

NOBLE ENERGY, INC

Location: COLORADO Slot: SLOT#16 WELLS RANCH STATE AF09-667(2148'FNL&175'FEL,SEC.08)
 Field: WELD COUNTY (NOBLE NAD 83 GRID) Well: WELLS RANCH STATE AF09-667
 Facility: SEC.08-T05N-R62W Wellbore: WELLS RANCH STATE AF09-667 PWB

| | |
|---|--|
| Plot reference wellpath is WELLS RANCH STATE AF09-667 (REV-A.0) PWP | Grid System: NAD83 / Lambert Colorado SP, Northern Zone (501), US feet |
| True vertical depths are referenced to RIG (30KB) (RKB) | * = Wellpath was transformed from a different geodetic datum |
| Measured depths are referenced to RIG (30KB) (RKB) | North Reference: Grid north |
| RIG (30KB) (RKB) to Mean Sea Level: 4737 feet | Scale: True distance |
| Mean Sea Level to Mud line (At Slot: SLOT#16 WELLS RANCH STATE AF09-667(2148'FNL&175'FEL,SEC.08)): 0 feet | Depths are in feet |
| Coordinates are in feet referenced to Slot | Created by: guemler on 2019-08-07 |
| | Database: WA_DEN_Denver_Defn |

Location Information

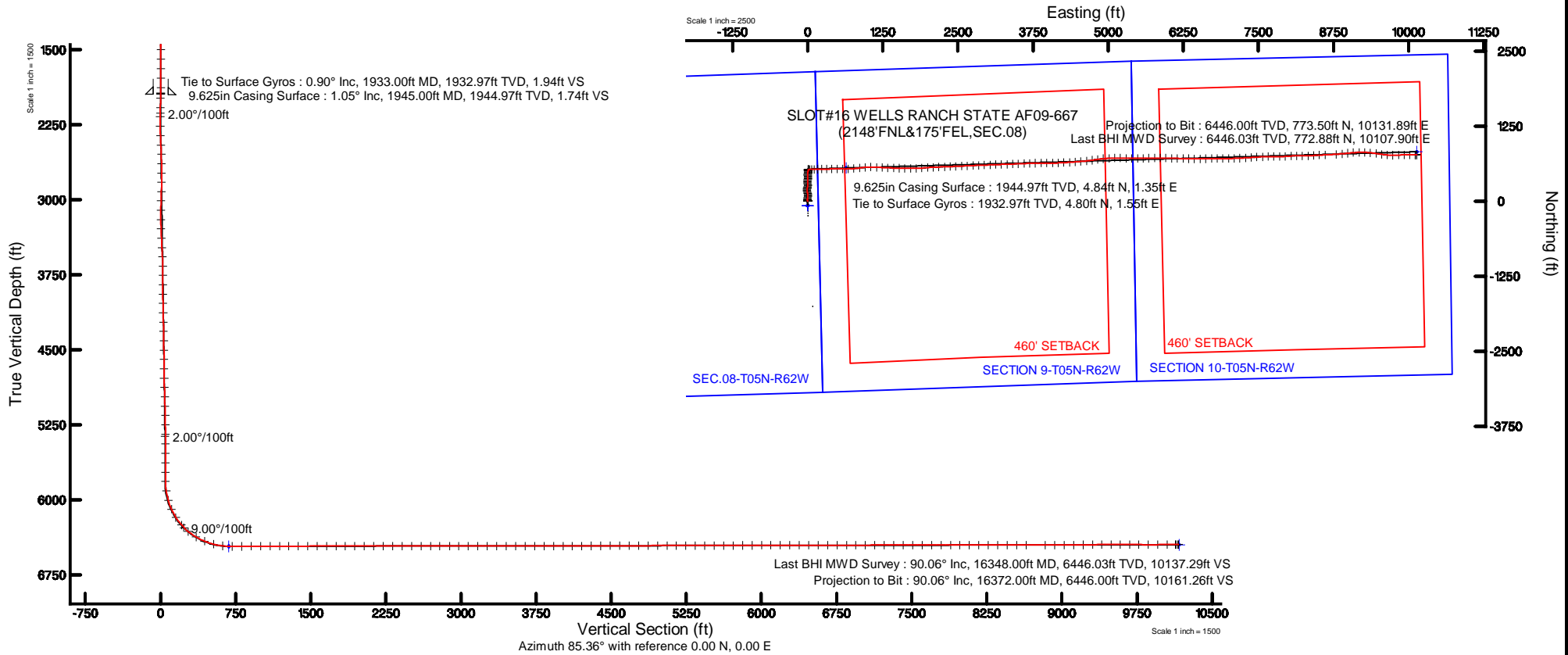
| Facility Name | | | | Grid East (US ft) | Grid North (US ft) | Latitude | Longitude |
|---|--------------|--------------|-------------------|--------------------|--------------------|-----------------|-----------------|
| SEC.08-T05N-R62W | | | | 3318688.504 | 1397895.930 | 40°25'11.928"N | 104°21'19.332"W |
| Slot | Local N (ft) | Local E (ft) | Grid East (US ft) | Grid North (US ft) | Latitude | Longitude | |
| SLOT#16 WELLS RANCH STATE AF09-667(2148'FNL&175'FEL,SEC.08) | -1526.72 | 4753.88 | 3323442.191 | 1396369.275 | 40°24'56.232"N | 104°20'18.132"W | |
| RIG (30KB) (RKB) to Mud line (At Slot: SLOT#16 WELLS RANCH STATE AF09-667(2148'FNL&175'FEL,SEC.08)) | | | | | | | 4737ft |
| Mean Sea Level to Mud line (At Slot: SLOT#16 WELLS RANCH STATE AF09-667(2148'FNL&175'FEL,SEC.08)) | | | | | | | 0ft |
| RIG (30KB) (RKB) to Mean Sea Level | | | | | | | 4737ft |

Survey Program

| Start MD (ft) | End MD (ft) | Tool | Model | Log Name/Comment | Wellbore |
|---------------|-------------|---------------|---|------------------|--------------------------------|
| 30.00 | 16372.36 | OWSG MWD rev2 | OWSG MWD rev2 + IFR1 + Multi-Station Correction | | WELLS RANCH STATE AF09-667 PWB |

