.0 | 60.5 | 61.8 | 126.98 | 2,013.2 | -1,620.4 | 186.2 | 97.3 | 88.88 | 2.095 | |
| 9,500.0 | 7,282.0 | 9,643.1 | 7,394.0 | 61.4 | 62.6 | 126.98 | 2,012.1 | -1,655.7 | 186.2 | 95.8 | 90.38 | 2.060 | |
| 9,600.0 | 7,282.0 | 9,743.1 | 7,394.0 | 63.9 | 65.0 | 126.98 | 2,008.8 | -1,755.7 | 186.2 | 91.5 | 94.65 | 1.967 | |
| 9,700.0 | 7,282.0 | 9,843.1 | 7,394.0 | 66.4 | 67.5 | 126.98 | 2,005.5 | -1,855.6 | 186.2 | 87.2 | 98.95 | 1.882 | |
| 9,764.6 | 7,282.0 | 9,907.7 | 7,394.0 | 68.0 | 69.1 | 126.98 | 2,003.3 | -1,920.2 | 186.2 | 84.5 | 101.74 | 1.830 | |

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

| Greeley-Rothe Pad Sec.1-T5N-R67W - Greeley-Rothe 1-0H - Wellbore #1 - Plan #1 (6-5-14) | | | | | | | | | | | | | Offset Site Error: | 0.0 ft |
|--|---------------------|---------------------|---------------------|-----------------|-------------|-----------------------|-----------------------------------|------------|----------------------|-----------------------|-------------------------|-------------------|--------------------|---------|
| Survey Program: 0-MWD | | | | | | | | | | | | | Offset Well Error: | 0.0 ft |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | | Warning |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | +E/-W (ft) | Between Centres (ft) | Between Ellipses (ft) | Minimum Separation (ft) | Separation Factor | | |
| 9,800.0 | 7,282.0 | 9,943.1 | 7,394.0 | 68.9 | 69.9 | 126.98 | 2,002.2 | -1,955.6 | 186.2 | 82.9 | 103.27 | 1.803 | | |
| 9,900.0 | 7,282.0 | 10,043.1 | 7,394.0 | 71.4 | 72.4 | 126.98 | 1,998.9 | -2,055.5 | 186.2 | 78.6 | 107.60 | 1.730 | | |
| 9,964.6 | 7,282.0 | 10,107.7 | 7,394.0 | 73.1 | 74.1 | 126.98 | 1,996.7 | -2,120.1 | 186.2 | 75.8 | 110.42 | 1.686 | | |
| 10,000.0 | 7,282.0 | 10,143.1 | 7,394.0 | 74.0 | 75.0 | 126.98 | 1,995.6 | -2,155.5 | 186.2 | 74.2 | 111.96 | 1.663 | | |
| 10,100.0 | 7,282.0 | 10,243.1 | 7,394.0 | 76.5 | 77.5 | 126.98 | 1,992.3 | -2,255.4 | 186.2 | 69.9 | 116.33 | 1.601 | | |
| 10,200.0 | 7,282.0 | 10,343.1 | 7,394.0 | 79.1 | 80.1 | 126.98 | 1,989.0 | -2,355.4 | 186.2 | 65.5 | 120.71 | 1.542 | | |
| 10,240.3 | 7,282.0 | 10,383.4 | 7,394.0 | 80.2 | 81.1 | 126.98 | 1,987.6 | -2,395.6 | 186.2 | 63.7 | 122.48 | 1.520 | | |
| 10,300.0 | 7,282.0 | 10,443.1 | 7,394.0 | 81.7 | 82.7 | 126.98 | 1,985.7 | -2,455.3 | 186.2 | 61.1 | 125.11 | 1.488 | Level 3 | |
| 10,400.0 | 7,282.0 | 10,543.1 | 7,394.0 | 84.4 | 85.3 | 126.98 | 1,982.4 | -2,555.2 | 186.2 | 56.7 | 129.52 | 1.438 | Level 3 | |
| 10,500.0 | 7,282.0 | 10,643.1 | 7,394.0 | 87.0 | 87.9 | 126.98 | 1,979.1 | -2,655.2 | 186.2 | 52.3 | 133.93 | 1.390 | Level 3 | |
| 10,600.0 | 7,282.0 | 10,743.1 | 7,394.0 | 89.6 | 90.5 | 126.98 | 1,975.8 | -2,755.1 | 186.2 | 47.8 | 138.36 | 1.346 | Level 3 | |
| 10,700.0 | 7,282.0 | 10,843.1 | 7,394.0 | 92.3 | 93.1 | 126.98 | 1,972.5 | -2,855.1 | 186.2 | 43.4 | 142.79 | 1.304 | Level 3 | |
| 10,764.6 | 7,282.0 | 10,907.7 | 7,394.0 | 94.0 | 94.8 | 126.98 | 1,970.4 | -2,919.7 | 186.2 | 40.5 | 145.66 | 1.278 | Level 3 | |
| 10,800.0 | 7,282.0 | 10,943.1 | 7,394.0 | 94.9 | 95.8 | 126.98 | 1,969.2 | -2,955.0 | 186.2 | 39.0 | 147.23 | 1.265 | Level 3 | |
| 10,900.0 | 7,282.0 | 11,043.1 | 7,394.0 | 97.6 | 98.4 | 126.98 | 1,965.9 | -3,055.0 | 186.2 | 34.5 | 151.68 | 1.228 | Level 2 | |
| 11,000.0 | 7,282.0 | 11,143.1 | 7,394.0 | 100.3 | 101.1 | 126.98 | 1,962.6 | -3,154.9 | 186.2 | 30.1 | 156.13 | 1.192 | Level 2 | |
| 11,064.6 | 7,282.0 | 11,207.7 | 7,394.0 | 102.0 | 102.8 | 126.98 | 1,960.5 | -3,219.5 | 186.2 | 27.2 | 159.02 | 1.171 | Level 2 | |
| 11,100.0 | 7,282.0 | 11,243.1 | 7,394.0 | 103.0 | 103.7 | 126.98 | 1,959.3 | -3,254.9 | 186.2 | 25.6 | 160.59 | 1.159 | Level 2 | |
| 11,200.0 | 7,282.0 | 11,343.1 | 7,394.0 | 105.6 | 106.4 | 126.98 | 1,956.0 | -3,354.8 | 186.2 | 21.1 | 165.06 | 1.128 | Level 2 | |
| 11,300.0 | 7,282.0 | 11,443.1 | 7,394.0 | 108.3 | 109.1 | 126.98 | 1,952.7 | -3,454.8 | 186.2 | 16.7 | 169.53 | 1.098 | Level 2 | |
| 11,364.6 | 7,282.0 | 11,507.7 | 7,394.0 | 110.1 | 110.8 | 126.98 | 1,950.6 | -3,519.3 | 186.2 | 13.8 | 172.42 | 1.080 | Level 2 | |
| 11,400.0 | 7,282.0 | 11,543.1 | 7,394.0 | 111.0 | 111.8 | 126.98 | 1,949.4 | -3,554.7 | 186.2 | 12.2 | 174.00 | 1.070 | Level 2 | |
| 11,500.0 | 7,282.0 | 11,643.1 | 7,394.0 | 113.7 | 114.5 | 126.98 | 1,946.1 | -3,654.6 | 186.2 | 7.7 | 178.48 | 1.043 | Level 2 | |
| 11,564.6 | 7,282.0 | 11,707.7 | 7,394.0 | 115.5 | 116.2 | 126.98 | 1,944.0 | -3,719.2 | 186.2 | 4.8 | 181.37 | 1.027 | Level 2 | |
| 11,600.0 | 7,282.0 | 11,743.1 | 7,394.0 | 116.4 | 117.1 | 126.98 | 1,942.8 | -3,754.6 | 186.2 | 3.2 | 182.96 | 1.018 | Level 2 | |
| 11,700.0 | 7,282.0 | 11,843.1 | 7,394.0 | 119.2 | 119.8 | 126.98 | 1,939.5 | -3,854.5 | 186.2 | -1.3 | 187.45 | 0.993 | Level 1 | |
| 11,729.1 | 7,282.0 | 11,872.2 | 7,394.0 | 119.9 | 120.6 | 126.98 | 1,938.5 | -3,883.6 | 186.2 | -2.6 | 188.75 | 0.986 | Level 1 | |
| 11,800.0 | 7,282.0 | 11,943.1 | 7,394.0 | 121.9 | 122.6 | 126.98 | 1,936.2 | -3,954.5 | 186.2 | -5.7 | 191.93 | 0.970 | Level 1 | |
| 11,864.6 | 7,282.0 | 12,007.7 | 7,394.0 | 123.6 | 124.2 | 126.98 | 1,934.1 | -4,019.1 | 186.2 | -8.6 | 194.77 | 0.956 | Level 1 | |
| 11,900.0 | 7,282.0 | 12,043.1 | 7,394.0 | 124.6 | 124.9 | 126.98 | 1,932.9 | -4,054.4 | 186.2 | -9.9 | 196.07 | 0.950 | Level 1 | |
| 11,931.0 | 7,282.0 | 12,074.1 | 7,394.0 | 125.2 | 125.5 | 126.98 | 1,931.9 | -4,085.4 | 186.2 | -10.8 | 196.95 | 0.945 | Level 1, ES, SF | |
| 11,978.1 | 7,282.0 | 12,086.3 | 7,394.0 | 126.0 | 125.7 | 126.98 | 1,931.5 | -4,097.6 | 189.4 | -8.4 | 197.80 | 0.958 | Level 1 | |

| | | | |
|---------------------------|----------------------------------|-------------------------------------|-----------------------------|
| Company: | KP KAUFFMAN | Local Co-ordinate Reference: | Well Greeley-Rothe 1-1H |
| Project: | SEC.1-T5N-R67W | TVD Reference: | WELL @ 4890.0ft (RKB - 15') |
| Reference Site: | Greeley-Rothe Pad Sec.1-T5N-R67W | MD Reference: | WELL @ 4890.0ft (RKB - 15') |
| Site Error: | 0.0ft | North Reference: | True |
| Reference Well: | Greeley-Rothe 1-1H | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | Wellbore #1 | Database: | Landmark |
| Reference Design: | Plan #2 (6-05-14) | Offset TVD Reference: | Offset Datum |

