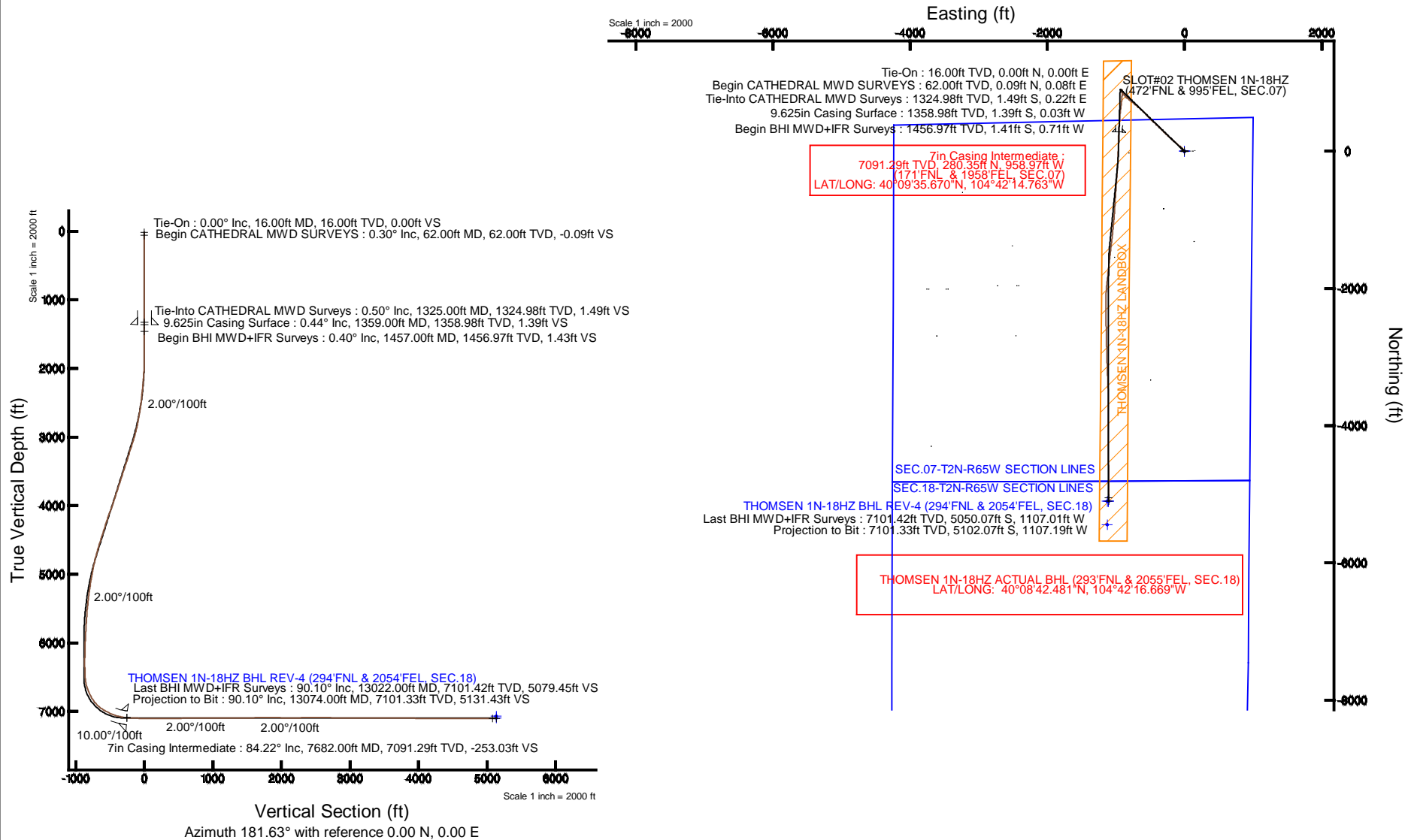


KERR-MCGEE OIL & GAS ONSHORE LP

Location: COLORADO Slot: SLOT#02 THOMSEN 1N-18HZ (472'FNL & 995'FEL, SEC.07)
 Field: WELD COUNTY (KERR MCGEE) Well: THOMSEN 1N-18HZ
 Facility: SEC.07-T2N-R65W Wellbore: THOMSEN 1N-18HZ PWB

Plot reference wellpath is THOMSEN 1N-18HZ (REV-C.0) PWP

| | |
|---|--|
| True vertical depths are referenced to XTREME 23 (16KB) (RKB) | Grid System: NAD83 / Lambert Colorado SP, Northern Zone (501), US feet |
| Measured depths are referenced to XTREME 23 (16KB) (RKB) | North Reference: True north |
| XTREME 23 (16KB) (RKB) to Mean Sea Level: 4928 feet | Scale: True distance |
| Mean Sea Level to Mud line (At Slot: SLOT#02 THOMSEN 1N-18HZ (472'FNL & 995'FEL, SEC.07)): 0 feet | Depths are in feet |
| Coordinates are in feet referenced to Slot | Created by: preccain on 12/8/2014 |



REFERENCE WELLPATH IDENTIFICATION

| | | | |
|----------|--|----------|--|
| Operator | KERR-MCGEE OIL & GAS ONSHORE LP | Slot | SLOT#02 THOMSEN 1N-18HZ (472'FNL & 995'FEL, SEC.07) |
| Area | COLORADO | Well | THOMSEN 1N-18HZ |
| Field | WELD COUNTY (KERR MCGEE) | Wellbore | THOMSEN 1N-18HZ AWB <16-13074> |
| Facility | SEC.07-T2N-R65W | | |