Comments

| |
|------------------------|
| SURFACE LOCATION: SENE |
| 40.41562N |
| 104.33837W |
| API: 05-123-44239 |



| REFERENCE WELLPATH IDENTIFICATION | | | |
|-----------------------------------|---------------------------------|----------|---|
| Operator | NOBLE ENERGY, INC | Slot | SLOT#16 WELLS RANCH STATE AF09-667(2148'FNL&175'FEL,SEC.08) |
| Area | COLORADO | Well | WELLS RANCH STATE AF09-667 |
| Field | WELD COUNTY (NOBLE NAD 83 GRID) | Wellbore | WELLS RANCH STATE AF09-667 AWB |
| Facility | SEC.08-T05N-R62W | | |

| REPORT SETUP INFORMATION | | | |
|--------------------------|---|----------------------|---|
| Projection System | NAD83 / Lambert Colorado SP, Northern Zone (501), US feet | Software System | WellArchitect® 5.0 |
| North Reference | Grid | User | Guenaler |
| Scale | 0.999961 | Report Generated | 8/7/2018 at 2:11:13 PM |
| Convergence at slot | 0.76° East | Database/Source file | WA_DEN_Denver_Defn/WELLS_RANCH_STATE_AF09-667_AWP.xml |

| WELLPATH LOCATION | | | | | | |
|-----------------------|-------------------|----------|------------------|-----------------|------------------------|-----------------|
| | Local coordinates | | Grid coordinates | | Geographic coordinates | |
| | North[ft] | East[ft] | Easting[US ft] | Northing[US ft] | Latitude | Longitude |
| Slot Location | -1526.72 | 4753.88 | 3323442.19 | 1396369.28 | 40°24'56.232"N | 104°20'18.132"W |
| Facility Reference Pt | | | 3318688.50 | 1397895.93 | 40°25'11.928"N | 104°21'19.332"W |
| Field Reference Pt | | | 3000000.00 | 4454105.15 | 48°46'34.315"N | 105°30'00.000"W |

| WELLPATH DATUM | | | |
|--------------------------|-------------------|--|-------------------|
| Calculation method | Minimum curvature | RIG (30'KB) (RKB) to Facility Vertical Datum | 4737.00ft |
| Horizontal Reference Pt | Slot | RIG (30'KB) (RKB) to Mean Sea Level | 4737.00ft |
| Vertical Reference Pt | RIG (30'KB) (RKB) | RIG (30'KB) (RKB) to Mud Line at Slot (SLOT#16 WELLS RANCH STATE AF09-667 (2148'FNL&175'FEL,SEC.08)) | 4737.00ft |
| MD Reference Pt | RIG (30'KB) (RKB) | Section Origin | N 0.00, E 0.00 ft |
| Field Vertical Reference | Mean Sea Level | Section Azimuth | 85.36° |

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| Area | COLORADO | Well | WELLS RANCH STATE AF09-667 |
| Field | WELD COUNTY (NOBLE NAD 83 GRID) | Wellbore | WELLS RANCH STATE AF09-667 AWB |
| Facility | SEC.08-T05N-R62W | | |

| WELLPATH DATA (175 stations) | | | | | | | | | | |
|------------------------------|-----------------|-------------|----------|----------------|------------|-----------|----------------|-----------------|---------------|----------------------|
| MD [ft] | Inclination [°] | Azimuth [°] | TVD [ft] | Vert Sect [ft] | North [ft] | East [ft] | Latitude | Longitude | DLS [°/100ft] | Comments |
| 0.00 | 0.000 | 347.290 | 0.00 | 0.00 | 0.00 | 0.00 | 40°24'56.232"N | 104°20'18.132"W | 0.00 | |
| 83.00 | 0.230 | 347.290 | 83.00 | -0.02 | 0.16 | -0.04 | 40°24'56.234"N | 104°20'18.132"W | 0.28 | |
| 178.00 | 0.340 | 29.010 | 178.00 | 0.11 | 0.60 | 0.06 | 40°24'56.238"N | 104°20'18.131"W | 0.24 | |
| 269.00 | 0.480 | 33.860 | 269.00 | 0.49 | 1.15 | 0.40 | 40°24'56.243"N | 104°20'18.127"W | 0.16 | |
| 364.00 | 0.280 | 5.990 | 363.99 | 0.78 | 1.71 | 0.65 | 40°24'56.249"N | 104°20'18.123"W | 0.28 | |
| 459.00 | 0.060 | 180.250 | 458.99 | 0.82 | 1.89 | 0.67 | 40°24'56.251"N | 104°20'18.123"W | 0.36 | |
| 553.00 | 0.320 | 166.120 | 552.99 | 0.86 | 1.59 | 0.73 | 40°24'56.248"N | 104°20'18.122"W | 0.28 | |
| 648.00 | 0.070 | 28.140 | 647.99 | 0.93 | 1.38 | 0.83 | 40°24'56.246"N | 104°20'18.121"W | 0.39 | |
| 742.00 | 0.550 | 53.380 | 741.99 | 1.35 | 1.70 | 1.21 | 40°24'56.249"N | 104°20'18.116"W | 0.52 | |
| 837.00 | 0.060 | 163.470 | 836.99 | 1.74 | 1.92 | 1.59 | 40°24'56.251"N | 104°20'18.111"W | 0.60 | |
| 932.00 | 0.260 | 102.170 | 931.99 | 1.96 | 1.83 | 1.82 | 40°24'56.250"N | 104°20'18.108"W | 0.25 | |
| 1026.00 | 0.440 | 74.220 | 1025.99 | 2.52 | 1.88 | 2.38 | 40°24'56.250"N | 104°20'18.101"W | 0.26 | |
| 1121.00 | 0.250 | 57.000 | 1120.99 | 3.06 | 2.10 | 2.90 | 40°24'56.252"N | 104°20'18.094"W | 0.23 | |
| 1215.00 | 0.300 | 52.960 | 1214.98 | 3.45 | 2.36 | 3.27 | 40°24'56.255"N | 104°20'18.089"W | 0.06 | |
| 1309.00 | 0.190 | 319.320 | 1308.98 | 3.56 | 2.62 | 3.36 | 40°24'56.257"N | 104°20'18.088"W | 0.39 | |
| 1404.00 | 0.210 | 24.130 | 1403.98 | 3.56 | 2.90 | 3.33 | 40°24'56.260"N | 104°20'18.088"W | 0.23 | |
| 1499.00 | 0.260 | 349.040 | 1498.98 | 3.62 | 3.27 | 3.36 | 40°24'56.264"N | 104°20'18.088"W | 0.16 | |
| 1593.00 | 0.160 | 357.570 | 1592.98 | 3.60 | 3.61 | 3.32 | 40°24'56.267"N | 104°20'18.089"W | 0.11 | |
| 1688.00 | 0.320 | 5.070 | 1687.98 | 3.65 | 4.01 | 3.33 | 40°24'56.271"N | 104°20'18.088"W | 0.17 | |
| 1783.00 | 0.350 | 293.400 | 1782.98 | 3.44 | 4.39 | 3.09 | 40°24'56.275"N | 104°20'18.091"W | 0.41 | |
| 1878.00 | 0.670 | 285.860 | 1877.98 | 2.66 | 4.65 | 2.29 | 40°24'56.278"N | 104°20'18.102"W | 0.34 | |
| 1933.00 | 0.900 | 277.550 | 1932.97 | 1.94 | 4.80 | 1.55 | 40°24'56.279"N | 104°20'18.111"W | 0.47 | Tie to Surface Gyros |
| 1981.00 | 1.550 | 294.450 | 1980.96 | 1.00 | 5.12 | 0.59 | 40°24'56.282"N | 104°20'18.124"W | 1.54 | |
| 2076.00 | 4.220 | 336.060 | 2075.84 | -1.28 | 8.85 | -2.00 | 40°24'56.320"N | 104°20'18.156"W | 3.40 | |
| 2171.00 | 6.110 | 348.490 | 2170.45 | -3.04 | 16.99 | -4.43 | 40°24'56.400"N | 104°20'18.186"W | 2.30 | |
| 2265.00 | 7.180 | 0.730 | 2263.82 | -3.09 | 27.77 | -5.35 | 40°24'56.507"N | 104°20'18.196"W | 1.88 | |
| 2360.00 | 8.930 | 10.580 | 2357.89 | -0.59 | 40.96 | -3.92 | 40°24'56.637"N | 104°20'18.176"W | 2.34 | |
| 2455.00 | 9.790 | 11.240 | 2451.62 | 3.55 | 56.13 | -0.99 | 40°24'56.787"N | 104°20'18.135"W | 0.91 | |
| 2549.00 | 9.800 | 7.640 | 2544.25 | 7.44 | 71.90 | 1.63 | 40°24'56.942"N | 104°20'18.099"W | 0.65 | |
| 2644.00 | 9.770 | 1.510 | 2637.87 | 10.03 | 87.97 | 2.91 | 40°24'57.101"N | 104°20'18.079"W | 1.10 | |