| Offset Design | | | | | | | | | | | | | Offset Site Error: | 0.0 ft |
|-----------------------|---------------------|---------------------|---------------------|-----------------|-------------|-----------------------|-----------------------------------|------------|----------------------|-----------------------|-------------------------|-------------------|--------------------|---------|
| Survey Program: 0-MWD | | | | | | | | | | | | | Offset Well Error: | 0.0 ft |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | | Warning |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | +E/-W (ft) | Between Centres (ft) | Between Ellipses (ft) | Minimum Separation (ft) | Separation Factor | | |
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -89.58 | 0.2 | -25.0 | 25.0 | | | | | |
| 100.0 | 100.0 | 100.0 | 100.0 | 0.1 | 0.1 | -89.58 | 0.2 | -25.0 | 25.0 | 24.8 | 0.22 | 111.241 | | |
| 200.0 | 200.0 | 200.0 | 200.0 | 0.3 | 0.3 | -89.58 | 0.2 | -25.0 | 25.0 | 24.3 | 0.67 | 37.080 | | |
| 300.0 | 300.0 | 300.0 | 300.0 | 0.6 | 0.6 | -89.58 | 0.2 | -25.0 | 25.0 | 23.9 | 1.12 | 22.248 | | |
| 400.0 | 400.0 | 400.0 | 400.0 | 0.8 | 0.8 | -89.58 | 0.2 | -25.0 | 25.0 | 23.4 | 1.57 | 15.892 CC, ES | | |
| 500.0 | 500.0 | 500.0 | 500.0 | 1.0 | 1.0 | -111.75 | 0.2 | -25.0 | 25.6 | 23.6 | 2.02 | 12.660 | | |
| 600.0 | 599.8 | 599.8 | 599.8 | 1.2 | 1.2 | -121.71 | 0.2 | -25.0 | 28.0 | 25.5 | 2.47 | 11.303 | | |
| 700.0 | 699.5 | 700.3 | 700.3 | 1.5 | 1.5 | -132.50 | 1.8 | -24.3 | 32.1 | 29.2 | 2.93 | 10.947 | | |
| 800.0 | 798.7 | 801.0 | 800.8 | 1.7 | 1.7 | -140.94 | 6.7 | -22.3 | 36.9 | 33.5 | 3.39 | 10.878 | | |
| 900.0 | 897.5 | 901.9 | 901.4 | 2.0 | 1.9 | -147.63 | 14.8 | -18.8 | 42.2 | 38.3 | 3.86 | 10.925 | | |
| 1,000.0 | 995.6 | 1,003.1 | 1,001.8 | 2.4 | 2.2 | -153.08 | 26.3 | -14.0 | 47.7 | 43.4 | 4.33 | 11.016 | | |
| 1,100.0 | 1,093.1 | 1,104.6 | 1,102.0 | 2.8 | 2.5 | -157.62 | 41.0 | -7.7 | 53.5 | 48.7 | 4.81 | 11.118 | | |
| 1,200.0 | 1,189.6 | 1,206.3 | 1,201.7 | 3.3 | 2.8 | -161.50 | 59.0 | -0.1 | 59.4 | 54.1 | 5.29 | 11.217 | | |
| 1,300.0 | 1,285.3 | 1,308.2 | 1,301.0 | 3.8 | 3.2 | -164.88 | 80.4 | 8.9 | 65.3 | 59.5 | 5.79 | 11.281 | | |
| 1,400.0 | 1,380.6 | 1,409.5 | 1,398.9 | 4.3 | 3.7 | -167.51 | 104.6 | 19.2 | 69.3 | 62.9 | 6.32 | 10.953 | | |
| 1,500.0 | 1,475.9 | 1,509.4 | 1,495.2 | 4.9 | 4.1 | -169.76 | 129.2 | 29.5 | 72.6 | 65.8 | 6.87 | 10.577 | | |
| 1,600.0 | 1,571.2 | 1,609.4 | 1,591.5 | 5.5 | 4.6 | -171.81 | 153.7 | 39.9 | 76.1 | 68.7 | 7.41 | 10.272 | | |
| 1,700.0 | 1,666.5 | 1,709.3 | 1,687.7 | 6.0 | 5.1 | -173.67 | 178.2 | 50.3 | 79.6 | 71.7 | 7.96 | 10.004 | | |
| 1,800.0 | 1,761.8 | 1,809.2 | 1,784.0 | 6.6 | 5.6 | -175.38 | 202.8 | 60.6 | 83.2 | 74.7 | 8.52 | 9.771 | | |
| 1,900.0 | 1,857.1 | 1,909.1 | 1,880.3 | 7.2 | 6.1 | -176.94 | 227.3 | 71.0 | 86.9 | 77.8 | 9.09 | 9.565 | | |
| 2,000.0 | 1,952.5 | 2,009.0 | 1,976.6 | 7.8 | 6.6 | -178.38 | 251.8 | 81.4 | 90.7 | 81.0 | 9.67 | 9.379 | | |
| 2,100.0 | 2,047.8 | 2,108.9 | 2,072.9 | 8.4 | 7.2 | -179.70 | 276.4 | 91.8 | 94.5 | 84.2 | 10.26 | 9.211 | | |
| 2,200.0 | 2,143.1 | 2,208.8 | 2,169.2 | 9.0 | 7.7 | 179.08 | 300.9 | 102.1 | 98.3 | 87.5 | 10.86 | 9.056 | | |
| 2,300.0 | 2,238.4 | 2,308.7 | 2,265.5 | 9.6 | 8.2 | 177.96 | 325.4 | 112.5 | 102.2 | 90.8 | 11.47 | 8.913 | | |
| 2,400.0 | 2,333.7 | 2,408.6 | 2,361.8 | 10.2 | 8.7 | 176.92 | 350.0 | 122.9 | 106.2 | 94.1 | 12.09 | 8.781 | | |
| 2,500.0 | 2,429.0 | 2,508.5 | 2,458.1 | 10.8 | 9.3 | 175.95 | 374.5 | 133.3 | 110.1 | 97.4 | 12.72 | 8.657 | | |
| 2,600.0 | 2,524.3 | 2,608.4 | 2,554.3 | 11.4 | 9.8 | 175.05 | 399.0 | 143.6 | 114.1 | 100.7 | 13.36 | 8.542 | | |
| 2,700.0 | 2,619.6 | 2,708.3 | 2,650.6 | 12.0 | 10.3 | 174.21 | 423.6 | 154.0 | 118.1 | 104.1 | 14.01 | 8.434 | | |
| 2,800.0 | 2,714.9 | 2,808.2 | 2,746.9 | 12.6 | 10.9 | 173.43 | 448.1 | 164.4 | 122.2 | 107.5 | 14.66 | 8.332 | | |
| 2,900.0 | 2,810.2 | 2,908.1 | 2,843.2 | 13.2 | 11.4 | 172.69 | 472.6 | 174.7 | 126.2 | 110.9 | 15.32 | 8.236 | | |
| 3,000.0 | 2,905.5 | 3,008.0 | 2,939.5 | 13.8 | 12.0 | 172.00 | 497.2 | 185.1 | 130.3 | 114.3 | 15.99 | 8.146 | | |
| 3,100.0 | 3,000.9 | 3,107.9 | 3,035.8 | 14.4 | 12.5 | 171.36 | 521.7 | 195.5 | 134.4 | 117.7 | 16.67 | 8.062 | | |
| 3,200.0 | 3,096.2 | 3,207.8 | 3,132.1 | 15.0 | 13.0 | 170.75 | 546.2 | 205.9 | 138.5 | 121.2 | 17.35 | 7.981 | | |
| 3,300.0 | 3,191.5 | 3,307.7 | 3,228.4 | 15.6 | 13.6 | 170.18 | 570.8 | 216.2 | 142.6 | 124.6 | 18.04 | 7.906 | | |
| 3,400.0 | 3,286.8 | 3,407.6 | 3,324.6 | 16.2 | 14.1 | 169.64 | 595.3 | 226.6 | 146.8 | 128.0 | 18.74 | 7.834 | | |
| 3,500.0 | 3,382.1 | 3,507.5 | 3,420.9 | 16.8 | 14.6 | 169.13 | 619.8 | 237.0 | 150.9 | 131.5 | 19.44 | 7.766 | | |
| 3,600.0 | 3,477.4 | 3,607.5 | 3,517.2 | 17.4 | 15.2 | 168.64 | 644.4 | 247.4 | 155.1 | 135.0 | 20.14 | 7.702 | | |
| 3,700.0 | 3,572.7 | 3,707.4 | 3,613.5 | 18.0 | 15.7 | 168.19 | 668.9 | 257.7 | 159.3 | 138.4 | 20.85 | 7.640 | | |
| 3,800.0 | 3,668.0 | 3,807.3 | 3,709.8 | 18.6 | 16.3 | 167.75 | 693.4 | 268.1 | 163.5 | 141.9 | 21.56 | 7.582 | | |
| 3,900.0 | 3,763.3 | 3,907.2 | 3,806.1 | 19.2 | 16.8 | 167.34 | 718.0 | 278.5 | 167.7 | 145.4 | 22.27 | 7.527 | | |
| 4,000.0 | 3,858.6 | 4,007.1 | 3,902.4 | 19.8 | 17.3 | 166.95 | 742.5 | 288.8 | 171.9 | 148.9 | 22.99 | 7.475 | | |
| 4,100.0 | 3,954.0 | 4,107.0 | 3,998.7 | 20.4 | 17.9 | 166.57 | 767.0 | 299.2 | 176.1 | 152.3 | 23.71 | 7.425 | | |
| 4,200.0 | 4,049.3 | 4,206.9 | 4,095.0 | 21.0 | 18.4 | 166.21 | 791.6 | 309.6 | 180.3 | 155.8 | 24.44 | 7.377 | | |
| 4,300.0 | 4,144.6 | 4,306.8 | 4,191.2 | 21.6 | 19.0 | 165.87 | 816.1 | 320.0 | 184.5 | 159.3 | 25.17 | 7.332 | | |
| 4,400.0 | 4,239.9 | 4,406.7 | 4,287.5 | 22.2 | 19.5 | 165.55 | 840.6 | 330.3 | 188.7 | 162.8 | 25.90 | 7.288 | | |
| 4,500.0 | 4,335.2 | 4,506.6 | 4,383.8 | 22.8 | 20.0 | 165.24 | 865.2 | 340.7 | 193.0 | 166.3 | 26.63 | 7.247 | | |
| 4,600.0 | 4,430.5 | 4,606.5 | 4,480.1 | 23.4 | 20.6 | 164.94 | 889.7 | 351.1 | 197.2 | 169.8 | 27.36 | 7.207 | | |
| 4,700.0 | 4,525.8 | 4,706.4 | 4,576.4 | 24.1 | 21.1 | 164.66 | 914.2 | 361.5 | 201.5 | 173.4 | 28.10 | 7.169 | | |
| 4,800.0 | 4,621.1 | 4,806.3 | 4,672.7 | 24.7 | 21.7 | 164.38 | 938.8 | 371.8 | 205.7 | 176.9 | 28.84 | 7.133 | | |
| 4,900.0 | 4,716.4 | 4,906.2 | 4,769.0 | 25.3 | 22.2 | 164.12 | 963.3 | 382.2 | 210.0 | 180.4 | 29.58 | 7.098 | | |
| 5,000.0 | 4,811.7 | 5,006.1 | 4,865.3 | 25.9 | 22.8 | 163.87 | 987.8 | 392.6 | 214.2 | 183.9 | 30.32 | 7.064 | | |
| 5,100.0 | 4,907.0 | 5,106.0 | 4,961.6 | 26.5 | 23.3 | 163.63 | 1,012.4 | 402.9 | 218.5 | 187.4 | 31.07 | 7.032 | | |

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

| | | | |
|---------------------------|----------------------------------|-------------------------------------|-----------------------------|
| Company: | KP KAUFFMAN | Local Co-ordinate Reference: | Well Greeley-Rothe 1-1H |
| Project: | SEC.1-T5N-R67W | TVD Reference: | WELL @ 4890.0ft (RKB - 15') |
| Reference Site: | Greeley-Rothe Pad Sec.1-T5N-R67W | MD Reference: | WELL @ 4890.0ft (RKB - 15') |
| Site Error: | 0.0ft | North Reference: | True |
| Reference Well: | Greeley-Rothe 1-1H | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | Wellbore #1 | Database: | Landmark |
| Reference Design: | Plan #2 (6-05-14) | Offset TVD Reference: | Offset Datum |

