

Great Western Operating Company, LLC

Location

Colorado

Field

Wattenburg

Installation

Raindance

Slot

Slot W-07 - Raindance FD 20-242HN

Well

Raindance FD 20-242HN

Wellbore

Raindance FD 20-242HN (AWB)

Created by

admin

Date plotted

15-Jul-2019

Plot reference is

Raindance FD 20-242HN (AWB).

Ref wellpath is

Raindance FD 20-242HN (AWP#1).

Coordinates are in

Feet reference Slot W-07 - Raindance FD 20-242HN.

True Vertical Depths are

reference Rg Datum.

Measured Depths are

reference Rg Datum.

Rg Datum:

Actual Datum #1

Rg Datum to Mean Sea Level:

4806.40 ft.

Plot North is

aligned to TRUE North.

N

TRUE

M

G

W

E

Nov-14-2016

Dip: -29.88 deg Field: 32206.0 nT

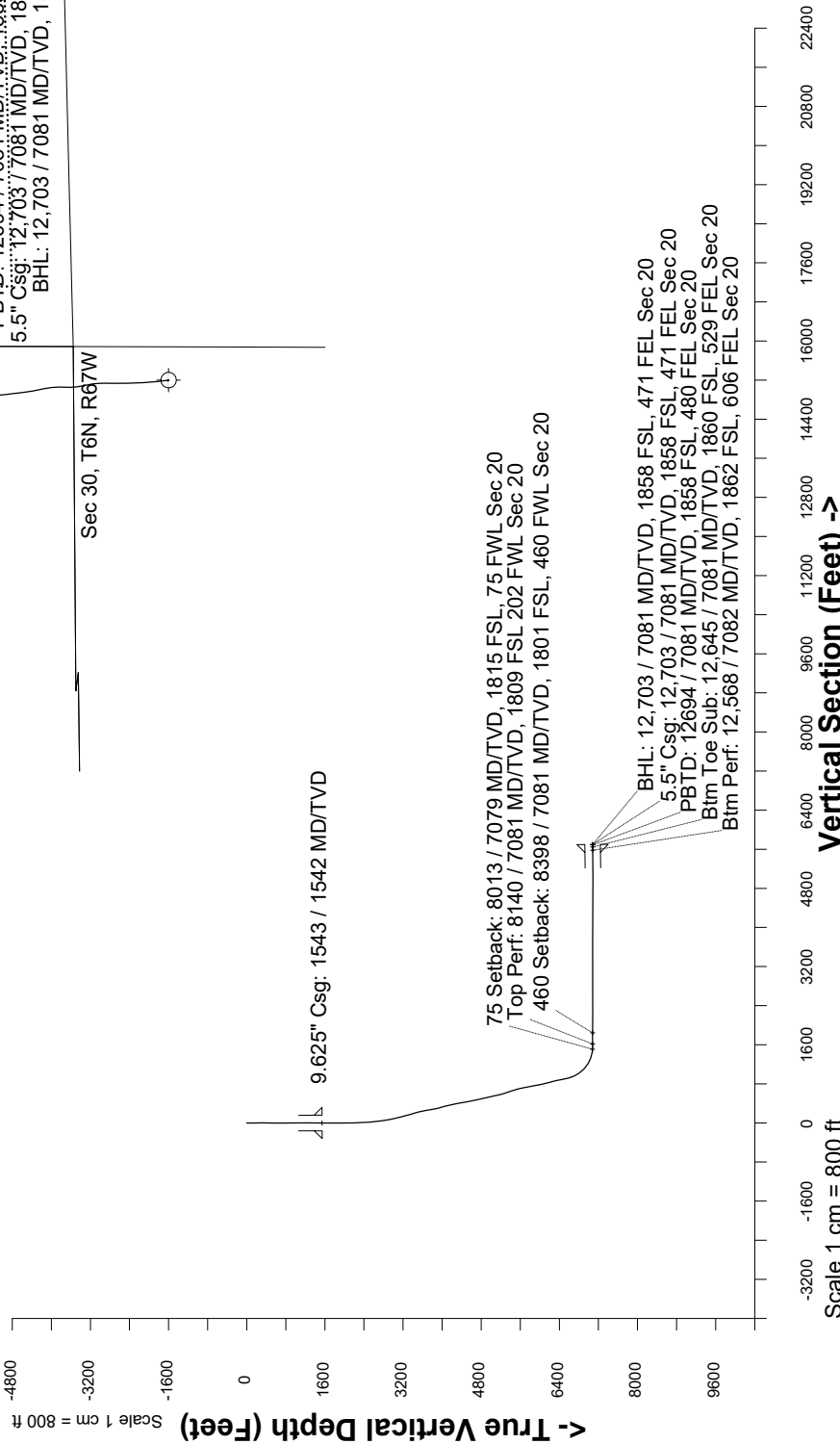
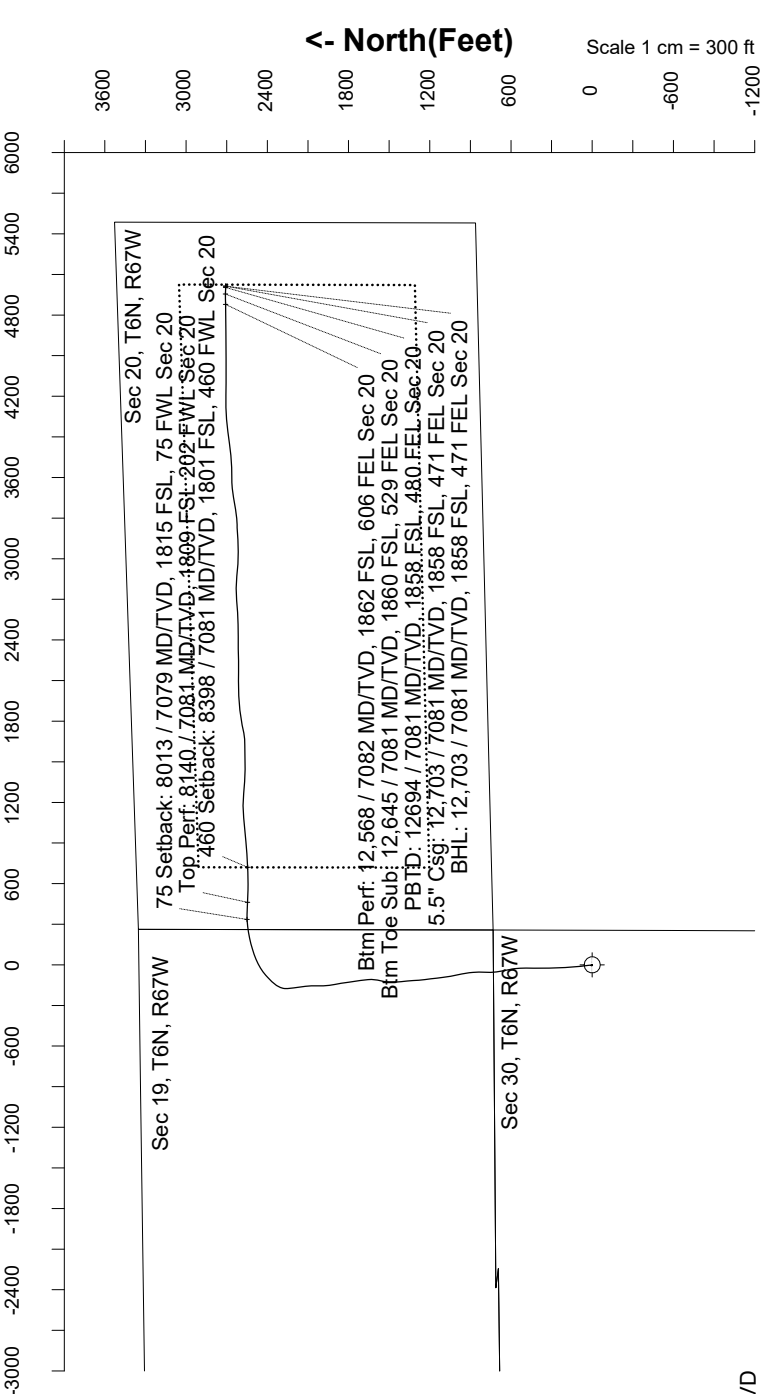
Lat: 50.0 0.0000 Long: E3.0 0.0000 Elev: 4785.40 ft

