

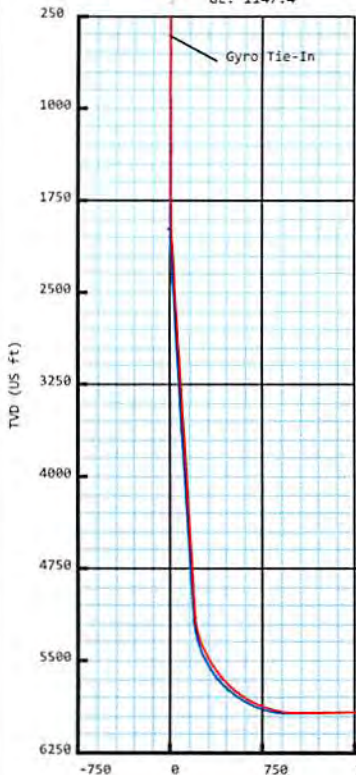


Mike Ryniawec BRK 3H  
 Brooke Co, WV  
 SDC 40  
**Plan vs Actual**



**Weatherford**

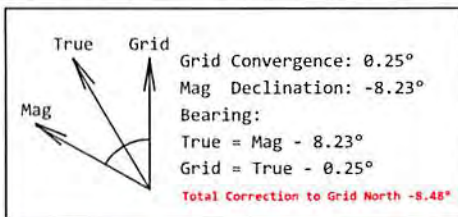
KB: 1173.4'  
 GL: 1147.4'



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**Plan Data for Mike Ryniawec BRK 3H**

| Plan Point Information:          |         |        |                                   |              |              |             |            |              |                   |
|----------------------------------|---------|--------|-----------------------------------|--------------|--------------|-------------|------------|--------------|-------------------|
| DogLeg Severity Unit: °/100.00ft |         |        | Position offsets from Slot centre |              |              |             |            |              |                   |
| MD (USft)                        | Inc (°) | Az (°) | TVD (USft)                        | +N/-S (USft) | +E/-W (USft) | VSec (USft) | DLS (DLSU) | Toolface (°) | Comments          |
| 0.00                             | 0.00    | 0.00   | -0.00                             | -0.00        | -0.00        | -0.00       | 0.00       | 0.0          |                   |
| 26.00                            | 0.00    | 0.00   | 26.00                             | -0.00        | -0.00        | -0.00       | 0.00       | 0.0          | KB Offset         |
| 2000.00                          | 0.00    | 0.00   | 2000.00                           | -0.00        | -0.00        | -0.00       | 0.00       | 0.0          | Nudge KOP         |
| 2200.00                          | 4.00    | 10.00  | 2199.84                           | 6.87         | 1.21         | 5.99        | 2.00       | 10.0         | Hold              |
| 3488.00                          | 4.00    | 10.00  | 3484.70                           | 95.35        | 16.81        | 83.17       | 0.00       | 0.0          | Turn              |
| 3657.97                          | 4.00    | 319.67 | 3654.31                           | 105.71       | 14.01        | 93.86       | 2.00       | 244.9        | Hold              |
| 5181.93                          | 4.00    | 319.67 | 5174.55                           | 186.76       | -54.79       | 194.04      | 0.00       | 0.0          | Curve KOP 7° DLS  |
| 6127.99                          | 70.00   | 338.69 | 5889.66                           | 682.48       | -261.19      | 730.75      | 7.00       | 19.5         | Build/Turn 9° DLS |
| 6359.07                          | 90.79   | 339.22 | 5928.00                           | 893.97       | -342.52      | 957.34      | 9.00       | 1.5          | Landing Point     |
| 16942.76                         | 90.79   | 339.22 | 5782.00                           | 10788.32     | -4096.88     | 11540.03    | 0.00       | 0.0          | PBHL Mike R3H     |

**Target Set Information:**

| Name: Mike Ryniawec BRK 3H        |            |              |              |                 |                |           |
|-----------------------------------|------------|--------------|--------------|-----------------|----------------|-----------|
| Position offsets from Slot centre |            |              |              |                 |                |           |
| Name                              | TVD (USft) | +N/-S (USft) | +E/-W (USft) | Northing (USft) | Easting (USft) | Lat (°)   |
| LP Mike R3H                       | 5928.00    | 736.54       | -282.75      | 14597156.34     | 1749270.94     | 40.192735 |
| PBHL Mike R3H                     | 5782.00    | 10788.32     | -4096.88     | 14607208.12     | 1745456.81     | 40.220383 |

**Plan Data for Mike Ryniawec BRK 3H**

Field: SOUTHWESTERN\_BROOKE CO, WV UTM NAD 83 (17N)  
 Map Unit: USft Vertical Reference Datum (VRD):  
 Projected Coordinate System: NAD83 / UTM zone 17N

**Site: Mike Ryniawec Pad**

Unit: USFeet TVD Reference:  
 Company Name: SOUTHWESTERN ENERGY  
 Position: Northing: 14596413.14USft Latitude: 40.190691°  
 Easting: 1749526.49USft Longitude: -80.609305°  
 North Reference: Grid Grid Convergence: 0.25°  
 Elevation Above VRD: 1173.00USft