| Offset Design | | | | | | | | | | | | Offset Site Error: | 0.0 ft |
|------------------------|---------------------|---------------------|---------------------|-----------------|-------------|-----------------------|-----------------------------------|------------|----------------------|-----------------------|-------------------------|--------------------|---------|
| Survey Program: 0-MWDD | | | | | | | | | | | | Offset Well Error: | 0.0 ft |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | Warning |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | +E/-W (ft) | Between Centres (ft) | Between Ellipses (ft) | Minimum Separation (ft) | Separation Factor | |
| 5,200.0 | 5,002.4 | 5,205.9 | 5,057.8 | 27.1 | 23.8 | 163.40 | 1,036.9 | 413.3 | 222.8 | 190.9 | 31.82 | 7.001 | |
| 5,300.0 | 5,097.7 | 5,305.8 | 5,154.1 | 27.7 | 24.4 | 163.17 | 1,061.4 | 423.7 | 227.0 | 194.5 | 32.56 | 6.972 | |
| 5,400.0 | 5,193.0 | 5,405.7 | 5,250.4 | 28.3 | 24.9 | 162.96 | 1,086.0 | 434.1 | 231.3 | 198.0 | 33.31 | 6.943 | |
| 5,500.0 | 5,288.3 | 5,505.6 | 5,346.7 | 28.9 | 25.5 | 162.75 | 1,110.5 | 444.4 | 235.6 | 201.5 | 34.06 | 6.916 | |
| 5,600.0 | 5,383.6 | 5,605.6 | 5,443.0 | 29.5 | 26.0 | 162.55 | 1,135.0 | 454.8 | 239.9 | 205.0 | 34.81 | 6.890 | |
| 5,700.0 | 5,478.9 | 5,705.5 | 5,539.3 | 30.1 | 26.6 | 162.36 | 1,159.6 | 465.2 | 244.1 | 208.6 | 35.57 | 6.864 | |
| 5,800.0 | 5,574.2 | 5,805.4 | 5,635.6 | 30.7 | 27.1 | 162.17 | 1,184.1 | 475.6 | 248.4 | 212.1 | 36.32 | 6.840 | |
| 5,900.0 | 5,669.5 | 5,905.3 | 5,731.9 | 31.3 | 27.6 | 161.99 | 1,208.6 | 485.9 | 252.7 | 215.6 | 37.08 | 6.816 | |
| 6,000.0 | 5,764.8 | 6,005.2 | 5,828.2 | 31.9 | 28.2 | 161.81 | 1,233.2 | 496.3 | 257.0 | 219.2 | 37.83 | 6.793 | |
| 6,100.0 | 5,860.1 | 6,105.1 | 5,924.4 | 32.5 | 28.7 | 161.65 | 1,257.7 | 506.7 | 261.3 | 222.7 | 38.59 | 6.771 | |
| 6,200.0 | 5,955.4 | 6,205.0 | 6,020.7 | 33.1 | 29.3 | 161.48 | 1,282.2 | 517.0 | 265.6 | 226.2 | 39.35 | 6.750 | |
| 6,300.0 | 6,050.8 | 6,304.9 | 6,117.0 | 33.7 | 29.8 | 161.32 | 1,306.8 | 527.4 | 269.9 | 229.8 | 40.11 | 6.729 | |
| 6,400.0 | 6,146.1 | 6,404.8 | 6,213.3 | 34.3 | 30.4 | 161.17 | 1,331.3 | 537.8 | 274.2 | 233.3 | 40.87 | 6.709 | |
| 6,500.0 | 6,241.4 | 6,504.7 | 6,309.6 | 34.9 | 30.9 | 161.02 | 1,355.8 | 548.2 | 278.5 | 236.9 | 41.63 | 6.690 | |
| 6,600.0 | 6,336.7 | 6,604.6 | 6,405.9 | 35.6 | 31.4 | 160.88 | 1,380.4 | 558.5 | 282.8 | 240.4 | 42.39 | 6.672 | |
| 6,700.0 | 6,432.0 | 6,704.5 | 6,502.2 | 36.2 | 32.0 | 160.74 | 1,404.9 | 568.9 | 287.1 | 243.9 | 43.15 | 6.654 | |
| 6,800.0 | 6,527.3 | 6,803.7 | 6,598.2 | 36.8 | 32.4 | 162.77 | 1,429.2 | 573.4 | 291.5 | 248.2 | 43.31 | 6.730 | |
| 6,900.0 | 6,623.0 | 6,901.1 | 6,692.3 | 37.2 | 32.8 | -168.61 | 1,452.5 | 564.5 | 296.3 | 253.6 | 42.71 | 6.938 | |
| 7,000.0 | 6,718.2 | 6,997.2 | 6,783.1 | 37.6 | 33.0 | -142.94 | 1,474.6 | 542.9 | 301.5 | 259.3 | 42.19 | 7.147 | |
| 7,100.0 | 6,811.0 | 7,091.9 | 6,869.4 | 38.0 | 33.2 | -125.24 | 1,495.2 | 509.6 | 306.8 | 265.0 | 41.81 | 7.339 | |
| 7,200.0 | 6,899.6 | 7,185.6 | 6,949.7 | 38.2 | 33.3 | -113.73 | 1,513.9 | 465.5 | 312.2 | 270.5 | 41.62 | 7.500 | |
| 7,300.0 | 6,982.3 | 7,278.2 | 7,023.1 | 38.4 | 33.3 | -105.97 | 1,530.6 | 411.6 | 317.3 | 275.7 | 41.63 | 7.621 | |
| 7,400.0 | 7,057.5 | 7,370.0 | 7,088.7 | 38.5 | 33.3 | -100.54 | 1,545.0 | 349.1 | 322.0 | 280.2 | 41.87 | 7.690 | |
| 7,500.0 | 7,123.6 | 7,461.1 | 7,145.6 | 38.6 | 33.3 | -96.63 | 1,557.0 | 279.1 | 326.3 | 283.9 | 42.38 | 7.698 | |
| 7,600.0 | 7,179.5 | 7,550.0 | 7,192.5 | 38.6 | 33.2 | -93.84 | 1,566.3 | 204.2 | 329.8 | 286.6 | 43.20 | 7.635 | |
| 7,700.0 | 7,224.1 | 7,641.7 | 7,231.1 | 38.6 | 33.2 | -91.88 | 1,573.3 | 121.4 | 332.6 | 288.2 | 44.41 | 7.489 | |
| 7,800.0 | 7,256.4 | 7,731.5 | 7,258.7 | 38.6 | 33.1 | -90.64 | 1,577.4 | 36.1 | 334.5 | 288.5 | 46.01 | 7.271 | |
| 7,900.0 | 7,275.8 | 7,821.2 | 7,275.7 | 38.6 | 33.0 | -90.03 | 1,578.8 | -51.9 | 335.5 | 287.6 | 47.97 | 6.995 | |
| 8,000.0 | 7,282.0 | 7,910.9 | 7,282.0 | 38.7 | 33.0 | -89.99 | 1,577.4 | -141.3 | 335.6 | 285.4 | 50.23 | 6.682 | |
| 8,033.0 | 7,282.0 | 7,943.1 | 7,282.0 | 38.7 | 33.0 | -90.00 | 1,576.3 | -173.6 | 335.6 | 284.5 | 51.14 | 6.563 | |
| 8,100.0 | 7,282.0 | 8,010.1 | 7,282.0 | 38.8 | 33.1 | -90.00 | 1,574.1 | -240.5 | 335.6 | 282.6 | 53.03 | 6.330 | |
| 8,200.0 | 7,282.0 | 8,110.1 | 7,282.0 | 39.1 | 33.5 | -90.00 | 1,570.8 | -340.5 | 335.6 | 279.4 | 56.24 | 5.968 | |
| 8,300.0 | 7,282.0 | 8,210.1 | 7,282.0 | 39.5 | 34.2 | -90.00 | 1,567.5 | -440.4 | 335.6 | 275.8 | 59.81 | 5.612 | |
| 8,400.0 | 7,282.0 | 8,310.1 | 7,282.0 | 40.2 | 35.3 | -90.00 | 1,564.2 | -540.4 | 335.6 | 272.0 | 63.67 | 5.272 | |
| 8,457.0 | 7,282.0 | 8,367.2 | 7,282.0 | 40.8 | 36.1 | -90.00 | 1,562.4 | -597.3 | 335.6 | 269.6 | 66.00 | 5.085 | |
| 8,500.0 | 7,282.0 | 8,410.1 | 7,282.0 | 41.2 | 36.8 | -90.00 | 1,560.9 | -640.3 | 335.6 | 267.9 | 67.77 | 4.952 | |
| 8,600.0 | 7,282.0 | 8,510.1 | 7,282.0 | 42.5 | 38.6 | -90.00 | 1,557.6 | -740.2 | 335.6 | 263.6 | 72.08 | 4.656 | |
| 8,700.0 | 7,282.0 | 8,610.1 | 7,282.0 | 44.1 | 40.6 | -90.00 | 1,554.3 | -840.2 | 335.6 | 259.1 | 76.55 | 4.384 | |
| 8,800.0 | 7,282.0 | 8,710.1 | 7,282.0 | 45.8 | 42.7 | -90.00 | 1,551.0 | -940.1 | 335.6 | 254.5 | 81.17 | 4.135 | |
| 8,900.0 | 7,282.0 | 8,810.1 | 7,282.0 | 47.8 | 44.9 | -90.00 | 1,547.7 | -1,040.1 | 335.6 | 249.7 | 85.90 | 3.907 | |
| 9,000.0 | 7,282.0 | 8,910.1 | 7,282.0 | 49.9 | 47.2 | -90.00 | 1,544.4 | -1,140.0 | 335.6 | 244.9 | 90.73 | 3.699 | |
| 9,100.0 | 7,282.0 | 9,010.1 | 7,282.0 | 52.0 | 49.6 | -90.00 | 1,541.1 | -1,240.0 | 335.6 | 240.0 | 95.64 | 3.509 | |
| 9,200.0 | 7,282.0 | 9,110.1 | 7,282.0 | 54.3 | 52.0 | -90.00 | 1,537.9 | -1,339.9 | 335.6 | 235.0 | 100.63 | 3.335 | |
| 9,300.0 | 7,282.0 | 9,210.1 | 7,282.0 | 56.6 | 54.5 | -90.00 | 1,534.6 | -1,439.9 | 335.6 | 230.0 | 105.68 | 3.176 | |
| 9,400.0 | 7,282.0 | 9,310.1 | 7,282.0 | 59.0 | 56.9 | -90.00 | 1,531.3 | -1,539.8 | 335.6 | 224.9 | 110.78 | 3.030 | |
| 9,500.0 | 7,282.0 | 9,410.1 | 7,282.0 | 61.4 | 59.5 | -90.00 | 1,528.0 | -1,639.8 | 335.6 | 219.7 | 115.93 | 2.895 | |
| 9,600.0 | 7,282.0 | 9,510.1 | 7,282.0 | 63.9 | 62.0 | -90.00 | 1,524.7 | -1,739.7 | 335.6 | 214.5 | 121.11 | 2.771 | |
| 9,700.0 | 7,282.0 | 9,610.1 | 7,282.0 | 66.4 | 64.6 | -90.00 | 1,521.4 | -1,839.6 | 335.6 | 209.3 | 126.34 | 2.657 | |
| 9,800.0 | 7,282.0 | 9,710.1 | 7,282.0 | 68.9 | 67.1 | -90.00 | 1,518.1 | -1,939.6 | 335.6 | 204.0 | 131.59 | 2.551 | |
| 9,900.0 | 7,282.0 | 9,810.1 | 7,282.0 | 71.4 | 69.7 | -90.00 | 1,514.8 | -2,039.5 | 335.6 | 198.8 | 136.87 | 2.452 | |
| 10,000.0 | 7,282.0 | 9,910.1 | 7,282.0 | 74.0 | 72.3 | -90.00 | 1,511.5 | -2,139.5 | 335.6 | 193.5 | 142.18 | 2.361 | |
| 10,100.0 | 7,282.0 | 10,010.1 | 7,282.0 | 76.5 | 75.0 | -90.00 | 1,508.2 | -2,239.4 | 335.6 | 188.1 | 147.51 | 2.275 | |

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

| Greeley-Rothe Pad Sec.1-T5N-R67W - Greeley-Rothe 1-2H - Wellbore #1 - Plan #2 (6-05-14) | | | | | | | | | | | | | Offset Site Error: | 0.0 ft |
|---|---------------------|---------------------|---------------------|-----------------|-------------|-----------------------|-----------------------------------|------------|----------------------|-----------------------|-------------------------|-------------------|--------------------|--------|
| Survey Program: 0-MWD | | | | | | | | | | | | | Offset Well Error: | 0.0 ft |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | | |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | +E/-W (ft) | Between Centres (ft) | Between Ellipses (ft) | Minimum Separation (ft) | Separation Factor | Warning | |
| 10,200.0 | 7,282.0 | 10,110.1 | 7,282.0 | 79.1 | 77.6 | -90.00 | 1,504.9 | -2,339.4 | 335.6 | 182.8 | 152.85 | 2.196 | | |
| 10,300.0 | 7,282.0 | 10,210.1 | 7,282.0 | 81.7 | 80.2 | -90.00 | 1,501.6 | -2,439.3 | 335.6 | 177.4 | 158.22 | 2.121 | | |
| 10,354.0 | 7,282.0 | 10,264.1 | 7,282.0 | 83.1 | 81.7 | -90.00 | 1,499.8 | -2,493.2 | 335.6 | 174.5 | 161.12 | 2.083 | | |
| 10,400.0 | 7,282.0 | 10,310.1 | 7,282.0 | 84.4 | 82.9 | -90.00 | 1,498.3 | -2,539.3 | 335.6 | 172.0 | 163.60 | 2.052 | | |
| 10,500.0 | 7,282.0 | 10,410.1 | 7,282.0 | 87.0 | 85.6 | -90.00 | 1,495.0 | -2,639.2 | 335.6 | 166.6 | 168.99 | 1.986 | | |
| 10,600.0 | 7,282.0 | 10,510.1 | 7,282.0 | 89.6 | 88.2 | -90.00 | 1,491.7 | -2,739.2 | 335.6 | 161.2 | 174.40 | 1.925 | | |
| 10,700.0 | 7,282.0 | 10,610.1 | 7,282.0 | 92.3 | 90.9 | -90.00 | 1,488.4 | -2,839.1 | 335.6 | 155.8 | 179.82 | 1.866 | | |
| 10,800.0 | 7,282.0 | 10,710.1 | 7,282.0 | 94.9 | 93.6 | -90.00 | 1,485.1 | -2,939.1 | 335.6 | 150.4 | 185.25 | 1.812 | | |
| 10,900.0 | 7,282.0 | 10,810.1 | 7,282.0 | 97.6 | 96.3 | -90.00 | 1,481.8 | -3,039.0 | 335.6 | 144.9 | 190.69 | 1.760 | | |
| 11,000.0 | 7,282.0 | 10,910.1 | 7,282.0 | 100.3 | 99.0 | -90.00 | 1,478.5 | -3,138.9 | 335.6 | 139.5 | 196.14 | 1.711 | | |
| 11,100.0 | 7,282.0 | 11,010.1 | 7,282.0 | 103.0 | 101.7 | -90.00 | 1,475.2 | -3,238.9 | 335.6 | 134.0 | 201.60 | 1.665 | | |
| 11,154.0 | 7,282.0 | 11,064.1 | 7,282.0 | 104.4 | 103.2 | -90.00 | 1,473.4 | -3,292.8 | 335.6 | 131.1 | 204.55 | 1.641 | | |
| 11,200.0 | 7,282.0 | 11,110.1 | 7,282.0 | 105.6 | 104.4 | -90.00 | 1,471.9 | -3,338.8 | 335.6 | 128.6 | 207.06 | 1.621 | | |
| 11,300.0 | 7,282.0 | 11,210.1 | 7,282.0 | 108.3 | 107.1 | -90.00 | 1,468.6 | -3,438.8 | 335.6 | 123.1 | 212.54 | 1.579 | | |
| 11,400.0 | 7,282.0 | 11,310.1 | 7,282.0 | 111.0 | 109.8 | -90.00 | 1,465.3 | -3,538.7 | 335.6 | 117.6 | 218.01 | 1.540 | | |
| 11,500.0 | 7,282.0 | 11,410.1 | 7,282.0 | 113.7 | 112.6 | -90.00 | 1,462.0 | -3,638.7 | 335.6 | 112.1 | 223.50 | 1.502 | | |
| 11,600.0 | 7,282.0 | 11,510.1 | 7,282.0 | 116.4 | 115.3 | -90.00 | 1,458.7 | -3,738.6 | 335.6 | 106.6 | 228.99 | 1.466 Level 3 | | |
| 11,700.0 | 7,282.0 | 11,610.1 | 7,282.0 | 119.2 | 118.0 | -90.00 | 1,455.4 | -3,838.6 | 335.6 | 101.1 | 234.49 | 1.431 Level 3 | | |
| 11,800.0 | 7,282.0 | 11,710.1 | 7,282.0 | 121.9 | 120.8 | -90.00 | 1,452.1 | -3,938.5 | 335.6 | 95.6 | 239.99 | 1.399 Level 3 | | |
| 11,900.0 | 7,282.0 | 11,810.1 | 7,282.0 | 124.6 | 123.5 | -90.00 | 1,448.8 | -4,038.5 | 335.6 | 90.1 | 245.49 | 1.367 Level 3 | | |
| 11,978.1 | 7,282.0 | 11,888.2 | 7,282.0 | 126.0 | 125.6 | -90.00 | 1,446.2 | -4,116.5 | 335.6 | 86.6 | 249.01 | 1.348 Level 3, SF | | |