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| Area | COLORADO | Well | WELLS RANCH STATE AF09-667 |
| Field | WELD COUNTY (NOBLE NAD 83 GRID) | Wellbore | WELLS RANCH STATE AF09-667 AWB |
| Facility | SEC.08-T05N-R62W | | |

| WELLPATH DATA (175 stations) | | | | | | | | | | | |
|------------------------------|-----------------|-------------|----------|----------------|------------|-----------|----------------|-----------------|---------------|----------|--|
| MD [ft] | Inclination [°] | Azimuth [°] | TVD [ft] | Vert Sect [ft] | North [ft] | East [ft] | Latitude | Longitude | DLS [°/100ft] | Comments | |
| 2739.00 | 9.810 | 358.290 | 2731.49 | 11.31 | 104.11 | 2.89 | 40°24'57.260"N | 104°20'18.077"W | 0.58 | | |
| 2833.00 | 9.950 | 349.520 | 2824.10 | 10.89 | 120.10 | 1.17 | 40°24'57.419"N | 104°20'18.097"W | 1.61 | | |
| 2928.00 | 9.880 | 342.920 | 2917.69 | 8.30 | 135.97 | -2.72 | 40°24'57.576"N | 104°20'18.144"W | 1.20 | | |
| 3022.00 | 9.820 | 346.800 | 3010.30 | 5.37 | 151.48 | -6.92 | 40°24'57.730"N | 104°20'18.196"W | 0.71 | | |
| 3117.00 | 9.730 | 350.010 | 3103.92 | 3.42 | 167.27 | -10.16 | 40°24'57.886"N | 104°20'18.235"W | 0.58 | | |
| 3211.00 | 9.320 | 358.420 | 3196.63 | 3.09 | 182.71 | -11.75 | 40°24'58.039"N | 104°20'18.253"W | 1.54 | | |
| 3306.00 | 9.510 | 9.620 | 3290.36 | 5.43 | 198.13 | -10.65 | 40°24'58.191"N | 104°20'18.236"W | 1.94 | | |
| 3400.00 | 8.150 | 12.310 | 3383.24 | 9.29 | 212.30 | -7.93 | 40°24'58.331"N | 104°20'18.199"W | 1.51 | | |
| 3495.00 | 9.880 | 14.320 | 3477.07 | 13.90 | 226.78 | -4.48 | 40°24'58.473"N | 104°20'18.151"W | 1.85 | | |
| 3589.00 | 9.850 | 11.870 | 3569.68 | 18.81 | 242.46 | -0.83 | 40°24'58.628"N | 104°20'18.102"W | 0.45 | | |
| 3684.00 | 9.980 | 5.450 | 3663.26 | 22.56 | 258.61 | 1.62 | 40°24'58.787"N | 104°20'18.067"W | 1.17 | | |
| 3778.00 | 9.870 | 354.160 | 3755.86 | 23.82 | 274.73 | 1.58 | 40°24'58.946"N | 104°20'18.065"W | 2.07 | | |
| 3873.00 | 9.710 | 352.040 | 3849.48 | 23.19 | 290.77 | -0.36 | 40°24'59.105"N | 104°20'18.087"W | 0.42 | | |
| 3968.00 | 9.800 | 358.720 | 3943.11 | 23.20 | 306.78 | -1.65 | 40°24'59.263"N | 104°20'18.101"W | 1.19 | | |
| 4062.00 | 9.730 | 1.850 | 4035.75 | 24.56 | 322.72 | -1.57 | 40°24'59.421"N | 104°20'18.098"W | 0.57 | | |
| 4157.00 | 9.720 | 2.480 | 4129.38 | 26.47 | 338.76 | -0.97 | 40°24'59.579"N | 104°20'18.087"W | 0.11 | | |
| 4251.00 | 9.790 | 5.600 | 4222.02 | 28.87 | 354.64 | 0.16 | 40°24'59.736"N | 104°20'18.070"W | 0.57 | | |
| 4346.00 | 9.820 | 2.070 | 4315.64 | 31.26 | 370.77 | 1.24 | 40°24'59.895"N | 104°20'18.053"W | 0.63 | | |
| 4440.00 | 9.740 | 0.440 | 4408.27 | 32.90 | 386.73 | 1.59 | 40°25'00.053"N | 104°20'18.046"W | 0.31 | | |
| 4535.00 | 9.720 | 0.330 | 4501.91 | 34.31 | 402.79 | 1.70 | 40°25'00.212"N | 104°20'18.042"W | 0.03 | | |
| 4630.00 | 9.680 | 355.820 | 4595.55 | 35.07 | 418.78 | 1.16 | 40°25'00.370"N | 104°20'18.046"W | 0.80 | | |
| 4725.00 | 9.540 | 355.570 | 4689.22 | 35.16 | 434.59 | -0.03 | 40°25'00.526"N | 104°20'18.059"W | 0.15 | | |
| 4819.00 | 9.530 | 4.910 | 4781.92 | 36.48 | 450.11 | 0.03 | 40°25'00.679"N | 104°20'18.055"W | 1.64 | | |
| 4914.00 | 9.640 | 6.040 | 4875.60 | 39.26 | 465.86 | 1.55 | 40°25'00.835"N | 104°20'18.033"W | 0.23 | | |
| 5008.00 | 9.430 | 5.130 | 4968.30 | 42.03 | 481.35 | 3.06 | 40°25'00.988"N | 104°20'18.011"W | 0.27 | | |
| 5103.00 | 7.930 | 8.330 | 5062.21 | 44.82 | 495.59 | 4.71 | 40°25'01.128"N | 104°20'17.987"W | 1.66 | | |
| 5197.00 | 7.060 | 6.410 | 5155.40 | 47.38 | 507.75 | 6.29 | 40°25'01.248"N | 104°20'17.965"W | 0.96 | | |
| 5292.00 | 5.360 | 1.700 | 5249.84 | 48.99 | 517.98 | 7.08 | 40°25'01.349"N | 104°20'17.953"W | 1.87 | | |
| 5386.00 | 3.490 | 358.040 | 5343.56 | 49.61 | 525.23 | 7.11 | 40°25'01.421"N | 104°20'17.951"W | 2.01 | | |
| 5481.00 | 0.200 | 236.410 | 5438.50 | 49.60 | 528.03 | 6.87 | 40°25'01.448"N | 104°20'17.954"W | 3.79 | | |