**Slot: Mike Ryniawec BRK 3H**

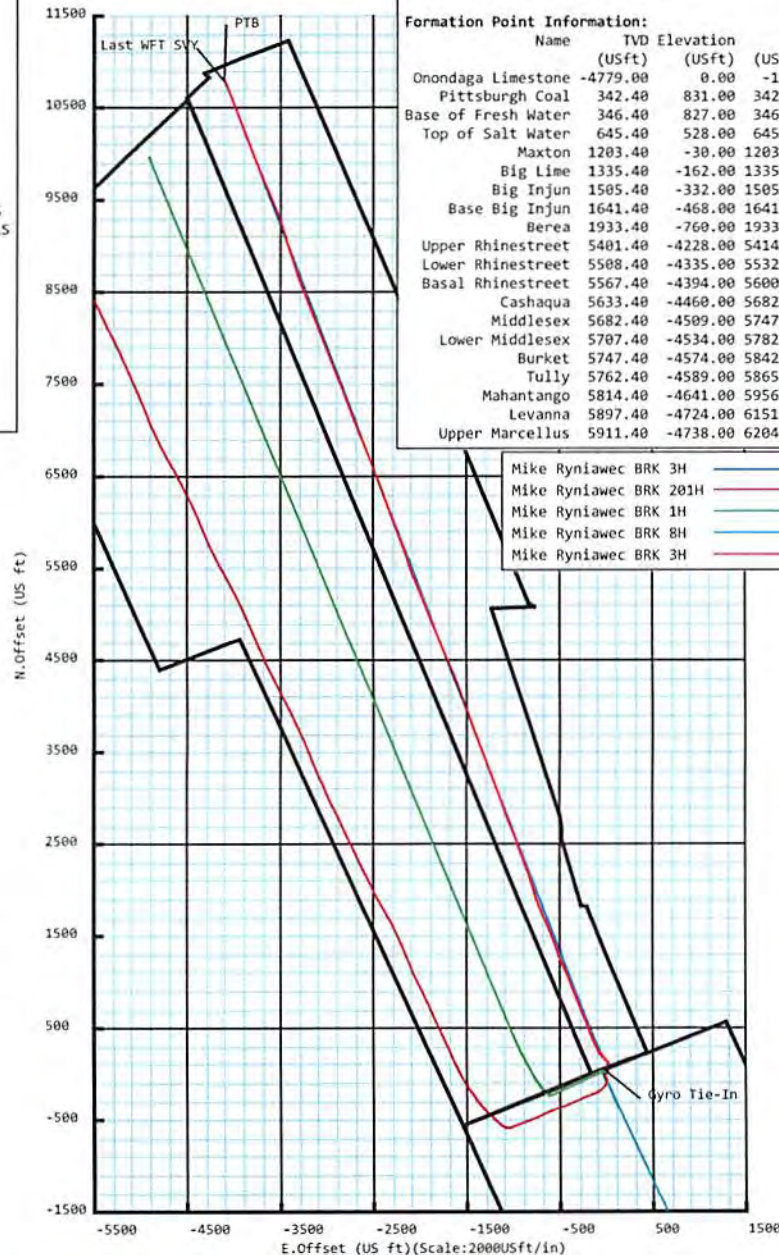
Position:  
 Offset is from Site centre  
 +N/-S: 6.66USft Northing: 14596419.80USft Latitude: 40.190709°  
 +E/-W: 27.20USft Easting: 1749553.69USft Longitude: -80.609207°  
 Elevation Above VRD: 1147.40USft

**Well: Mike Ryniawec BRK 3H**

Type: Main-Well  
 File Number:  
 Plan Folder: P1 Plan: P1:V2  
 Vertical Section: Position offset of origin from Slot centre:  
 +N/-S: 0.00USft Azimuth: 339.21°  
 +E/-W: 0.00USft  
 Magnetic Parameters:  
 Model: Field Strength: Declination: Dip: Date:  
 HDGM2016 52591(nT) -8.23° 67.60° 2018-03-20

**Plan Data for Mike Ryniawec BRK 3H**

| Formation Point Information: |            |                  |           |
|------------------------------|------------|------------------|-----------|
| Name                         | TVD (USft) | Elevation (USft) | MD (USft) |
| Onondaga Limestone           | -4779.00   | 0.00             | -1.00     |
| Pittsburgh Coal              | 342.40     | 831.00           | 342.40    |
| Base of Fresh Water          | 346.40     | 827.00           | 346.40    |
| Top of Salt Water            | 645.40     | 528.00           | 645.40    |
| Maxton                       | 1203.40    | -30.00           | 1203.40   |
| Big Lime                     | 1335.40    | -162.00          | 1335.40   |
| Big Injun                    | 1505.40    | -332.00          | 1505.40   |
| Base Big Injun               | 1641.40    | -468.00          | 1641.40   |
| Berea                        | 1933.40    | -760.00          | 1933.40   |
| Upper Rhinestreet            | 5401.40    | -4228.00         | 5414.62   |
| Lower Rhinestreet            | 5508.40    | -4335.00         | 5532.03   |
| Basal Rhinestreet            | 5567.40    | -4394.00         | 5600.67   |
| Cashaqua                     | 5633.40    | -4460.00         | 5682.24   |
| Middlesex                    | 5682.40    | -4509.00         | 5747.27   |
| Lower Middlesex              | 5707.40    | -4534.00         | 5782.37   |
| Burket                       | 5747.40    | -4574.00         | 5842.05   |
| Tully                        | 5762.40    | -4589.00         | 5865.80   |
| Mahantango                   | 5814.40    | -4641.00         | 5956.08   |
| Levanna                      | 5897.40    | -4724.00         | 6151.84   |
| Upper Marcellus              | 5911.40    | -4738.00         | 6204.26   |



Drawing By: Vilaphanh (Cot) Sinakone  
 Date: 20 March 2018  
 Office Name: Weatherford Drilling Services  
 Address: 12101 Cutten Road  
 Houston, TX 77066  
 Phone: 281-701-4760



# Weatherford®

## Mike Ryniawec BRK 3H

|   |   |  |                                |
|---|---|--|--------------------------------|
| <b>Field Name:</b><br>SOUTHWESTER<br>N_BROOKE CO,<br>WV UTM NAD 83<br>(17N) | <b>Map Units:</b> US ft   | <b>Company Name:</b> SOUTHWESTERN ENERGY |                                |
|   | <b>Vertical Reference Datum (VRD):</b>                                |  |                                |
|   | <b>Projected Coordinate System:</b> NAD83 / UTM zone 17N              |  |                                |
| <b>Site:</b><br>Mike Ryniawec<br>Pad  | <b>Units:</b> US ft   | <b>North Reference:</b> Grid             | <b>Convergence Angle:</b> 0.25 |
|   | <b>Position:</b>  | <b>Northing:</b> 14596413.14 US ft       | <b>Latitude:</b> 40.190691     |
|   |   | <b>Easting:</b> 1749526.49 US ft         | <b>Longitude:</b> -80.609305   |
|   | <b>Elevation above Field Reference:</b> 1173.00 US ft                 | <b>Comment:</b>                          |                                |
| <b>Slot:</b><br>Mike Ryniawec<br>BRK 3H                                     | <b>Position (Relative to Site Centre)</b>                             |  |                                |
|   | <b>+N/-S:</b> 6.66 US ft  | <b>Northing:</b> 14596419.80 US ft       | <b>Latitude:</b> 40.190709     |
|   | <b>+E/-W:</b> 27.20 US ft   | <b>Easting:</b> 1749553.69 US ft         | <b>Longitude:</b> -80.609207   |
|   | <b>Elevation above Field Reference:</b> 1147.40 US ft                 | <b>Comment:</b>                          |                                |
| <b>Well:</b><br>Mike Ryniawec<br>BRK 3H                                     | <b>Type:</b> Main well  | <b>UWI:</b>                              |                                |
|   | <b>File Number:</b>   | <b>Comment:</b>                          |                                |
|   | <b>Closure Distance:</b> 11544.1 US ft                                | <b>Closure Azimuth:</b> 339.22°          |                                |
|   | <b>Vertical Section: Position of Origin (Relative to Slot centre)</b> |  |                                |
|   | <b>+N/-S:</b> -0.00 US ft   | <b>+E/-W:</b> -0.00 US ft                | <b>Az:</b> 339.21°             |