| Greeley-Rothe Pad Sec.1-T5N-R67W - Greeley-Rothe 1-3H - Wellbore #1 - Plan #2 (6-05-14) | | | | | | | | | | | | | Offset Site Error: | 0.0 ft |
|---|----------------|----------------|----------------|-----------------|--------|-------------------|------------------------|------------|-----------------|------------------|--------------------|-------------------|--------------------|--------|
| Survey Program: 0-MWD | | | | | | | | | | | | | Offset Well Error: | 0.0 ft |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | | |
| Measured Depth | Vertical Depth | Measured Depth | Vertical Depth | Reference | Offset | Highside Toolface | Offset Wellbore Centre | | Between Centres | Between Ellipses | Minimum Separation | Separation Factor | Warning | |
| (ft) | (ft) | (ft) | (ft) | (ft) | (ft) | (°) | +N/-S (ft) | +E/-W (ft) | (ft) | (ft) | (ft) | | | |
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 135.42 | -25.2 | 24.8 | 35.3 | | | | | |
| 100.0 | 100.0 | 100.0 | 100.0 | 0.1 | 0.1 | 135.42 | -25.2 | 24.8 | 35.3 | 35.1 | 0.22 | 157.245 | | |
| 200.0 | 200.0 | 200.0 | 200.0 | 0.3 | 0.3 | 135.42 | -25.2 | 24.8 | 35.3 | 34.7 | 0.67 | 52.415 | | |
| 300.0 | 300.0 | 300.0 | 300.0 | 0.6 | 0.6 | 135.42 | -25.2 | 24.8 | 35.3 | 34.2 | 1.12 | 31.449 | | |
| 400.0 | 400.0 | 400.0 | 400.0 | 0.8 | 0.8 | 135.42 | -25.2 | 24.8 | 35.3 | 33.8 | 1.57 | 22.464 CC, ES | | |
| 500.0 | 500.0 | 500.0 | 500.0 | 1.0 | 1.0 | 119.40 | -25.2 | 24.8 | 36.2 | 34.1 | 2.02 | 17.880 | | |
| 600.0 | 599.8 | 599.8 | 599.8 | 1.2 | 1.2 | 126.06 | -25.2 | 24.8 | 39.0 | 36.5 | 2.48 | 15.752 | | |
| 700.0 | 699.5 | 699.5 | 699.5 | 1.5 | 1.5 | 135.03 | -25.2 | 24.8 | 44.7 | 41.8 | 2.94 | 15.217 | | |
| 800.0 | 798.7 | 798.7 | 798.7 | 1.7 | 1.7 | 144.07 | -25.2 | 24.8 | 54.0 | 50.6 | 3.40 | 15.874 | | |
| 900.0 | 897.5 | 899.3 | 899.3 | 2.0 | 1.9 | 151.02 | -23.6 | 25.6 | 66.0 | 62.1 | 3.87 | 17.060 | | |
| 1,000.0 | 995.6 | 1,000.5 | 1,000.3 | 2.4 | 2.1 | 155.48 | -18.9 | 27.9 | 78.8 | 74.5 | 4.33 | 18.196 | | |
| 1,100.0 | 1,093.1 | 1,102.1 | 1,101.5 | 2.8 | 2.4 | 158.41 | -10.9 | 31.8 | 92.1 | 87.3 | 4.80 | 19.178 | | |
| 1,200.0 | 1,189.6 | 1,204.2 | 1,202.9 | 3.3 | 2.6 | 160.34 | 0.4 | 37.3 | 105.7 | 100.4 | 5.29 | 19.987 | | |
| 1,300.0 | 1,285.3 | 1,306.9 | 1,304.2 | 3.8 | 2.9 | 161.60 | 15.0 | 44.4 | 119.4 | 113.6 | 5.80 | 20.593 | | |
| 1,400.0 | 1,380.6 | 1,410.3 | 1,405.7 | 4.3 | 3.2 | 162.14 | 33.0 | 53.2 | 131.0 | 124.7 | 6.36 | 20.597 | | |
| 1,500.0 | 1,475.9 | 1,514.3 | 1,506.9 | 4.9 | 3.6 | 161.95 | 54.5 | 63.6 | 139.4 | 132.4 | 6.96 | 20.023 | | |
| 1,600.0 | 1,571.2 | 1,614.0 | 1,603.6 | 5.5 | 4.0 | 161.49 | 76.5 | 74.4 | 146.2 | 138.6 | 7.59 | 19.267 | | |
| 1,700.0 | 1,666.5 | 1,713.8 | 1,700.3 | 6.0 | 4.5 | 161.07 | 98.6 | 85.1 | 153.0 | 144.8 | 8.23 | 18.597 | | |
| 1,800.0 | 1,761.8 | 1,813.6 | 1,797.0 | 6.6 | 4.9 | 160.69 | 120.6 | 95.9 | 159.8 | 150.9 | 8.88 | 17.992 | | |
| 1,900.0 | 1,857.1 | 1,913.3 | 1,893.7 | 7.2 | 5.4 | 160.34 | 142.7 | 106.6 | 166.6 | 157.1 | 9.55 | 17.448 | | |
| 2,000.0 | 1,952.5 | 2,013.1 | 1,990.4 | 7.8 | 5.8 | 160.02 | 164.7 | 117.4 | 173.5 | 163.2 | 10.23 | 16.960 | | |
| 2,100.0 | 2,047.8 | 2,112.8 | 2,087.1 | 8.4 | 6.3 | 159.72 | 186.8 | 128.1 | 180.3 | 169.4 | 10.91 | 16.520 | | |
| 2,200.0 | 2,143.1 | 2,212.6 | 2,183.8 | 9.0 | 6.8 | 159.44 | 208.8 | 138.9 | 187.2 | 175.5 | 11.61 | 16.122 | | |
| 2,300.0 | 2,238.4 | 2,312.4 | 2,280.5 | 9.6 | 7.3 | 159.18 | 230.9 | 149.6 | 194.0 | 181.7 | 12.31 | 15.761 | | |
| 2,400.0 | 2,333.7 | 2,412.1 | 2,377.2 | 10.2 | 7.7 | 158.94 | 252.9 | 160.4 | 200.8 | 187.8 | 13.01 | 15.432 | | |
| 2,500.0 | 2,429.0 | 2,511.9 | 2,473.9 | 10.8 | 8.2 | 158.72 | 275.0 | 171.1 | 207.7 | 194.0 | 13.73 | 15.132 | | |
| 2,600.0 | 2,524.3 | 2,611.7 | 2,570.6 | 11.4 | 8.7 | 158.51 | 297.0 | 181.9 | 214.5 | 200.1 | 14.44 | 14.857 | | |
| 2,700.0 | 2,619.6 | 2,711.4 | 2,667.3 | 12.0 | 9.2 | 158.31 | 319.1 | 192.6 | 221.4 | 206.2 | 15.16 | 14.604 | | |
| 2,800.0 | 2,714.9 | 2,811.2 | 2,764.0 | 12.6 | 9.7 | 158.13 | 341.2 | 203.4 | 228.3 | 212.4 | 15.88 | 14.372 | | |
| 2,900.0 | 2,810.2 | 2,910.9 | 2,860.7 | 13.2 | 10.2 | 157.95 | 363.2 | 214.1 | 235.1 | 218.5 | 16.61 | 14.157 | | |
| 3,000.0 | 2,905.5 | 3,010.7 | 2,957.4 | 13.8 | 10.7 | 157.79 | 385.3 | 224.9 | 242.0 | 224.7 | 17.34 | 13.957 | | |
| 3,100.0 | 3,000.9 | 3,110.5 | 3,054.1 | 14.4 | 11.2 | 157.63 | 407.3 | 235.6 | 248.9 | 230.8 | 18.07 | 13.772 | | |
| 3,200.0 | 3,096.2 | 3,210.2 | 3,150.8 | 15.0 | 11.7 | 157.49 | 429.4 | 246.4 | 255.7 | 236.9 | 18.80 | 13.600 | | |
| 3,300.0 | 3,191.5 | 3,310.0 | 3,247.5 | 15.6 | 12.2 | 157.35 | 451.4 | 257.1 | 262.6 | 243.0 | 19.54 | 13.439 | | |
| 3,400.0 | 3,286.8 | 3,409.7 | 3,344.2 | 16.2 | 12.7 | 157.22 | 473.5 | 267.9 | 269.5 | 249.2 | 20.28 | 13.289 | | |
| 3,500.0 | 3,382.1 | 3,509.5 | 3,440.9 | 16.8 | 13.2 | 157.09 | 495.5 | 278.6 | 276.3 | 255.3 | 21.02 | 13.149 | | |
| 3,600.0 | 3,477.4 | 3,609.3 | 3,537.6 | 17.4 | 13.7 | 156.97 | 517.6 | 289.4 | 283.2 | 261.4 | 21.76 | 13.016 | | |
| 3,700.0 | 3,572.7 | 3,709.0 | 3,634.3 | 18.0 | 14.2 | 156.86 | 539.6 | 300.1 | 290.1 | 267.6 | 22.50 | 12.892 | | |
| 3,800.0 | 3,668.0 | 3,808.8 | 3,730.9 | 18.6 | 14.7 | 156.75 | 561.7 | 310.9 | 297.0 | 273.7 | 23.24 | 12.775 | | |
| 3,900.0 | 3,763.3 | 3,908.6 | 3,827.6 | 19.2 | 15.2 | 156.65 | 583.7 | 321.6 | 303.8 | 279.8 | 23.99 | 12.665 | | |
| 4,000.0 | 3,858.6 | 4,008.3 | 3,924.3 | 19.8 | 15.7 | 156.55 | 605.8 | 332.4 | 310.7 | 286.0 | 24.74 | 12.561 | | |
| 4,100.0 | 3,954.0 | 4,108.1 | 4,021.0 | 20.4 | 16.2 | 156.45 | 627.9 | 343.1 | 317.6 | 292.1 | 25.48 | 12.462 | | |
| 4,200.0 | 4,049.3 | 4,207.8 | 4,117.7 | 21.0 | 16.7 | 156.36 | 649.9 | 353.9 | 324.5 | 298.2 | 26.23 | 12.368 | | |
| 4,300.0 | 4,144.6 | 4,307.6 | 4,214.4 | 21.6 | 17.2 | 156.27 | 672.0 | 364.6 | 331.3 | 304.4 | 26.98 | 12.280 | | |
| 4,400.0 | 4,239.9 | 4,407.4 | 4,311.1 | 22.2 | 17.7 | 156.19 | 694.0 | 375.4 | 338.2 | 310.5 | 27.73 | 12.195 | | |
| 4,500.0 | 4,335.2 | 4,507.1 | 4,407.8 | 22.8 | 18.2 | 156.11 | 716.1 | 386.1 | 345.1 | 316.6 | 28.48 | 12.115 | | |
| 4,600.0 | 4,430.5 | 4,606.9 | 4,504.5 | 23.4 | 18.7 | 156.03 | 738.1 | 396.9 | 352.0 | 322.7 | 29.24 | 12.039 | | |
| 4,700.0 | 4,525.8 | 4,706.7 | 4,601.2 | 24.1 | 19.2 | 155.96 | 760.2 | 407.6 | 358.9 | 328.9 | 29.99 | 11.966 | | |
| 4,800.0 | 4,621.1 | 4,806.4 | 4,697.9 | 24.7 | 19.7 | 155.89 | 782.2 | 418.4 | 365.7 | 335.0 | 30.74 | 11.897 | | |
| 4,900.0 | 4,716.4 | 4,906.2 | 4,794.6 | 25.3 | 20.2 | 155.82 | 804.3 | 429.1 | 372.6 | 341.1 | 31.50 | 11.830 | | |
| 5,000.0 | 4,811.7 | 5,005.9 | 4,891.3 | 25.9 | 20.7 | 155.75 | 826.3 | 439.9 | 379.5 | 347.3 | 32.25 | 11.767 | | |
| 5,100.0 | 4,907.0 | 5,105.7 | 4,988.0 | 26.5 | 21.3 | 155.69 | 848.4 | 450.6 | 386.4 | 353.4 | 33.01 | 11.706 | | |

| | | | |
|---------------------------|----------------------------------|-------------------------------------|-----------------------------|
| Company: | KP KAUFFMAN | Local Co-ordinate Reference: | Well Greeley-Rothe 1-1H |
| Project: | SEC.1-T5N-R67W | TVD Reference: | WELL @ 4890.0ft (RKB - 15') |
| Reference Site: | Greeley-Rothe Pad Sec.1-T5N-R67W | MD Reference: | WELL @ 4890.0ft (RKB - 15') |
| Site Error: | 0.0ft | North Reference: | True |
| Reference Well: | Greeley-Rothe 1-1H | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | Wellbore #1 | Database: | Landmark |
| Reference Design: | Plan #2 (6-05-14) | Offset TVD Reference: | Offset Datum |