| REFERENCE WELLPATH IDENTIFICATION | | | |
|-----------------------------------|---------------------------------|----------|---|
| Operator | NOBLE ENERGY, INC | Slot | SLOT#16 WELLS RANCH STATE AF09-667(2148'FNL&175'FEL,SEC.08) |
| Area | COLORADO | Well | WELLS RANCH STATE AF09-667 |
| Field | WELD COUNTY (NOBLE NAD 83 GRID) | Wellbore | WELLS RANCH STATE AF09-667 AWB |
| Facility | SEC.08-T05N-R62W | | |

| WELLPATH DATA (175 stations) | | | | | | | | | | |
|------------------------------|-----------------|-------------|----------|----------------|------------|-----------|----------------|-----------------|---------------|----------|
| MD [ft] | Inclination [°] | Azimuth [°] | TVD [ft] | Vert Sect [ft] | North [ft] | East [ft] | Latitude | Longitude | DLS [°/100ft] | Comments |
| 5575.00 | 0.250 | 323.970 | 5532.50 | 49.35 | 528.11 | 6.61 | 40°25'01.449"N | 104°20'17.957"W | 0.33 | |
| 5670.00 | 0.090 | 227.230 | 5627.50 | 49.19 | 528.22 | 6.44 | 40°25'01.450"N | 104°20'17.959"W | 0.29 | |
| 5765.00 | 0.070 | 116.530 | 5722.50 | 49.18 | 528.15 | 6.43 | 40°25'01.450"N | 104°20'17.959"W | 0.14 | |
| 5859.00 | 0.650 | 94.160 | 5816.50 | 49.75 | 528.08 | 7.02 | 40°25'01.449"N | 104°20'17.952"W | 0.62 | |
| 5954.00 | 9.070 | 89.230 | 5911.07 | 57.77 | 528.14 | 15.06 | 40°25'01.449"N | 104°20'17.848"W | 8.87 | |
| 6049.00 | 15.150 | 87.810 | 6003.91 | 77.66 | 528.72 | 34.97 | 40°25'01.452"N | 104°20'17.590"W | 6.41 | |
| 6143.00 | 24.100 | 87.790 | 6092.36 | 109.17 | 529.93 | 66.48 | 40°25'01.460"N | 104°20'17.183"W | 9.52 | |
| 6238.00 | 32.040 | 88.570 | 6176.12 | 153.78 | 531.31 | 111.13 | 40°25'01.467"N | 104°20'16.605"W | 8.37 | |
| 6332.00 | 41.440 | 89.190 | 6251.37 | 209.84 | 532.37 | 167.28 | 40°25'01.471"N | 104°20'15.879"W | 10.01 | |
| 6427.00 | 51.080 | 89.170 | 6316.97 | 278.24 | 533.36 | 235.83 | 40°25'01.471"N | 104°20'14.993"W | 10.15 | |
| 6521.00 | 59.610 | 88.050 | 6370.37 | 355.37 | 535.27 | 313.06 | 40°25'01.480"N | 104°20'13.994"W | 9.13 | |
| 6616.00 | 67.180 | 88.690 | 6412.89 | 440.13 | 537.67 | 397.90 | 40°25'01.493"N | 104°20'12.897"W | 7.99 | |
| 6711.00 | 75.700 | 90.360 | 6443.10 | 529.86 | 538.38 | 487.87 | 40°25'01.488"N | 104°20'11.734"W | 9.12 | |
| 6805.00 | 83.650 | 90.960 | 6459.93 | 621.87 | 537.31 | 580.27 | 40°25'01.466"N | 104°20'10.540"W | 8.48 | |
| 6900.00 | 90.280 | 89.290 | 6464.96 | 716.35 | 537.11 | 675.08 | 40°25'01.452"N | 104°20'09.314"W | 7.20 | |
| 6995.00 | 90.090 | 83.810 | 6464.66 | 811.29 | 542.82 | 769.87 | 40°25'01.496"N | 104°20'08.088"W | 5.77 | |
| 7089.00 | 90.060 | 81.630 | 6464.53 | 905.19 | 554.73 | 863.11 | 40°25'01.601"N | 104°20'06.880"W | 2.32 | |
| 7184.00 | 89.970 | 85.860 | 6464.51 | 1000.13 | 565.08 | 957.52 | 40°25'01.691"N | 104°20'05.658"W | 4.45 | |
| 7278.00 | 90.280 | 90.840 | 6464.30 | 1093.97 | 567.79 | 1051.45 | 40°25'01.706"N | 104°20'04.443"W | 5.31 | |
| 7373.00 | 90.340 | 92.320 | 6463.79 | 1188.41 | 565.17 | 1146.41 | 40°25'01.668"N | 104°20'03.216"W | 1.56 | |
| 7467.00 | 90.250 | 93.590 | 6463.30 | 1281.58 | 560.32 | 1240.28 | 40°25'01.608"N | 104°20'02.003"W | 1.35 | |
| 7562.00 | 90.310 | 92.090 | 6462.84 | 1375.77 | 555.62 | 1335.16 | 40°25'01.549"N | 104°20'00.778"W | 1.58 | |
| 7656.00 | 90.150 | 91.970 | 6462.46 | 1469.13 | 552.29 | 1429.10 | 40°25'01.504"N | 104°19'59.564"W | 0.21 | |
| 7751.00 | 90.120 | 92.030 | 6462.24 | 1563.49 | 548.97 | 1524.04 | 40°25'01.458"N | 104°19'58.337"W | 0.07 | |
| 7845.00 | 90.150 | 90.510 | 6462.02 | 1656.99 | 546.89 | 1618.02 | 40°25'01.426"N | 104°19'57.122"W | 1.62 | |
| 7940.00 | 90.060 | 90.080 | 6461.84 | 1751.63 | 546.40 | 1713.02 | 40°25'01.408"N | 104°19'55.894"W | 0.46 | |
| 8034.00 | 90.250 | 88.660 | 6461.59 | 1845.40 | 547.43 | 1807.01 | 40°25'01.406"N | 104°19'54.679"W | 1.52 | |
| 8128.00 | 90.090 | 85.410 | 6461.31 | 1939.35 | 552.29 | 1900.87 | 40°25'01.442"N | 104°19'53.465"W | 3.46 | |
| 8223.00 | 90.060 | 85.570 | 6461.19 | 2034.35 | 559.76 | 1995.57 | 40°25'01.504"N | 104°19'52.239"W | 0.17 | |
| 8317.00 | 90.090 | 87.630 | 6461.06 | 2128.32 | 565.34 | 2089.40 | 40°25'01.547"N | 104°19'51.025"W | 2.19 | |