### Drill floor: Survey Name: Definitive Survey

|   |   |                           |                       |
|---|---|---------------------------|-----------------------|
| <b>Rig Height (Well TVD Reference):</b> 26.00 US ft | <b>Elevation above Field Reference:</b> 1173.40 US ft | <b>Inclination:</b> 0.00° | <b>Azimuth:</b> 0.00° |
|---|---|---------------------------|-----------------------|

### Survey Name: Definitive Survey

|                          |   |                 |                 |
|--------------------------|---|-----------------|-----------------|
| <b>Date:</b> 09/Feb/2018 | <b>Survey Tool:</b> See Survey Tool Ranges below. | <b>Comment:</b> | <b>Company:</b> |
|--------------------------|---|-----------------|-----------------|

### Magnetic Model:

|                             |                          |                                   |                            |                    |
|-----------------------------|--------------------------|-----------------------------------|----------------------------|--------------------|
| <b>Model Name:</b> HDGM2016 | <b>Date:</b> 20/Mar/2018 | <b>Field Strength:</b> 52591.0 nT | <b>Declination:</b> -8.23° | <b>Dip:</b> 67.60° |
|-----------------------------|--------------------------|-----------------------------------|----------------------------|--------------------|

### Tie Point:

|                       |                           |                       |                         |                                  |                                 |
|-----------------------|---------------------------|-----------------------|-------------------------|----------------------------------|---------------------------------|
| <b>MD:</b> 0.00 US ft | <b>Inclination:</b> 0.00° | <b>Azimuth:</b> 0.00° | <b>TVD:</b> -0.00 US ft | <b>North Offset:</b> -0.00 US ft | <b>East Offset:</b> -0.00 US ft |
|-----------------------|---------------------------|-----------------------|-------------------------|----------------------------------|---------------------------------|

### Survey Tool Ranges:

| Name                  | Start MD(USft) | End MD(USft) | Source Survey |
|-----------------------|----------------|--------------|---------------|
| GYRO_GC_WIR+DPIPE_GYD | 0.00           | 414.00       | Gyro          |

## SD Survey Report

| Survey Tool Ranges: |                |              |               |
|---------------------|----------------|--------------|---------------|
| Name                | Start MD(usft) | End MD(usft) | Source Survey |
| MWD                 | 414.00         | 1640.00      | WFT MWD_01    |
| MWD                 | 1640.00        | 4787.00      | WFT MWD_02    |
| MWD                 | 4787.00        | 5575.00      | WFT MWD_03    |
| MWD                 | 5575.00        | 7121.00      | WFT MWD_04    |
| MWD                 | 7121.00        | 16917.00     | WFT MWD_05    |

Wellpath created using minimum curvature.