| Offset Design Greeley-Rothe Pad Sec.1-T5N-R67W - Greeley-Rothe 1-3H - Wellbore #1 - Plan #2 (6-05-14) | | | | | | | | | | | | Offset Site Error: | 0.0 ft |
|--|---------------------|---------------------|---------------------|----------------|-------------|-----------------------|-----------------------------------|------------|----------------------|-----------------------|-------------------------|---------------------------|---------|
| Survey Program: 0-MWD | | | | | | | | | | | | Offset Well Error: | 0.0 ft |
| Reference | Offset | Semi Major Axis | | Distance | | | | | | | | | |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | +E/-W (ft) | Between Centres (ft) | Between Ellipses (ft) | Minimum Separation (ft) | Separation Factor | Warning |
| 5,200.0 | 5,002.4 | 5,205.5 | 5,084.7 | 27.1 | 21.8 | 155.63 | 870.4 | 461.4 | 393.3 | 359.5 | 33.76 | 11.648 | |
| 5,300.0 | 5,097.7 | 5,305.2 | 5,181.4 | 27.7 | 22.3 | 155.57 | 892.5 | 472.1 | 400.2 | 365.6 | 34.52 | 11.592 | |
| 5,400.0 | 5,193.0 | 5,405.0 | 5,278.1 | 28.3 | 22.8 | 155.51 | 914.6 | 482.9 | 407.0 | 371.8 | 35.28 | 11.538 | |
| 5,500.0 | 5,288.3 | 5,504.7 | 5,374.8 | 28.9 | 23.3 | 155.46 | 936.6 | 493.6 | 413.9 | 377.9 | 36.04 | 11.487 | |
| 5,600.0 | 5,383.6 | 5,604.5 | 5,471.5 | 29.5 | 23.8 | 155.40 | 958.7 | 504.4 | 420.8 | 384.0 | 36.79 | 11.437 | |
| 5,700.0 | 5,478.9 | 5,704.3 | 5,568.2 | 30.1 | 24.3 | 155.35 | 980.7 | 515.1 | 427.7 | 390.2 | 37.55 | 11.390 | |
| 5,800.0 | 5,574.2 | 5,804.0 | 5,664.9 | 30.7 | 24.8 | 155.30 | 1,002.8 | 525.9 | 434.6 | 396.3 | 38.31 | 11.344 | |
| 5,900.0 | 5,669.5 | 5,895.9 | 5,754.1 | 31.3 | 25.2 | 155.30 | 1,022.5 | 535.5 | 442.1 | 403.1 | 39.00 | 11.337 SF | |
| 6,000.0 | 5,764.8 | 5,983.7 | 5,840.0 | 31.9 | 25.5 | 155.47 | 1,039.1 | 543.6 | 452.1 | 412.5 | 39.54 | 11.434 | |
| 6,100.0 | 5,860.1 | 6,071.0 | 5,925.8 | 32.5 | 25.8 | 155.81 | 1,053.3 | 550.5 | 464.6 | 424.6 | 39.99 | 11.619 | |
| 6,200.0 | 5,955.4 | 6,157.5 | 6,011.4 | 33.1 | 26.1 | 156.30 | 1,065.0 | 556.2 | 479.8 | 439.4 | 40.36 | 11.887 | |
| 6,300.0 | 6,050.8 | 6,243.2 | 6,096.4 | 33.7 | 26.3 | 156.91 | 1,074.3 | 560.7 | 497.5 | 456.9 | 40.66 | 12.237 | |

| | | | |
|---------------------------|----------------------------------|-------------------------------------|-----------------------------|
| Company: | KP KAUFFMAN | Local Co-ordinate Reference: | Well Greeley-Rothe 1-1H |
| Project: | SEC.1-T5N-R67W | TVD Reference: | WELL @ 4890.0ft (RKB - 15') |
| Reference Site: | Greeley-Rothe Pad Sec.1-T5N-R67W | MD Reference: | WELL @ 4890.0ft (RKB - 15') |
| Site Error: | 0.0ft | North Reference: | True |
| Reference Well: | Greeley-Rothe 1-1H | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | Wellbore #1 | Database: | Landmark |
| Reference Design: | Plan #2 (6-05-14) | Offset TVD Reference: | Offset Datum |

| Offset Design | | | | | | | | | | | | Offset Site Error: | 0.0 ft |
|-----------------------|---------------------|---------------------|---------------------|-----------------|-------------|-----------------------|-----------------------------------|------------|----------------------|-----------------------|-------------------------|--------------------|---------|
| Survey Program: 0-MWD | | | | | | | | | | | | Offset Well Error: | 0.0 ft |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | +E/-W (ft) | Between Centres (ft) | Between Ellipses (ft) | Minimum Separation (ft) | Separation Factor | Warning |
| 0.0 | 0.0 | 1.0 | 1.0 | 0.0 | 0.0 | 153.88 | -50.2 | 24.6 | 55.9 | 55.9 | 0.00 | N/A | |
| 100.0 | 100.0 | 101.0 | 101.0 | 0.1 | 0.1 | 153.88 | -50.2 | 24.6 | 55.9 | 55.7 | 0.23 | 246.290 | |
| 200.0 | 200.0 | 201.0 | 201.0 | 0.3 | 0.3 | 153.88 | -50.2 | 24.6 | 55.9 | 55.2 | 0.68 | 82.642 | |
| 300.0 | 300.0 | 301.0 | 301.0 | 0.6 | 0.6 | 153.88 | -50.2 | 24.6 | 55.9 | 54.8 | 1.13 | 49.651 | |
| 400.0 | 400.0 | 401.0 | 401.0 | 0.8 | 0.8 | 153.88 | -50.2 | 24.6 | 55.9 | 54.3 | 1.58 | 35.485 CC, ES | |
| 500.0 | 500.0 | 501.0 | 501.0 | 1.0 | 1.0 | 136.63 | -50.2 | 24.6 | 57.2 | 55.1 | 2.03 | 28.212 | |
| 600.0 | 599.8 | 600.8 | 600.8 | 1.2 | 1.2 | 139.95 | -50.2 | 24.6 | 61.1 | 58.6 | 2.48 | 24.625 | |
| 700.0 | 699.5 | 700.5 | 700.5 | 1.5 | 1.5 | 144.59 | -50.2 | 24.6 | 68.0 | 65.0 | 2.94 | 23.131 | |
| 800.0 | 798.7 | 799.7 | 799.7 | 1.7 | 1.7 | 149.66 | -50.2 | 24.6 | 78.3 | 74.9 | 3.40 | 23.000 | |
| 900.0 | 897.5 | 898.5 | 898.5 | 2.0 | 1.9 | 154.44 | -50.2 | 24.6 | 92.1 | 88.3 | 3.87 | 23.826 | |
| 1,000.0 | 995.6 | 996.6 | 996.6 | 2.4 | 2.1 | 158.61 | -50.2 | 24.6 | 109.7 | 105.4 | 4.33 | 25.335 | |
| 1,100.0 | 1,093.1 | 1,097.8 | 1,097.8 | 2.8 | 2.4 | 161.78 | -48.8 | 25.5 | 129.6 | 124.8 | 4.79 | 27.045 | |
| 1,200.0 | 1,189.6 | 1,199.8 | 1,199.6 | 3.3 | 2.6 | 163.76 | -44.4 | 28.5 | 150.1 | 144.8 | 5.25 | 28.570 | |
| 1,300.0 | 1,285.3 | 1,302.5 | 1,301.9 | 3.8 | 2.8 | 164.95 | -36.9 | 33.5 | 170.9 | 165.2 | 5.73 | 29.814 | |
| 1,400.0 | 1,380.6 | 1,406.3 | 1,405.0 | 4.3 | 3.1 | 165.50 | -26.3 | 40.6 | 189.8 | 183.6 | 6.26 | 30.341 | |
| 1,500.0 | 1,475.9 | 1,511.4 | 1,508.7 | 4.9 | 3.4 | 165.43 | -12.3 | 49.9 | 205.6 | 198.8 | 6.81 | 30.189 | |
| 1,600.0 | 1,571.2 | 1,617.4 | 1,612.6 | 5.5 | 3.7 | 164.86 | 4.9 | 61.4 | 218.2 | 210.8 | 7.40 | 29.480 | |
| 1,700.0 | 1,666.5 | 1,724.1 | 1,716.4 | 6.0 | 4.1 | 163.85 | 25.5 | 75.1 | 227.7 | 219.6 | 8.04 | 28.314 | |
| 1,800.0 | 1,761.8 | 1,831.1 | 1,819.5 | 6.6 | 4.5 | 162.40 | 49.4 | 91.0 | 234.0 | 225.3 | 8.74 | 26.780 | |
| 1,900.0 | 1,857.1 | 1,933.6 | 1,917.4 | 7.2 | 5.0 | 160.68 | 74.7 | 107.9 | 238.0 | 228.5 | 9.49 | 25.089 | |
| 2,000.0 | 1,952.5 | 2,033.3 | 2,012.5 | 7.8 | 5.5 | 159.03 | 99.6 | 124.5 | 242.0 | 231.7 | 10.28 | 23.545 | |
| 2,100.0 | 2,047.8 | 2,133.0 | 2,107.5 | 8.4 | 6.0 | 157.43 | 124.5 | 141.1 | 246.1 | 235.0 | 11.11 | 22.161 | |
| 2,200.0 | 2,143.1 | 2,232.6 | 2,202.6 | 9.0 | 6.6 | 155.89 | 149.3 | 157.6 | 250.4 | 238.5 | 11.97 | 20.918 | |
| 2,300.0 | 2,238.4 | 2,332.3 | 2,297.7 | 9.6 | 7.1 | 154.39 | 174.2 | 174.2 | 254.9 | 242.1 | 12.87 | 19.801 | |
| 2,400.0 | 2,333.7 | 2,432.0 | 2,392.8 | 10.2 | 7.7 | 152.95 | 199.1 | 190.8 | 259.6 | 245.8 | 13.81 | 18.798 | |
| 2,500.0 | 2,429.0 | 2,531.7 | 2,487.9 | 10.8 | 8.2 | 151.57 | 223.9 | 207.4 | 264.4 | 249.7 | 14.78 | 17.897 | |
| 2,600.0 | 2,524.3 | 2,631.4 | 2,583.0 | 11.4 | 8.8 | 150.23 | 248.8 | 223.9 | 269.4 | 253.7 | 15.77 | 17.085 | |
| 2,700.0 | 2,619.6 | 2,731.0 | 2,678.1 | 12.0 | 9.4 | 148.94 | 273.6 | 240.5 | 274.5 | 257.8 | 16.79 | 16.354 | |
| 2,800.0 | 2,714.9 | 2,830.7 | 2,773.2 | 12.6 | 9.9 | 147.70 | 298.5 | 257.1 | 279.8 | 262.0 | 17.83 | 15.694 | |
| 2,900.0 | 2,810.2 | 2,930.4 | 2,868.3 | 13.2 | 10.5 | 146.51 | 323.4 | 273.7 | 285.2 | 266.3 | 18.89 | 15.096 | |
| 3,000.0 | 2,905.5 | 3,030.1 | 2,963.4 | 13.8 | 11.1 | 145.36 | 348.2 | 290.2 | 290.7 | 270.7 | 19.97 | 14.555 | |
| 3,100.0 | 3,000.9 | 3,129.8 | 3,058.5 | 14.4 | 11.7 | 144.25 | 373.1 | 306.8 | 296.3 | 275.2 | 21.07 | 14.063 | |
| 3,200.0 | 3,096.2 | 3,229.4 | 3,153.6 | 15.0 | 12.3 | 143.18 | 398.0 | 323.4 | 302.0 | 279.8 | 22.18 | 13.615 | |
| 3,300.0 | 3,191.5 | 3,329.1 | 3,248.7 | 15.6 | 12.9 | 142.16 | 422.8 | 340.0 | 307.8 | 284.5 | 23.31 | 13.207 | |
| 3,400.0 | 3,286.8 | 3,428.8 | 3,343.8 | 16.2 | 13.5 | 141.17 | 447.7 | 356.5 | 313.8 | 289.3 | 24.45 | 12.833 | |
| 3,500.0 | 3,382.1 | 3,528.5 | 3,438.9 | 16.8 | 14.1 | 140.22 | 472.6 | 373.1 | 319.8 | 294.2 | 25.60 | 12.492 | |
| 3,600.0 | 3,477.4 | 3,628.2 | 3,534.0 | 17.4 | 14.6 | 139.30 | 497.4 | 389.7 | 325.8 | 299.1 | 26.76 | 12.178 | |
| 3,700.0 | 3,572.7 | 3,727.9 | 3,629.1 | 18.0 | 15.2 | 138.42 | 522.3 | 406.3 | 332.0 | 304.1 | 27.93 | 11.889 | |
| 3,800.0 | 3,668.0 | 3,827.5 | 3,724.2 | 18.6 | 15.8 | 137.57 | 547.1 | 422.8 | 338.3 | 309.2 | 29.10 | 11.623 | |
| 3,900.0 | 3,763.3 | 3,927.2 | 3,819.3 | 19.2 | 16.4 | 136.75 | 572.0 | 439.4 | 344.6 | 314.3 | 30.29 | 11.377 | |
| 4,000.0 | 3,858.6 | 4,026.9 | 3,914.4 | 19.8 | 17.0 | 135.96 | 596.9 | 456.0 | 351.0 | 319.5 | 31.48 | 11.150 | |
| 4,100.0 | 3,954.0 | 4,126.6 | 4,009.5 | 20.4 | 17.6 | 135.20 | 621.7 | 472.6 | 357.4 | 324.7 | 32.67 | 10.940 | |
| 4,200.0 | 4,049.3 | 4,226.3 | 4,104.6 | 21.0 | 18.2 | 134.47 | 646.6 | 489.1 | 363.9 | 330.1 | 33.87 | 10.744 | |
| 4,300.0 | 4,144.6 | 4,322.3 | 4,196.4 | 21.6 | 18.7 | 133.87 | 670.1 | 504.8 | 370.8 | 335.8 | 34.97 | 10.602 | |
| 4,400.0 | 4,239.9 | 4,416.0 | 4,286.7 | 22.2 | 19.1 | 133.68 | 690.7 | 518.6 | 379.2 | 343.3 | 35.87 | 10.570 SF | |
| 4,500.0 | 4,335.2 | 4,509.4 | 4,377.5 | 22.8 | 19.5 | 133.89 | 708.8 | 530.6 | 389.1 | 352.5 | 36.64 | 10.621 | |
| 4,600.0 | 4,430.5 | 4,600.0 | 4,466.3 | 23.4 | 19.8 | 134.45 | 724.1 | 540.8 | 400.7 | 363.4 | 37.26 | 10.753 | |
| 4,700.0 | 4,525.8 | 4,694.5 | 4,559.4 | 24.1 | 20.1 | 135.38 | 737.4 | 549.7 | 413.9 | 376.1 | 37.75 | 10.963 | |
| 4,800.0 | 4,621.1 | 4,786.0 | 4,650.0 | 24.7 | 20.4 | 136.56 | 747.9 | 556.7 | 428.9 | 390.8 | 38.11 | 11.254 | |
| 4,900.0 | 4,716.4 | 4,876.3 | 4,739.8 | 25.3 | 20.6 | 137.97 | 755.9 | 562.0 | 445.8 | 407.5 | 38.35 | 11.626 | |
| 5,000.0 | 4,811.7 | 4,965.6 | 4,828.8 | 25.9 | 20.8 | 139.55 | 761.5 | 565.8 | 464.8 | 426.4 | 38.48 | 12.081 | |
| 5,100.0 | 4,907.0 | 5,053.4 | 4,916.6 | 26.5 | 20.9 | 141.26 | 764.8 | 567.9 | 486.0 | 447.5 | 38.51 | 12.621 | |