Magnetic North is 4.17 deg West of TRUE North

To correct azimuth from Magnetic to TRUE subtract 4.17 deg

East (Feet) ->

Scale 1 cm = 300 ft



Vertical Section (Feet) ->

Azimuth 61.63 with reference 0.00 N, 0.00 E from Slot W-07 - Raindance FD 20-242HN

|  |
|--|
| Great Western Operating Co, LLC<br>Directional Survey Report<br>Wellpath: Raindance FD 20-242HN<br>MDs and TVDs are from Rig Floor 4808.4ft above Mean Sea Level |
|--|

Wellbore Information

| Date Created | Date Revised | API #        | RKB above GL | Well Name             |  |
|--------------|--------------|--------------|--------------|-----------------------|--|
| Aug-4-2017   | Jul-10-2019  | 05-123-44992 | 20.00        | Raindance FD 20-242HN |  |

Slot Coordinates

| Latitude    | Longitude     |  |
|-------------|---------------|--|
| 40.46298700 | -104.92737800 |  |

Pad Information

| Pad Name  | Ground Elev. |  |
|-----------|--------------|--|
| Raindance | 4788.40      |  |

Field

| Name       |  |
|------------|--|
| Wattenburg |  |

Wellpath Report

| MD[ft]  | Inc[deg] | Azi[deg] | TVD[ft] | North[ft] | East[ft] | Dogleg<br>[deg/100ft] | Vertical<br>Section[ft] | Lat - NAD 83 | Long - NAD 83 |
|---------|----------|----------|---------|-----------|----------|-----------------------|-------------------------|--------------|---------------|
| 0.00    | 0.00     | 0.000    | 0.00    | 0.00      | 0.00     |                       | 0.00                    | 40.46298700  | -104.92737800 |
| 11.50   | 0.00     | 332.700  | 11.50   | 0.00      | 0.00     | ==>                   | 0.00                    | 40.46298700  | -104.92737800 |
| 120.50  | 0.83     | 332.700  | 120.50  | 0.70      | -0.36    | 0.76                  | 0.01                    | 40.46298893  | -104.92737930 |
| 184.50  | 1.10     | 343.870  | 184.49  | 1.70      | -0.75    | 0.51                  | 0.15                    | 40.46299168  | -104.92738068 |
| 279.50  | 1.71     | 347.380  | 279.46  | 3.96      | -1.31    | 0.65                  | 0.73                    | 40.46299788  | -104.92738270 |
| 373.50  | 1.97     | 322.940  | 373.41  | 6.62      | -2.59    | 0.87                  | 0.87                    | 40.46300517  | -104.92738730 |
| 467.50  | 1.10     | 280.760  | 467.38  | 8.08      | -4.45    | 1.46                  | -0.07                   | 40.46300917  | -104.92739399 |
| 563.50  | 1.75     | 206.400  | 563.36  | 6.94      | -6.01    | 1.87                  | -1.99                   | 40.46300604  | -104.92739958 |
| 658.50  | 2.77     | 174.760  | 658.28  | 3.35      | -6.44    | 1.66                  | -4.07                   | 40.46299620  | -104.92740115 |
| 754.50  | 2.81     | 131.000  | 754.18  | -0.50     | -4.45    | 2.17                  | -4.16                   | 40.46298562  | -104.92739400 |
| 850.50  | 1.49     | 71.490   | 850.12  | -1.65     | -1.49    | 2.52                  | -2.10                   | 40.46298247  | -104.92738337 |
| 946.50  | 1.62     | 28.510   | 946.09  | -0.06     | 0.34     | 1.19                  | 0.27                    | 40.46298683  | -104.92737679 |
| 1041.50 | 1.36     | 342.100  | 1041.06 | 2.19      | 0.63     | 1.26                  | 1.60                    | 40.46299302  | -104.92737573 |
| 1138.50 | 1.27     | 270.740  | 1138.04 | 3.30      | -0.80    | 1.58                  | 0.87                    | 40.46299606  | -104.92738086 |
| 1233.50 | 1.14     | 228.200  | 1233.02 | 2.68      | -2.55    | 0.93                  | -0.97                   | 40.46299437  | -104.92738718 |
| 1329.50 | 0.74     | 301.380  | 1329.01 | 2.37      | -3.79    | 1.21                  | -2.21                   | 40.46299351  | -104.92739164 |
| 1424.50 | 1.18     | 95.220   | 1424.01 | 2.60      | -3.34    | 1.97                  | -1.71                   | 40.46299414  | -104.92739002 |
| 1491.50 | 0.65     | 111.570  | 1491.00 | 2.40      | -2.30    | 0.87                  | -0.89                   | 40.46299359  | -104.92738628 |
| 1543.00 | 0.35     | 117.090  | 1542.49 | 2.22      | -1.89    | 0.58                  | -0.61                   | 40.46299309  | -104.92738479 |
| 1614.00 | 0.10     | 237.600  | 1613.49 | 2.09      | -1.75    | 0.58                  | -0.55                   | 40.46299273  | -104.92738428 |
| 1703.00 | 0.03     | 343.000  | 1702.49 | 2.07      | -1.82    | 0.13                  | -0.62                   | 40.46299267  | -104.92738454 |
| 1793.00 | 0.10     | 125.550  | 1792.49 | 2.04      | -1.76    | 0.14                  | -0.58                   | 40.46299261  | -104.92738434 |