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|-----------------------------------|---------------------------------|----------|---|
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| Area | COLORADO | Well | WELLS RANCH STATE AF09-667 |
| Field | WELD COUNTY (NOBLE NAD 83 GRID) | Wellbore | WELLS RANCH STATE AF09-667 AWB |
| Facility | SEC.08-T05N-R62W | | |

| WELLPATH DATA (175 stations) | | | | | | | | | | |
|------------------------------|-----------------|-------------|----------|----------------|------------|-----------|----------------|-----------------|---------------|----------|
| MD [ft] | Inclination [°] | Azimuth [°] | TVD [ft] | Vert Sect [ft] | North [ft] | East [ft] | Latitude | Longitude | DLS [°/100ft] | Comments |
| 8412.00 | 90.030 | 87.700 | 6460.96 | 2223.24 | 569.21 | 2184.32 | 40°25'01.572"N | 104°19'49.798"W | 0.10 | |
| 8506.00 | 89.940 | 87.670 | 6460.99 | 2317.16 | 573.00 | 2278.25 | 40°25'01.598"N | 104°19'48.583"W | 0.10 | |
| 8601.00 | 89.940 | 87.840 | 6461.09 | 2412.08 | 576.73 | 2373.17 | 40°25'01.622"N | 104°19'47.355"W | 0.18 | |
| 8695.00 | 89.940 | 87.500 | 6461.19 | 2506.00 | 580.55 | 2467.10 | 40°25'01.648"N | 104°19'46.140"W | 0.36 | |
| 8790.00 | 90.030 | 87.030 | 6461.21 | 2600.95 | 585.08 | 2561.99 | 40°25'01.680"N | 104°19'44.913"W | 0.50 | |
| 8885.00 | 90.000 | 87.270 | 6461.19 | 2695.90 | 589.80 | 2656.87 | 40°25'01.714"N | 104°19'43.685"W | 0.25 | |
| 8979.00 | 90.120 | 87.410 | 6461.09 | 2789.85 | 594.17 | 2750.77 | 40°25'01.745"N | 104°19'42.471"W | 0.20 | |
| 9074.00 | 90.030 | 87.770 | 6460.96 | 2884.78 | 598.16 | 2845.69 | 40°25'01.772"N | 104°19'41.243"W | 0.39 | |
| 9168.00 | 90.030 | 88.180 | 6460.91 | 2978.68 | 601.48 | 2939.63 | 40°25'01.793"N | 104°19'40.028"W | 0.44 | |
| 9263.00 | 90.000 | 87.670 | 6460.89 | 3073.58 | 604.92 | 3034.56 | 40°25'01.814"N | 104°19'38.800"W | 0.54 | |
| 9358.00 | 90.060 | 87.860 | 6460.84 | 3168.50 | 608.63 | 3129.49 | 40°25'01.839"N | 104°19'37.572"W | 0.21 | |
| 9452.00 | 90.030 | 88.090 | 6460.76 | 3262.40 | 611.95 | 3223.43 | 40°25'01.859"N | 104°19'36.357"W | 0.25 | |
| 9547.00 | 90.030 | 87.850 | 6460.72 | 3357.30 | 615.31 | 3318.37 | 40°25'01.880"N | 104°19'35.129"W | 0.25 | |
| 9641.00 | 90.030 | 87.460 | 6460.67 | 3451.22 | 619.16 | 3412.29 | 40°25'01.906"N | 104°19'33.915"W | 0.41 | |
| 9736.00 | 90.030 | 87.360 | 6460.62 | 3546.16 | 623.45 | 3507.20 | 40°25'01.936"N | 104°19'32.687"W | 0.11 | |
| 9830.00 | 90.060 | 87.940 | 6460.54 | 3640.09 | 627.31 | 3601.12 | 40°25'01.962"N | 104°19'31.472"W | 0.62 | |
| 9925.00 | 89.970 | 88.070 | 6460.52 | 3734.99 | 630.61 | 3696.06 | 40°25'01.982"N | 104°19'30.244"W | 0.17 | |
| 10019.00 | 90.030 | 88.750 | 6460.52 | 3828.85 | 633.22 | 3790.02 | 40°25'01.995"N | 104°19'29.029"W | 0.73 | |
| 10114.00 | 90.060 | 89.150 | 6460.44 | 3923.66 | 634.96 | 3885.01 | 40°25'02.000"N | 104°19'27.801"W | 0.42 | |
| 10209.00 | 90.000 | 90.110 | 6460.39 | 4018.40 | 635.58 | 3980.00 | 40°25'01.994"N | 104°19'26.573"W | 1.01 | |
| 10303.00 | 89.940 | 90.420 | 6460.44 | 4112.05 | 635.14 | 4074.00 | 40°25'01.977"N | 104°19'25.358"W | 0.34 | |
| 10398.00 | 90.030 | 87.100 | 6460.47 | 4206.87 | 637.20 | 4168.97 | 40°25'01.985"N | 104°19'24.130"W | 3.50 | |
| 10492.00 | 90.400 | 87.440 | 6460.11 | 4300.82 | 641.68 | 4262.86 | 40°25'02.017"N | 104°19'22.915"W | 0.53 | |
| 10587.00 | 90.250 | 86.160 | 6459.58 | 4395.79 | 646.98 | 4357.71 | 40°25'02.057"N | 104°19'21.688"W | 1.36 | |
| 10681.00 | 90.280 | 85.330 | 6459.14 | 4489.78 | 653.95 | 4451.45 | 40°25'02.113"N | 104°19'20.475"W | 0.88 | |
| 10776.00 | 90.310 | 85.030 | 6458.65 | 4584.78 | 661.93 | 4546.11 | 40°25'02.180"N | 104°19'19.250"W | 0.32 | |
| 10870.00 | 90.180 | 84.330 | 6458.25 | 4678.77 | 670.65 | 4639.70 | 40°25'02.254"N | 104°19'18.038"W | 0.76 | |
| 10965.00 | 90.220 | 81.490 | 6457.92 | 4773.67 | 682.37 | 4733.97 | 40°25'02.357"N | 104°19'16.818"W | 2.99 | |
| 11060.00 | 90.250 | 81.430 | 6457.53 | 4868.45 | 696.48 | 4827.91 | 40°25'02.484"N | 104°19'15.601"W | 0.07 | |
| 11154.00 | 90.250 | 84.760 | 6457.12 | 4962.37 | 707.78 | 4921.22 | 40°25'02.584"N | 104°19'14.393"W | 3.54 | |