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

| | | | |
|---------------------------|----------------------------------|-------------------------------------|-----------------------------|
| Company: | KP KAUFFMAN | Local Co-ordinate Reference: | Well Greeley-Rothe 1-1H |
| Project: | SEC.1-T5N-R67W | TVD Reference: | WELL @ 4890.0ft (RKB - 15') |
| Reference Site: | Greeley-Rothe Pad Sec.1-T5N-R67W | MD Reference: | WELL @ 4890.0ft (RKB - 15') |
| Site Error: | 0.0ft | North Reference: | True |
| Reference Well: | Greeley-Rothe 1-1H | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | Wellbore #1 | Database: | Landmark |
| Reference Design: | Plan #2 (6-05-14) | Offset TVD Reference: | Offset Datum |

| Greeley-Rothe Pad Sec.1-T5N-R67W - Greeley-Rothe 1-5H - Wellbore #1 - Plan #2 (6-05-14) | | | | | | | | | | | | Offset Site Error: 0.0 ft | |
|---|----------------|----------------|----------------|-----------------|--------|-------------------|------------------------|------------|-----------------|------------------|--------------------|---------------------------|---------------|
| Survey Program: 0-MWD | | | | | | | | | | | | Offset Well Error: 0.0 ft | |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | Warning |
| Measured Depth | Vertical Depth | Measured Depth | Vertical Depth | Reference | Offset | Highside Toolface | Offset Wellbore Centre | | Between Centres | Between Ellipses | Minimum Separation | Separation Factor | |
| (ft) | (ft) | (ft) | (ft) | (ft) | (ft) | (°) | +N/-S (ft) | +E/-W (ft) | (ft) | (ft) | (ft) | | |
| 0.0 | 0.0 | 1.0 | 1.0 | 0.0 | 0.0 | 162.01 | -75.2 | 24.4 | 79.1 | 79.1 | 0.00 | N/A | 50.177 CC, ES |
| 100.0 | 100.0 | 101.0 | 101.0 | 0.1 | 0.1 | 162.01 | -75.2 | 24.4 | 79.1 | 78.8 | 0.23 | 348.259 | |
| 200.0 | 200.0 | 201.0 | 201.0 | 0.3 | 0.3 | 162.01 | -75.2 | 24.4 | 79.1 | 78.4 | 0.68 | 116.858 | |
| 300.0 | 300.0 | 301.0 | 301.0 | 0.6 | 0.6 | 162.01 | -75.2 | 24.4 | 79.1 | 77.9 | 1.13 | 70.208 | |
| 400.0 | 400.0 | 401.0 | 401.0 | 0.8 | 0.8 | 162.01 | -75.2 | 24.4 | 79.1 | 77.5 | 1.58 | | |
| 500.0 | 500.0 | 501.0 | 501.0 | 1.0 | 1.0 | 144.27 | -75.2 | 24.4 | 80.5 | 78.4 | 2.03 | 39.701 | |
| 600.0 | 599.8 | 600.8 | 600.8 | 1.2 | 1.2 | 146.28 | -75.2 | 24.4 | 84.8 | 82.3 | 2.48 | 34.168 | |
| 700.0 | 699.5 | 700.5 | 700.5 | 1.5 | 1.5 | 149.21 | -75.2 | 24.4 | 92.2 | 89.2 | 2.94 | 31.357 | |
| 800.0 | 798.7 | 799.7 | 799.7 | 1.7 | 1.7 | 152.59 | -75.2 | 24.4 | 102.8 | 99.4 | 3.40 | 30.240 | |
| 900.0 | 897.5 | 898.5 | 898.5 | 2.0 | 1.9 | 155.99 | -75.2 | 24.4 | 117.0 | 113.1 | 3.86 | 30.269 | |
| 1,000.0 | 995.6 | 996.6 | 996.6 | 2.4 | 2.1 | 159.16 | -75.2 | 24.4 | 134.7 | 130.3 | 4.33 | 31.113 | |
| 1,100.0 | 1,093.1 | 1,094.1 | 1,094.1 | 2.8 | 2.3 | 161.96 | -75.2 | 24.4 | 155.9 | 151.1 | 4.79 | 32.549 | |
| 1,200.0 | 1,189.6 | 1,190.6 | 1,190.6 | 3.3 | 2.6 | 164.36 | -75.2 | 24.4 | 180.8 | 175.5 | 5.25 | 34.421 | |
| 1,300.0 | 1,285.3 | 1,291.9 | 1,291.9 | 3.8 | 2.8 | 166.29 | -74.0 | 25.3 | 207.9 | 202.2 | 5.72 | 36.346 | |
| 1,400.0 | 1,380.6 | 1,395.2 | 1,395.1 | 4.3 | 3.0 | 167.45 | -70.0 | 28.5 | 233.4 | 227.2 | 6.21 | 37.566 | |
| 1,500.0 | 1,475.9 | 1,500.3 | 1,499.8 | 4.9 | 3.3 | 167.94 | -62.8 | 34.1 | 255.9 | 249.2 | 6.73 | 38.047 | |
| 1,600.0 | 1,571.2 | 1,606.8 | 1,605.5 | 5.5 | 3.5 | 167.92 | -52.5 | 42.3 | 275.4 | 268.1 | 7.27 | 37.901 | |
| 1,700.0 | 1,666.5 | 1,714.5 | 1,711.8 | 6.0 | 3.8 | 167.48 | -39.0 | 52.9 | 291.7 | 283.8 | 7.83 | 37.230 | |
| 1,800.0 | 1,761.8 | 1,823.2 | 1,818.3 | 6.6 | 4.1 | 166.67 | -22.1 | 66.2 | 304.9 | 296.4 | 8.44 | 36.130 | |
| 1,900.0 | 1,857.1 | 1,922.5 | 1,915.2 | 7.2 | 4.5 | 165.81 | -5.3 | 79.5 | 316.5 | 307.4 | 9.06 | 34.950 | |
| 2,000.0 | 1,952.5 | 2,021.7 | 2,012.1 | 7.8 | 4.8 | 165.01 | 11.6 | 92.7 | 328.2 | 318.5 | 9.69 | 33.881 | |
| 2,100.0 | 2,047.8 | 2,120.9 | 2,109.0 | 8.4 | 5.2 | 164.27 | 28.4 | 106.0 | 339.9 | 329.6 | 10.34 | 32.882 | |
| 2,200.0 | 2,143.1 | 2,220.1 | 2,205.8 | 9.0 | 5.6 | 163.57 | 45.2 | 119.2 | 351.7 | 340.7 | 11.00 | 31.965 | |
| 2,300.0 | 2,238.4 | 2,319.3 | 2,302.7 | 9.6 | 6.0 | 162.92 | 62.1 | 132.5 | 363.6 | 351.9 | 11.68 | 31.122 | |
| 2,400.0 | 2,333.7 | 2,418.5 | 2,399.6 | 10.2 | 6.4 | 162.31 | 78.9 | 145.8 | 375.5 | 363.1 | 12.37 | 30.345 | |
| 2,500.0 | 2,429.0 | 2,517.7 | 2,496.4 | 10.8 | 6.8 | 161.74 | 95.8 | 159.0 | 387.4 | 374.3 | 13.08 | 29.628 | |
| 2,600.0 | 2,524.3 | 2,617.0 | 2,593.3 | 11.4 | 7.2 | 161.21 | 112.6 | 172.3 | 399.4 | 385.6 | 13.79 | 28.967 | |
| 2,700.0 | 2,619.6 | 2,716.2 | 2,690.2 | 12.0 | 7.6 | 160.70 | 129.5 | 185.5 | 411.4 | 396.9 | 14.51 | 28.355 | |
| 2,800.0 | 2,714.9 | 2,815.4 | 2,787.0 | 12.6 | 8.1 | 160.22 | 146.3 | 198.8 | 423.4 | 408.2 | 15.24 | 27.789 | |
| 2,900.0 | 2,810.2 | 2,914.6 | 2,883.9 | 13.2 | 8.5 | 159.77 | 163.2 | 212.1 | 435.5 | 419.5 | 15.97 | 27.263 | |
| 3,000.0 | 2,905.5 | 3,013.8 | 2,980.8 | 13.8 | 8.9 | 159.34 | 180.0 | 225.3 | 447.5 | 430.8 | 16.71 | 26.775 | |
| 3,100.0 | 3,000.9 | 3,113.0 | 3,077.6 | 14.4 | 9.4 | 158.94 | 196.9 | 238.6 | 459.6 | 442.2 | 17.46 | 26.320 | |
| 3,200.0 | 3,096.2 | 3,212.2 | 3,174.5 | 15.0 | 9.8 | 158.56 | 213.7 | 251.9 | 471.8 | 453.6 | 18.22 | 25.896 | |
| 3,300.0 | 3,191.5 | 3,311.5 | 3,271.4 | 15.6 | 10.2 | 158.19 | 230.5 | 265.1 | 483.9 | 464.9 | 18.98 | 25.500 | |
| 3,400.0 | 3,286.8 | 3,410.7 | 3,368.3 | 16.2 | 10.7 | 157.85 | 247.4 | 278.4 | 496.1 | 476.3 | 19.74 | 25.130 SF | |

| | | | |
|---------------------------|----------------------------------|-------------------------------------|-----------------------------|
| Company: | KP KAUFFMAN | Local Co-ordinate Reference: | Well Greeley-Rothe 1-1H |
| Project: | SEC.1-T5N-R67W | TVD Reference: | WELL @ 4890.0ft (RKB - 15') |
| Reference Site: | Greeley-Rothe Pad Sec.1-T5N-R67W | MD Reference: | WELL @ 4890.0ft (RKB - 15') |
| Site Error: | 0.0ft | North Reference: | True |
| Reference Well: | Greeley-Rothe 1-1H | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | Wellbore #1 | Database: | Landmark |
| Reference Design: | Plan #2 (6-05-14) | Offset TVD Reference: | Offset Datum |