REPORT SETUP INFORMATION

| | | | |
|---------------------|--|----------------------|--|
| Projection System | NAD83 / Lambert Colorado SP, Northern Zone (501), US feet | Software System | WellArchitect® 4.0.0 |
| North Reference | True | User | Precain |
| Scale | 0.999958 | Report Generated | 12/9/2014 at 8:20:25 AM |
| Convergence at slot | n/a | Database/Source file | WellArchitectDB/THOMSEN_1N-18HZ_AWB_16-13074_.xml |

WELLPATH LOCATION

| | Local coordinates | | Grid coordinates | | Geographic coordinates | |
|-----------------------|-------------------|----------|-------------------|-------------------|------------------------|------------------------|
| | North[ft] | East[ft] | Easting[US ft] | Northing[US ft] | Latitude | Longitude |
| Slot Location | 4301.51 | 3726.75 | 3223409.59 | 1301824.42 | 40°09'32.900"N | 104°42'02.412"W |
| Facility Reference Pt | | | 3219721.27 | 1297490.24 | 40°08'50.395"N | 104°42'50.411"W |
| Field Reference Pt | | | 3197771.84 | 1268891.29 | 40°04'09.600"N | 104°47'36.000"W |

WELLPATH DATUM

| | | | |
|--------------------------|--------------------------------|---|--------------------------|
| Calculation method | Minimum curvature | XTREME 23 (16'KB) (RKB) to Facility Vertical Datum | 4928.00ft |
| Horizontal Reference Pt | Slot | XTREME 23 (16'KB) (RKB) to Mean Sea Level | 4928.00ft |
| Vertical Reference Pt | XTREME 23 (16'KB) (RKB) | XTREME 23 (16'KB) (RKB) to Mud Line at Slot (SLOT#02 THOMSEN 1N-18HZ (472'FNL & 995'FEL, SEC.07)) | 4928.00ft |
| MD Reference Pt | XTREME 23 (16'KB) (RKB) | Section Origin | N 0.00, E 0.00 ft |
| Field Vertical Reference | Mean Sea Level | Section Azimuth | 181.63° |

Actual Wellpath Report

THOMSEN 1N-18HZ AWP

Page 2 of 6

REFERENCE WELLPATH IDENTIFICATION

| | | | |
|----------|---------------------------------|----------|---|
| Operator | KERR-MCGEE OIL & GAS ONSHORE LP | Slot | SLOT#02 THOMSEN 1N-18HZ (472'FNL & 995'FEL, SEC.07) |
| Area | COLORADO | Well | THOMSEN 1N-18HZ |
| Field | WELD COUNTY (KERR MCGEE) | Wellbore | THOMSEN 1N-18HZ AWB <16-13074> |
| Facility | SEC.07-T2N-R65W | | |