| 1883.00 | 0.09     | 358.370  | 1882.49 | 2.07      | -1.70    | 0.19                  | -0.51                   | 40.46299268  | -104.92738411 |
| 1972.00 | 0.11     | 277.350  | 1971.49 | 2.15      | -1.79    | 0.15                  | -0.55                   | 40.46299290  | -104.92738443 |
| 2061.00 | 0.09     | 53.010   | 2060.49 | 2.20      | -1.82    | 0.21                  | -0.55                   | 40.46299305  | -104.92738453 |
| 2151.00 | 1.17     | 3.070    | 2150.49 | 3.16      | -1.71    | 1.24                  | 0.00                    | 40.46299568  | -104.92738415 |
| 2240.00 | 3.64     | 357.650  | 2239.40 | 6.89      | -1.78    | 2.78                  | 1.71                    | 40.46300592  | -104.92738439 |
| 2330.00 | 6.71     | 355.090  | 2329.02 | 14.99     | -2.35    | 3.42                  | 5.06                    | 40.46302814  | -104.92738643 |
| 2419.00 | 11.27    | 355.820  | 2416.91 | 28.85     | -3.43    | 5.13                  | 10.70                   | 40.46306619  | -104.92739031 |
| 2508.00 | 11.22    | 350.950  | 2504.20 | 46.07     | -5.42    | 1.07                  | 17.13                   | 40.46311347  | -104.92739748 |
| 2598.00 | 13.91    | 351.020  | 2592.04 | 65.41     | -8.49    | 2.99                  | 23.62                   | 40.46316654  | -104.92740850 |
| 2687.00 | 16.98    | 353.380  | 2677.81 | 88.89     | -11.66   | 3.52                  | 31.99                   | 40.46323100  | -104.92741989 |
| 2776.00 | 20.28    | 355.700  | 2762.14 | 117.19    | -14.31   | 3.80                  | 43.10                   | 40.46330867  | -104.92742943 |
| 2866.00 | 21.53    | 355.950  | 2846.21 | 149.22    | -16.65   | 1.39                  | 56.27                   | 40.46339658  | -104.92743783 |
| 2955.00 | 24.64    | 356.740  | 2928.08 | 184.04    | -18.86   | 3.51                  | 70.87                   | 40.46349216  | -104.92744577 |
| 3044.00 | 27.03    | 358.700  | 3008.18 | 222.79    | -20.37   | 2.85                  | 87.95                   | 40.46359852  | -104.92745121 |
| 3134.00 | 29.04    | 359.090  | 3087.61 | 265.08    | -21.18   | 2.24                  | 107.34                  | 40.46371460  | -104.92745412 |
| 3223.00 | 28.41    | 356.170  | 3165.66 | 307.80    | -22.94   | 1.73                  | 126.10                  | 40.46383188  | -104.92746044 |
| 3313.00 | 30.71    | 358.640  | 3243.95 | 352.15    | -24.92   | 2.89                  | 145.43                  | 40.46395360  | -104.92746754 |
| 3402.00 | 30.76    | 358.630  | 3320.45 | 397.62    | -26.00   | 0.06                  | 166.09                  | 40.46407842  | -104.92747143 |
| 3492.00 | 30.65    | 3.650    | 3397.84 | 443.53    | -25.09   | 2.85                  | 188.71                  | 40.46420443  | -104.92746816 |
| 3581.00 | 29.75    | 0.760    | 3474.77 | 488.25    | -23.35   | 1.92                  | 211.49                  | 40.46432719  | -104.92746192 |
| 3671.00 | 30.02    | 356.110  | 3552.81 | 533.05    | -24.58   | 2.59                  | 231.70                  | 40.46445015  | -104.92746634 |
| 3760.00 | 29.93    | 352.370  | 3629.91 | 577.27    | -29.04   | 2.10                  | 248.79                  | 40.46457153  | -104.92748237 |
| 3849.00 | 29.87    | 348.830  | 3707.07 | 621.02    | -36.28   | 1.98                  | 263.21                  | 40.46469163  | -104.92750840 |
| 3939.00 | 29.07    | 347.760  | 3785.43 | 664.38    | -45.26   | 1.06                  | 275.92                  | 40.46481063  | -104.92754066 |
| 4028.00 | 29.06    | 353.190  | 3863.23 | 706.98    | -52.41   | 2.96                  | 289.87                  | 40.46492756  | -104.92756635 |
| 4117.00 | 28.64    | 359.370  | 3941.20 | 749.78    | -55.21   | 3.38                  | 307.75                  | 40.46504504  | -104.92757640 |
| 4207.00 | 29.46    | 2.330    | 4019.88 | 793.46    | -54.54   | 1.84                  | 329.09                  | 40.46516495  | -104.92757402 |
| 4296.00 | 29.37    | 0.090    | 4097.41 | 837.16    | -53.62   | 1.24                  | 350.67                  | 40.46528488  | -104.92757070 |
| 4386.00 | 29.67    | 355.810  | 4175.74 | 881.45    | -55.21   | 2.37                  | 370.32                  | 40.46540646  | -104.92757643 |
| 4475.00 | 30.03    | 351.030  | 4252.94 | 925.42    | -60.30   | 2.70                  | 386.75                  | 40.46552716  | -104.92759469 |
| 4565.00 | 30.07    | 347.400  | 4330.85 | 969.67    | -68.73   | 2.02                  | 400.36                  | 40.46564863  | -104.92762499 |
| 4654.00 | 30.22    | 349.360  | 4407.82 | 1013.45   | -77.73   | 1.12                  | 413.24                  | 40.46576878  | -104.92765734 |