| Offset Design | | | | | | | | | | | | Offset Site Error: | 0.0 ft |
|---|------------------------|------------------------|------------------------|-------------------|----------------|--------------------------|---|---------------|-------------------------|--------------------------|----------------------------|--------------------|---------|
| Greeley-Rothe Pad Sec.1-T5N-R67W - Greeley-Rothe 1-6H - Wellbore #1 - Plan #2 (6-05-14) | | | | | | | | | | | | Offset Well Error: | 0.0 ft |
| Survey Program: 0-MWD | | | | | | | | | | | | | |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | +E/-W (ft) | Between Centres (ft) | Between Ellipses (ft) | Minimum Separation (ft) | Separation Factor | Warning |
| 0.0 | 0.0 | 1.0 | 1.0 | 0.0 | 0.0 | 166.39 | -100.2 | 24.3 | 103.1 | 103.1 | 0.00 | N/A | |
| 100.0 | 100.0 | 101.0 | 101.0 | 0.1 | 0.1 | 166.39 | -100.2 | 24.3 | 103.1 | 102.9 | 0.23 | 454.067 | |
| 200.0 | 200.0 | 201.0 | 201.0 | 0.3 | 0.3 | 166.39 | -100.2 | 24.3 | 103.1 | 102.4 | 0.68 | 152.361 | |
| 300.0 | 300.0 | 301.0 | 301.0 | 0.6 | 0.6 | 166.39 | -100.2 | 24.3 | 103.1 | 102.0 | 1.13 | 91.539 | |
| 400.0 | 400.0 | 401.0 | 401.0 | 0.8 | 0.8 | 166.39 | -100.2 | 24.3 | 103.1 | 101.5 | 1.58 | 65.422 CC, ES | |
| 500.0 | 500.0 | 501.0 | 501.0 | 1.0 | 1.0 | 148.42 | -100.2 | 24.3 | 104.6 | 102.5 | 2.03 | 51.581 | |
| 600.0 | 599.8 | 600.8 | 600.8 | 1.2 | 1.2 | 149.81 | -100.2 | 24.3 | 109.1 | 106.6 | 2.48 | 43.949 | |
| 700.0 | 699.5 | 700.5 | 700.5 | 1.5 | 1.5 | 151.89 | -100.2 | 24.3 | 116.7 | 113.7 | 2.94 | 39.703 | |
| 800.0 | 798.7 | 799.7 | 799.7 | 1.7 | 1.7 | 154.37 | -100.2 | 24.3 | 127.6 | 124.2 | 3.40 | 37.527 | |
| 900.0 | 897.5 | 898.5 | 898.5 | 2.0 | 1.9 | 156.99 | -100.2 | 24.3 | 141.9 | 138.0 | 3.86 | 36.727 SF | |
| 1,000.0 | 995.6 | 996.6 | 996.6 | 2.4 | 2.1 | 159.54 | -100.2 | 24.3 | 159.6 | 155.3 | 4.33 | 36.893 | |
| 1,100.0 | 1,093.1 | 1,094.1 | 1,094.1 | 2.8 | 2.3 | 161.89 | -100.2 | 24.3 | 180.9 | 176.1 | 4.79 | 37.763 | |
| 1,200.0 | 1,189.6 | 1,190.6 | 1,190.6 | 3.3 | 2.6 | 163.98 | -100.2 | 24.3 | 205.7 | 200.5 | 5.25 | 39.156 | |
| 1,300.0 | 1,285.3 | 1,286.3 | 1,286.3 | 3.8 | 2.8 | 165.83 | -100.2 | 24.3 | 234.0 | 228.3 | 5.72 | 40.902 | |
| 1,400.0 | 1,380.6 | 1,381.6 | 1,381.6 | 4.3 | 3.0 | 167.44 | -100.2 | 24.3 | 263.5 | 257.3 | 6.21 | 42.460 | |
| 1,500.0 | 1,475.9 | 1,476.9 | 1,476.9 | 4.9 | 3.2 | 168.72 | -100.2 | 24.3 | 293.2 | 286.5 | 6.70 | 43.792 | |
| 1,600.0 | 1,571.2 | 1,572.2 | 1,572.2 | 5.5 | 3.4 | 169.77 | -100.2 | 24.3 | 323.0 | 315.8 | 7.19 | 44.938 | |
| 1,700.0 | 1,666.5 | 1,675.1 | 1,675.1 | 6.0 | 3.7 | 170.61 | -99.5 | 24.9 | 352.1 | 344.4 | 7.69 | 45.770 | |
| 1,800.0 | 1,761.8 | 1,782.9 | 1,782.8 | 6.6 | 3.9 | 171.01 | -96.0 | 28.3 | 378.5 | 370.2 | 8.21 | 46.103 | |
| 1,900.0 | 1,857.1 | 1,892.5 | 1,892.0 | 7.2 | 4.1 | 171.03 | -89.5 | 34.6 | 401.8 | 393.0 | 8.74 | 45.956 | |
| 2,000.0 | 1,952.5 | 2,003.6 | 2,002.3 | 7.8 | 4.4 | 170.70 | -79.8 | 44.0 | 422.0 | 412.7 | 9.30 | 45.376 | |
| 2,100.0 | 2,047.8 | 2,116.0 | 2,113.2 | 8.4 | 4.7 | 170.08 | -66.9 | 56.5 | 439.1 | 429.2 | 9.88 | 44.423 | |
| 2,200.0 | 2,143.1 | 2,215.0 | 2,210.6 | 9.0 | 5.0 | 169.42 | -54.0 | 68.9 | 454.5 | 444.0 | 10.46 | 43.435 | |
| 2,300.0 | 2,238.4 | 2,313.7 | 2,307.7 | 9.6 | 5.3 | 168.81 | -41.2 | 81.2 | 470.0 | 459.0 | 11.05 | 42.518 | |
| 2,400.0 | 2,333.7 | 2,412.4 | 2,404.7 | 10.2 | 5.6 | 168.24 | -28.4 | 93.6 | 485.6 | 473.9 | 11.66 | 41.653 | |

| | | | |
|---------------------------|----------------------------------|-------------------------------------|-----------------------------|
| Company: | KP KAUFFMAN | Local Co-ordinate Reference: | Well Greeley-Rothe 1-1H |
| Project: | SEC.1-T5N-R67W | TVD Reference: | WELL @ 4890.0ft (RKB - 15') |
| Reference Site: | Greeley-Rothe Pad Sec.1-T5N-R67W | MD Reference: | WELL @ 4890.0ft (RKB - 15') |
| Site Error: | 0.0ft | North Reference: | True |
| Reference Well: | Greeley-Rothe 1-1H | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | Wellbore #1 | Database: | Landmark |
| Reference Design: | Plan #2 (6-05-14) | Offset TVD Reference: | Offset Datum |

| Offset Design | | | | | | | | | | | | | Offset Site Error: | 0.0 ft |
|---|---------------------|---------------------|---------------------|-----------------|-------------|-----------------------|-----------------------------------|------------|----------------------|-----------------------|-------------------------|-------------------|--------------------|--------|
| Greeley-Rothe Pad Sec.1-T5N-R67W - Greeley-Rothe 1-7H - Wellbore #1 - Plan #2 (6-05-14) | | | | | | | | | | | | | Offset Well Error: | 0.0 ft |
| Survey Program: 0-MWD | | | | | | | | | | | | | | |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | | |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | +E/-W (ft) | Between Centres (ft) | Between Ellipses (ft) | Minimum Separation (ft) | Separation Factor | Warning | |
| 0.0 | 0.0 | 1.0 | 1.0 | 0.0 | 0.0 | -168.26 | -124.8 | -25.9 | 127.5 | 127.5 | 0.00 | N/A | | |
| 100.0 | 100.0 | 101.0 | 101.0 | 0.1 | 0.1 | -168.26 | -124.8 | -25.9 | 127.5 | 127.3 | 0.23 | 561.564 | | |
| 200.0 | 200.0 | 201.0 | 201.0 | 0.3 | 0.3 | -168.26 | -124.8 | -25.9 | 127.5 | 126.8 | 0.68 | 188.432 | | |
| 300.0 | 300.0 | 301.0 | 301.0 | 0.6 | 0.6 | -168.26 | -124.8 | -25.9 | 127.5 | 126.4 | 1.13 | 113.210 | | |
| 400.0 | 400.0 | 401.0 | 401.0 | 0.8 | 0.8 | -168.26 | -124.8 | -25.9 | 127.5 | 125.9 | 1.58 | 80.910 CC, ES | | |
| 500.0 | 500.0 | 501.0 | 501.0 | 1.0 | 1.0 | 173.36 | -124.8 | -25.9 | 129.2 | 127.2 | 2.03 | 63.713 | | |
| 600.0 | 599.8 | 600.8 | 600.8 | 1.2 | 1.2 | 173.61 | -124.8 | -25.9 | 134.4 | 131.9 | 2.48 | 54.142 | | |
| 700.0 | 699.5 | 700.5 | 700.5 | 1.5 | 1.5 | 173.98 | -124.8 | -25.9 | 143.1 | 140.1 | 2.94 | 48.721 | | |
| 800.0 | 798.7 | 799.7 | 799.7 | 1.7 | 1.7 | 174.43 | -124.8 | -25.9 | 155.2 | 151.8 | 3.39 | 45.781 | | |
| 900.0 | 897.5 | 898.5 | 898.5 | 2.0 | 1.9 | 174.91 | -124.8 | -25.9 | 170.8 | 166.9 | 3.84 | 44.440 | | |
| 1,000.0 | 995.6 | 996.6 | 996.6 | 2.4 | 2.1 | 175.39 | -124.8 | -25.9 | 189.8 | 185.5 | 4.30 | 44.185 SF | | |
| 1,100.0 | 1,093.1 | 1,094.1 | 1,094.1 | 2.8 | 2.3 | 175.85 | -124.8 | -25.9 | 212.2 | 207.5 | 4.75 | 44.698 | | |
| 1,200.0 | 1,189.6 | 1,190.6 | 1,190.6 | 3.3 | 2.6 | 176.26 | -124.8 | -25.9 | 238.1 | 232.9 | 5.20 | 45.772 | | |
| 1,300.0 | 1,285.3 | 1,286.3 | 1,286.3 | 3.8 | 2.8 | 176.64 | -124.8 | -25.9 | 267.2 | 261.5 | 5.66 | 47.215 | | |
| 1,400.0 | 1,380.6 | 1,381.6 | 1,381.6 | 4.3 | 3.0 | 176.98 | -124.8 | -25.9 | 297.4 | 291.3 | 6.14 | 48.435 | | |
| 1,500.0 | 1,475.9 | 1,476.9 | 1,476.9 | 4.9 | 3.2 | 177.26 | -124.8 | -25.9 | 327.6 | 321.0 | 6.63 | 49.436 | | |
| 1,600.0 | 1,571.2 | 1,572.2 | 1,572.2 | 5.5 | 3.4 | 177.49 | -124.8 | -25.9 | 357.9 | 350.8 | 7.12 | 50.271 | | |
| 1,700.0 | 1,666.5 | 1,667.5 | 1,667.5 | 6.0 | 3.6 | 177.69 | -124.8 | -25.9 | 388.1 | 380.5 | 7.61 | 50.975 | | |
| 1,800.0 | 1,761.8 | 1,762.8 | 1,762.8 | 6.6 | 3.8 | 177.86 | -124.8 | -25.9 | 418.4 | 410.2 | 8.11 | 51.576 | | |
| 1,900.0 | 1,857.1 | 1,864.7 | 1,864.7 | 7.2 | 4.1 | 177.94 | -124.5 | -25.3 | 448.2 | 439.6 | 8.62 | 51.995 | | |
| 2,000.0 | 1,952.5 | 1,972.0 | 1,971.9 | 7.8 | 4.3 | 177.66 | -122.7 | -21.2 | 475.9 | 466.7 | 9.13 | 52.103 | | |

| | | | |
|---------------------------|----------------------------------|-------------------------------------|-----------------------------|
| Company: | KP KAUFFMAN | Local Co-ordinate Reference: | Well Greeley-Rothe 1-1H |
| Project: | SEC.1-T5N-R67W | TVD Reference: | WELL @ 4890.0ft (RKB - 15') |
| Reference Site: | Greeley-Rothe Pad Sec.1-T5N-R67W | MD Reference: | WELL @ 4890.0ft (RKB - 15') |
| Site Error: | 0.0ft | North Reference: | True |
| Reference Well: | Greeley-Rothe 1-1H | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | Wellbore #1 | Database: | Landmark |
| Reference Design: | Plan #2 (6-05-14) | Offset TVD Reference: | Offset Datum |

| Offset Design | | | | | | | | | | | | Greeley-Rothe Pad Sec.1-T5N-R67W - Greeley-Rothe 1-8H - Wellbore #1 - Plan #2 (6-05-14) | | Offset Site Error: | | 0.0 ft |
|-----------------------|---------------------|---------------------|---------------------|-----------------|-------------|-----------------------|-----------------------------------|------------|----------------------|-----------------------|-------------------------|---|--------|--------------------|--|--------|
| Survey Program: 0-MWD | | | | | | | | | | | | Offset Well Error: | | 0.0 ft | | |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | | Warning | | |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | +E/-W (ft) | Between Centres (ft) | Between Ellipses (ft) | Minimum Separation (ft) | Separation Factor | | | | |
| 0.0 | 0.0 | 2.0 | 2.0 | 0.0 | 0.0 | -179.57 | -125.0 | -0.9 | 125.0 | 125.0 | 0.00 | N/A | | | | |
| 100.0 | 100.0 | 102.0 | 102.0 | 0.1 | 0.1 | -179.57 | -125.0 | -0.9 | 125.0 | 124.8 | 0.23 | 545.227 | | | | |
| 200.0 | 200.0 | 202.0 | 202.0 | 0.3 | 0.3 | -179.57 | -125.0 | -0.9 | 125.0 | 124.3 | 0.68 | 184.150 | | | | |
| 300.0 | 300.0 | 302.0 | 302.0 | 0.6 | 0.6 | -179.57 | -125.0 | -0.9 | 125.0 | 123.9 | 1.13 | 110.783 | | | | |
| 400.0 | 400.0 | 402.0 | 402.0 | 0.8 | 0.8 | -179.57 | -125.0 | -0.9 | 125.0 | 123.4 | 1.58 | 79.221 | CC, ES | | | |
| 500.0 | 500.0 | 502.0 | 502.0 | 1.0 | 1.0 | 162.20 | -125.0 | -0.9 | 126.7 | 124.6 | 2.03 | 62.392 | | | | |
| 600.0 | 599.8 | 601.8 | 601.8 | 1.2 | 1.2 | 162.87 | -125.0 | -0.9 | 131.7 | 129.2 | 2.48 | 52.987 | | | | |
| 700.0 | 699.5 | 701.5 | 701.5 | 1.5 | 1.5 | 163.87 | -125.0 | -0.9 | 140.0 | 137.1 | 2.94 | 47.624 | | | | |
| 800.0 | 798.7 | 800.7 | 800.7 | 1.7 | 1.7 | 165.09 | -125.0 | -0.9 | 151.8 | 148.4 | 3.40 | 44.691 | | | | |
| 900.0 | 897.5 | 899.5 | 899.5 | 2.0 | 1.9 | 166.40 | -125.0 | -0.9 | 166.9 | 163.1 | 3.85 | 43.335 | | | | |
| 1,000.0 | 995.6 | 997.6 | 997.6 | 2.4 | 2.1 | 167.70 | -125.0 | -0.9 | 185.5 | 181.2 | 4.31 | 43.061 | SF | | | |
| 1,100.0 | 1,093.1 | 1,095.1 | 1,095.1 | 2.8 | 2.3 | 168.94 | -125.0 | -0.9 | 207.6 | 202.8 | 4.77 | 43.560 | | | | |
| 1,200.0 | 1,189.6 | 1,191.6 | 1,191.6 | 3.3 | 2.6 | 170.07 | -125.0 | -0.9 | 233.1 | 227.8 | 5.22 | 44.626 | | | | |
| 1,300.0 | 1,285.3 | 1,286.1 | 1,286.1 | 3.8 | 2.8 | 170.79 | -125.4 | 0.3 | 262.1 | 256.4 | 5.67 | 46.215 | | | | |
| 1,400.0 | 1,380.6 | 1,380.0 | 1,379.8 | 4.3 | 2.9 | 170.84 | -126.8 | 4.4 | 292.7 | 286.5 | 6.14 | 47.683 | | | | |
| 1,500.0 | 1,475.9 | 1,473.4 | 1,473.0 | 4.9 | 3.1 | 170.31 | -129.1 | 11.4 | 323.7 | 317.1 | 6.62 | 48.877 | | | | |
| 1,600.0 | 1,571.2 | 1,566.3 | 1,565.3 | 5.5 | 3.4 | 169.38 | -132.4 | 21.3 | 355.3 | 348.2 | 7.14 | 49.799 | | | | |
| 1,700.0 | 1,666.5 | 1,658.5 | 1,656.5 | 6.0 | 3.6 | 168.14 | -136.5 | 33.8 | 387.6 | 379.9 | 7.68 | 50.479 | | | | |
| 1,800.0 | 1,761.8 | 1,752.2 | 1,749.0 | 6.6 | 3.8 | 166.81 | -141.3 | 48.3 | 420.4 | 412.1 | 8.26 | 50.893 | | | | |
| 1,900.0 | 1,857.1 | 1,846.2 | 1,841.8 | 7.2 | 4.1 | 165.67 | -146.2 | 62.9 | 453.4 | 444.5 | 8.86 | 51.163 | | | | |
| 2,000.0 | 1,952.5 | 1,940.3 | 1,934.6 | 7.8 | 4.4 | 164.68 | -151.0 | 77.4 | 486.5 | 477.0 | 9.48 | 51.322 | | | | |