WELLPATH DATA (136 stations) † = interpolated/extrapolated station

| MD [ft] | Inclination [°] | Azimuth [°] | TVD [ft] | Vert Sect [ft] | North [ft] | East [ft] | Latitude | Longitude | DLS [°/100ft] | Comments |
|---------|-----------------|-------------|----------|----------------|------------|-----------|----------------|-----------------|---------------|--------------------------------|
| 0.00† | 0.000 | 41.800 | 0.00 | 0.00 | 0.00 | 0.00 | 40°09'32.900"N | 104°42'02.412"W | 0.00 | |
| 16.00 | 0.000 | 41.800 | 16.00 | 0.00 | 0.00 | 0.00 | 40°09'32.900"N | 104°42'02.412"W | 0.00 | Tie-On |
| 62.00 | 0.300 | 41.800 | 62.00 | -0.09 | 0.09 | 0.08 | 40°09'32.901"N | 104°42'02.411"W | 0.65 | Begin CATHEDRAL MWD SURVEYS |
| 152.00 | 0.100 | 36.100 | 152.00 | -0.34 | 0.33 | 0.28 | 40°09'32.903"N | 104°42'02.408"W | 0.22 | |
| 249.00 | 0.100 | 237.100 | 249.00 | -0.36 | 0.35 | 0.26 | 40°09'32.903"N | 104°42'02.409"W | 0.20 | |
| 328.00 | 0.300 | 62.400 | 328.00 | -0.42 | 0.41 | 0.39 | 40°09'32.904"N | 104°42'02.407"W | 0.51 | |
| 408.00 | 0.200 | 108.400 | 408.00 | -0.48 | 0.46 | 0.71 | 40°09'32.905"N | 104°42'02.403"W | 0.27 | |
| 488.00 | 0.400 | 87.700 | 488.00 | -0.46 | 0.43 | 1.12 | 40°09'32.904"N | 104°42'02.398"W | 0.28 | |
| 568.00 | 0.500 | 129.100 | 567.99 | -0.27 | 0.22 | 1.67 | 40°09'32.902"N | 104°42'02.391"W | 0.41 | |
| 648.00 | 0.600 | 122.300 | 647.99 | 0.16 | -0.22 | 2.29 | 40°09'32.898"N | 104°42'02.382"W | 0.15 | |
| 728.00 | 0.400 | 125.300 | 727.99 | 0.53 | -0.61 | 2.87 | 40°09'32.894"N | 104°42'02.375"W | 0.25 | |
| 808.00 | 0.300 | 238.600 | 807.99 | 0.80 | -0.88 | 2.92 | 40°09'32.891"N | 104°42'02.374"W | 0.73 | |
| 888.00 | 0.400 | 264.600 | 887.99 | 0.94 | -1.01 | 2.47 | 40°09'32.890"N | 104°42'02.380"W | 0.23 | |
| 968.00 | 0.400 | 247.700 | 967.98 | 1.09 | -1.15 | 1.93 | 40°09'32.889"N | 104°42'02.387"W | 0.15 | |
| 1048.00 | 0.300 | 278.400 | 1047.98 | 1.18 | -1.22 | 1.46 | 40°09'32.888"N | 104°42'02.393"W | 0.26 | |
| 1128.00 | 0.200 | 220.900 | 1127.98 | 1.26 | -1.30 | 1.17 | 40°09'32.887"N | 104°42'02.397"W | 0.32 | |
| 1208.00 | 0.300 | 230.500 | 1207.98 | 1.51 | -1.54 | 0.91 | 40°09'32.885"N | 104°42'02.400"W | 0.14 | |
| 1325.00 | 0.500 | 297.500 | 1324.98 | 1.49 | -1.49 | 0.22 | 40°09'32.885"N | 104°42'02.409"W | 0.40 | Tie-Into CATHEDRAL MWD Surveys |
| 1457.00 | 0.400 | 247.200 | 1456.97 | 1.43 | -1.41 | -0.71 | 40°09'32.886"N | 104°42'02.421"W | 0.30 | Begin BHI MWD+IFR Surveys |
| 1551.00 | 0.900 | 270.900 | 1550.97 | 1.57 | -1.52 | -1.75 | 40°09'32.885"N | 104°42'02.435"W | 0.59 | |
| 1642.00 | 0.400 | 254.500 | 1641.96 | 1.67 | -1.60 | -2.77 | 40°09'32.884"N | 104°42'02.448"W | 0.58 | |
| 1826.00 | 0.600 | 249.700 | 1825.96 | 2.22 | -2.10 | -4.30 | 40°09'32.879"N | 104°42'02.467"W | 0.11 | |
| 1917.00 | 1.500 | 325.100 | 1916.94 | 1.44 | -1.29 | -5.42 | 40°09'32.887"N | 104°42'02.482"W | 1.61 | |
| 2009.00 | 3.400 | 346.100 | 2008.86 | -2.15 | 2.35 | -6.77 | 40°09'32.923"N | 104°42'02.499"W | 2.25 | |
| 2103.00 | 4.400 | 336.500 | 2102.64 | -8.10 | 8.36 | -8.88 | 40°09'32.983"N | 104°42'02.526"W | 1.27 | |
| 2195.00 | 6.200 | 329.900 | 2194.24 | -15.52 | 15.89 | -12.78 | 40°09'33.057"N | 104°42'02.577"W | 2.06 | |
| 2287.00 | 8.000 | 318.600 | 2285.54 | -24.43 | 24.99 | -19.50 | 40°09'33.147"N | 104°42'02.663"W | 2.47 | |
| 2380.00 | 8.600 | 311.100 | 2377.57 | -33.58 | 34.42 | -29.02 | 40°09'33.240"N | 104°42'02.786"W | 1.33 | |
| 2473.00 | 10.100 | 312.300 | 2469.33 | -43.32 | 44.48 | -40.29 | 40°09'33.340"N | 104°42'02.931"W | 1.63 | |
| 2565.00 | 12.100 | 313.400 | 2559.60 | -55.00 | 56.54 | -53.27 | 40°09'33.459"N | 104°42'03.098"W | 2.19 | |
| 2656.00 | 14.600 | 309.700 | 2648.14 | -68.43 | 70.42 | -69.02 | 40°09'33.596"N | 104°42'03.301"W | 2.90 | |
| 2748.00 | 16.100 | 311.800 | 2736.85 | -83.81 | 86.33 | -87.46 | 40°09'33.753"N | 104°42'03.538"W | 1.74 | |
| 2840.00 | 18.600 | 311.800 | 2824.66 | -101.51 | 104.61 | -107.91 | 40°09'33.934"N | 104°42'03.802"W | 2.72 | |
| 2932.00 | 22.100 | 309.400 | 2910.91 | -121.58 | 125.38 | -132.23 | 40°09'34.139"N | 104°42'04.115"W | 3.91 | |
| 3024.00 | 24.100 | 312.600 | 2995.53 | -144.50 | 149.09 | -159.43 | 40°09'34.373"N | 104°42'04.465"W | 2.57 | |
| 3116.00 | 25.800 | 311.700 | 3078.94 | -169.71 | 175.12 | -188.21 | 40°09'34.631"N | 104°42'04.836"W | 1.89 | |
| 3207.00 | 26.100 | 313.000 | 3160.77 | -195.69 | 201.95 | -217.63 | 40°09'34.896"N | 104°42'05.215"W | 0.71 | |
| 3299.00 | 24.400 | 311.600 | 3243.97 | -221.27 | 228.37 | -246.64 | 40°09'35.157"N | 104°42'05.589"W | 1.96 | |
| 3384.00 | 25.900 | 315.000 | 3320.92 | -245.30 | 253.15 | -272.90 | 40°09'35.402"N | 104°42'05.927"W | 2.45 | |
| 3469.00 | 25.700 | 314.400 | 3397.44 | -270.57 | 279.17 | -299.20 | 40°09'35.659"N | 104°42'06.266"W | 0.39 | |
| 3555.00 | 25.200 | 314.900 | 3475.10 | -295.78 | 305.14 | -325.49 | 40°09'35.915"N | 104°42'06.604"W | 0.63 | |
| 3642.00 | 25.600 | 315.900 | 3553.69 | -321.60 | 331.72 | -351.69 | 40°09'36.178"N | 104°42'06.942"W | 0.67 | |
| 3727.00 | 26.200 | 311.800 | 3630.16 | -346.53 | 357.41 | -378.46 | 40°09'36.432"N | 104°42'07.286"W | 2.22 | |
| 3812.00 | 25.900 | 312.600 | 3706.52 | -370.81 | 382.49 | -406.11 | 40°09'36.680"N | 104°42'07.643"W | 0.54 | |
| 3898.00 | 25.900 | 314.100 | 3783.89 | -395.80 | 408.27 | -433.43 | 40°09'36.935"N | 104°42'07.994"W | 0.76 | |