| 4743.00 | 29.93    | 349.640  | 4484.84 | 1057.30   | -85.85   | 0.36                  | 426.93                  | 40.46588915  | -104.92768655 |
| 4833.00 | 30.19    | 352.370  | 4562.73 | 1101.82   | -92.90   | 1.55                  | 441.89                  | 40.46601135  | -104.92771186 |
| 4922.00 | 30.13    | 354.360  | 4639.69 | 1146.23   | -98.06   | 1.13                  | 458.45                  | 40.46613325  | -104.92773043 |
| 5012.00 | 30.18    | 352.980  | 4717.51 | 1191.16   | -103.05  | 0.77                  | 475.42                  | 40.46625658  | -104.92774835 |
| 5101.00 | 29.77    | 352.260  | 4794.60 | 1235.26   | -108.76  | 0.61                  | 491.35                  | 40.46637762  | -104.92776887 |
| 5191.00 | 30.05    | 356.320  | 4872.63 | 1279.89   | -113.21  | 2.27                  | 508.64                  | 40.46650013  | -104.92778488 |
| 5280.00 | 29.55    | 356.250  | 4949.86 | 1324.03   | -116.08  | 0.56                  | 527.10                  | 40.46662128  | -104.92779518 |
| 5369.00 | 28.86    | 355.450  | 5027.54 | 1367.34   | -119.22  | 0.89                  | 544.92                  | 40.46674017  | -104.92780646 |
| 5459.00 | 29.74    | 352.650  | 5106.03 | 1411.13   | -123.80  | 1.81                  | 561.70                  | 40.46686038  | -104.92782292 |
| 5548.00 | 29.44    | 355.890  | 5183.43 | 1454.85   | -128.19  | 1.83                  | 578.61                  | 40.46698036  | -104.92783871 |
| 5638.00 | 29.46    | 3.210    | 5261.83 | 1499.02   | -128.54  | 4.00                  | 599.30                  | 40.46710161  | -104.92783995 |
| 5727.00 | 30.17    | 13.260   | 5339.09 | 1542.67   | -122.18  | 5.67                  | 625.64                  | 40.46722141  | -104.92781710 |
| 5817.00 | 29.99    | 12.600   | 5416.97 | 1586.63   | -112.08  | 0.42                  | 655.41                  | 40.46734209  | -104.92778082 |
| 5906.00 | 30.03    | 359.610  | 5494.12 | 1630.66   | -107.38  | 7.29                  | 680.48                  | 40.46746293  | -104.92776391 |
| 5995.00 | 30.98    | 352.900  | 5570.83 | 1675.67   | -110.36  | 3.97                  | 699.24                  | 40.46758649  | -104.92777463 |
| 6085.00 | 30.87    | 350.270  | 5648.04 | 1721.41   | -117.13  | 1.51                  | 715.03                  | 40.46771205  | -104.92779895 |
| 6174.00 | 30.79    | 353.010  | 5724.46 | 1766.53   | -123.76  | 1.58                  | 730.64                  | 40.46783589  | -104.92782278 |
| 6264.00 | 29.91    | 352.310  | 5802.13 | 1811.63   | -129.56  | 1.05                  | 746.96                  | 40.46795969  | -104.92784365 |
| 6353.00 | 29.72    | 349.140  | 5879.35 | 1855.29   | -136.69  | 1.78                  | 761.44                  | 40.46807953  | -104.92786926 |
| 6442.00 | 29.43    | 349.490  | 5956.76 | 1898.46   | -144.83  | 0.38                  | 774.79                  | 40.46819801  | -104.92789854 |
| 6532.00 | 29.63    | 353.940  | 6035.08 | 1942.33   | -151.22  | 2.45                  | 790.02                  | 40.46831842  | -104.92792148 |
| 6621.00 | 29.40    | 356.860  | 6112.53 | 1986.02   | -154.74  | 1.64                  | 807.69                  | 40.46843835  | -104.92793413 |
| 6711.00 | 29.63    | 0.960    | 6190.86 | 2030.32   | -155.57  | 2.26                  | 828.01                  | 40.46855997  | -104.92793714 |
| 6800.00 | 29.67    | 359.430  | 6268.21 | 2074.35   | -155.42  | 0.85                  | 849.06                  | 40.46868081  | -104.92793660 |
| 6889.00 | 29.64    | 352.850  | 6345.57 | 2118.22   | -158.38  | 3.66                  | 867.31                  | 40.46880124  | -104.92794724 |
| 6979.00 | 29.50    | 351.180  | 6423.85 | 2162.20   | -164.55  | 0.93                  | 882.78                  | 40.46892196  | -104.92796941 |
| 7068.00 | 29.72    | 352.560  | 6501.23 | 2205.73   | -170.77  | 0.80                  | 898.00                  | 40.46904144  | -104.92799175 |
| 7158.00 | 29.61    | 355.820  | 6579.44 | 2250.03   | -175.28  | 1.80                  | 915.09                  | 40.46916304  | -104.92800796 |
| 7247.00 | 29.38    | 16.190   | 6657.10 | 2293.04   | -170.78  | 11.23                 | 939.48                  | 40.46928108  | -104.92799180 |
| 7336.00 | 32.23    | 35.920   | 6733.73 | 2333.33   | -150.72  | 11.75                 | 976.28                  | 40.46939169  | -104.92791969 |
| 7426.00 | 37.01    | 43.670   | 6807.81 | 2372.41   | -117.90  | 7.21                  | 1023.73                 | 40.46949894  | -104.92780173 |