| Survey Points: (Relative to Slot centre)(TVD relative to Well TVD Reference) |         |        |             |            |                  |                  |                  |                   |                  |             |
|--|---------|--------|-------------|------------|------------------|------------------|------------------|-------------------|------------------|-------------|
| MD (US ft)   | Inc (°) | Az (°) | TVD (US ft) | VS (US ft) | N.Offset (US ft) | E.Offset (US ft) | Latitude (° ' ") | Longitude (° ' ") | DLS (°/100US ft) | Comment     |
| 0.00   | 0.00    | 0.00   | -0.00       | 0.00       | -0.00            | -0.00            | 40.190709        | -80.609207        | 0.00             |             |
| 50.00  | 0.47    | 20.13  | 50.00       | 0.15       | 0.19             | 0.07             | 40.190710        | -80.609207        | 0.94             |             |
| 100.00   | 0.41    | 346.03 | 100.00      | 0.49       | 0.56             | 0.10             | 40.190711        | -80.609207        | 0.53             |             |
| 150.00   | 0.13    | 343.31 | 150.00      | 0.72       | 0.79             | 0.04             | 40.190711        | -80.609207        | 0.56             |             |
| 200.00   | 0.55    | 71.92  | 200.00      | 0.77       | 0.92             | 0.25             | 40.190712        | -80.609206        | 1.12             |             |
| 250.00   | 0.79    | 64.05  | 249.99      | 0.79       | 1.14             | 0.79             | 40.190712        | -80.609204        | 0.51             |             |
| 300.00   | 1.03    | 63.03  | 299.99      | 0.87       | 1.50             | 1.50             | 40.190713        | -80.609202        | 0.48             |             |
| 350.00   | 1.02    | 53.66  | 349.98      | 1.03       | 1.96             | 2.26             | 40.190715        | -80.609199        | 0.34             |             |
| 400.00   | 0.98    | 49.26  | 399.97      | 1.30       | 2.51             | 2.94             | 40.190716        | -80.609196        | 0.17             |             |
| 414.00   | 0.70    | 45.02  | 413.97      | 1.37       | 2.64             | 3.09             | 40.190717        | -80.609196        | 2.05             | Gyro Tie-In |
| 506.00   | 0.91    | 83.81  | 505.96      | 1.42       | 3.12             | 4.22             | 40.190718        | -80.609192        | 0.62             |             |
| 596.00   | 1.04    | 91.39  | 595.95      | 0.93       | 3.18             | 5.74             | 40.190718        | -80.609186        | 0.20             |             |
| 687.00   | 0.55    | 74.34  | 686.94      | 0.58       | 3.28             | 6.99             | 40.190718        | -80.609182        | 0.59             |             |
| 777.00   | 0.47    | 32.74  | 776.94      | 0.76       | 3.70             | 7.60             | 40.190719        | -80.609180        | 0.41             |             |
| 870.00   | 0.60    | 23.83  | 869.93      | 1.34       | 4.47             | 8.01             | 40.190721        | -80.609178        | 0.17             |             |
| 962.00   | 0.51    | 27.86  | 961.93      | 1.95       | 5.27             | 8.39             | 40.190724        | -80.609177        | 0.11             |             |
| 1055.00  | 0.72    | 12.66  | 1054.92     | 2.71       | 6.21             | 8.71             | 40.190726        | -80.609176        | 0.28             |             |
| 1145.00  | 0.75    | 28.57  | 1144.92     | 3.56       | 7.28             | 9.12             | 40.190729        | -80.609174        | 0.23             |             |
| 1238.00  | 0.39    | 38.94  | 1237.91     | 4.12       | 8.06             | 9.61             | 40.190731        | -80.609172        | 0.40             |             |
| 1330.00  | 0.16    | 115.22 | 1329.91     | 4.19       | 8.25             | 9.92             | 40.190732        | -80.609171        | 0.42             |             |
| 1423.00  | 0.50    | 130.34 | 1422.91     | 3.74       | 7.93             | 10.35            | 40.190731        | -80.609170        | 0.37             |             |
| 1516.00  | 0.13    | 268.80 | 1515.91     | 3.42       | 7.66             | 10.55            | 40.190730        | -80.609169        | 0.65             |             |
| 1605.00  | 0.34    | 308.86 | 1604.91     | 3.68       | 7.83             | 10.25            | 40.190731        | -80.609170        | 0.29             |             |
| 1640.00  | 0.14    | 321.36 | 1639.91     | 3.81       | 7.93             | 10.14            | 40.190731        | -80.609171        | 0.59             |             |
| 1727.00  | 0.23    | 22.29  | 1726.91     | 4.04       | 8.17             | 10.14            | 40.190732        | -80.609171        | 0.23             |             |
| 1819.00  | 0.27    | 38.54  | 1818.90     | 4.28       | 8.51             | 10.34            | 40.190733        | -80.609170        | 0.09             |             |
| 1912.00  | 0.32    | 12.55  | 1911.90     | 4.61       | 8.94             | 10.54            | 40.190734        | -80.609169        | 0.15             |             |
| 2005.00  | 2.49    | 353.88 | 2004.87     | 6.78       | 11.20            | 10.38            | 40.190740        | -80.609170        | 2.35             |             |
| 2098.00  | 4.74    | 356.56 | 2097.68     | 12.41      | 17.04            | 9.93             | 40.190756        | -80.609171        | 2.43             |             |
| 2190.00  | 4.97    | 356.14 | 2189.35     | 19.85      | 24.81            | 9.44             | 40.190777        | -80.609173        | 0.25             |             |
| 2283.00  | 3.52    | 11.19  | 2282.09     | 26.12      | 31.63            | 9.72             | 40.190796        | -80.609172        | 1.95             |             |
| 2376.00  | 3.13    | 11.32  | 2374.94     | 30.69      | 36.92            | 10.77            | 40.190811        | -80.609168        | 0.42             |             |
| 2468.00  | 2.77    | 8.64   | 2466.82     | 34.76      | 41.58            | 11.60            | 40.190823        | -80.609165        | 0.42             |             |
| 2561.00  | 4.05    | 2.97   | 2559.65     | 39.72      | 47.09            | 12.11            | 40.190838        | -80.609163        | 1.42             |             |
| 2654.00  | 4.09    | 358.69 | 2652.41     | 45.85      | 53.68            | 12.20            | 40.190857        | -80.609162        | 0.33             |             |
| 2747.00  | 3.84    | 355.72 | 2745.19     | 51.97      | 60.10            | 11.89            | 40.190874        | -80.609163        | 0.35             |             |
| 2839.00  | 3.94    | 2.51   | 2836.98     | 57.82      | 66.33            | 11.80            | 40.190891        | -80.609164        | 0.51             |             |
| 2932.00  | 4.50    | 16.65  | 2929.73     | 63.65      | 73.02            | 12.99            | 40.190910        | -80.609159        | 1.27             |             |
| 3025.00  | 4.44    | 17.75  | 3022.45     | 69.37      | 79.94            | 15.13            | 40.190929        | -80.609152        | 0.11             |             |
| 3117.00  | 4.04    | 14.31  | 3114.20     | 74.80      | 86.48            | 17.02            | 40.190947        | -80.609145        | 0.52             |             |
| 3210.00  | 3.64    | 9.71   | 3206.99     | 80.03      | 92.56            | 18.32            | 40.190963        | -80.609140        | 0.54             |             |
| 3303.00  | 3.33    | 2.72   | 3299.82     | 85.05      | 98.17            | 18.95            | 40.190979        | -80.609138        | 0.56             |             |
| 3396.00  | 3.10    | 336.28 | 3392.67     | 90.03      | 103.17           | 18.07            | 40.190992        | -80.609141        | 1.60             |             |
| 3488.00  | 4.32    | 327.86 | 3484.48     | 95.92      | 108.38           | 15.22            | 40.191007        | -80.609151        | 1.45             |             |
| 3581.00  | 4.76    | 325.96 | 3577.19     | 103.11     | 114.54           | 11.20            | 40.191024        | -80.609165        | 0.50             |             |
| 3674.00  | 4.50    | 325.39 | 3669.88     | 110.41     | 120.74           | 6.97             | 40.191041        | -80.609180        | 0.28             |             |
| 3767.00  | 4.16    | 320.69 | 3762.62     | 117.15     | 126.36           | 2.76             | 40.191056        | -80.609195        | 0.53             |             |
| 3859.00  | 3.63    | 317.33 | 3854.41     | 123.01     | 131.08           | -1.33            | 40.191069        | -80.609210        | 0.63             |             |