| REFERENCE WELLPATH IDENTIFICATION | | | |
|-----------------------------------|---------------------------------|----------|---|
| Operator | NOBLE ENERGY, INC | Slot | SLOT#16 WELLS RANCH STATE AF09-667(2148'FNL&175'FEL,SEC.08) |
| Area | COLORADO | Well | WELLS RANCH STATE AF09-667 |
| Field | WELD COUNTY (NOBLE NAD 83 GRID) | Wellbore | WELLS RANCH STATE AF09-667 AWB |
| Facility | SEC.08-T05N-R62W | | |

| WELLPATH DATA (175 stations) | | | | | | | | | | |
|------------------------------|-----------------|-------------|----------|----------------|------------|-----------|----------------|-----------------|---------------|----------|
| MD [ft] | Inclination [°] | Azimuth [°] | TVD [ft] | Vert Sect [ft] | North [ft] | East [ft] | Latitude | Longitude | DLS [°/100ft] | Comments |
| 11249.00 | 90.180 | 87.690 | 6456.76 | 5057.35 | 714.04 | 5016.00 | 40°25'02.633"N | 104°19'13.166"W | 3.09 | |
| 11343.00 | 90.090 | 88.320 | 6456.54 | 5151.24 | 717.31 | 5109.94 | 40°25'02.653"N | 104°19'11.951"W | 0.68 | |
| 11438.00 | 90.120 | 91.090 | 6456.37 | 5245.96 | 717.80 | 5204.93 | 40°25'02.645"N | 104°19'10.723"W | 2.92 | |
| 11533.00 | 90.060 | 92.040 | 6456.22 | 5340.40 | 715.20 | 5299.89 | 40°25'02.607"N | 104°19'09.496"W | 1.00 | |
| 11627.00 | 90.120 | 90.360 | 6456.07 | 5433.91 | 713.23 | 5393.87 | 40°25'02.575"N | 104°19'08.281"W | 1.79 | |
| 11722.00 | 90.060 | 90.290 | 6455.92 | 5528.55 | 712.69 | 5488.87 | 40°25'02.557"N | 104°19'07.053"W | 0.10 | |
| 11816.00 | 90.180 | 88.820 | 6455.72 | 5622.30 | 713.42 | 5582.86 | 40°25'02.552"N | 104°19'05.838"W | 1.57 | |
| 11911.00 | 90.220 | 87.380 | 6455.39 | 5717.19 | 716.57 | 5677.81 | 40°25'02.571"N | 104°19'04.610"W | 1.52 | |
| 12006.00 | 90.220 | 89.510 | 6455.03 | 5812.04 | 719.15 | 5772.77 | 40°25'02.584"N | 104°19'03.382"W | 2.24 | |
| 12100.00 | 90.220 | 90.390 | 6454.67 | 5905.74 | 719.23 | 5866.76 | 40°25'02.572"N | 104°19'02.167"W | 0.94 | |
| 12195.00 | 90.520 | 91.440 | 6454.05 | 6000.29 | 717.72 | 5961.75 | 40°25'02.545"N | 104°19'00.939"W | 1.15 | |
| 12290.00 | 89.940 | 91.700 | 6453.67 | 6094.73 | 715.11 | 6056.71 | 40°25'02.507"N | 104°18'59.712"W | 0.67 | |
| 12385.00 | 90.000 | 91.460 | 6453.72 | 6189.17 | 712.49 | 6151.68 | 40°25'02.468"N | 104°18'58.485"W | 0.26 | |
| 12479.00 | 89.750 | 91.470 | 6453.93 | 6282.63 | 710.09 | 6245.65 | 40°25'02.432"N | 104°18'57.271"W | 0.27 | |
| 12574.00 | 90.090 | 91.080 | 6454.06 | 6377.13 | 707.98 | 6340.62 | 40°25'02.399"N | 104°18'56.043"W | 0.54 | |
| 12669.00 | 90.220 | 90.390 | 6453.80 | 6471.71 | 706.76 | 6435.61 | 40°25'02.374"N | 104°18'54.815"W | 0.74 | |
| 12764.00 | 90.090 | 89.610 | 6453.54 | 6566.39 | 706.76 | 6530.61 | 40°25'02.361"N | 104°18'53.587"W | 0.83 | |
| 12858.00 | 89.940 | 89.330 | 6453.52 | 6660.15 | 707.63 | 6624.61 | 40°25'02.358"N | 104°18'52.372"W | 0.34 | |
| 12953.00 | 90.310 | 89.260 | 6453.31 | 6754.93 | 708.80 | 6719.60 | 40°25'02.357"N | 104°18'51.144"W | 0.40 | |
| 13048.00 | 89.910 | 90.460 | 6453.13 | 6849.63 | 709.03 | 6814.60 | 40°25'02.346"N | 104°18'49.916"W | 1.33 | |
| 13142.00 | 90.120 | 89.220 | 6453.11 | 6943.34 | 709.29 | 6908.59 | 40°25'02.336"N | 104°18'48.701"W | 1.34 | |
| 13237.00 | 90.310 | 89.510 | 6452.75 | 7038.11 | 710.35 | 7003.59 | 40°25'02.334"N | 104°18'47.472"W | 0.36 | |
| 13331.00 | 90.370 | 88.050 | 6452.19 | 7131.94 | 712.35 | 7097.56 | 40°25'02.342"N | 104°18'46.257"W | 1.55 | |
| 13425.00 | 89.940 | 86.790 | 6451.94 | 7225.87 | 716.58 | 7191.47 | 40°25'02.371"N | 104°18'45.042"W | 1.42 | |
| 13520.00 | 90.180 | 86.380 | 6451.84 | 7320.85 | 722.24 | 7286.30 | 40°25'02.414"N | 104°18'43.816"W | 0.50 | |
| 13615.00 | 90.000 | 86.160 | 6451.69 | 7415.84 | 728.42 | 7381.09 | 40°25'02.463"N | 104°18'42.589"W | 0.30 | |
| 13710.00 | 90.030 | 86.170 | 6451.66 | 7510.83 | 734.77 | 7475.88 | 40°25'02.513"N | 104°18'41.362"W | 0.03 | |
| 13804.00 | 89.940 | 87.030 | 6451.69 | 7604.81 | 740.35 | 7569.72 | 40°25'02.556"N | 104°18'40.148"W | 0.92 | |
| 13899.00 | 90.090 | 88.620 | 6451.66 | 7699.72 | 743.95 | 7664.64 | 40°25'02.579"N | 104°18'38.921"W | 1.68 | |
| 13993.00 | 90.220 | 90.870 | 6451.41 | 7793.43 | 744.37 | 7758.64 | 40°25'02.571"N | 104°18'37.705"W | 2.40 | |