| | | | |
|---------------------------|----------------------------------|-------------------------------------|-----------------------------|
| Company: | KP KAUFFMAN | Local Co-ordinate Reference: | Well Greeley-Rothe 1-1H |
| Project: | SEC.1-T5N-R67W | TVD Reference: | WELL @ 4890.0ft (RKB - 15') |
| Reference Site: | Greeley-Rothe Pad Sec.1-T5N-R67W | MD Reference: | WELL @ 4890.0ft (RKB - 15') |
| Site Error: | 0.0ft | North Reference: | True |
| Reference Well: | Greeley-Rothe 1-1H | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | Wellbore #1 | Database: | Landmark |
| Reference Design: | Plan #2 (6-05-14) | Offset TVD Reference: | Offset Datum |

| Offset Design | | Greeley-Rothe Pad Sec.1-T5N-R67W - Greeley-Rothe 1-9H - Wellbore #1 - Plan #2 (6-6-14) | | | | | | | | | | | Offset Site Error: | | 0.0 ft |
|-----------------------|----------------|--|----------------|-----------------|--------|-------------------|------------------------|------------|-----------------|------------------|--------------------|-------------------|--------------------|---------|--------|
| Survey Program: 0-MWD | | | | | | | | | | | | | Offset Well Error: | | 0.0 ft |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | | Warning | |
| Measured Depth | Vertical Depth | Measured Depth | Vertical Depth | Reference | Offset | Highside Toolface | Offset Wellbore Centre | | Between Centres | Between Ellipses | Minimum Separation | Separation Factor | | | |
| (ft) | (ft) | (ft) | (ft) | (ft) | (ft) | (°) | +N/-S (ft) | +E/-W (ft) | (ft) | (ft) | (ft) | | | | |
| 0.0 | 0.0 | 2.0 | 2.0 | 0.0 | 0.0 | 169.43 | -125.2 | 23.4 | 127.4 | 127.4 | 0.00 | N/A | | | |
| 100.0 | 100.0 | 102.0 | 102.0 | 0.1 | 0.1 | 169.43 | -125.2 | 23.4 | 127.4 | 127.1 | 0.23 | 555.606 | | | |
| 200.0 | 200.0 | 202.0 | 202.0 | 0.3 | 0.3 | 169.43 | -125.2 | 23.4 | 127.4 | 126.7 | 0.68 | 187.655 | | | |
| 300.0 | 300.0 | 302.0 | 302.0 | 0.6 | 0.6 | 169.43 | -125.2 | 23.4 | 127.4 | 126.3 | 1.13 | 112.892 | | | |
| 400.0 | 400.0 | 402.0 | 402.0 | 0.8 | 0.8 | 169.43 | -125.2 | 23.4 | 127.4 | 125.8 | 1.58 | 80.729 | CC, ES | | |
| 500.0 | 500.0 | 502.0 | 502.0 | 1.0 | 1.0 | 151.33 | -125.2 | 23.4 | 128.9 | 126.9 | 2.03 | 63.515 | | | |
| 600.0 | 599.8 | 601.8 | 601.8 | 1.2 | 1.2 | 152.36 | -125.2 | 23.4 | 133.5 | 131.0 | 2.48 | 53.755 | | | |
| 700.0 | 699.5 | 701.5 | 701.5 | 1.5 | 1.5 | 153.93 | -125.2 | 23.4 | 141.3 | 138.4 | 2.94 | 48.051 | | | |
| 800.0 | 798.7 | 800.7 | 800.7 | 1.7 | 1.7 | 155.85 | -125.2 | 23.4 | 152.4 | 149.0 | 3.40 | 44.803 | | | |
| 900.0 | 897.5 | 899.5 | 899.5 | 2.0 | 1.9 | 157.94 | -125.2 | 23.4 | 166.8 | 162.9 | 3.86 | 43.171 | | | |
| 1,000.0 | 995.6 | 997.6 | 997.6 | 2.4 | 2.1 | 160.04 | -125.2 | 23.4 | 184.6 | 180.3 | 4.33 | 42.665 | SF | | |
| 1,100.0 | 1,093.1 | 1,090.2 | 1,090.2 | 2.8 | 2.3 | 161.66 | -126.3 | 24.3 | 207.1 | 202.3 | 4.77 | 43.430 | | | |
| 1,200.0 | 1,189.6 | 1,180.8 | 1,180.7 | 3.3 | 2.5 | 162.65 | -129.6 | 27.1 | 235.2 | 230.0 | 5.21 | 45.174 | | | |
| 1,300.0 | 1,285.3 | 1,269.3 | 1,268.9 | 3.8 | 2.7 | 163.18 | -134.8 | 31.6 | 268.7 | 263.1 | 5.66 | 47.466 | | | |
| 1,400.0 | 1,380.6 | 1,356.0 | 1,355.1 | 4.3 | 2.8 | 163.42 | -142.0 | 37.7 | 305.3 | 299.2 | 6.14 | 49.701 | | | |
| 1,500.0 | 1,475.9 | 1,441.2 | 1,439.4 | 4.9 | 3.1 | 163.28 | -151.0 | 45.4 | 344.0 | 337.4 | 6.64 | 51.778 | | | |
| 1,600.0 | 1,571.2 | 1,524.7 | 1,521.8 | 5.5 | 3.3 | 162.90 | -161.7 | 54.5 | 384.7 | 377.5 | 7.17 | 53.685 | | | |
| 1,700.0 | 1,666.5 | 1,614.7 | 1,610.3 | 6.0 | 3.6 | 162.40 | -174.3 | 65.2 | 426.5 | 418.8 | 7.71 | 55.303 | | | |
| 1,800.0 | 1,761.8 | 1,705.5 | 1,699.5 | 6.6 | 3.8 | 161.99 | -187.1 | 76.1 | 468.3 | 460.0 | 8.27 | 56.643 | | | |

Company: KP KAUFFMAN
Project: SEC.1-T5N-R67W
Reference Site: Greeley-Rothe Pad Sec.1-T5N-R67W
Site Error: 0.0ft
Reference Well: Greeley-Rothe 1-1H
Well Error: 0.0ft
Reference Wellbore: Wellbore #1
Reference Design: Plan #2 (6-05-14)

Local Co-ordinate Reference: Well Greeley-Rothe 1-1H
TVD Reference: WELL @ 4890.0ft (RKB - 15')
MD Reference: WELL @ 4890.0ft (RKB - 15')
North Reference: True
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: Landmark
Offset TVD Reference: Offset Datum

Reference Depths are relative to WELL @ 4890.0ft (RKB - 15')

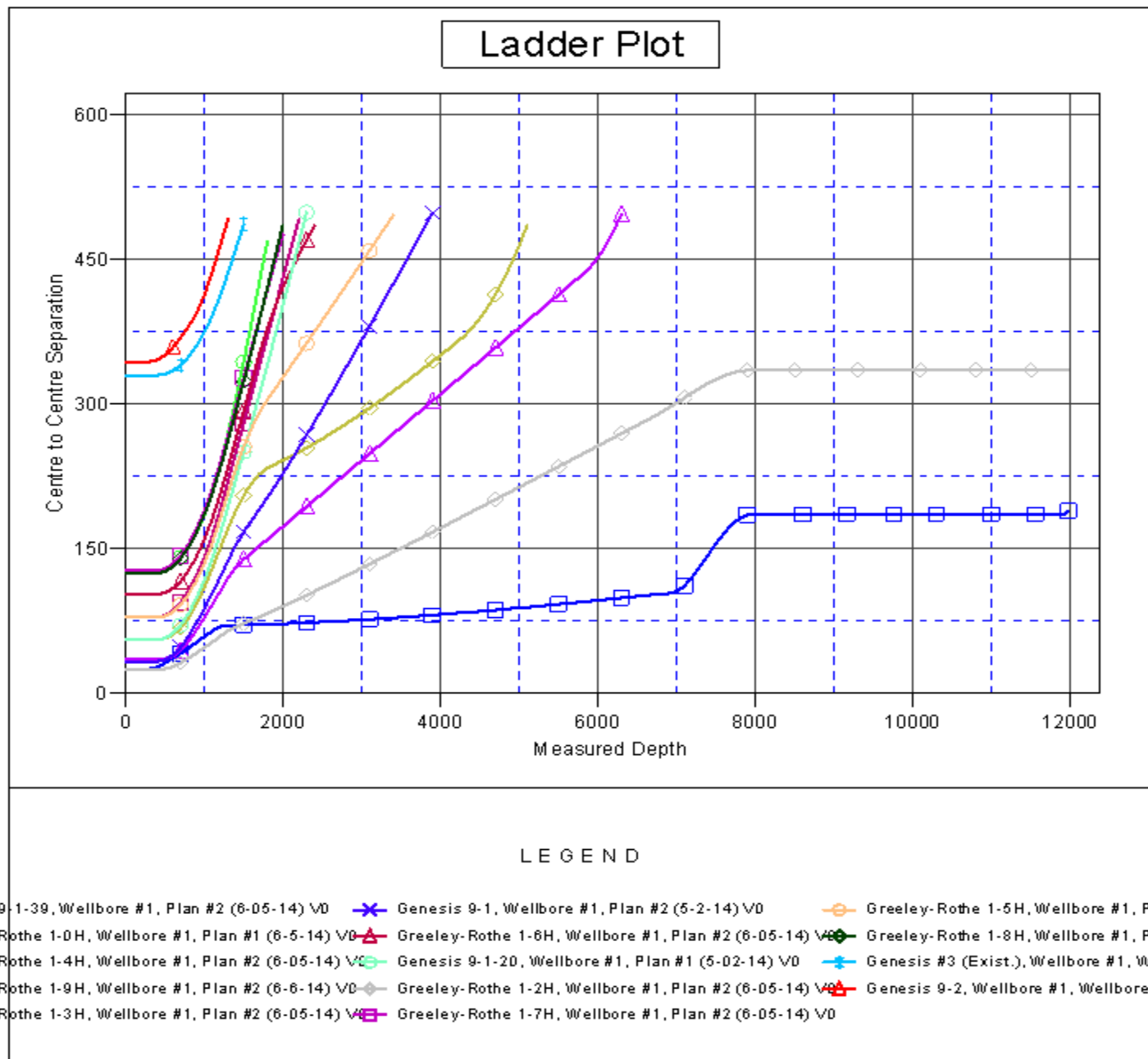
Offset Depths are relative to Offset Datum

Central Meridian is -105.500000 °

Coordinates are relative to: Greeley-Rothe 1-1H

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.43°



| | | | |
|---------------------------|----------------------------------|-------------------------------------|-----------------------------|
| Company: | KP KAUFFMAN | Local Co-ordinate Reference: | Well Greeley-Rothe 1-1H |
| Project: | SEC.1-T5N-R67W | TVD Reference: | WELL @ 4890.0ft (RKB - 15') |
| Reference Site: | Greeley-Rothe Pad Sec.1-T5N-R67W | MD Reference: | WELL @ 4890.0ft (RKB - 15') |
| Site Error: | 0.0ft | North Reference: | True |
| Reference Well: | Greeley-Rothe 1-1H | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | Wellbore #1 | Database: | Landmark |
| Reference Design: | Plan #2 (6-05-14) | Offset TVD Reference: | Offset Datum |

Reference Depths are relative to WELL @ 4890.0ft (RKB - 15')

Offset Depths are relative to Offset Datum

Central Meridian is -105.500000 °

Coordinates are relative to: Greeley-Rothe 1-1H

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.43°