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## SD Survey Report

| Survey Points: (Relative to Slot centre)(TVD relative to Well TVD Reference) |            |           |                |               |                     |                     |                     |                      |                     |         |
|--|------------|-----------|----------------|---------------|---------------------|---------------------|---------------------|----------------------|---------------------|---------|
| MD<br>(US ft)  | Inc<br>(°) | Az<br>(°) | TVD<br>(US ft) | VS<br>(US ft) | N.Offset<br>(US ft) | E.Offset<br>(US ft) | Latitude<br>(° ' ") | Longitude<br>(° ' ") | DLS<br>(#/100US ft) | Comment |
| 3952.00  | 3.67       | 314.77    | 3947.22        | 128.46        | 135.34              | -5.44               | 40.191081           | -80.609224           | 0.18                |         |
| 4045.00  | 3.11       | 304.00    | 4040.06        | 133.23        | 138.85              | -9.64               | 40.191091           | -80.609239           | 0.91                |         |
| 4138.00  | 3.67       | 321.55    | 4132.90        | 138.13        | 142.59              | -13.59              | 40.191101           | -80.609253           | 1.26                |         |
| 4230.00  | 3.94       | 318.50    | 4224.69        | 143.89        | 147.26              | -17.51              | 40.191114           | -80.609267           | 0.37                |         |
| 4323.00  | 3.58       | 316.93    | 4317.49        | 149.56        | 151.78              | -21.61              | 40.191126           | -80.609282           | 0.40                |         |
| 4416.00  | 3.18       | 311.33    | 4410.33        | 154.53        | 155.60              | -25.53              | 40.191137           | -80.609296           | 0.56                |         |
| 4509.00  | 3.60       | 331.38    | 4503.17        | 159.70        | 159.87              | -28.87              | 40.191149           | -80.609308           | 1.34                |         |
| 4601.00  | 3.71       | 330.52    | 4594.98        | 165.51        | 165.00              | -31.72              | 40.191163           | -80.609318           | 0.13                |         |
| 4694.00  | 3.49       | 325.31    | 4687.80        | 171.23        | 169.94              | -34.81              | 40.191176           | -80.609329           | 0.42                |         |
| 4787.00  | 3.42       | 322.52    | 4780.63        | 176.63        | 174.47              | -38.11              | 40.191189           | -80.609341           | 0.20                |         |
| 4880.00  | 3.26       | 321.09    | 4873.47        | 181.80        | 178.73              | -41.46              | 40.191201           | -80.609353           | 0.19                |         |
| 4972.00  | 3.29       | 319.05    | 4965.32        | 186.77        | 182.76              | -44.83              | 40.191212           | -80.609365           | 0.13                |         |
| 5065.00  | 4.27       | 316.39    | 5058.12        | 192.47        | 187.28              | -48.97              | 40.191224           | -80.609379           | 1.07                |         |
| 5158.00  | 6.08       | 317.24    | 5150.74        | 200.23        | 193.40              | -54.70              | 40.191241           | -80.609400           | 1.95                |         |
| 5204.00  | 9.47       | 320.60    | 5196.31        | 206.07        | 198.12              | -58.76              | 40.191254           | -80.609414           | 7.43                |         |
| 5251.00  | 12.78      | 324.72    | 5242.42        | 214.77        | 205.35              | -64.21              | 40.191274           | -80.609434           | 7.24                |         |
| 5297.00  | 16.16      | 327.16    | 5286.95        | 225.96        | 214.89              | -70.63              | 40.191300           | -80.609457           | 7.46                |         |
| 5343.00  | 19.68      | 327.75    | 5330.72        | 239.82        | 226.82              | -78.23              | 40.191333           | -80.609484           | 7.66                |         |
| 5390.00  | 22.92      | 329.77    | 5374.50        | 256.61        | 241.42              | -87.07              | 40.191373           | -80.609515           | 7.07                |         |
| 5436.00  | 25.60      | 332.59    | 5416.43        | 275.32        | 257.99              | -96.15              | 40.191419           | -80.609547           | 6.35                |         |
| 5483.00  | 28.34      | 332.67    | 5458.32        | 296.49        | 276.92              | -105.95             | 40.191471           | -80.609582           | 5.83                |         |
| 5529.00  | 30.72      | 332.18    | 5498.34        | 319.00        | 297.01              | -116.45             | 40.191526           | -80.609619           | 5.20                |         |
| 5575.00  | 32.99      | 332.96    | 5537.41        | 343.12        | 318.56              | -127.63             | 40.191586           | -80.609659           | 5.02                |         |
| 5649.00  | 36.96      | 335.99    | 5598.04        | 385.38        | 356.84              | -145.85             | 40.191691           | -80.609724           | 5.85                |         |
| 5696.00  | 40.55      | 337.66    | 5634.69        | 414.77        | 383.89              | -157.41             | 40.191765           | -80.609765           | 7.95                |         |
| 5739.00  | 44.24      | 339.10    | 5666.44        | 443.75        | 410.84              | -168.07             | 40.191840           | -80.609802           | 8.87                |         |
| 5785.00  | 46.62      | 339.16    | 5698.72        | 476.52        | 441.46              | -179.75             | 40.191924           | -80.609844           | 5.17                |         |
| 5832.00  | 48.80      | 339.57    | 5730.34        | 511.28        | 474.00              | -192.00             | 40.192013           | -80.609887           | 4.68                |         |
| 5878.00  | 51.51      | 339.43    | 5759.81        | 546.60        | 507.07              | -204.36             | 40.192104           | -80.609931           | 5.90                |         |
| 5925.00  | 54.60      | 339.61    | 5788.06        | 584.15        | 542.26              | -217.50             | 40.192201           | -80.609977           | 6.58                |         |
| 5971.00  | 59.44      | 338.72    | 5813.09        | 622.73        | 578.31              | -231.23             | 40.192300           | -80.610026           | 10.65               |         |
| 6017.00  | 63.73      | 338.40    | 5834.97        | 663.18        | 615.96              | -246.02             | 40.192404           | -80.610078           | 9.35                |         |
| 6064.00  | 66.67      | 337.40    | 5854.69        | 705.83        | 655.48              | -262.07             | 40.192512           | -80.610135           | 6.55                |         |
| 6110.00  | 69.87      | 337.08    | 5871.71        | 748.53        | 694.88              | -278.60             | 40.192621           | -80.610194           | 6.99                |         |
| 6156.00  | 72.54      | 337.97    | 5886.53        | 792.05        | 735.12              | -295.25             | 40.192732           | -80.610253           | 6.09                |         |
| 6203.00  | 74.40      | 338.72    | 5899.91        | 837.10        | 776.99              | -311.87             | 40.192847           | -80.610312           | 4.24                |         |
| 6249.00  | 77.58      | 339.78    | 5911.04        | 881.72        | 818.72              | -327.68             | 40.192962           | -80.610367           | 7.27                |         |
| 6296.00  | 82.03      | 339.58    | 5919.36        | 927.97        | 862.09              | -343.74             | 40.193081           | -80.610424           | 9.48                |         |
| 6339.00  | 85.56      | 339.04    | 5924.00        | 970.71        | 902.08              | -358.84             | 40.193191           | -80.610478           | 8.30                |         |
| 6385.00  | 88.50      | 338.83    | 5926.39        | 1016.64       | 944.94              | -375.35             | 40.193309           | -80.610536           | 6.41                |         |
| 6432.00  | 90.25      | 337.93    | 5926.90        | 1063.63       | 988.63              | -392.67             | 40.193429           | -80.610597           | 4.19                |         |
| 6478.00  | 91.54      | 338.48    | 5926.18        | 1109.62       | 1031.34             | -409.74             | 40.193546           | -80.610658           | 3.05                |         |
| 6571.00  | 90.55      | 337.89    | 5924.49        | 1202.59       | 1117.66             | -444.30             | 40.193784           | -80.610780           | 1.24                |         |
| 6661.00  | 90.49      | 335.21    | 5923.67        | 1292.48       | 1200.22             | -480.11             | 40.194011           | -80.610907           | 2.98                |         |
| 6753.00  | 91.11      | 338.90    | 5922.38        | 1384.39       | 1284.91             | -515.96             | 40.194244           | -80.611034           | 4.07                |         |
| 6846.00  | 91.29      | 340.33    | 5920.44        | 1477.36       | 1372.07             | -548.35             | 40.194484           | -80.611149           | 1.55                |         |
| 6939.00  | 91.15      | 340.06    | 5918.46        | 1570.33       | 1459.55             | -579.85             | 40.194724           | -80.611260           | 0.33                |         |
| 7028.00  | 90.62      | 338.97    | 5917.08        | 1659.32       | 1542.91             | -611.00             | 40.194954           | -80.611371           | 1.36                |         |
| 7121.00  | 93.58      | 336.52    | 5913.67        | 1752.21       | 1628.91             | -646.19             | 40.195190           | -80.611495           | 4.13                |         |
| 7214.00  | 92.28      | 337.26    | 5908.92        | 1845.01       | 1714.33             | -682.64             | 40.195425           | -80.611624           | 1.61                |         |
| 7307.00  | 89.94      | 338.50    | 5907.12        | 1937.95       | 1800.46             | -717.65             | 40.195662           | -80.611748           | 2.85                |         |
| 7400.00  | 89.88      | 340.26    | 5907.26        | 2030.95       | 1887.50             | -750.40             | 40.195901           | -80.611864           | 1.89                |         |
| 7492.00  | 90.37      | 344.21    | 5907.06        | 2122.80       | 1975.09             | -778.46             | 40.196142           | -80.611964           | 4.33                |         |
| 7585.00  | 90.18      | 343.23    | 5906.62        | 2215.51       | 2064.36             | -804.53             | 40.196388           | -80.612055           | 1.07                |         |
| 7678.00  | 90.62      | 340.38    | 5905.97        | 2308.40       | 2152.70             | -833.57             | 40.196631           | -80.612158           | 3.10                |         |
| 7770.00  | 90.62      | 340.22    | 5904.97        | 2400.38       | 2239.31             | -864.58             | 40.196869           | -80.612268           | 0.17                |         |
| 7863.00  | 90.74      | 340.74    | 5903.87        | 2493.35       | 2326.96             | -895.65             | 40.197110           | -80.612378           | 0.57                |         |
| 7956.00  | 90.62      | 340.76    | 5902.76        | 2586.31       | 2414.75             | -926.31             | 40.197351           | -80.612486           | 0.13                |         |
| 8049.00  | 90.86      | 339.61    | 5901.56        | 2679.29       | 2502.24             | -957.83             | 40.197592           | -80.612598           | 1.26                |         |