| REFERENCE WELLPATH IDENTIFICATION | | | |
|-----------------------------------|---------------------------------|----------|---|
| Operator | NOBLE ENERGY, INC | Slot | SLOT#16 WELLS RANCH STATE AF09-667(2148'FNL&175'FEL,SEC.08) |
| Area | COLORADO | Well | WELLS RANCH STATE AF09-667 |
| Field | WELD COUNTY (NOBLE NAD 83 GRID) | Wellbore | WELLS RANCH STATE AF09-667 AWB |
| Facility | SEC.08-T05N-R62W | | |

| WELLPATH DATA (175 stations) | | | | | | | | | | |
|------------------------------|-----------------|-------------|----------|----------------|------------|-----------|----------------|-----------------|---------------|---------------------|
| MD [ft] | Inclination [°] | Azimuth [°] | TVD [ft] | Vert Sect [ft] | North [ft] | East [ft] | Latitude | Longitude | DLS [°/100ft] | Comments |
| 14088.00 | 89.970 | 90.960 | 6451.25 | 7887.99 | 742.85 | 7853.62 | 40°25'02.543"N | 104°18'36.478"W | 0.28 | |
| 14182.00 | 89.970 | 85.490 | 6451.30 | 7981.83 | 745.76 | 7947.54 | 40°25'02.559"N | 104°18'35.263"W | 5.82 | |
| 14277.00 | 90.030 | 86.320 | 6451.30 | 8076.83 | 752.55 | 8042.30 | 40°25'02.614"N | 104°18'34.037"W | 0.88 | |
| 14372.00 | 90.000 | 90.320 | 6451.28 | 8171.68 | 755.33 | 8137.24 | 40°25'02.629"N | 104°18'32.809"W | 4.21 | |
| 14466.00 | 90.090 | 90.340 | 6451.20 | 8265.33 | 754.79 | 8231.24 | 40°25'02.611"N | 104°18'31.594"W | 0.10 | |
| 14561.00 | 89.750 | 88.460 | 6451.33 | 8360.09 | 755.78 | 8326.23 | 40°25'02.608"N | 104°18'30.366"W | 2.01 | |
| 14656.00 | 90.030 | 84.510 | 6451.52 | 8455.05 | 761.61 | 8421.03 | 40°25'02.653"N | 104°18'29.139"W | 4.17 | |
| 14750.00 | 90.030 | 87.800 | 6451.47 | 8549.03 | 767.91 | 8514.81 | 40°25'02.703"N | 104°18'27.926"W | 3.50 | |
| 14845.00 | 90.060 | 87.470 | 6451.39 | 8643.95 | 771.83 | 8609.73 | 40°25'02.729"N | 104°18'26.698"W | 0.35 | |
| 15034.00 | 90.220 | 86.290 | 6450.93 | 8832.88 | 782.12 | 8798.44 | 40°25'02.805"N | 104°18'24.257"W | 0.63 | |
| 15128.00 | 90.000 | 84.260 | 6450.75 | 8926.87 | 789.86 | 8892.12 | 40°25'02.870"N | 104°18'23.044"W | 2.17 | |
| 15223.00 | 90.120 | 83.950 | 6450.65 | 9021.85 | 799.62 | 8986.61 | 40°25'02.953"N | 104°18'21.821"W | 0.35 | |
| 15318.00 | 90.060 | 85.150 | 6450.50 | 9116.84 | 808.64 | 9081.18 | 40°25'03.030"N | 104°18'20.597"W | 1.26 | |
| 15412.00 | 91.020 | 87.870 | 6449.62 | 9210.81 | 814.36 | 9174.99 | 40°25'03.074"N | 104°18'19.383"W | 3.07 | |
| 15507.00 | 90.860 | 92.230 | 6448.06 | 9305.45 | 814.28 | 9269.96 | 40°25'03.061"N | 104°18'18.156"W | 4.59 | |
| 15601.00 | 90.830 | 96.500 | 6446.67 | 9398.26 | 807.13 | 9363.65 | 40°25'02.977"N | 104°18'16.946"W | 4.54 | |
| 15695.00 | 90.710 | 98.240 | 6445.41 | 9490.19 | 795.07 | 9456.87 | 40°25'02.846"N | 104°18'15.743"W | 1.86 | |
| 15790.00 | 89.420 | 98.470 | 6445.30 | 9582.75 | 781.27 | 9550.86 | 40°25'02.697"N | 104°18'14.530"W | 1.38 | |
| 15884.00 | 89.570 | 94.970 | 6446.13 | 9674.89 | 770.27 | 9644.19 | 40°25'02.576"N | 104°18'13.325"W | 3.73 | |
| 15979.00 | 89.380 | 90.060 | 6447.00 | 9769.12 | 766.10 | 9739.07 | 40°25'02.522"N | 104°18'12.100"W | 5.17 | |
| 16074.00 | 89.260 | 86.700 | 6448.13 | 9863.97 | 768.79 | 9834.01 | 40°25'02.536"N | 104°18'10.872"W | 3.54 | |
| 16168.00 | 91.450 | 88.880 | 6447.54 | 9957.87 | 772.41 | 9927.93 | 40°25'02.559"N | 104°18'09.657"W | 3.29 | |
| 16262.00 | 90.180 | 90.990 | 6446.21 | 10051.55 | 772.52 | 10021.91 | 40°25'02.548"N | 104°18'08.442"W | 2.62 | |
| 16348.00 | 90.060 | 88.520 | 6446.03 | 10137.29 | 772.88 | 10107.90 | 40°25'02.540"N | 104°18'07.330"W | 2.88 | Last BHI MWD Survey |
| 16372.00 | 90.060 | 88.520 | 6446.00 | 10161.26 | 773.50 | 10131.89 | 40°25'02.543"N | 104°18'07.020"W | 0.00 | Projection to Bit |