| MD[ft]   | Inc[deg] | Azi[deg] | TVD[ft] | North[ft] | East[ft] | Dogleg<br>[deg/100ft] | Vertical<br>Section[ft] | Lat - NAD 83 | Long - NAD 83 |
|----------|----------|----------|---------|-----------|----------|-----------------------|-------------------------|--------------|---------------|
| 7515.00  | 43.18    | 48.830   | 6875.88 | 2411.88   | -76.43   | 7.87                  | 1078.97                 | 40.46960728  | -104.92765269 |
| 7604.00  | 51.27    | 58.280   | 6936.34 | 2450.28   | -23.82   | 11.96                 | 1143.51                 | 40.46971270  | -104.92746363 |
| 7694.00  | 58.68    | 67.140   | 6988.03 | 2483.77   | 41.64    | 11.51                 | 1217.02                 | 40.46980461  | -104.92722835 |
| 7783.00  | 66.85    | 73.800   | 7028.76 | 2510.02   | 116.15   | 11.33                 | 1295.06                 | 40.46987666  | -104.92696054 |
| 7872.00  | 75.92    | 77.370   | 7057.15 | 2530.92   | 197.76   | 10.88                 | 1376.79                 | 40.46993404  | -104.92666724 |
| 7961.00  | 82.16    | 83.550   | 7074.08 | 2545.34   | 283.85   | 9.78                  | 1459.39                 | 40.46997361  | -104.92635783 |
| 8013.23  | 86.40    | 87.990   | 7079.29 | 2549.16   | 335.65   | 11.73                 | 1506.79                 | 40.46998410  | -104.92617164 |
| 8051.00  | 89.48    | 91.180   | 7080.65 | 2549.43   | 373.39   | 11.73                 | 1540.12                 | 40.46998484  | -104.92603601 |
| 8140.00  | 90.58    | 92.650   | 7080.60 | 2546.46   | 462.33   | 2.06                  | 1616.96                 | 40.46997667  | -104.92571633 |
| 8229.00  | 89.60    | 92.330   | 7080.46 | 2542.59   | 551.25   | 1.16                  | 1693.36                 | 40.46996606  | -104.92539676 |
| 8319.00  | 89.94    | 87.660   | 7080.82 | 2542.60   | 641.22   | 5.20                  | 1772.53                 | 40.46996607  | -104.92507339 |
| 8398.47  | 89.80    | 88.130   | 7081.00 | 2545.52   | 720.64   | 0.62                  | 1843.79                 | 40.46997407  | -104.92478796 |
| 8408.00  | 89.78    | 88.190   | 7081.04 | 2545.82   | 730.16   | 0.62                  | 1852.31                 | 40.46997491  | -104.92475372 |
| 8498.00  | 89.85    | 85.400   | 7081.33 | 2550.85   | 820.01   | 3.10                  | 1933.76                 | 40.46998871  | -104.92443079 |
| 8587.00  | 89.45    | 85.120   | 7081.87 | 2558.21   | 908.71   | 0.55                  | 2015.29                 | 40.47000889  | -104.92411202 |
| 8676.00  | 89.63    | 85.140   | 7082.59 | 2565.76   | 997.38   | 0.20                  | 2096.90                 | 40.47002962  | -104.92379331 |
| 8766.00  | 90.12    | 84.250   | 7082.78 | 2574.08   | 1086.99  | 1.13                  | 2179.71                 | 40.47005245  | -104.92347123 |
| 8855.00  | 90.58    | 89.540   | 7082.24 | 2578.90   | 1175.83  | 5.97                  | 2260.16                 | 40.47006567  | -104.92315194 |
| 8945.00  | 90.28    | 95.980   | 7081.56 | 2574.57   | 1265.68  | 7.16                  | 2337.15                 | 40.47005376  | -104.92282903 |
| 9034.00  | 90.15    | 93.810   | 7081.23 | 2566.98   | 1354.35  | 2.44                  | 2411.56                 | 40.47003291  | -104.92251034 |
| 9124.00  | 90.15    | 89.510   | 7080.99 | 2564.37   | 1444.29  | 4.78                  | 2489.45                 | 40.47002574  | -104.92218708 |
| 9213.00  | 89.78    | 89.180   | 7081.05 | 2565.39   | 1533.28  | 0.56                  | 2568.24                 | 40.47002852  | -104.92186723 |
| 9302.00  | 89.88    | 89.930   | 7081.31 | 2566.08   | 1622.28  | 0.85                  | 2646.87                 | 40.47003040  | -104.92154737 |
| 9392.00  | 89.63    | 81.260   | 7081.70 | 2572.98   | 1711.92  | 9.64                  | 2729.03                 | 40.47004934  | -104.92122516 |
| 9481.00  | 89.94    | 77.410   | 7082.03 | 2589.45   | 1799.37  | 4.34                  | 2813.80                 | 40.47009452  | -104.92091087 |
| 9571.00  | 89.63    | 84.460   | 7082.37 | 2603.62   | 1888.19  | 7.84                  | 2898.68                 | 40.47013340  | -104.92059164 |
| 9660.00  | 89.78    | 86.830   | 7082.83 | 2610.38   | 1976.92  | 2.67                  | 2979.97                 | 40.47015193  | -104.92027271 |
| 9750.00  | 90.03    | 90.410   | 7082.98 | 2612.55   | 2066.88  | 3.99                  | 3060.15                 | 40.47015786  | -104.91994939 |
| 9840.00  | 89.66    | 89.740   | 7083.22 | 2612.43   | 2156.88  | 0.85                  | 3139.28                 | 40.47015751  | -104.91962592 |
| 9929.00  | 89.97    | 89.810   | 7083.51 | 2612.78   | 2245.88  | 0.36                  | 3217.75                 | 40.47015845  | -104.91930605 |
| 10018.00 | 89.88    | 88.420   | 7083.62 | 2614.15   | 2334.87  | 1.57                  | 3296.70                 | 40.47016220  | -104.91898622 |
| 10108.00 | 90.09    | 90.390   | 7083.65 | 2615.09   | 2424.86  | 2.20                  | 3376.32                 | 40.47016474  | -104.91866278 |