## SD Survey Report

| Survey Points: (Relative to Slot centre)(TVD relative to Well TVD Reference) |            |           |                |               |                      |                      |                     |                      |                     |         |
|--|------------|-----------|----------------|---------------|----------------------|----------------------|---------------------|----------------------|---------------------|---------|
| MD<br>(US ft)  | Inc<br>(°) | Az<br>(°) | TVD<br>(US ft) | VS<br>(US ft) | N. Offset<br>(US ft) | E. Offset<br>(US ft) | Latitude<br>(° ' ") | Longitude<br>(° ' ") | DLS<br>(%/100US ft) | Comment |
| 8141.00  | 90.92      | 338.93    | 5900.13        | 2771.28       | 2588.27              | -990.39              | 40.197829           | -80.612713           | 0.74                |         |
| 8234.00  | 90.86      | 338.24    | 5898.69        | 2864.26       | 2674.84              | -1024.35             | 40.198067           | -80.612833           | 0.74                |         |
| 8327.00  | 90.80      | 339.91    | 5897.34        | 2957.25       | 2761.69              | -1057.56             | 40.198306           | -80.612951           | 1.80                |         |
| 8420.00  | 90.80      | 340.26    | 5896.04        | 3050.23       | 2849.12              | -1089.23             | 40.198546           | -80.613063           | 0.38                |         |
| 8512.00  | 90.86      | 340.57    | 5894.71        | 3142.20       | 2935.79              | -1120.07             | 40.198785           | -80.613172           | 0.34                |         |
| 8605.00  | 90.68      | 339.83    | 5893.46        | 3235.17       | 3023.29              | -1151.57             | 40.199025           | -80.613283           | 0.82                |         |
| 8698.00  | 90.92      | 339.47    | 5892.16        | 3328.16       | 3110.47              | -1183.90             | 40.199265           | -80.613398           | 0.47                |         |
| 8788.00  | 90.68      | 340.34    | 5890.91        | 3418.14       | 3194.98              | -1214.82             | 40.199497           | -80.613507           | 1.00                |         |
| 8880.00  | 90.74      | 339.33    | 5889.77        | 3510.13       | 3281.34              | -1246.53             | 40.199735           | -80.613619           | 1.10                |         |
| 8973.00  | 90.86      | 338.73    | 5888.47        | 3603.12       | 3368.17              | -1279.81             | 40.199974           | -80.613737           | 0.66                |         |
| 9066.00  | 90.74      | 339.06    | 5887.17        | 3696.11       | 3454.92              | -1313.30             | 40.200212           | -80.613856           | 0.38                |         |
| 9159.00  | 90.99      | 339.72    | 5885.77        | 3789.10       | 3541.96              | -1346.03             | 40.200452           | -80.613972           | 0.76                |         |
| 9252.00  | 90.99      | 338.86    | 5884.16        | 3882.08       | 3628.94              | -1378.91             | 40.200691           | -80.614088           | 0.92                |         |
| 9344.00  | 90.92      | 340.02    | 5882.62        | 3974.07       | 3715.06              | -1411.22             | 40.200928           | -80.614202           | 1.26                |         |
| 9437.00  | 90.93      | 339.16    | 5881.12        | 4067.05       | 3802.21              | -1443.65             | 40.201168           | -80.614317           | 0.92                |         |
| 9530.00  | 90.86      | 340.67    | 5879.67        | 4160.03       | 3889.54              | -1475.58             | 40.201408           | -80.614430           | 1.63                |         |
| 9623.00  | 90.93      | 340.69    | 5878.22        | 4252.99       | 3977.29              | -1506.34             | 40.201649           | -80.614539           | 0.08                |         |
| 9716.00  | 90.68      | 339.91    | 5876.91        | 4345.96       | 4064.84              | -1537.69             | 40.201890           | -80.614650           | 0.88                |         |
| 9808.00  | 90.68      | 340.87    | 5875.82        | 4437.94       | 4151.50              | -1568.56             | 40.202128           | -80.614759           | 1.04                |         |
| 9901.00  | 90.74      | 340.29    | 5874.67        | 4530.90       | 4239.20              | -1599.48             | 40.202369           | -80.614868           | 0.63                |         |
| 9993.00  | 90.74      | 337.93    | 5873.48        | 4622.89       | 4325.14              | -1632.28             | 40.202606           | -80.614985           | 2.57                |         |
| 10086.00   | 90.68      | 336.81    | 5872.33        | 4715.83       | 4410.97              | -1668.06             | 40.202842           | -80.615111           | 1.21                |         |
| 10179.00   | 90.74      | 337.92    | 5871.17        | 4808.77       | 4496.80              | -1703.85             | 40.203078           | -80.615238           | 1.20                |         |
| 10272.00   | 90.74      | 337.13    | 5869.97        | 4901.73       | 4582.73              | -1739.40             | 40.203315           | -80.615364           | 0.85                |         |
| 10364.00   | 90.74      | 338.53    | 5868.78        | 4993.69       | 4667.92              | -1774.11             | 40.203549           | -80.615487           | 1.52                |         |
| 10457.00   | 90.68      | 338.30    | 5867.63        | 5086.67       | 4754.39              | -1808.32             | 40.203787           | -80.615608           | 0.26                |         |
| 10550.00   | 90.80      | 338.02    | 5866.43        | 5179.65       | 4840.71              | -1842.92             | 40.204024           | -80.615731           | 0.33                |         |
| 10642.00   | 90.92      | 338.38    | 5865.05        | 5271.63       | 4926.12              | -1877.08             | 40.204259           | -80.615852           | 0.41                |         |
| 10735.00   | 90.80      | 337.70    | 5863.65        | 5364.60       | 5012.36              | -1911.85             | 40.204496           | -80.615975           | 0.74                |         |
| 10828.00   | 90.86      | 338.96    | 5862.31        | 5457.57       | 5098.78              | -1946.19             | 40.204734           | -80.616097           | 1.36                |         |
| 10921.00   | 90.92      | 338.59    | 5860.86        | 5550.56       | 5185.46              | -1979.86             | 40.204972           | -80.616216           | 0.40                |         |
| 11013.00   | 90.99      | 336.94    | 5859.33        | 5642.51       | 5270.60              | -2014.66             | 40.205207           | -80.616339           | 1.79                |         |
| 11106.00   | 90.93      | 337.30    | 5857.77        | 5735.44       | 5356.27              | -2050.82             | 40.205442           | -80.616467           | 0.39                |         |
| 11199.00   | 90.80      | 339.38    | 5856.37        | 5828.41       | 5442.69              | -2085.14             | 40.205680           | -80.616589           | 2.24                |         |
| 11292.00   | 91.06      | 341.82    | 5854.86        | 5921.37       | 5530.39              | -2116.02             | 40.205921           | -80.616698           | 2.64                |         |
| 11385.00   | 90.93      | 342.42    | 5853.24        | 6014.23       | 5618.89              | -2144.57             | 40.206165           | -80.616799           | 0.66                |         |
| 11477.00   | 90.68      | 340.59    | 5851.95        | 6106.14       | 5706.12              | -2173.75             | 40.206405           | -80.616902           | 2.01                |         |
| 11570.00   | 90.99      | 337.75    | 5850.59        | 6199.12       | 5793.03              | -2206.81             | 40.206644           | -80.617019           | 3.07                |         |
| 11663.00   | 90.80      | 339.89    | 5849.14        | 6292.11       | 5879.73              | -2240.41             | 40.206882           | -80.617138           | 2.31                |         |
| 11756.00   | 90.74      | 339.70    | 5847.89        | 6385.09       | 5967.00              | -2272.53             | 40.207122           | -80.617252           | 0.21                |         |
| 11846.00   | 90.93      | 340.27    | 5846.58        | 6475.07       | 6051.55              | -2303.33             | 40.207355           | -80.617361           | 0.67                |         |
| 11938.00   | 90.80      | 339.92    | 5845.19        | 6567.05       | 6138.05              | -2334.65             | 40.207593           | -80.617472           | 0.41                |         |
| 12028.00   | 90.68      | 340.58    | 5844.03        | 6657.03       | 6222.74              | -2365.06             | 40.207825           | -80.617580           | 0.75                |         |
| 12121.00   | 90.68      | 340.95    | 5842.92        | 6749.99       | 6310.55              | -2395.69             | 40.208067           | -80.617688           | 0.40                |         |
| 12211.00   | 90.55      | 339.13    | 5841.96        | 6839.97       | 6395.13              | -2426.41             | 40.208300           | -80.617797           | 2.03                |         |
| 12303.00   | 90.68      | 338.98    | 5840.97        | 6931.96       | 6481.05              | -2459.30             | 40.208536           | -80.617913           | 0.22                |         |
| 12396.00   | 90.49      | 338.01    | 5840.02        | 7024.95       | 6567.57              | -2493.39             | 40.208774           | -80.618034           | 1.06                |         |
| 12489.00   | 90.68      | 338.94    | 5839.07        | 7117.94       | 6654.08              | -2527.51             | 40.209012           | -80.618155           | 1.02                |         |
| 12582.00   | 90.86      | 338.90    | 5837.82        | 7210.93       | 6740.85              | -2560.95             | 40.209251           | -80.618273           | 0.20                |         |
| 12674.00   | 90.80      | 338.30    | 5836.49        | 7302.91       | 6826.49              | -2594.52             | 40.209486           | -80.618392           | 0.66                |         |
| 12767.00   | 90.56      | 336.51    | 5835.39        | 7395.86       | 6912.35              | -2630.25             | 40.209722           | -80.618519           | 1.94                |         |
| 12860.00   | 90.68      | 338.87    | 5834.38        | 7488.81       | 6998.37              | -2665.55             | 40.209959           | -80.618644           | 2.54                |         |
| 12953.00   | 90.43      | 338.30    | 5833.48        | 7581.80       | 7084.95              | -2699.50             | 40.210197           | -80.618764           | 0.67                |         |
| 13045.00   | 90.62      | 339.92    | 5832.64        | 7673.79       | 7170.89              | -2732.30             | 40.210433           | -80.618880           | 1.77                |         |
| 13138.00   | 90.99      | 338.96    | 5831.33        | 7766.78       | 7257.96              | -2764.96             | 40.210673           | -80.618996           | 1.11                |         |
| 13231.00   | 90.74      | 338.67    | 5829.92        | 7859.77       | 7344.66              | -2798.56             | 40.210911           | -80.619115           | 0.41                |         |
| 13324.00   | 90.74      | 338.17    | 5828.72        | 7952.75       | 7431.14              | -2832.77             | 40.211149           | -80.619236           | 0.54                |         |
| 13416.00   | 91.05      | 338.36    | 5827.29        | 8044.73       | 7516.59              | -2866.83             | 40.211384           | -80.619357           | 0.40                |         |
| 13509.00   | 90.86      | 338.18    | 5825.74        | 8137.70       | 7602.97              | -2901.26             | 40.211622           | -80.619479           | 0.28                |         |

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## SD Survey Report

| Survey Points: (Relative to Slot centre)(TVD relative to Well TVD Reference) |            |           |                |               |                     |                     |                     |                      |                     |                 |
|--|------------|-----------|----------------|---------------|---------------------|---------------------|---------------------|----------------------|---------------------|-----------------|
| MD<br>(US ft)  | Inc<br>(°) | Az<br>(°) | TVD<br>(US ft) | VS<br>(US ft) | N.Offset<br>(US ft) | E.Offset<br>(US ft) | Latitude<br>(° ' ") | Longitude<br>(° ' ") | DLS<br>(%/100US ft) | Comment         |
| 13602.00   | 91.60      | 338.29    | 5823.74        | 8230.67       | 7689.32             | -2935.74            | 40.211859           | -80.619601           | 0.80                |                 |
| 13695.00   | 91.05      | 338.92    | 5821.59        | 8323.64       | 7775.88             | -2969.65            | 40.212098           | -80.619721           | 0.90                |                 |
| 13788.00   | 91.05      | 339.91    | 5819.89        | 8416.62       | 7862.93             | -3002.34            | 40.212337           | -80.619837           | 1.06                |                 |
| 13880.00   | 90.88      | 337.42    | 5818.34        | 8508.60       | 7948.61             | -3035.81            | 40.212573           | -80.619955           | 2.71                |                 |
| 13973.00   | 90.86      | 340.05    | 5816.92        | 8601.57       | 8035.26             | -3069.53            | 40.212811           | -80.620075           | 2.83                |                 |
| 14066.00   | 90.80      | 339.33    | 5815.58        | 8694.56       | 8122.46             | -3101.81            | 40.213051           | -80.620189           | 0.78                |                 |
| 14158.00   | 90.68      | 338.35    | 5814.39        | 8786.55       | 8208.25             | -3135.01            | 40.213287           | -80.620307           | 1.07                |                 |
| 14248.00   | 90.74      | 338.55    | 5813.27        | 8876.53       | 8291.96             | -3168.07            | 40.213517           | -80.620424           | 0.23                |                 |
| 14338.00   | 90.74      | 339.19    | 5812.11        | 8966.53       | 8375.90             | -3200.51            | 40.213748           | -80.620539           | 0.71                |                 |
| 14430.00   | 90.49      | 338.09    | 5811.12        | 9058.51       | 8461.57             | -3234.02            | 40.213984           | -80.620658           | 1.23                |                 |
| 14523.00   | 90.62      | 339.76    | 5810.22        | 9151.51       | 8548.34             | -3267.46            | 40.214222           | -80.620776           | 1.80                |                 |
| 14613.00   | 90.62      | 340.87    | 5809.25        | 9241.48       | 8633.08             | -3297.77            | 40.214455           | -80.620883           | 1.23                |                 |
| 14706.00   | 90.49      | 341.26    | 5808.35        | 9334.43       | 8721.04             | -3327.95            | 40.214697           | -80.620990           | 0.44                |                 |
| 14798.00   | 90.62      | 341.75    | 5807.46        | 9426.35       | 8808.28             | -3357.13            | 40.214937           | -80.621093           | 0.55                |                 |
| 14891.00   | 90.25      | 341.03    | 5806.75        | 9519.28       | 8896.42             | -3386.81            | 40.215179           | -80.621198           | 0.87                |                 |
| 14984.00   | 90.49      | 342.83    | 5806.15        | 9612.17       | 8984.83             | -3415.65            | 40.215423           | -80.621300           | 1.95                |                 |
| 15077.00   | 90.62      | 343.30    | 5805.25        | 9704.95       | 9073.79             | -3442.74            | 40.215667           | -80.621396           | 0.52                |                 |
| 15170.00   | 90.92      | 343.03    | 5804.00        | 9797.72       | 9162.79             | -3469.67            | 40.215912           | -80.621491           | 0.43                |                 |
| 15262.00   | 90.68      | 341.18    | 5802.71        | 9889.59       | 9250.33             | -3497.94            | 40.216153           | -80.621591           | 2.03                |                 |
| 15352.00   | 90.55      | 339.05    | 5801.75        | 9979.57       | 9334.96             | -3528.55            | 40.216385           | -80.621699           | 2.37                |                 |
| 15445.00   | 90.55      | 338.07    | 5800.86        | 10072.56      | 9421.52             | -3562.54            | 40.216623           | -80.621820           | 1.05                |                 |
| 15538.00   | 90.37      | 337.09    | 5800.11        | 10165.52      | 9507.48             | -3598.01            | 40.216860           | -80.621945           | 1.07                |                 |
| 15630.00   | 90.43      | 337.50    | 5799.47        | 10257.46      | 9592.35             | -3633.52            | 40.217093           | -80.622071           | 0.45                |                 |
| 15723.00   | 90.37      | 337.34    | 5798.82        | 10350.42      | 9678.22             | -3669.22            | 40.217330           | -80.622198           | 0.18                |                 |
| 15816.00   | 90.62      | 337.56    | 5798.01        | 10443.37      | 9764.11             | -3704.89            | 40.217566           | -80.622324           | 0.36                |                 |
| 15909.00   | 90.62      | 337.89    | 5797.01        | 10536.33      | 9850.16             | -3740.14            | 40.217803           | -80.622449           | 0.35                |                 |
| 15998.00   | 90.56      | 336.89    | 5796.09        | 10625.28      | 9932.31             | -3774.35            | 40.218029           | -80.622571           | 1.13                |                 |
| 16091.00   | 90.93      | 339.29    | 5794.88        | 10718.25      | 10018.58            | -3809.05            | 40.218266           | -80.622694           | 2.61                |                 |
| 16184.00   | 90.19      | 339.18    | 5793.97        | 10811.24      | 10105.54            | -3842.02            | 40.218505           | -80.622810           | 0.80                |                 |
| 16277.00   | 90.56      | 339.85    | 5793.36        | 10904.24      | 10192.65            | -3874.56            | 40.218745           | -80.622926           | 0.82                |                 |
| 16369.00   | 90.55      | 340.02    | 5792.47        | 10996.23      | 10279.07            | -3906.13            | 40.218982           | -80.623037           | 0.19                |                 |
| 16462.00   | 90.12      | 339.74    | 5791.93        | 11089.22      | 10366.39            | -3938.12            | 40.219223           | -80.623151           | 0.55                |                 |
| 16555.00   | 90.12      | 338.63    | 5791.73        | 11182.22      | 10453.32            | -3971.16            | 40.219462           | -80.623268           | 1.19                |                 |
| 16648.00   | 90.25      | 339.57    | 5791.43        | 11275.22      | 10540.20            | -4004.34            | 40.219701           | -80.623385           | 1.02                |                 |
| 16741.00   | 90.43      | 339.84    | 5790.88        | 11368.21      | 10627.42            | -4036.60            | 40.219940           | -80.623499           | 0.35                |                 |
| 16833.00   | 90.80      | 341.29    | 5789.89        | 11460.18      | 10714.17            | -4067.21            | 40.220179           | -80.623608           | 1.63                |                 |
| 16894.00   | 90.68      | 340.53    | 5789.11        | 11521.14      | 10771.81            | -4087.15            | 40.220338           | -80.623678           | 1.26                | Last WFT<br>SVY |
| 16917.00   | 90.68      | 340.53    | 5788.83        | 11544.14      | 10793.50            | -4094.82            | 40.220397           | -80.623705           | 0.00                | PTB             |

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