| REFERENCE WELLPATH IDENTIFICATION | | | |
|-----------------------------------|---------------------------------|----------|---|
| Operator | NOBLE ENERGY, INC | Slot | SLOT#16 WELLS RANCH STATE AF09-667(2148'FNL&175'FEL,SEC.08) |
| Area | COLORADO | Well | WELLS RANCH STATE AF09-667 |
| Field | WELD COUNTY (NOBLE NAD 83 GRID) | Wellbore | WELLS RANCH STATE AF09-667 AWB |
| Facility | SEC.08-T05N-R62W | | |

| HOLE & CASING SECTIONS - Ref Wellbore: WELLS RANCH STATE AF09-667 AWB Ref Wellpath: WELLS RANCH STATE AF09-667 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] |
| 9.625in Casing Surface | 0.00 | 1945.00 | 1945.00 | 0.00 | 1944.97 | 0.00 | 0.00 | 4.84 | 1.35 |

| TARGETS | | | | | | | | |
|--|----------|------------|-----------|-------------------|--------------------|----------------|-----------------|---------|
| Name | TVD [ft] | North [ft] | East [ft] | Grid East [US ft] | Grid North [US ft] | Latitude | Longitude | Shape |
| SEC.08-T05N-R62W | -7.00 | -1996.01 | 45.64 | 3323487.83 | 1394373.35 | 40°24'36.504"N | 104°20'17.880"W | polygon |
| WELLS RANCH STATE AF09-649 SECTION 10-T05N-R62W | 1.00 | -72.86 | 0.95 | 3323443.15 | 1396296.42 | 40°24'55.512"N | 104°20'18.132"W | polygon |
| WELLS RANCH STATE AF09-649 SECTION 9-T05N-R62W | 1.00 | -72.86 | 0.95 | 3323443.15 | 1396296.42 | 40°24'55.512"N | 104°20'18.132"W | polygon |
| WELLS RANCH STATE AF09-667 REV-1 BHL (1615'FNL&535'FEL,SEC.10) | 6448.42 | 823.49 | 10136.79 | 3333578.57 | 1397192.74 | 40°25'03.036"N | 104°18'06.948"W | point |
| WELLS RANCH STATE AF09-667 LANDING POINT | 6465.00 | 553.20 | 639.70 | 3324081.86 | 1396922.45 | 40°25'01.615"N | 104°20'09.769"W | point |
| SECTION 10-T05N-R62W 460' SETBACK | 6801.00 | -72.86 | 0.95 | 3323443.15 | 1396296.42 | 40°24'55.512"N | 104°20'18.132"W | polygon |
| SECTION 9-T05N-R62W 460' SETBACK | 6801.00 | -72.86 | 0.95 | 3323443.15 | 1396296.42 | 40°24'55.512"N | 104°20'18.132"W | polygon |

| WELLPATH COMPOSITION - Ref Wellbore: WELLS RANCH STATE AF09-667 AWB Ref Wellpath: WELLS RANCH STATE AF09-667 AWP | | | | |
|--|-------------|---|--|--------------------------------|
| Start MD [ft] | End MD [ft] | Positional Uncertainty Model | Log Name/Comment | Wellbore |
| 0.00 | 1933.00 | Gyrodata standard - Drop gyro or Multi-shot | 3rd Party Surface Gyros <83'-1933'> | WELLS RANCH STATE AF09-667 AWB |
| 1933.00 | 16348.00 | OWSG MWD rev2 + IFR1 + Multi-Station Correction | BH/ATC 8.5" Hole OWSG MWD+IFR+MSA <1981'-16348'> | WELLS RANCH STATE AF09-667 AWB |
| 16348.00 | 16372.00 | Blind Drilling (std) | Projection to bit | WELLS RANCH STATE AF09-667 AWB |

| REFERENCE WELLPATH IDENTIFICATION | | | |
|-----------------------------------|---------------------------------|----------|---|
| Operator | NOBLE ENERGY, INC | Slot | SLOT#16 WELLS RANCH STATE AF09-667(2148'FNL&175'FEL,SEC.08) |
| Area | COLORADO | Well | WELLS RANCH STATE AF09-667 |
| Field | WELD COUNTY (NOBLE NAD 83 GRID) | Wellbore | WELLS RANCH STATE AF09-667 AWB |
| Facility | SEC.08-T05N-R62W | | |

| WELLPATH COMMENTS | | | | |
|-------------------|-----------------|-------------|----------|----------------------|
| MD [ft] | Inclination [°] | Azimuth [°] | TVD [ft] | Comment |
| 1933.00 | 0.900 | 277.550 | 1932.97 | Tie to Surface Gyros |
| 16348.00 | 90.060 | 88.520 | 6446.03 | Last BHI MWD Survey |
| 16372.00 | 90.060 | 88.520 | 6446.00 | Projection to Bit |

| COMMENTS |
|---|
| <p>Wellpath general comments SURFACE LOCATION: SENE 40.41562N 104.33837W API: 05-123-44239</p> |