| 10197.00 | 89.85    | 88.510   | 7083.69 | 2615.94   | 2513.85  | 2.13                  | 3455.03                 | 40.47016706  | -104.91834294 |
| 10287.00 | 89.85    | 86.580   | 7083.93 | 2619.80   | 2603.76  | 2.14                  | 3535.97                 | 40.47017762  | -104.91801978 |
| 10376.00 | 90.09    | 84.830   | 7083.98 | 2626.46   | 2692.51  | 1.98                  | 3617.22                 | 40.47019589  | -104.91770081 |
| 10466.00 | 90.06    | 90.420   | 7083.86 | 2630.19   | 2782.40  | 6.21                  | 3698.08                 | 40.47020609  | -104.91737775 |
| 10555.00 | 90.22    | 96.200   | 7083.64 | 2625.05   | 2871.21  | 6.50                  | 3773.78                 | 40.47019197  | -104.91705854 |
| 10645.00 | 90.09    | 93.540   | 7083.40 | 2617.42   | 2960.88  | 2.96                  | 3849.05                 | 40.47017097  | -104.91673627 |
| 10734.00 | 90.15    | 89.710   | 7083.21 | 2614.89   | 3049.82  | 4.30                  | 3926.11                 | 40.47016401  | -104.91641659 |
| 10824.00 | 89.82    | 87.530   | 7083.23 | 2617.06   | 3139.79  | 2.45                  | 4006.30                 | 40.47016993  | -104.91609323 |
| 10913.00 | 90.43    | 85.330   | 7083.04 | 2622.60   | 3228.61  | 2.57                  | 4087.08                 | 40.47018511  | -104.91577399 |
| 11003.00 | 89.88    | 85.960   | 7082.80 | 2629.43   | 3318.35  | 0.93                  | 4169.29                 | 40.47020384  | -104.91545146 |
| 11092.00 | 89.75    | 78.920   | 7083.08 | 2641.14   | 3406.52  | 7.91                  | 4252.42                 | 40.47023592  | -104.91513456 |
| 11182.00 | 90.00    | 81.980   | 7083.28 | 2656.07   | 3495.27  | 3.41                  | 4337.60                 | 40.47027687  | -104.91481560 |
| 11271.00 | 89.26    | 89.920   | 7083.86 | 2662.35   | 3583.97  | 8.96                  | 4418.63                 | 40.47029407  | -104.91449678 |
| 11360.00 | 89.60    | 88.560   | 7084.74 | 2663.53   | 3672.95  | 1.58                  | 4497.49                 | 40.47029728  | -104.91417696 |
| 11450.00 | 89.45    | 84.150   | 7085.49 | 2669.25   | 3762.75  | 4.90                  | 4579.21                 | 40.47031294  | -104.91385423 |
| 11539.00 | 89.26    | 82.170   | 7086.49 | 2679.85   | 3851.10  | 2.23                  | 4661.99                 | 40.47034200  | -104.91353666 |
| 11629.00 | 89.51    | 83.490   | 7087.46 | 2691.08   | 3940.39  | 1.49                  | 4745.89                 | 40.47037279  | -104.91321574 |
| 11718.00 | 90.12    | 84.120   | 7087.74 | 2700.68   | 4028.87  | 0.99                  | 4828.30                 | 40.47039911  | -104.91289773 |
| 11807.00 | 90.09    | 88.740   | 7087.58 | 2706.22   | 4117.68  | 5.19                  | 4909.07                 | 40.47041428  | -104.91257856 |
| 11897.00 | 90.12    | 91.240   | 7087.42 | 2706.24   | 4207.67  | 2.78                  | 4988.26                 | 40.47041428  | -104.91225511 |
| 11986.00 | 90.03    | 90.580   | 7087.30 | 2704.83   | 4296.66  | 0.75                  | 5065.88                 | 40.47041036  | -104.91193528 |
| 12076.00 | 90.37    | 89.620   | 7086.99 | 2704.67   | 4386.65  | 1.13                  | 5144.99                 | 40.47040988  | -104.91161181 |
| 12165.00 | 90.58    | 90.470   | 7086.25 | 2704.60   | 4475.65  | 0.98                  | 5223.26                 | 40.47040965  | -104.91129195 |
| 12254.00 | 90.40    | 89.860   | 7085.49 | 2704.34   | 4564.65  | 0.71                  | 5301.44                 | 40.47040890  | -104.91097209 |
| 12344.00 | 90.49    | 88.820   | 7084.79 | 2705.38   | 4654.64  | 1.16                  | 5381.11                 | 40.47041170  | -104.91064865 |
| 12434.00 | 90.83    | 89.630   | 7083.75 | 2706.60   | 4744.62  | 0.98                  | 5460.87                 | 40.47041499  | -104.91032523 |
| 12523.00 | 90.62    | 88.960   | 7082.62 | 2707.69   | 4833.61  | 0.79                  | 5539.68                 | 40.47041795  | -104.91000541 |
| 12568.00 | 90.65    | 89.290   | 7082.13 | 2708.38   | 4878.60  | 0.74                  | 5579.59                 | 40.47041981  | -104.90984370 |
| 12612.00 | 90.68    | 89.620   | 7081.61 | 2708.79   | 4922.59  | 0.74                  | 5618.50                 | 40.47042093  | -104.90968557 |
| 12645.00 | 90.67    | 90.300   | 7081.23 | 2708.82   | 4955.59  | 2.07                  | 5647.55                 | 40.47042097  | -104.90956698 |
| 12679.00 | 90.65    | 91.010   | 7080.84 | 2708.43   | 4989.59  | 2.07                  | 5677.27                 | 40.47041988  | -104.90944479 |
| 12694.00 | 90.65    | 91.010   | 7080.67 | 2708.16   | 5004.58  | ==>                   | 5690.34                 | 40.47041915  | -104.90939089 |
| 12703.00 | 90.65    | 91.010   | 7080.57 | 2708.00   | 5013.58  | ==>                   | 5698.18                 | 40.47041871  | -104.90935855 |