REFERENCE WELLPATH IDENTIFICATION

| | | | |
|----------|---------------------------------|----------|---|
| Operator | KERR-MCGEE OIL & GAS ONSHORE LP | Slot | SLOT#02 THOMSEN 1N-18HZ (472'FNL & 995'FEL, SEC.07) |
| Area | COLORADO | Well | THOMSEN 1N-18HZ |
| Field | WELD COUNTY (KERR MCGEE) | Wellbore | THOMSEN 1N-18HZ AWB <16-13074> |
| Facility | SEC.07-T2N-R65W | | |

WELLPATH DATA (136 stations) † = interpolated/extrapolated station

| MD [ft] | Inclination [°] | Azimuth [°] | TVD [ft] | Vert Sect [ft] | North [ft] | East [ft] | Latitude | Longitude | DLS [°/100ft] | Comments |
|----------|-----------------|-------------|----------|----------------|------------|-----------|----------------|-----------------|---------------|-----------------|
| 3983.00 | 26.000 | 313.700 | 3860.32 | -420.82 | 434.06 | -460.23 | 40°09'37.189"N | 104°42'08.340"W | 0.24 | |
| 4068.00 | 26.000 | 313.700 | 3936.71 | -445.79 | 459.80 | -487.17 | 40°09'37.444"N | 104°42'08.687"W | 0.00 | |
| 4156.00 | 28.100 | 315.900 | 4015.08 | -473.19 | 488.02 | -515.54 | 40°09'37.723"N | 104°42'09.052"W | 2.64 | |
| 4241.00 | 28.000 | 316.100 | 4090.10 | -501.14 | 516.77 | -543.30 | 40°09'38.007"N | 104°42'09.410"W | 0.16 | |
| 4328.00 | 26.600 | 315.800 | 4167.41 | -529.02 | 545.45 | -571.04 | 40°09'38.290"N | 104°42'09.767"W | 1.62 | |
| 4414.00 | 24.300 | 315.400 | 4245.06 | -554.68 | 571.86 | -596.90 | 40°09'38.551"N | 104°42'10.100"W | 2.68 | |
| 4499.00 | 24.500 | 311.900 | 4322.47 | -578.18 | 596.08 | -622.30 | 40°09'38.790"N | 104°42'10.427"W | 1.72 | |
| 4586.00 | 26.800 | 313.000 | 4400.89 | -602.81 | 621.51 | -650.07 | 40°09'39.042"N | 104°42'10.785"W | 2.70 | |
| 4671.00 | 27.600 | 309.400 | 4476.50 | -627.54 | 647.08 | -679.30 | 40°09'39.294"N | 104°42'11.161"W | 2.15 | |
| 4756.00 | 26.800 | 309.900 | 4552.10 | -651.47 | 671.87 | -709.22 | 40°09'39.539"N | 104°42'11.547"W | 0.98 | |
| 4841.00 | 25.900 | 309.000 | 4628.26 | -674.61 | 695.84 | -738.35 | 40°09'39.776"N | 104°42'11.922"W | 1.16 | |
| 4926.00 | 24.700 | 308.000 | 4705.11 | -696.41 | 718.46 | -766.77 | 40°09'40.000"N | 104°42'12.288"W | 1.50 | |
| 5011.00 | 21.600 | 309.600 | 4783.26 | -716.57 | 739.37 | -792.83 | 40°09'40.206"N | 104°42'12.624"W | 3.72 | |
| 5097.00 | 18.600 | 309.200 | 4864.01 | -734.68 | 758.13 | -815.66 | 40°09'40.392"N | 104°42'12.918"W | 3.49 | |
| 5182.00 | 16.900 | 311.700 | 4944.96 | -750.90 | 774.92 | -835.39 | 40°09'40.558"N | 104°42'13.172"W | 2.19 | |
| 5267.00 | 14.100 | 314.800 | 5026.86 | -765.94 | 790.44 | -851.96 | 40°09'40.711"N | 104°42'13.385"W | 3.43 | |
| 5352.00 | 12.900 | 318.100 | 5109.51 | -779.90 | 804.80 | -865.65 | 40°09'40.853"N | 104°42'13.562"W | 1.68 | |
| 5437.00 | 12.000 | 318.400 | 5192.52 | -793.22 | 818.47 | -877.85 | 40°09'40.988"N | 104°42'13.719"W | 1.06 | |
| 5522.00 | 10.100 | 321.900 | 5275.94 | -805.39 | 830.94 | -888.32 | 40°09'41.111"N | 104°42'13.854"W | 2.37 | |
| 5607.00 | 8.600 | 321.000 | 5359.80 | -815.95 | 841.75 | -896.92 | 40°09'41.218"N | 104°42'13.964"W | 1.77 | |
| 5692.00 | 7.500 | 320.500 | 5443.97 | -824.95 | 850.96 | -904.44 | 40°09'41.309"N | 104°42'14.061"W | 1.30 | |
| 5778.00 | 6.200 | 320.900 | 5529.35 | -832.70 | 858.90 | -910.94 | 40°09'41.388"N | 104°42'14.145"W | 1.51 | |
| 5865.00 | 4.700 | 318.900 | 5615.95 | -838.88 | 865.23 | -916.25 | 40°09'41.450"N | 104°42'14.213"W | 1.74 | |
| 5949.00 | 5.200 | 332.100 | 5699.64 | -844.72 | 871.19 | -920.29 | 40°09'41.509"N | 104°42'14.265"W | 1.48 | |
| 6035.00 | 3.800 | 329.600 | 5785.38 | -850.53 | 877.09 | -923.56 | 40°09'41.567"N | 104°42'14.307"W | 1.64 | |
| 6121.00 | 3.200 | 341.300 | 5871.22 | -855.19 | 881.82 | -925.77 | 40°09'41.614"N | 104°42'14.336"W | 1.08 | |
| 6208.00 | 2.600 | 8.500 | 5958.11 | -859.43 | 886.08 | -926.26 | 40°09'41.656"N | 104°42'14.342"W | 1.70 | |
| 6294.00 | 2.200 | 27.000 | 6044.03 | -862.86 | 889.48 | -925.22 | 40°09'41.690"N | 104°42'14.329"W | 1.01 | |
| 6378.00 | 2.000 | 42.000 | 6127.98 | -865.43 | 892.00 | -923.51 | 40°09'41.715"N | 104°42'14.307"W | 0.69 | |
| 6464.00 | 2.100 | 60.800 | 6213.92 | -867.38 | 893.89 | -921.13 | 40°09'41.733"N | 104°42'14.276"W | 0.79 | |
| 6634.00 | 3.000 | 121.800 | 6383.78 | -866.74 | 893.06 | -914.63 | 40°09'41.725"N | 104°42'14.192"W | 1.59 | |
| 6719.00 | 3.000 | 160.000 | 6468.67 | -863.56 | 889.80 | -911.97 | 40°09'41.693"N | 104°42'14.158"W | 2.31 | |
| 6804.00 | 7.300 | 172.100 | 6553.31 | -856.16 | 882.36 | -910.47 | 40°09'41.619"N | 104°42'14.139"W | 5.19 | |
| 6889.00 | 16.200 | 179.100 | 6636.45 | -838.95 | 865.12 | -909.54 | 40°09'41.449"N | 104°42'14.127"W | 10.59 | |
| 6974.00 | 24.000 | 182.200 | 6716.22 | -809.78 | 835.94 | -910.02 | 40°09'41.161"N | 104°42'14.133"W | 9.26 | |
| 7061.00 | 30.100 | 184.200 | 6793.66 | -770.25 | 796.47 | -912.30 | 40°09'40.771"N | 104°42'14.162"W | 7.09 | |
| 7150.00 | 37.500 | 185.700 | 6867.57 | -720.87 | 747.18 | -916.63 | 40°09'40.284"N | 104°42'14.218"W | 8.37 | |
| 7236.00 | 50.200 | 187.400 | 6929.47 | -661.64 | 688.13 | -923.51 | 40°09'39.700"N | 104°42'14.307"W | 14.83 | |
| 7325.00 | 60.900 | 186.200 | 6979.74 | -588.65 | 615.36 | -932.14 | 40°09'38.981"N | 104°42'14.418"W | 12.07 | |
| 7410.00 | 64.400 | 185.700 | 7018.79 | -513.38 | 540.28 | -939.96 | 40°09'38.239"N | 104°42'14.519"W | 4.15 | |
| 7499.00 | 70.600 | 184.600 | 7052.83 | -431.35 | 458.42 | -947.32 | 40°09'37.430"N | 104°42'14.613"W | 7.06 | |
| 7586.00 | 77.800 | 184.000 | 7076.50 | -347.79 | 375.00 | -953.58 | 40°09'36.606"N | 104°42'14.694"W | 8.30 | |
| 7657.00 | 82.800 | 182.900 | 7088.46 | -277.86 | 305.17 | -957.79 | 40°09'35.915"N | 104°42'14.748"W | 7.21 | |
| 7682.00† | 84.218 | 182.537 | 7091.29 | -253.03 | 280.35 | -958.97 | 40°09'35.670"N | 104°42'14.763"W | 5.85 | 7" Casing Point |
| 7761.00 | 88.700 | 181.400 | 7096.17 | -174.20 | 201.57 | -961.67 | 40°09'34.892"N | 104°42'14.798"W | 5.85 | |

REFERENCE WELLPATH IDENTIFICATION

| | | | |
|----------|--|----------|--|
| Operator | KERR-MCGEE OIL & GAS ONSHORE LP | Slot | SLOT#02 THOMSEN 1N-18HZ (472'FNL & 995'FEL, SEC.07) |
| Area | COLORADO | Well | THOMSEN 1N-18HZ |
| Field | WELD COUNTY (KERR MCGEE) | Wellbore | THOMSEN 1N-18HZ AWB <16-13074> |
| Facility | SEC.07-T2N-R65W | | |

WELLPATH DATA (136 stations)

| MD [ft] | Inclination [°] | Azimuth [°] | TVD [ft] | Vert Sect [ft] | North [ft] | East [ft] | Latitude | Longitude | DLS [°/100ft] | Comments |
|----------|-----------------|-------------|----------|----------------|------------|-----------|----------------|-----------------|---------------|--------------------------|
| 7846.00 | 88.500 | 181.600 | 7098.24 | -89.23 | 116.63 | -963.90 | 40°09'34.052"N | 104°42'14.827"W | 0.33 | |
| 7931.00 | 88.400 | 181.800 | 7100.54 | -4.26 | 31.70 | -966.42 | 40°09'33.213"N | 104°42'14.859"W | 0.26 | |
| 8016.00 | 88.600 | 182.000 | 7102.77 | 80.71 | -53.23 | -969.24 | 40°09'32.374"N | 104°42'14.895"W | 0.33 | |
| 8103.00 | 89.500 | 182.800 | 7104.21 | 167.69 | -140.14 | -972.88 | 40°09'31.515"N | 104°42'14.942"W | 1.38 | |
| 8191.00 | 90.700 | 184.200 | 7104.06 | 255.64 | -227.97 | -978.25 | 40°09'30.647"N | 104°42'15.011"W | 2.10 | |
| 8278.00 | 89.900 | 183.800 | 7103.60 | 342.56 | -314.76 | -984.32 | 40°09'29.789"N | 104°42'15.089"W | 1.03 | |
| 8365.00 | 90.900 | 184.000 | 7102.99 | 429.49 | -401.55 | -990.24 | 40°09'28.932"N | 104°42'15.166"W | 1.17 | |
| 8452.00 | 92.800 | 184.300 | 7100.18 | 516.36 | -488.27 | -996.53 | 40°09'28.075"N | 104°42'15.247"W | 2.21 | |
| 8538.00 | 91.200 | 183.700 | 7097.18 | 602.23 | -574.01 | -1002.52 | 40°09'27.227"N | 104°42'15.324"W | 1.99 | |
| 8625.00 | 90.100 | 184.200 | 7096.20 | 689.15 | -660.79 | -1008.52 | 40°09'26.370"N | 104°42'15.401"W | 1.39 | |
| 8710.00 | 89.400 | 183.300 | 7096.57 | 774.09 | -745.61 | -1014.07 | 40°09'25.532"N | 104°42'15.472"W | 1.34 | |
| 8798.00 | 89.600 | 183.000 | 7097.33 | 862.06 | -833.47 | -1018.91 | 40°09'24.663"N | 104°42'15.535"W | 0.41 | |
| 8883.00 | 90.300 | 184.400 | 7097.41 | 947.00 | -918.29 | -1024.40 | 40°09'23.825"N | 104°42'15.605"W | 1.84 | |
| 8968.00 | 90.500 | 185.600 | 7096.82 | 1031.85 | -1002.97 | -1031.80 | 40°09'22.988"N | 104°42'15.701"W | 1.43 | |
| 9054.00 | 89.400 | 185.500 | 7096.89 | 1117.64 | -1088.56 | -1040.12 | 40°09'22.143"N | 104°42'15.808"W | 1.28 | |
| 9141.00 | 89.700 | 185.400 | 7097.57 | 1204.45 | -1175.17 | -1048.38 | 40°09'21.287"N | 104°42'15.914"W | 0.36 | |
| 9226.00 | 91.400 | 186.700 | 7096.76 | 1289.18 | -1259.68 | -1057.34 | 40°09'20.452"N | 104°42'16.029"W | 2.52 | |
| 9311.00 | 90.700 | 186.600 | 7095.20 | 1373.84 | -1344.10 | -1067.18 | 40°09'19.617"N | 104°42'16.156"W | 0.83 | |
| 9397.00 | 91.500 | 186.800 | 7093.55 | 1459.49 | -1429.49 | -1077.21 | 40°09'18.773"N | 104°42'16.285"W | 0.96 | |
| 9482.00 | 90.700 | 186.300 | 7091.92 | 1544.16 | -1513.92 | -1086.91 | 40°09'17.939"N | 104°42'16.410"W | 1.11 | |
| 9567.00 | 90.100 | 186.400 | 7091.32 | 1628.87 | -1598.40 | -1096.31 | 40°09'17.104"N | 104°42'16.531"W | 0.72 | |
| 9653.00 | 90.100 | 186.500 | 7091.17 | 1714.56 | -1683.85 | -1105.97 | 40°09'16.260"N | 104°42'16.655"W | 0.12 | |
| 9738.00 | 89.900 | 186.400 | 7091.17 | 1799.26 | -1768.32 | -1115.52 | 40°09'15.425"N | 104°42'16.778"W | 0.26 | |
| 9823.00 | 90.100 | 186.100 | 7091.17 | 1883.99 | -1852.81 | -1124.77 | 40°09'14.590"N | 104°42'16.898"W | 0.42 | |
| 9908.00 | 89.800 | 185.900 | 7091.25 | 1968.74 | -1937.34 | -1133.66 | 40°09'13.755"N | 104°42'17.012"W | 0.42 | |
| 9995.00 | 89.600 | 184.400 | 7091.70 | 2055.57 | -2023.99 | -1141.47 | 40°09'12.899"N | 104°42'17.112"W | 1.74 | |
| 10081.00 | 90.100 | 182.700 | 7091.93 | 2141.52 | -2109.82 | -1146.79 | 40°09'12.050"N | 104°42'17.181"W | 2.06 | |
| 10166.00 | 90.100 | 180.300 | 7091.78 | 2226.51 | -2194.79 | -1149.02 | 40°09'11.211"N | 104°42'17.210"W | 2.82 | |
| 10251.00 | 91.100 | 179.000 | 7090.89 | 2311.45 | -2279.78 | -1148.50 | 40°09'10.371"N | 104°42'17.203"W | 1.93 | |
| 10336.00 | 90.700 | 179.000 | 7089.56 | 2396.35 | -2364.75 | -1147.01 | 40°09'09.531"N | 104°42'17.184"W | 0.47 | |
| 10506.00 | 89.800 | 178.800 | 7088.81 | 2566.16 | -2534.72 | -1143.75 | 40°09'07.852"N | 104°42'17.142"W | 0.54 | |
| 10678.00 | 88.200 | 178.500 | 7091.82 | 2737.89 | -2706.64 | -1139.70 | 40°09'06.153"N | 104°42'17.089"W | 0.95 | |
| 10854.00 | 89.500 | 178.700 | 7095.35 | 2913.61 | -2882.55 | -1135.40 | 40°09'04.414"N | 104°42'17.034"W | 0.75 | |
| 11025.00 | 90.000 | 177.900 | 7096.09 | 3084.32 | -3053.47 | -1130.33 | 40°09'02.725"N | 104°42'16.968"W | 0.55 | |
| 11197.00 | 90.700 | 177.900 | 7095.04 | 3255.95 | -3225.35 | -1124.02 | 40°09'01.027"N | 104°42'16.887"W | 0.41 | |
| 11371.00 | 90.100 | 177.700 | 7093.83 | 3429.56 | -3399.21 | -1117.34 | 40°08'59.309"N | 104°42'16.801"W | 0.36 | |
| 11544.00 | 89.200 | 179.300 | 7094.89 | 3602.29 | -3572.14 | -1112.82 | 40°08'57.600"N | 104°42'16.743"W | 1.06 | |
| 11714.00 | 89.700 | 180.200 | 7096.52 | 3772.19 | -3742.13 | -1112.07 | 40°08'55.920"N | 104°42'16.733"W | 0.61 | |
| 11885.00 | 89.100 | 180.100 | 7098.31 | 3943.12 | -3913.12 | -1112.52 | 40°08'54.230"N | 104°42'16.739"W | 0.36 | |
| 12059.00 | 89.600 | 179.500 | 7100.28 | 4117.02 | -4087.11 | -1111.92 | 40°08'52.511"N | 104°42'16.731"W | 0.45 | |
| 12233.00 | 89.600 | 179.700 | 7101.50 | 4290.91 | -4261.10 | -1110.70 | 40°08'50.791"N | 104°42'16.715"W | 0.11 | |
| 12405.00 | 89.500 | 179.500 | 7102.85 | 4462.79 | -4433.09 | -1109.50 | 40°08'49.092"N | 104°42'16.699"W | 0.13 | |
| 12579.00 | 90.900 | 179.400 | 7102.24 | 4636.66 | -4607.08 | -1107.83 | 40°08'47.372"N | 104°42'16.678"W | 0.81 | |
| 12752.00 | 89.800 | 179.900 | 7101.18 | 4809.55 | -4780.07 | -1106.77 | 40°08'45.663"N | 104°42'16.664"W | 0.70 | |
| 13022.00 | 90.100 | 180.200 | 7101.42 | 5079.45 | -5050.07 | -1107.01 | 40°08'42.995"N | 104°42'16.667"W | 0.16 | Last BHI MWD+IFR Surveys |

REFERENCE WELLPATH IDENTIFICATION

| | | | |
|----------|---------------------------------|----------|---|
| Operator | KERR-MCGEE OIL & GAS ONSHORE LP | Slot | SLOT#02 THOMSEN 1N-18HZ (472'FNL & 995'FEL, SEC.07) |
| Area | COLORADO | Well | THOMSEN 1N-18HZ |
| Field | WELD COUNTY (KERR MCGEE) | Wellbore | THOMSEN 1N-18HZ AWP <16-13074> |
| Facility | SEC.07-T2N-R65W | | |

WELLPATH DATA (136 stations)

| MD [ft] | Inclination [°] | Azimuth [°] | TVD [ft] | Vert Sect [ft] | North [ft] | East [ft] | Latitude | Longitude | DLS [°/100ft] | Comments |
|----------|-----------------|-------------|----------|----------------|------------|-----------|----------------|-----------------|---------------|-------------------|
| 13074.00 | 90.100 | 180.200 | 7101.33 | 5131.43 | -5102.07 | -1107.19 | 40°08'42.481"N | 104°42'16.669"W | 0.00 | Projection to Bit |

HOLE & CASING SECTIONS - Ref Wellbore: THOMSEN 1N-18HZ AWP <16-13074> Ref Wellpath: THOMSEN 1N-18HZ AWP

| String/Diameter | Start MD [ft] | End MD [ft] | Interval [ft] | Start TVD [ft] | End TVD [ft] | Start N/S [ft] | Start E/W [ft] | End N/S [ft] | End E/W [ft] |
|-------------------------|---------------|-------------|---------------|----------------|--------------|----------------|----------------|--------------|--------------|
| 13.5in Open Hole | 16.00 | 1370.00 | 1354.00 | 16.00 | 1369.98 | 0.00 | 0.00 | -1.36 | -0.11 |
| 9.625in Casing Surface | 16.00 | 1359.00 | 1343.00 | 16.00 | 1358.98 | 0.00 | 0.00 | -1.39 | -0.03 |
| 8.75in Open Hole | 1370.00 | 7704.00 | 6334.00 | 1369.98 | 7093.27 | -1.36 | -0.11 | 258.46 | -959.88 |
| 7in Casing Intermediate | 16.00 | 7682.00 | 7666.00 | 16.00 | 7091.29 | 0.00 | 0.00 | 280.35 | -958.97 |
| 6.125in Open Hole | 7704.00 | 13074.00 | 5370.00 | 7093.27 | 7101.33 | 258.46 | -959.88 | -5102.07 | -1107.19 |

TARGETS

| Name | MD [ft] | TVD [ft] | North [ft] | East [ft] | Grid East [US ft] | Grid North [US ft] | Latitude | Longitude | Shape |
|--|---------|----------|------------|-----------|-------------------|--------------------|----------------|-----------------|---------|
| SEC.07-T2N-R65W SECTION LINES | | -1.00 | 0.00 | 0.00 | 3223409.59 | 1301824.42 | 40°09'32.900"N | 104°42'02.412"W | polygon |
| SEC.18-T2N-R65W SECTION LINES | | -1.00 | 0.00 | 0.00 | 3223409.59 | 1301824.42 | 40°09'32.900"N | 104°42'02.412"W | polygon |
| THOMSEN 1N-18HZ BHL ON PLAT REV-1 (634'FNL & 2074'FEL, SEC.18) | 7067.00 | -5443.25 | -1128.92 | -1128.92 | 3222329.83 | 1296371.46 | 40°08'39.109"N | 104°42'16.949"W | point |
| THOMSEN 1N-18HZ BHL REV-2 (294'FNL & 2074'FEL, SEC.18) | 7067.00 | -5103.25 | -1128.92 | -1128.92 | 3222326.76 | 1296711.43 | 40°08'42.469"N | 104°42'16.949"W | point |
| THOMSEN 1N-18HZ BHL REV-3 (294'FNL & 2054'FEL, SEC.18) | 7067.00 | -5103.25 | -1108.92 | -1108.92 | 3222346.76 | 1296711.61 | 40°08'42.469"N | 104°42'16.691"W | point |
| THOMSEN 1N-18HZ LANDBOX | 7067.00 | 0.00 | 0.00 | 0.00 | 3223409.59 | 1301824.42 | 40°09'32.900"N | 104°42'02.412"W | polygon |
| THOMSEN 1N-18HZ BHL REV-4 (294'FNL & 2054'FEL, SEC.18) | 7093.00 | -5103.25 | -1108.92 | -1108.92 | 3222346.76 | 1296711.61 | 40°08'42.469"N | 104°42'16.691"W | point |

WELLPATH COMPOSITION - Ref Wellbore: THOMSEN 1N-18HZ AWP <16-13074> Ref Wellpath: THOMSEN 1N-18HZ AWP

| Start MD [ft] | End MD [ft] | Positional Uncertainty Model | Log Name/Comment | Wellbore |
|---------------|-------------|-------------------------------|---|--------------------------------|
| 16.00 | 1325.00 | ISCWSA MWD, Rev. 2 (Standard) | CATHEDRAL ENERGY SERVICES MWD SURVEYS <62-1325> | THOMSEN 1N-18HZ AWP <16-13074> |
| 1325.00 | 7657.00 | NaviTrak (MAGCORR,IFR) | BHI MWD+IFR SURVEYS 8 3/4" HOLE <1457-7657> | THOMSEN 1N-18HZ AWP <16-13074> |
| 7657.00 | 13022.00 | NaviTrak (MAGCORR,IFR) | BHI MWD+IFR SURVEYS 6 1/8" HOLE <7761-13022> | THOMSEN 1N-18HZ AWP <16-13074> |
| 13022.00 | 13074.00 | Blind Drilling (std) | Projection to bit | THOMSEN 1N-18HZ AWP <16-13074> |

REFERENCE WELLPATH IDENTIFICATION

| | | | |
|----------|---------------------------------|----------|---|
| Operator | KERR-MCGEE OIL & GAS ONSHORE LP | Slot | SLOT#02 THOMSEN 1N-18HZ (472'FNL & 995'FEL, SEC.07) |
| Area | COLORADO | Well | THOMSEN 1N-18HZ |
| Field | WELD COUNTY (KERR MCGEE) | Wellbore | THOMSEN 1N-18HZ AWB <16-13074> |
| Facility | SEC.07-T2N-R65W | | |

WELLPATH COMMENTS

| MD [ft] | Inclination [°] | Azimuth [°] | TVD [ft] | Comment |
|----------|-----------------|-------------|----------|--------------------------------|
| 16.00 | 0.000 | 41.800 | 16.00 | Tie-On |
| 62.00 | 0.300 | 41.800 | 62.00 | Begin CATHEDRAL MWD SURVEYS |
| 1325.00 | 0.500 | 297.500 | 1324.98 | Tie-Into CATHEDRAL MWD Surveys |
| 1457.00 | 0.400 | 247.200 | 1456.97 | Begin BHI MWD+IFR Surveys |
| 7682.00 | 84.218 | 182.537 | 7091.29 | 7" Casing Point |
| 13022.00 | 90.100 | 180.200 | 7101.42 | Last BHI MWD+IFR Surveys |
| 13074.00 | 90.100 | 180.200 | 7101.33 | Projection to Bit |