Comments

| MD[ft]   | TVD[ft] | North[ft] | East[ft] | Lat - NAD 83 | Long - NAD 83 | Comment   |
|----------|---------|-----------|----------|--------------|---------------|---|
| 1543.00  | 1542.49 | 2.22      | -1.89    | 40.46299309  | -104.92738479 | 9.625" Csg: 1543 / 1542 MD/TVD                              |
| 8013.23  | 7079.29 | 2549.16   | 335.65   | 40.46998410  | -104.92617164 | 75 Setback: 8013 / 7079 MD/TVD, 1815 FSL, 75 FWL Sec 20     |
| 8140.00  | 7080.60 | 2546.46   | 462.33   | 40.46997667  | -104.92571633 | Top Perf: 8140 / 7081 MD/TVD, 1809 FSL 202 FWL Sec 20       |
| 8398.47  | 7081.00 | 2545.52   | 720.64   | 40.46997407  | -104.92478796 | 460 Setback: 8398 / 7081 MD/TVD, 1801 FSL, 460 FWL Sec 20   |
| 12568.00 | 7082.13 | 2708.38   | 4878.60  | 40.47041981  | -104.90984370 | Btm Perf: 12,568 / 7082 MD/TVD, 1862 FSL, 606 FEL Sec 20    |
| 12645.00 | 7081.23 | 2708.82   | 4955.59  | 40.47042097  | -104.90956698 | Btm Toe Sub: 12,645 / 7081 MD/TVD, 1860 FSL, 529 FEL Sec 20 |
| 12694.00 | 7080.67 | 2708.16   | 5004.58  | 40.47041915  | -104.90939089 | PBTD: 12694 / 7081 MD/TVD, 1858 FSL, 480 FEL Sec 20         |
| 12703.00 | 7080.57 | 2708.00   | 5013.58  | 40.47041871  | -104.90935855 | 5.5" Csg: 12,703 / 7081 MD/TVD, 1858 FSL, 471 FEL Sec 20    |
| 12703.00 | 7080.57 | 2708.00   | 5013.58  | 40.47041871  | -104.90935855 | BHL: 12,703 / 7081 MD/TVD, 1858 FSL, 471 FEL Sec 20         |

Hole Sections

| Diameter<br>[in] | Start<br>MD[ft] | Start<br>TVD[ft] | Start<br>North[ft] | Start<br>East[ft] | End<br>MD[ft] | End<br>TVD[ft] | End<br>North[ft] | End<br>East[ft] |
|------------------|-----------------|------------------|--------------------|-------------------|---------------|----------------|------------------|-----------------|
| 13.500           | 0.00            | 0.00             | 0.00               | 0.00              | 1543.00       | 1542.49        | 2.22             | -1.89           |
| 8.500            | 1543.00         | 1542.49          | 2.22               | -1.89             | 12703.00      | 7080.57        | 2708.00          | 5013.58         |

Casings

| Name           | Top<br>MD[ft] | Top<br>TVD[ft] | Top<br>North[ft] | Top<br>East[ft] | Shoe<br>MD[ft] | Shoe<br>TVD[ft] | Shoe<br>North[ft] | Shoe<br>East[ft] |
|----------------|---------------|----------------|------------------|-----------------|----------------|-----------------|-------------------|------------------|
| 9 5/8in Casing | 0.00          | 0.00           | 0.00             | 0.00            | 1543.00        | 1542.49         | 2.22              | -1.89            |
| 5 1/2in Casing | 0.00          | 0.00           | 0.00             | 0.00            | 12703.00       | 7080.57         | 2708.00           | 5013.58          |

Survey Tool Program

| Reference | Survey Name              | MD[ft]   | TVD[ft] | Survey Tool |
|-----------|--------------------------|----------|---------|-------------|
| 287177    | As Drilled -<br>20170804 | 12703.00 | 7080.57 | MWD         |

Coordinates are from Slot  
MD's and TVD's are from Rig Floor 4808.4ft above Mean Sea Level  
Vertical Section is from 0.00 0.00 on azimuth 61.630 degrees  
Bottom hole distance is 5698.18 Feet on azimuth 61.63 degrees from Wellhead  
Calculation method uses Minimum Curvature method  
Prepared by Great Western Operating Co.  
Date Printed: