

P:\PROJECTS\2017\2017070963-XTO-PLU 15 TWIN WELLS RANCH 102H-EDDY\DWG\2017070963-XTO-PLU 15 TWIN WELLS RANCH 102H AS-DRILLED.dwg

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NOV 25 2019

DISTRICT/ARTESIAO.C.D.

Intent ☐ As Drilled ☒ xxAPI #  
30-015-45053Operator Name:  
XTO PERMIAN OPERATING, LLCProperty Name:  
POKER LAKE UNIT 15 TWRWell Number  
102H

Kick Off Point (KOP)

| UL        | Section | Township | Range | Lot | Feet       | From N/S | Feet | From E/W | County |
|-----------|---------|----------|-------|-----|------------|----------|------|----------|--------|
| M         | 15      | 24S      | 31E   |     | 260        | S        | 405  | W        | EDDY   |
| Latitude  |         |          |       |     | Longitude  |          |      | NAD      |        |
| 32.210800 |         |          |       |     | 103.770960 |          |      | 83       |        |

First Take Point (FTP)

| UL        | Section | Township | Range | Lot | Feet       | From N/S | Feet | From E/W | County |
|-----------|---------|----------|-------|-----|------------|----------|------|----------|--------|
| D         | 22      | 24S      | 31E   |     | 421        | N        | 361  | W        | EDDY   |
| Latitude  |         |          |       |     | Longitude  |          |      | NAD      |        |
| 32.209157 |         |          |       |     | 103.771038 |          |      | 83       |        |

Last Take Point (LTP)

| UL        | Section | Township | Range | Lot | Feet       | From N/S | Feet | From E/W | County |
|-----------|---------|----------|-------|-----|------------|----------|------|----------|--------|
| E         | 34      | 24S      | 31E   |     | 2307       | N        | 315  | W        | EDDY   |
| Latitude  |         |          |       |     | Longitude  |          |      | NAD      |        |
| 32.174738 |         |          |       |     | 103.770985 |          |      | 83       |        |

Is this well the defining well for the Horizontal Spacing Unit?

☒ Yes

Is this well an infill well?

☐

If infill is yes please provide API if available, Operator Name and well number for Defining well for Horizontal Spacing Unit.

API #

Operator Name:

Property Name:

Well Number

KZ 06/29/2018



A Certified Directional Survey  
requested as required by NMOCD  
Rule 19.15.16.14 NMAC

**5D Survey Report**

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**XTO Energy**

**Field Name:** *XTO NAD 27 NME*  
**Site Name:** *PLU 15 Twin Wells Ranch*  
**Well Name:** *PLU TWR 102H*  
**Survey:** *Definitive survey*

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20 May 2019

**Weatherford®**

## 5D Survey Report



## PLU TWR 102H

|                                            |                                                                       |                                    |                                    |  |
|--------------------------------------------|-----------------------------------------------------------------------|------------------------------------|------------------------------------|--|
| <b>Field Name:</b><br>XTO NAD 27<br>NME    | <b>Map Units:</b> US ft                                               |                                    | <b>Company Name:</b> XTO Energy    |  |
|                                            | <b>Vertical Reference Datum (VRD):</b> Mean Sea Level                 |                                    |                                    |  |
|                                            | <b>Projected Coordinate System:</b> NAD27 / New Mexico East           |                                    |                                    |  |
| <b>Site:</b><br>PLU 15 Twin<br>Wells Ranch | <b>Units:</b> US ft                                                   |                                    | <b>North Reference:</b> Grid       |  |
|                                            | <b>Position:</b>                                                      |                                    | <b>Convergence Angle:</b> 0.30     |  |
|                                            | <b>Northing:</b> 440924.90 US ft                                      |                                    | <b>Latitude:</b> 32° 12' 39.47"    |  |
|                                            | <b>Easting:</b> 674200.80 US ft                                       |                                    | <b>Longitude:</b> -103° 46' 12.35" |  |
| <b>Elevation above MSL:</b> 3530.00 US ft  |                                                                       | <b>Comment:</b> Eddy Co, NM        |                                    |  |
| <b>Slot:</b><br>PLU TWR 102H               | <b>Position (Relative to Site Centre)</b>                             |                                    |                                    |  |
|                                            | <b>+N/-S:</b> 0.00 US ft                                              |                                    | <b>Northing:</b> 440924.90 US ft   |  |
|                                            | <b>+E/-W:</b> 0.00 US ft                                              |                                    | <b>Easting:</b> 674200.80 US ft    |  |
|                                            | <b>Elevation above MSL:</b> 3530.00 US ft                             |                                    | <b>Latitude:</b> 32° 12' 39.47"    |  |
| <b>Comment:</b>                            |                                                                       | <b>Longitude:</b> -103° 46' 12.35" |                                    |  |
| <b>Well:</b><br>PLU TWR 102H               | <b>Type:</b> Main well                                                |                                    | <b>UWI:</b>                        |  |
|                                            | <b>File Number:</b>                                                   |                                    | <b>Comment:</b>                    |  |
|                                            | <b>Closure Distance:</b> 13373.6 US ft                                |                                    | <b>Closure Azimuth:</b> 180.29°    |  |
|                                            | <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> 179.62°                         |                                                                       |                                    |                                    |  |

Drill floor: Survey Name: Definitive Survey

Rig Height (Drill Floor): 26.00 US ft Elevation above MSL: 3556.00 US ft Inclination: 0.00° Azimuth: 0.00°

## Survey Name: Definitive Survey

Date: 07/May/2019 Survey Tool: See Survey Tool Ranges below. Comment: Company:

## Magnetic Model:

Model Name: bggm2018 Date: 15/May/2019 Field Strength: 47751.9 nT Declination: 6.91° Dip: 59.93°

## Tie Point:

MD: 0.00 US ft Inclination: 0.00° Azimuth: 0.00° TVD: 0.00 US ft North Offset: -0.00 US ft East Offset: -0.00 US ft

## Survey Tool Ranges:

| Name | Start MD(USFt) | End MD(USFt) | Source Survey   |
|------|----------------|--------------|-----------------|
| MWD  | 0.00           | 15752.00     | WellBenders MWD |
| MWD  | 15752.00       | 20573.00     | WFT MWD_1       |
| MWD  | 20573.00       | 24830.00     | WFT MWD_2       |

## 5D Survey Report

| Casing Points: (Relative to Slot centre)(TVD relative to Drill Floor) |            |           |                |                      |                     |                     |                     |                    |           |  |
|-----------------------------------------------------------------------|------------|-----------|----------------|----------------------|---------------------|---------------------|---------------------|--------------------|-----------|--|
| MD<br>(US ft)                                                         | Inc<br>(°) | Az<br>(°) | TVD<br>(US ft) | TVD (MSL)<br>(US ft) | N.Offset<br>(US ft) | E.Offset<br>(US ft) | Northing<br>(US ft) | Easting<br>(US ft) | Name      |  |
| 880.00                                                                | 0.52       | 38.13     | 879.99         | -2676.01             | 1.83                | 2.48                | 440926.73           | 674203.28          | 18 5/8 in |  |
| 4355.00                                                               | 3.27       | 164.51    | 4352.08        | 796.08               | -83.42              | -26.97              | 440841.48           | 674173.83          | 13 3/8 in |  |
| 10568.00                                                              | 0.56       | 206.77    | 10561.12       | 7005.12              | -97.17              | -116.34             | 440827.73           | 674084.46          | 9 5/8 in  |  |

## Wellpath created using minimum curvature.

| Survey Points: (Relative to Slot centre)(TVD relative to Drill Floor) |            |           |                |                      |               |                     |                     |                     |                    |                     |           |
|-----------------------------------------------------------------------|------------|-----------|----------------|----------------------|---------------|---------------------|---------------------|---------------------|--------------------|---------------------|-----------|
| MD<br>(US ft)                                                         | Inc<br>(°) | Az<br>(°) | TVD<br>(US ft) | TVD (MSL)<br>(US ft) | VS<br>(US ft) | N.Offset<br>(US ft) | E.Offset<br>(US ft) | Northing<br>(US ft) | Easting<br>(US ft) | DLS<br>(°/100US ft) | Comment   |
| 0.00                                                                  | 0.00       | 0.00      | 0.00           | -3556.00             | -0.00         | -0.00               | 0.00                | 440924.90           | 674200.80          | 0.00                |           |
| 100.00                                                                | 0.00       | 0.00      | 100.00         | -3456.00             | -0.00         | -0.00               | -0.00               | 440924.90           | 674200.80          | 0.00                |           |
| 199.00                                                                | 0.10       | 282.30    | 199.00         | -3357.00             | -0.02         | 0.02                | -0.08               | 440924.92           | 674200.72          | 0.10                |           |
| 252.00                                                                | 0.00       | 0.00      | 252.00         | -3304.00             | -0.03         | 0.03                | -0.13               | 440924.93           | 674200.67          | 0.19                |           |
| 343.00                                                                | 0.10       | 266.10    | 343.00         | -3213.00             | -0.02         | 0.02                | -0.21               | 440924.92           | 674200.59          | 0.11                |           |
| 408.00                                                                | 0.30       | 71.90     | 408.00         | -3148.00             | -0.07         | 0.07                | -0.10               | 440924.97           | 674200.70          | 0.61                |           |
| 501.00                                                                | 0.20       | 57.50     | 501.00         | -3055.00             | -0.23         | 0.23                | 0.26                | 440925.13           | 674201.06          | 0.13                |           |
| 594.00                                                                | 0.20       | 73.80     | 594.00         | -2962.00             | -0.36         | 0.37                | 0.56                | 440925.27           | 674201.36          | 0.06                |           |
| 695.00                                                                | 0.60       | 58.30     | 695.00         | -2861.00             | -0.69         | 0.69                | 1.18                | 440925.59           | 674201.98          | 0.41                |           |
| 789.00                                                                | 0.60       | 48.60     | 788.99         | -2767.01             | -1.27         | 1.28                | 1.96                | 440926.18           | 674202.76          | 0.11                |           |
| 833.00                                                                | 0.40       | 41.90     | 832.99         | -2723.01             | -1.53         | 1.55                | 2.24                | 440926.45           | 674203.04          | 0.47                |           |
| 880.00                                                                | 0.52       | 38.13     | 879.99         | -2676.01             | -1.82         | 1.83                | 2.48                | 440926.73           | 674203.28          | 0.26                | 18 5/8 in |
| 973.00                                                                | 0.75       | 34.15     | 972.98         | -2583.02             | -2.65         | 2.67                | 3.08                | 440927.57           | 674203.88          | 0.26                |           |
| 1068.00                                                               | 0.22       | 27.82     | 1067.98        | -2488.02             | -3.32         | 3.34                | 3.51                | 440928.24           | 674204.31          | 0.56                |           |
| 1162.00                                                               | 0.22       | 227.25    | 1161.98        | -2394.02             | -3.36         | 3.38                | 3.47                | 440928.28           | 674204.27          | 0.46                |           |
| 1256.00                                                               | 0.84       | 231.90    | 1255.97        | -2300.03             | -2.81         | 2.83                | 2.79                | 440927.73           | 674203.59          | 0.66                |           |
| 1351.00                                                               | 0.84       | 240.69    | 1350.96        | -2205.04             | -2.05         | 2.06                | 1.64                | 440926.96           | 674202.44          | 0.14                |           |
| 1445.00                                                               | 0.84       | 241.57    | 1444.95        | -2111.05             | -1.39         | 1.40                | 0.43                | 440926.30           | 674201.23          | 0.01                |           |
| 1540.00                                                               | 1.19       | 238.67    | 1539.94        | -2016.06             | -0.56         | 0.55                | -1.03               | 440925.45           | 674199.77          | 0.37                |           |
| 1635.00                                                               | 1.10       | 242.36    | 1634.92        | -1921.08             | 0.37          | -0.38               | -2.68               | 440924.52           | 674198.12          | 0.12                |           |
| 1729.00                                                               | 1.10       | 236.91    | 1728.90        | -1827.10             | 1.27          | -1.30               | -4.23               | 440923.60           | 674196.57          | 0.11                |           |
| 1824.00                                                               | 1.01       | 235.07    | 1823.89        | -1732.11             | 2.23          | -2.27               | -5.68               | 440922.63           | 674195.12          | 0.10                |           |
| 1919.00                                                               | 1.23       | 231.64    | 1918.87        | -1637.13             | 3.34          | -3.38               | -7.17               | 440921.52           | 674193.63          | 0.24                |           |
| 2014.00                                                               | 1.67       | 234.89    | 2013.84        | -1542.16             | 4.75          | -4.81               | -9.10               | 440920.09           | 674191.70          | 0.47                |           |
| 2108.00                                                               | 2.07       | 231.29    | 2107.79        | -1448.21             | 6.59          | -6.66               | -11.54              | 440918.24           | 674189.26          | 0.44                |           |
| 2203.00                                                               | 2.24       | 230.59    | 2202.72        | -1353.28             | 8.82          | -8.91               | -14.32              | 440915.99           | 674186.48          | 0.18                |           |
| 2298.00                                                               | 2.55       | 226.54    | 2297.64        | -1258.36             | 11.43         | -11.55              | -17.29              | 440913.35           | 674183.51          | 0.37                |           |
| 2392.00                                                               | 2.64       | 226.10    | 2391.54        | -1164.46             | 14.35         | -14.49              | -20.36              | 440910.41           | 674180.44          | 0.10                |           |
| 2486.00                                                               | 2.90       | 219.60    | 2485.43        | -1070.57             | 17.66         | -17.82              | -23.44              | 440907.08           | 674177.36          | 0.43                |           |
| 2580.00                                                               | 3.21       | 217.93    | 2579.30        | -976.70              | 21.55         | -21.73              | -26.57              | 440903.17           | 674174.23          | 0.34                |           |
| 2675.00                                                               | 3.65       | 217.23    | 2674.13        | -881.87              | 26.03         | -26.23              | -30.04              | 440898.67           | 674170.76          | 0.47                |           |
| 2769.00                                                               | 2.73       | 238.06    | 2767.98        | -788.02              | 29.58         | -29.80              | -33.75              | 440895.10           | 674167.05          | 1.56                |           |
| 2864.00                                                               | 2.15       | 234.98    | 2862.90        | -693.10              | 31.77         | -32.02              | -37.13              | 440892.88           | 674163.67          | 0.63                |           |
| 2958.00                                                               | 2.07       | 235.95    | 2956.83        | -599.17              | 33.72         | -33.98              | -39.98              | 440890.92           | 674160.82          | 0.09                |           |
| 3053.00                                                               | 1.71       | 237.35    | 3051.78        | -504.22              | 35.42         | -35.71              | -42.59              | 440889.19           | 674158.21          | 0.38                |           |
| 3147.00                                                               | 1.63       | 233.14    | 3145.74        | -410.26              | 36.97         | -37.27              | -44.84              | 440887.63           | 674155.96          | 0.16                |           |
| 3241.00                                                               | 1.19       | 226.28    | 3239.71        | -316.29              | 38.43         | -38.74              | -46.62              | 440886.16           | 674154.18          | 0.50                |           |
| 3336.00                                                               | 1.10       | 222.24    | 3334.69        | -221.31              | 39.78         | -40.10              | -47.94              | 440884.80           | 674152.86          | 0.13                |           |
| 3430.00                                                               | 1.45       | 217.84    | 3428.67        | -127.33              | 41.38         | -41.71              | -49.28              | 440883.19           | 674151.52          | 0.39                |           |
| 3525.00                                                               | 1.27       | 220.74    | 3523.64        | -32.36               | 43.12         | -43.45              | -50.70              | 440881.45           | 674150.10          | 0.20                |           |
| 3618.00                                                               | 1.05       | 168.71    | 3616.63        | 60.63                | 44.73         | -45.07              | -51.21              | 440879.83           | 674149.59          | 1.11                |           |
| 3712.00                                                               | 2.55       | 135.84    | 3710.58        | 154.58               | 47.09         | -47.42              | -49.58              | 440877.48           | 674151.22          | 1.88                |           |
| 3807.00                                                               | 3.82       | 133.99    | 3805.43        | 249.43               | 50.82         | -51.13              | -45.84              | 440873.77           | 674154.96          | 1.34                |           |
| 3901.00                                                               | 2.81       | 138.65    | 3899.27        | 343.27               | 54.75         | -55.03              | -42.06              | 440869.87           | 674158.74          | 1.11                |           |
| 3996.00                                                               | 4.44       | 137.86    | 3994.08        | 438.08               | 59.26         | -59.51              | -38.05              | 440865.39           | 674162.75          | 1.72                |           |
| 4091.00                                                               | 4.70       | 149.20    | 4088.78        | 532.78               | 65.35         | -65.58              | -33.59              | 440859.32           | 674167.21          | 0.99                |           |
| 4186.00                                                               | 4.75       | 162.91    | 4183.46        | 627.46               | 72.48         | -72.68              | -30.45              | 440852.22           | 674170.35          | 1.19                |           |
| 4285.00                                                               | 3.52       | 160.45    | 4282.20        | 726.20               | 79.28         | -79.46              | -28.22              | 440845.44           | 674172.58          | 1.25                |           |
| 4355.00                                                               | 3.27       | 164.51    | 4352.08        | 796.08               | 83.23         | -83.42              | -26.97              | 440841.48           | 674173.83          | 0.49                | 13 3/8 in |
| 4374.00                                                               | 3.21       | 165.72    | 4371.05        | 815.05               | 84.27         | -84.45              | -26.69              | 440840.45           | 674174.11          | 0.49                |           |

## 5D Survey Report

| Survey Points: (Relative to Slot centre)(TVD relative to Drill Floor) |            |           |                |                      |               |                     |                     |                     |                    |                        |         |
|-----------------------------------------------------------------------|------------|-----------|----------------|----------------------|---------------|---------------------|---------------------|---------------------|--------------------|------------------------|---------|
| MD<br>(US ft)                                                         | Inc<br>(°) | Az<br>(°) | TVD<br>(US ft) | TVD (MSL)<br>(US ft) | VS<br>(US ft) | N.Offset<br>(US ft) | E.Offset<br>(US ft) | Northing<br>(US ft) | Easting<br>(US ft) | DLS<br>(°/100US<br>ft) | Comment |
| 4469.00                                                               | 2.99       | 165.46    | 4465.91        | 909.91               | 89.26         | -89.43              | -25.42              | 440835.47           | 674175.38          | 0.23                   |         |
| 4564.00                                                               | 2.99       | 192.27    | 4560.78        | 1004.78              | 94.08         | -94.25              | -25.32              | 440830.65           | 674175.48          | 1.46                   |         |
| 4658.00                                                               | 4.00       | 226.10    | 4654.62        | 1098.62              | 98.73         | -98.92              | -28.21              | 440825.98           | 674172.59          | 2.39                   |         |
| 4753.00                                                               | 4.62       | 249.75    | 4749.35        | 1193.35              | 102.31        | -102.54             | -34.18              | 440822.36           | 674166.62          | 1.96                   |         |
| 4848.00                                                               | 3.78       | 259.85    | 4844.10        | 1288.10              | 104.14        | -104.42             | -40.85              | 440820.48           | 674159.95          | 1.17                   |         |
| 4942.00                                                               | 3.34       | 266.18    | 4937.92        | 1381.92              | 104.83        | -105.15             | -46.64              | 440819.75           | 674154.16          | 0.63                   |         |
| 5037.00                                                               | 3.43       | 266.53    | 5032.75        | 1476.75              | 105.15        | -105.50             | -52.23              | 440819.40           | 674148.57          | 0.10                   |         |
| 5131.00                                                               | 3.34       | 263.19    | 5126.59        | 1570.59              | 105.61        | -106.00             | -57.76              | 440818.90           | 674143.04          | 0.23                   |         |
| 5224.00                                                               | 3.21       | 262.49    | 5219.44        | 1663.44              | 106.24        | -106.66             | -63.03              | 440818.24           | 674137.77          | 0.15                   |         |
| 5319.00                                                               | 3.16       | 263.98    | 5314.29        | 1758.29              | 106.83        | -107.28             | -68.27              | 440817.62           | 674132.53          | 0.10                   |         |
| 5414.00                                                               | 3.21       | 266.97    | 5409.14        | 1853.14              | 107.21        | -107.70             | -73.53              | 440817.20           | 674127.27          | 0.18                   |         |
| 5508.00                                                               | 3.25       | 267.32    | 5502.99        | 1946.99              | 107.43        | -107.96             | -78.82              | 440816.94           | 674121.98          | 0.05                   |         |
| 5602.00                                                               | 3.12       | 265.04    | 5596.85        | 2040.85              | 107.75        | -108.31             | -84.03              | 440816.59           | 674116.77          | 0.19                   |         |
| 5697.00                                                               | 3.52       | 261.44    | 5691.69        | 2135.69              | 108.37        | -108.96             | -89.49              | 440815.94           | 674111.31          | 0.47                   |         |
| 5790.00                                                               | 3.74       | 263.90    | 5784.50        | 2228.50              | 109.08        | -109.71             | -95.33              | 440815.19           | 674105.47          | 0.29                   |         |
| 5885.00                                                               | 2.68       | 285.69    | 5879.36        | 2323.36              | 108.77        | -109.44             | -100.55             | 440815.46           | 674100.25          | 1.68                   |         |
| 5979.00                                                               | 2.64       | 294.66    | 5973.25        | 2417.25              | 107.24        | -107.94             | -104.63             | 440816.96           | 674096.17          | 0.44                   |         |
| 6074.00                                                               | 2.73       | 297.30    | 6068.15        | 2512.15              | 105.27        | -105.99             | -108.63             | 440818.91           | 674092.17          | 0.16                   |         |
| 6168.00                                                               | 2.59       | 294.83    | 6162.05        | 2606.05              | 103.32        | -104.07             | -112.55             | 440820.83           | 674088.25          | 0.19                   |         |
| 6262.00                                                               | 2.99       | 294.31    | 6255.94        | 2699.94              | 101.39        | -102.17             | -116.71             | 440822.73           | 674084.09          | 0.43                   |         |
| 6355.00                                                               | 2.90       | 294.04    | 6348.81        | 2792.81              | 99.41         | -100.21             | -121.07             | 440824.69           | 674079.73          | 0.10                   |         |
| 6450.00                                                               | 2.95       | 291.23    | 6443.69        | 2887.69              | 97.52         | -98.35              | -125.54             | 440826.55           | 674075.26          | 0.16                   |         |
| 6544.00                                                               | 3.25       | 290.09    | 6537.55        | 2981.55              | 95.69         | -96.56              | -130.30             | 440828.34           | 674070.50          | 0.33                   |         |
| 6638.00                                                               | 1.80       | 308.72    | 6631.46        | 3075.46              | 93.83         | -94.72              | -133.96             | 440830.18           | 674066.84          | 1.75                   |         |
| 6732.00                                                               | 0.75       | 33.18     | 6725.44        | 3169.44              | 92.39         | -93.28              | -134.77             | 440831.62           | 674066.03          | 2.00                   |         |
| 6827.00                                                               | 1.10       | 51.47     | 6820.43        | 3264.43              | 91.30         | -92.19              | -133.72             | 440832.71           | 674067.08          | 0.48                   |         |
| 6922.00                                                               | 0.92       | 52.17     | 6915.41        | 3359.41              | 90.28         | -91.16              | -132.40             | 440833.74           | 674068.40          | 0.19                   |         |
| 7017.00                                                               | 0.88       | 53.93     | 7010.40        | 3454.40              | 89.39         | -90.26              | -131.21             | 440834.64           | 674069.59          | 0.05                   |         |
| 7111.00                                                               | 0.66       | 38.28     | 7104.39        | 3548.39              | 88.54         | -89.41              | -130.29             | 440835.49           | 674070.51          | 0.32                   |         |
| 7206.00                                                               | 0.79       | 56.21     | 7199.39        | 3643.39              | 87.76         | -88.62              | -129.41             | 440836.28           | 674071.39          | 0.27                   |         |
| 7300.00                                                               | 0.62       | 70.54     | 7293.38        | 3737.38              | 87.23         | -88.09              | -128.39             | 440836.81           | 674072.41          | 0.26                   |         |
| 7395.00                                                               | 0.79       | 75.81     | 7388.37        | 3832.37              | 86.91         | -87.75              | -127.27             | 440837.15           | 674073.53          | 0.19                   |         |
| 7489.00                                                               | 0.66       | 77.13     | 7482.37        | 3926.37              | 86.64         | -87.48              | -126.11             | 440837.42           | 674074.69          | 0.14                   |         |
| 7584.00                                                               | 0.79       | 87.68     | 7577.36        | 4021.36              | 86.50         | -87.33              | -124.93             | 440837.57           | 674075.87          | 0.20                   |         |
| 7679.00                                                               | 0.88       | 73.53     | 7672.35        | 4116.35              | 86.27         | -87.09              | -123.57             | 440837.81           | 674077.23          | 0.24                   |         |
| 7774.00                                                               | 0.79       | 85.57     | 7767.34        | 4211.34              | 86.02         | -86.84              | -122.22             | 440838.06           | 674078.58          | 0.21                   |         |
| 7868.00                                                               | 1.01       | 89.61     | 7861.33        | 4305.33              | 85.98         | -86.78              | -120.74             | 440838.12           | 674080.06          | 0.24                   |         |
| 7963.00                                                               | 1.01       | 95.15     | 7956.31        | 4400.31              | 86.06         | -86.85              | -119.07             | 440838.05           | 674081.73          | 0.10                   |         |
| 8058.00                                                               | 1.05       | 90.22     | 8051.30        | 4495.30              | 86.15         | -86.93              | -117.37             | 440837.97           | 674083.43          | 0.10                   |         |
| 8152.00                                                               | 0.88       | 94.00     | 8145.28        | 4589.28              | 86.21         | -86.98              | -115.79             | 440837.92           | 674085.01          | 0.19                   |         |
| 8246.00                                                               | 1.01       | 95.23     | 8239.27        | 4683.27              | 86.35         | -87.11              | -114.24             | 440837.79           | 674086.56          | 0.14                   |         |
| 8341.00                                                               | 0.84       | 93.04     | 8334.26        | 4778.26              | 86.47         | -87.22              | -112.71             | 440837.68           | 674088.09          | 0.18                   |         |
| 8435.00                                                               | 0.62       | 88.47     | 8428.25        | 4872.25              | 86.50         | -87.24              | -111.52             | 440837.66           | 674089.28          | 0.24                   |         |
| 8530.00                                                               | 0.66       | 97.17     | 8523.24        | 4967.24              | 86.56         | -87.30              | -110.46             | 440837.60           | 674090.34          | 0.11                   |         |
| 8624.00                                                               | 0.75       | 104.55    | 8617.24        | 5061.24              | 86.79         | -87.52              | -109.33             | 440837.38           | 674091.47          | 0.14                   |         |
| 8719.00                                                               | 0.57       | 95.94     | 8712.23        | 5156.23              | 87.01         | -87.73              | -108.26             | 440837.17           | 674092.54          | 0.22                   |         |
| 8813.00                                                               | 0.40       | 142.70    | 8806.23        | 5250.23              | 87.32         | -88.04              | -107.59             | 440836.86           | 674093.21          | 0.44                   |         |
| 8908.00                                                               | 0.35       | 204.04    | 8901.23        | 5345.23              | 87.85         | -88.56              | -107.51             | 440836.34           | 674093.29          | 0.41                   |         |
| 9002.00                                                               | 0.57       | 187.78    | 8995.22        | 5439.22              | 88.57         | -89.29              | -107.69             | 440835.61           | 674093.11          | 0.27                   |         |
| 9097.00                                                               | 0.53       | 218.98    | 9090.22        | 5534.22              | 89.38         | -90.10              | -108.03             | 440834.80           | 674092.77          | 0.31                   |         |
| 9192.00                                                               | 0.88       | 219.34    | 9185.21        | 5629.21              | 90.28         | -91.01              | -108.77             | 440833.89           | 674092.03          | 0.37                   |         |
| 9285.00                                                               | 0.84       | 228.48    | 9278.20        | 5722.20              | 91.28         | -92.01              | -109.73             | 440832.89           | 674091.07          | 0.15                   |         |
| 9380.00                                                               | 0.84       | 258.54    | 9373.19        | 5817.19              | 91.87         | -92.61              | -110.94             | 440832.29           | 674089.86          | 0.46                   |         |
| 9474.00                                                               | 0.79       | 269.70    | 9467.18        | 5911.18              | 92.00         | -92.75              | -112.26             | 440832.15           | 674088.54          | 0.18                   |         |
| 9570.00                                                               | 0.57       | 268.03    | 9563.17        | 6007.17              | 92.02         | -92.77              | -113.40             | 440832.13           | 674087.40          | 0.23                   |         |
| 9664.00                                                               | 0.62       | 260.38    | 9657.17        | 6101.17              | 92.11         | -92.87              | -114.37             | 440832.03           | 674086.43          | 0.10                   |         |
| 9759.00                                                               | 0.84       | 223.20    | 9752.16        | 6196.16              | 92.70         | -93.46              | -115.35             | 440831.44           | 674085.45          | 0.54                   |         |
| 9853.00                                                               | 0.44       | 194.29    | 9846.16        | 6290.16              | 93.55         | -94.32              | -115.91             | 440830.58           | 674084.89          | 0.53                   |         |

## 5D Survey Report

| Survey Points: (Relative to Slot centre)(TVD relative to Drill Floor) |            |           |                |                      |               |                     |                     |                     |                    |                        |          |
|-----------------------------------------------------------------------|------------|-----------|----------------|----------------------|---------------|---------------------|---------------------|---------------------|--------------------|------------------------|----------|
| MD<br>(US ft)                                                         | Inc<br>(°) | Az<br>(°) | TVD<br>(US ft) | TVD (MSL)<br>(US ft) | VS<br>(US ft) | N.Offset<br>(US ft) | E.Offset<br>(US ft) | Northing<br>(US ft) | Easting<br>(US ft) | DLS<br>(°/100US<br>ft) | Comment  |
| 9947.00                                                               | 0.35       | 170.56    | 9940.15        | 6384.15              | 94.18         | -94.95              | -115.95             | 440829.95           | 674084.85          | 0.20                   |          |
| 10041.00                                                              | 0.70       | 105.87    | 10034.15       | 6478.15              | 94.62         | -95.39              | -115.35             | 440829.51           | 674085.45          | 0.68                   |          |
| 10136.00                                                              | 0.88       | 111.76    | 10129.14       | 6573.14              | 95.06         | -95.82              | -114.12             | 440829.08           | 674086.68          | 0.21                   |          |
| 10230.00                                                              | 0.35       | 198.51    | 10223.14       | 6667.14              | 95.60         | -96.36              | -113.54             | 440828.54           | 674087.26          | 0.99                   |          |
| 10324.00                                                              | 0.48       | 274.88    | 10317.14       | 6761.14              | 95.84         | -96.60              | -114.02             | 440828.30           | 674086.78          | 0.56                   |          |
| 10419.00                                                              | 0.70       | 274.97    | 10412.13       | 6856.13              | 95.75         | -96.51              | -115.00             | 440828.39           | 674085.80          | 0.23                   |          |
| 10503.00                                                              | 0.62       | 238.50    | 10496.13       | 6940.13              | 95.94         | -96.71              | -115.90             | 440828.19           | 674084.90          | 0.50                   |          |
| 10568.00                                                              | 0.56       | 206.77    | 10561.12       | 7005.12              | 96.40         | -97.17              | -116.34             | 440827.73           | 674084.46          | 0.50                   | 9 5/8 in |
| 10610.00                                                              | 0.62       | 186.90    | 10603.12       | 7047.12              | 96.81         | -97.58              | -116.46             | 440827.32           | 674084.34          | 0.50                   |          |
| 10705.00                                                              | 0.88       | 173.81    | 10698.11       | 7142.11              | 98.04         | -98.82              | -116.44             | 440826.08           | 674084.36          | 0.33                   |          |
| 10799.00                                                              | 0.84       | 176.89    | 10792.10       | 7236.10              | 99.45         | -100.22             | -116.33             | 440824.68           | 674084.47          | 0.07                   |          |
| 10894.00                                                              | 1.10       | 190.86    | 10887.09       | 7331.09              | 101.04        | -101.82             | -116.46             | 440823.08           | 674084.34          | 0.37                   |          |
| 10988.00                                                              | 0.84       | 198.42    | 10981.07       | 7425.07              | 102.58        | -103.36             | -116.85             | 440821.54           | 674083.95          | 0.31                   |          |
| 11091.00                                                              | 1.45       | 184.88    | 11084.05       | 7528.05              | 104.59        | -105.37             | -117.20             | 440819.53           | 674083.60          | 0.64                   |          |
| 11139.00                                                              | 8.26       | 186.90    | 11131.85       | 7575.85              | 108.62        | -109.40             | -117.66             | 440815.50           | 674083.14          | 14.19                  |          |
| 11186.00                                                              | 13.63      | 187.34    | 11177.98       | 7621.98              | 117.46        | -118.25             | -118.78             | 440806.65           | 674082.02          | 11.43                  |          |
| 11233.00                                                              | 16.04      | 186.73    | 11223.41       | 7667.41              | 129.40        | -130.20             | -120.25             | 440794.70           | 674080.55          | 5.14                   |          |
| 11280.00                                                              | 17.71      | 186.20    | 11268.39       | 7712.39              | 142.94        | -143.75             | -121.78             | 440781.15           | 674079.02          | 3.57                   |          |
| 11327.00                                                              | 18.77      | 186.03    | 11313.02       | 7757.02              | 157.56        | -158.38             | -123.35             | 440766.52           | 674077.45          | 2.26                   |          |
| 11374.00                                                              | 18.90      | 185.32    | 11357.51       | 7801.51              | 172.65        | -173.48             | -124.85             | 440751.42           | 674075.95          | 0.56                   |          |
| 11421.00                                                              | 19.69      | 185.85    | 11401.87       | 7845.87              | 188.09        | -188.93             | -126.36             | 440735.97           | 674074.44          | 1.72                   |          |
| 11468.00                                                              | 19.82      | 185.23    | 11446.10       | 7890.10              | 203.89        | -204.75             | -127.89             | 440720.15           | 674072.91          | 0.52                   |          |
| 11516.00                                                              | 24.66      | 184.00    | 11490.52       | 7934.52              | 221.99        | -222.85             | -129.33             | 440702.05           | 674071.47          | 10.13                  |          |
| 11563.00                                                              | 29.71      | 183.13    | 11532.31       | 7976.31              | 243.40        | -244.27             | -130.65             | 440680.63           | 674070.15          | 10.78                  |          |
| 11610.00                                                              | 31.69      | 182.60    | 11572.72       | 8016.72              | 267.36        | -268.24             | -131.85             | 440656.66           | 674068.95          | 4.25                   |          |
| 11657.00                                                              | 32.79      | 182.51    | 11612.48       | 8056.48              | 292.40        | -293.29             | -132.97             | 440631.61           | 674067.83          | 2.34                   |          |
| 11689.00                                                              | 35.16      | 181.89    | 11639.01       | 8083.01              | 310.26        | -311.15             | -133.65             | 440613.75           | 674067.15          | 7.48                   |          |
| 11720.00                                                              | 38.02      | 181.10    | 11663.90       | 8107.90              | 328.73        | -329.62             | -134.13             | 440595.28           | 674066.67          | 9.35                   |          |
| 11752.00                                                              | 40.79      | 180.40    | 11688.62       | 8132.62              | 349.04        | -349.93             | -134.39             | 440574.97           | 674066.41          | 8.77                   |          |
| 11783.00                                                              | 45.49      | 179.43    | 11711.24       | 8155.24              | 370.23        | -371.12             | -134.35             | 440553.78           | 674066.45          | 15.31                  |          |
| 11815.00                                                              | 49.67      | 179.35    | 11732.82       | 8176.82              | 393.84        | -394.74             | -134.10             | 440530.16           | 674066.70          | 13.06                  |          |
| 11847.00                                                              | 53.19      | 179.61    | 11752.77       | 8196.77              | 418.86        | -419.76             | -133.87             | 440505.14           | 674066.93          | 11.02                  |          |
| 11878.00                                                              | 57.54      | 180.93    | 11770.38       | 8214.38              | 444.36        | -445.25             | -134.00             | 440479.65           | 674066.80          | 14.46                  |          |
| 11909.00                                                              | 61.27      | 182.25    | 11786.16       | 8230.16              | 471.02        | -471.92             | -134.75             | 440452.98           | 674066.05          | 12.58                  |          |
| 11941.00                                                              | 65.41      | 182.07    | 11800.51       | 8244.51              | 499.58        | -500.49             | -135.83             | 440424.41           | 674064.97          | 12.95                  |          |
| 11972.00                                                              | 70.15      | 180.93    | 11812.23       | 8256.23              | 528.26        | -529.17             | -136.57             | 440395.73           | 674064.23          | 15.66                  |          |
| 12004.00                                                              | 74.68      | 180.14    | 11821.90       | 8265.90              | 558.75        | -559.67             | -136.85             | 440365.23           | 674063.95          | 14.35                  |          |
| 12035.00                                                              | 77.41      | 180.05    | 11829.37       | 8273.37              | 588.83        | -589.75             | -136.90             | 440335.15           | 674063.90          | 8.81                   |          |
| 12083.00                                                              | 79.91      | 180.66    | 11838.81       | 8282.81              | 635.89        | -636.81             | -137.20             | 440288.09           | 674063.60          | 5.36                   |          |
| 12130.00                                                              | 83.47      | 181.54    | 11845.60       | 8289.60              | 682.37        | -683.30             | -138.09             | 440241.60           | 674062.71          | 7.80                   |          |
| 12224.00                                                              | 88.62      | 179.87    | 11852.08       | 8296.08              | 776.09        | -777.03             | -139.24             | 440147.87           | 674061.56          | 5.76                   |          |
| 12254.00                                                              | 89.19      | 179.35    | 11852.66       | 8296.66              | 806.09        | -807.03             | -139.04             | 440117.87           | 674061.76          | 2.57                   |          |
| 12348.00                                                              | 89.19      | 178.82    | 11853.99       | 8297.99              | 900.07        | -901.01             | -137.53             | 440023.89           | 674063.27          | 0.56                   |          |
| 12442.00                                                              | 89.01      | 177.94    | 11855.46       | 8299.46              | 994.04        | -994.95             | -134.88             | 439929.95           | 674065.92          | 0.96                   |          |
| 12537.00                                                              | 89.19      | 177.76    | 11856.95       | 8300.95              | 1088.98       | -1089.88            | -131.31             | 439835.02           | 674069.49          | 0.27                   |          |
| 12631.00                                                              | 90.46      | 180.05    | 11857.24       | 8301.24              | 1182.97       | -1183.85            | -129.52             | 439741.05           | 674071.28          | 2.79                   |          |
| 12726.00                                                              | 92.00      | 179.87    | 11855.20       | 8299.20              | 1277.94       | -1278.83            | -129.45             | 439646.07           | 674071.35          | 1.63                   |          |
| 12820.00                                                              | 89.67      | 180.58    | 11853.83       | 8297.83              | 1371.92       | -1372.81            | -129.82             | 439552.09           | 674070.98          | 2.59                   |          |
| 12915.00                                                              | 93.32      | 180.66    | 11851.35       | 8295.35              | 1466.85       | -1467.75            | -130.85             | 439457.15           | 674069.95          | 3.84                   |          |
| 13010.00                                                              | 92.31      | 179.43    | 11846.69       | 8290.69              | 1561.73       | -1562.64            | -130.92             | 439362.26           | 674069.88          | 1.67                   |          |
| 13104.00                                                              | 90.20      | 178.91    | 11844.63       | 8288.63              | 1655.70       | -1656.60            | -129.56             | 439268.30           | 674071.24          | 2.31                   |          |
| 13199.00                                                              | 87.91      | 179.87    | 11846.20       | 8290.20              | 1750.68       | -1751.57            | -128.55             | 439173.33           | 674072.25          | 2.61                   |          |
| 13294.00                                                              | 88.13      | 179.87    | 11849.48       | 8293.48              | 1845.62       | -1846.52            | -128.33             | 439078.38           | 674072.47          | 0.23                   |          |
| 13389.00                                                              | 89.49      | 179.17    | 11851.45       | 8295.45              | 1940.60       | -1941.49            | -127.54             | 438983.41           | 674073.26          | 1.61                   |          |
| 13483.00                                                              | 87.78      | 179.87    | 11853.69       | 8297.69              | 2034.57       | -2035.45            | -126.75             | 438889.45           | 674074.05          | 1.97                   |          |
| 13577.00                                                              | 88.22      | 179.17    | 11856.97       | 8300.97              | 2128.51       | -2129.39            | -125.96             | 438795.51           | 674074.84          | 0.88                   |          |
| 13670.00                                                              | 88.88      | 178.03    | 11859.33       | 8303.33              | 2221.46       | -2222.33            | -123.69             | 438702.57           | 674077.11          | 1.42                   |          |
| 13765.00                                                              | 89.89      | 179.35    | 11860.34       | 8304.34              | 2316.44       | -2317.30            | -121.52             | 438607.60           | 674079.28          | 1.75                   |          |

## SD Survey Report

| Survey Points: (Relative to Slot centre)(TVD relative to Drill Floor) |            |           |                |                      |               |                      |                      |                     |                    |                        | Comment               |
|-----------------------------------------------------------------------|------------|-----------|----------------|----------------------|---------------|----------------------|----------------------|---------------------|--------------------|------------------------|-----------------------|
| MD<br>(US ft)                                                         | Inc<br>(°) | Az<br>(°) | TVD<br>(US ft) | TVD (MSL)<br>(US ft) | VS<br>(US ft) | N. Offset<br>(US ft) | E. Offset<br>(US ft) | Northing<br>(US ft) | Easting<br>(US ft) | DLS<br>(°/100US<br>ft) |                       |
| 13858.00                                                              | 89.45      | 180.75    | 11860.88       | 8304.88              | 2409.44       | -2410.30             | -121.60              | 438514.60           | 674079.20          | 1.58                   |                       |
| 13953.00                                                              | 85.05      | 182.69    | 11865.44       | 8309.44              | 2504.24       | -2505.12             | -124.45              | 438419.78           | 674076.35          | 5.06                   |                       |
| 14048.00                                                              | 87.60      | 181.19    | 11871.53       | 8315.53              | 2598.95       | -2599.86             | -127.65              | 438325.04           | 674073.15          | 3.11                   |                       |
| 14142.00                                                              | 90.07      | 180.93    | 11873.44       | 8317.44              | 2692.90       | -2693.81             | -129.39              | 438231.09           | 674071.41          | 2.64                   |                       |
| 14241.00                                                              | 89.45      | 180.31    | 11873.85       | 8317.85              | 2791.88       | -2792.81             | -130.46              | 438132.09           | 674070.34          | 0.89                   |                       |
| 14335.00                                                              | 90.29      | 179.96    | 11874.07       | 8318.07              | 2885.87       | -2886.80             | -130.68              | 438038.10           | 674070.12          | 0.97                   |                       |
| 14431.00                                                              | 90.59      | 179.26    | 11873.33       | 8317.33              | 2981.87       | -2982.80             | -130.03              | 437942.10           | 674070.77          | 0.79                   |                       |
| 14525.00                                                              | 91.74      | 178.64    | 11871.42       | 8315.42              | 3075.84       | -3076.76             | -128.31              | 437848.14           | 674072.49          | 1.39                   |                       |
| 14620.00                                                              | 90.51      | 179.70    | 11869.55       | 8313.55              | 3170.82       | -3171.73             | -126.93              | 437753.17           | 674073.87          | 1.71                   |                       |
| 14714.00                                                              | 90.55      | 178.82    | 11868.68       | 8312.68              | 3264.81       | -3265.72             | -125.72              | 437659.18           | 674075.08          | 0.94                   |                       |
| 14807.00                                                              | 91.16      | 176.97    | 11867.29       | 8311.29              | 3357.75       | -3358.64             | -122.30              | 437566.26           | 674078.50          | 2.09                   |                       |
| 14901.00                                                              | 90.02      | 177.15    | 11866.33       | 8310.33              | 3451.65       | -3452.51             | -117.48              | 437472.39           | 674083.32          | 1.23                   |                       |
| 14996.00                                                              | 89.27      | 178.82    | 11866.92       | 8310.92              | 3546.61       | -3547.44             | -114.14              | 437377.46           | 674086.66          | 1.93                   |                       |
| 15091.00                                                              | 90.07      | 177.06    | 11867.46       | 8311.46              | 3641.56       | -3642.38             | -110.73              | 437282.52           | 674090.07          | 2.03                   |                       |
| 15185.00                                                              | 89.32      | 178.82    | 11867.96       | 8311.96              | 3735.52       | -3736.31             | -107.35              | 437188.59           | 674093.45          | 2.04                   |                       |
| 15279.00                                                              | 89.27      | 180.58    | 11869.12       | 8313.12              | 3829.51       | -3830.30             | -106.86              | 437094.60           | 674093.94          | 1.87                   |                       |
| 15374.00                                                              | 90.81      | 179.87    | 11869.05       | 8313.05              | 3924.50       | -3925.29             | -107.23              | 436999.61           | 674093.57          | 1.79                   |                       |
| 15468.00                                                              | 92.48      | 178.73    | 11866.36       | 8310.36              | 4018.45       | -4019.24             | -106.08              | 436905.66           | 674094.72          | 2.15                   |                       |
| 15563.00                                                              | 90.46      | 179.08    | 11863.92       | 8307.92              | 4113.41       | -4114.19             | -104.27              | 436810.71           | 674096.53          | 2.16                   |                       |
| 15657.00                                                              | 90.33      | 181.37    | 11863.27       | 8307.27              | 4207.39       | -4208.18             | -104.64              | 436716.72           | 674096.16          | 2.44                   |                       |
| 15752.00                                                              | 90.15      | 181.19    | 11862.87       | 8306.87              | 4302.35       | -4303.16             | -106.76              | 436621.74           | 674094.04          | 0.27                   | Tie On<br>WellBenders |
| 15849.00                                                              | 89.38      | 180.98    | 11863.27       | 8307.27              | 4399.32       | -4400.14             | -108.60              | 436524.76           | 674092.20          | 0.82                   |                       |
| 15943.00                                                              | 90.43      | 180.07    | 11863.43       | 8307.43              | 4493.31       | -4494.13             | -109.46              | 436430.77           | 674091.34          | 1.48                   |                       |
| 16038.00                                                              | 91.42      | 177.58    | 11861.89       | 8305.89              | 4588.28       | -4589.09             | -107.51              | 436335.81           | 674093.29          | 2.82                   |                       |
| 16132.00                                                              | 90.93      | 175.09    | 11859.96       | 8303.96              | 4682.09       | -4682.87             | -101.50              | 436242.03           | 674099.30          | 2.70                   |                       |
| 16227.00                                                              | 91.48      | 174.50    | 11857.97       | 8301.97              | 4776.74       | -4777.46             | -92.89               | 436147.44           | 674107.91          | 0.85                   |                       |
| 16321.00                                                              | 91.54      | 175.36    | 11855.49       | 8299.49              | 4870.39       | -4871.06             | -84.58               | 436053.84           | 674116.22          | 0.92                   |                       |
| 16415.00                                                              | 91.94      | 178.85    | 11852.63       | 8296.63              | 4964.24       | -4964.88             | -79.84               | 435960.02           | 674120.96          | 3.74                   |                       |
| 16509.00                                                              | 90.06      | 181.05    | 11850.99       | 8294.99              | 5058.21       | -5058.85             | -79.76               | 435866.05           | 674121.04          | 3.08                   |                       |
| 16604.00                                                              | 90.31      | 181.85    | 11850.69       | 8294.69              | 5153.16       | -5153.82             | -82.16               | 435771.08           | 674118.64          | 0.88                   |                       |
| 16698.00                                                              | 90.00      | 182.56    | 11850.43       | 8294.43              | 5247.07       | -5247.75             | -85.78               | 435677.15           | 674115.02          | 0.82                   |                       |
| 16793.00                                                              | 89.07      | 183.54    | 11851.20       | 8295.20              | 5341.89       | -5342.61             | -90.83               | 435582.29           | 674109.97          | 1.42                   |                       |
| 16888.00                                                              | 89.51      | 185.15    | 11852.38       | 8296.38              | 5436.56       | -5437.33             | -98.03               | 435487.57           | 674102.77          | 1.76                   |                       |
| 16982.00                                                              | 89.01      | 183.67    | 11853.59       | 8297.59              | 5530.22       | -5531.04             | -105.25              | 435393.86           | 674095.55          | 1.66                   |                       |
| 17077.00                                                              | 89.20      | 182.02    | 11855.08       | 8299.08              | 5625.05       | -5625.91             | -109.97              | 435298.99           | 674090.83          | 1.75                   |                       |
| 17172.00                                                              | 88.95      | 181.09    | 11856.61       | 8300.61              | 5719.99       | -5720.86             | -112.55              | 435204.04           | 674088.25          | 1.01                   |                       |
| 17267.00                                                              | 90.12      | 179.45    | 11857.38       | 8301.38              | 5814.97       | -5815.85             | -112.99              | 435109.05           | 674087.81          | 2.12                   |                       |
| 17361.00                                                              | 90.25      | 178.33    | 11857.08       | 8301.08              | 5908.96       | -5909.83             | -111.17              | 435015.07           | 674089.63          | 1.20                   |                       |
| 17455.00                                                              | 90.00      | 177.94    | 11856.87       | 8300.87              | 6002.93       | -6003.78             | -108.11              | 434921.12           | 674092.69          | 0.49                   |                       |
| 17549.00                                                              | 90.12      | 177.63    | 11856.78       | 8300.78              | 6096.88       | -6097.71             | -104.48              | 434827.19           | 674096.32          | 0.35                   |                       |
| 17644.00                                                              | 90.06      | 176.12    | 11856.63       | 8300.63              | 6191.77       | -6192.56             | -99.30               | 434732.34           | 674101.50          | 1.59                   |                       |
| 17738.00                                                              | 90.00      | 174.44    | 11856.58       | 8300.58              | 6285.50       | -6286.24             | -91.57               | 434638.66           | 674109.23          | 1.79                   |                       |
| 17833.00                                                              | 90.00      | 175.79    | 11856.58       | 8300.58              | 6380.20       | -6380.89             | -83.48               | 434544.01           | 674117.32          | 1.42                   |                       |
| 17927.00                                                              | 90.06      | 178.03    | 11856.53       | 8300.53              | 6474.09       | -6474.75             | -78.41               | 434450.15           | 674122.39          | 2.38                   |                       |
| 18021.00                                                              | 89.75      | 178.67    | 11856.68       | 8300.68              | 6568.07       | -6568.71             | -75.70               | 434356.19           | 674125.10          | 0.76                   |                       |
| 18115.00                                                              | 89.01      | 180.92    | 11857.70       | 8301.70              | 6662.05       | -6662.70             | -75.37               | 434262.20           | 674125.43          | 2.52                   |                       |
| 18210.00                                                              | 88.40      | 180.52    | 11859.85       | 8303.85              | 6757.01       | -6757.67             | -76.56               | 434167.23           | 674124.24          | 0.77                   |                       |
| 18304.00                                                              | 88.89      | 181.78    | 11862.07       | 8306.07              | 6850.95       | -6851.62             | -78.45               | 434073.28           | 674122.35          | 1.44                   |                       |
| 18399.00                                                              | 89.94      | 182.29    | 11863.04       | 8307.04              | 6945.86       | -6946.55             | -81.82               | 433978.35           | 674118.98          | 1.23                   |                       |
| 18494.00                                                              | 89.57      | 181.40    | 11863.45       | 8307.45              | 7040.78       | -7041.50             | -84.88               | 433883.40           | 674115.92          | 1.01                   |                       |
| 18589.00                                                              | 90.19      | 180.47    | 11863.65       | 8307.65              | 7135.76       | -7136.49             | -86.43               | 433788.41           | 674114.37          | 1.18                   |                       |
| 18684.00                                                              | 90.74      | 178.68    | 11862.88       | 8306.88              | 7230.75       | -7231.48             | -85.73               | 433693.42           | 674115.07          | 1.97                   |                       |
| 18779.00                                                              | 90.19      | 177.78    | 11862.10       | 8306.10              | 7325.72       | -7326.43             | -82.79               | 433598.47           | 674118.01          | 1.11                   |                       |
| 18873.00                                                              | 89.94      | 176.40    | 11862.00       | 8306.00              | 7419.62       | -7420.30             | -78.02               | 433504.60           | 674122.78          | 1.49                   |                       |
| 18968.00                                                              | 89.75      | 177.14    | 11862.26       | 8306.26              | 7514.50       | -7515.15             | -72.67               | 433409.75           | 674128.13          | 0.80                   |                       |
| 19062.00                                                              | 90.49      | 177.57    | 11862.06       | 8306.06              | 7608.43       | -7609.05             | -68.33               | 433315.85           | 674132.47          | 0.91                   |                       |
| 19157.00                                                              | 89.88      | 179.71    | 11861.75       | 8305.75              | 7703.41       | -7704.02             | -66.07               | 433220.88           | 674134.73          | 2.34                   |                       |

## 5D Survey Report

| Survey Points: (Relative to Slot centre)(TVD relative to Drill Floor) |            |           |                |                      |               |                      |                      |                     |                    |                        |         |
|-----------------------------------------------------------------------|------------|-----------|----------------|----------------------|---------------|----------------------|----------------------|---------------------|--------------------|------------------------|---------|
| MD<br>(US ft)                                                         | Inc<br>(°) | Az<br>(°) | TVD<br>(US ft) | TVD (MSL)<br>(US ft) | VS<br>(US ft) | N. Offset<br>(US ft) | E. Offset<br>(US ft) | Northing<br>(US ft) | Easting<br>(US ft) | DLS<br>(°/100US<br>ft) | Comment |
| 19251.00                                                              | 90.26      | 182.03    | 11861.64       | 8305.64              | 7797.38       | -7798.00             | -67.50               | 433126.90           | 674133.30          | 2.50                   |         |
| 19345.00                                                              | 90.62      | 183.90    | 11860.91       | 8304.91              | 7891.21       | -7891.87             | -72.36               | 433033.03           | 674128.44          | 2.03                   |         |
| 19439.00                                                              | 89.57      | 182.96    | 11860.76       | 8304.76              | 7985.00       | -7985.70             | -77.99               | 432939.20           | 674122.81          | 1.50                   |         |
| 19534.00                                                              | 89.75      | 183.26    | 11861.32       | 8305.32              | 8079.83       | -8080.55             | -83.14               | 432844.35           | 674117.66          | 0.37                   |         |
| 19628.00                                                              | 89.08      | 180.58    | 11862.28       | 8306.28              | 8173.74       | -8174.49             | -86.29               | 432750.41           | 674114.51          | 2.94                   |         |
| 19722.00                                                              | 89.44      | 178.94    | 11863.50       | 8307.50              | 8267.72       | -8268.48             | -85.90               | 432656.42           | 674114.90          | 1.79                   |         |
| 19817.00                                                              | 89.44      | 177.95    | 11864.43       | 8308.43              | 8362.70       | -8363.43             | -83.32               | 432561.47           | 674117.48          | 1.04                   |         |
| 19912.00                                                              | 90.37      | 177.75    | 11864.58       | 8308.58              | 8457.65       | -8458.37             | -79.75               | 432466.53           | 674121.05          | 1.00                   |         |
| 20007.00                                                              | 90.74      | 178.95    | 11863.66       | 8307.66              | 8552.62       | -8553.32             | -77.02               | 432371.58           | 674123.78          | 1.32                   |         |
| 20102.00                                                              | 90.12      | 180.27    | 11862.95       | 8306.95              | 8647.62       | -8648.31             | -76.37               | 432276.59           | 674124.43          | 1.54                   |         |
| 20196.00                                                              | 90.43      | 179.91    | 11862.50       | 8306.50              | 8741.61       | -8742.31             | -76.52               | 432182.59           | 674124.28          | 0.51                   |         |
| 20290.00                                                              | 90.43      | 179.45    | 11861.79       | 8305.79              | 8835.61       | -8836.31             | -76.00               | 432088.59           | 674124.80          | 0.49                   |         |
| 20385.00                                                              | 90.93      | 180.50    | 11860.67       | 8304.67              | 8930.60       | -8931.30             | -75.95               | 431993.60           | 674124.85          | 1.22                   |         |
| 20479.00                                                              | 88.33      | 180.26    | 11861.27       | 8305.27              | 9024.58       | -9025.29             | -76.58               | 431899.61           | 674124.22          | 2.78                   |         |
| 20573.00                                                              | 88.58      | 180.27    | 11863.81       | 8307.81              | 9118.54       | -9119.25             | -77.01               | 431805.65           | 674123.79          | 0.27                   |         |
| 20668.00                                                              | 87.96      | 179.85    | 11866.67       | 8310.67              | 9213.49       | -9214.21             | -77.11               | 431710.69           | 674123.69          | 0.79                   |         |
| 20762.00                                                              | 90.31      | 181.06    | 11868.09       | 8312.09              | 9307.46       | -9308.19             | -77.86               | 431616.71           | 674122.94          | 2.81                   |         |
| 20856.00                                                              | 91.05      | 180.89    | 11866.98       | 8310.98              | 9401.43       | -9402.17             | -79.46               | 431522.73           | 674121.34          | 0.81                   |         |
| 20951.00                                                              | 91.36      | 180.81    | 11864.98       | 8308.98              | 9496.39       | -9497.13             | -80.87               | 431427.77           | 674119.93          | 0.34                   |         |
| 21045.00                                                              | 90.99      | 180.75    | 11863.05       | 8307.05              | 9590.35       | -9591.10             | -82.15               | 431333.80           | 674118.65          | 0.40                   |         |
| 21140.00                                                              | 90.99      | 181.68    | 11861.41       | 8305.41              | 9685.30       | -9686.07             | -84.16               | 431238.83           | 674116.64          | 0.98                   |         |
| 21235.00                                                              | 90.97      | 180.79    | 11859.79       | 8303.79              | 9780.24       | -9781.03             | -86.21               | 431143.87           | 674114.59          | 0.94                   |         |
| 21330.00                                                              | 90.99      | 178.97    | 11858.16       | 8302.16              | 9875.23       | -9876.01             | -86.01               | 431048.89           | 674114.79          | 1.92                   |         |
| 21424.00                                                              | 91.36      | 178.61    | 11856.23       | 8300.23              | 9969.20       | -9969.97             | -84.02               | 430954.93           | 674116.78          | 0.55                   |         |
| 21519.00                                                              | 89.94      | 177.67    | 11855.16       | 8299.16              | 10064.15      | -10064.91            | -80.94               | 430859.99           | 674119.86          | 1.79                   |         |
| 21613.00                                                              | 89.51      | 177.19    | 11855.61       | 8299.61              | 10158.08      | -10158.82            | -76.73               | 430766.08           | 674124.07          | 0.69                   |         |
| 21708.00                                                              | 89.32      | 177.36    | 11856.58       | 8300.58              | 10253.00      | -10253.70            | -72.21               | 430671.20           | 674128.59          | 0.27                   |         |
| 21803.00                                                              | 89.75      | 177.65    | 11857.35       | 8301.35              | 10347.93      | -10348.61            | -68.07               | 430576.29           | 674132.73          | 0.55                   |         |
| 21897.00                                                              | 89.51      | 178.84    | 11857.96       | 8301.96              | 10441.90      | -10442.56            | -65.20               | 430482.34           | 674135.60          | 1.29                   |         |
| 21992.00                                                              | 89.45      | 180.35    | 11858.82       | 8302.82              | 10536.89      | -10537.55            | -64.52               | 430387.35           | 674136.28          | 1.59                   |         |
| 22086.00                                                              | 89.32      | 180.59    | 11859.83       | 8303.83              | 10630.88      | -10631.55            | -65.29               | 430293.35           | 674135.51          | 0.29                   |         |
| 22180.00                                                              | 89.01      | 177.84    | 11861.20       | 8305.20              | 10724.86      | -10725.52            | -64.01               | 430199.38           | 674136.79          | 2.94                   |         |
| 22275.00                                                              | 90.80      | 177.80    | 11861.35       | 8305.35              | 10819.81      | -10820.44            | -60.39               | 430104.46           | 674140.41          | 1.88                   |         |
| 22370.00                                                              | 90.25      | 178.75    | 11860.48       | 8304.48              | 10914.77      | -10915.40            | -57.53               | 430009.50           | 674143.27          | 1.16                   |         |
| 22464.00                                                              | 90.49      | 181.02    | 11859.88       | 8303.88              | 11008.77      | -11009.39            | -57.35               | 429915.51           | 674143.45          | 2.43                   |         |
| 22559.00                                                              | 90.37      | 181.77    | 11859.16       | 8303.16              | 11103.72      | -11104.36            | -59.66               | 429820.54           | 674141.14          | 0.80                   |         |
| 22654.00                                                              | 90.80      | 183.15    | 11858.19       | 8302.19              | 11198.59      | -11199.26            | -63.74               | 429725.64           | 674137.06          | 1.52                   |         |
| 22748.00                                                              | 90.68      | 182.56    | 11856.98       | 8300.98              | 11292.43      | -11293.14            | -68.42               | 429631.76           | 674132.38          | 0.64                   |         |
| 22843.00                                                              | 90.74      | 181.14    | 11855.80       | 8299.80              | 11387.35      | -11388.08            | -71.48               | 429536.82           | 674129.32          | 1.50                   |         |
| 22938.00                                                              | 89.88      | 181.59    | 11855.29       | 8299.29              | 11482.31      | -11483.05            | -73.75               | 429441.85           | 674127.05          | 1.02                   |         |
| 23033.00                                                              | 90.18      | 182.03    | 11855.44       | 8299.44              | 11577.24      | -11578.00            | -76.75               | 429346.90           | 674124.05          | 0.56                   |         |
| 23127.00                                                              | 89.57      | 181.68    | 11855.44       | 8299.44              | 11671.16      | -11671.95            | -79.79               | 429252.95           | 674121.01          | 0.75                   |         |
| 23221.00                                                              | 89.51      | 180.93    | 11856.20       | 8300.20              | 11765.12      | -11765.92            | -81.93               | 429158.98           | 674118.87          | 0.80                   |         |
| 23316.00                                                              | 89.51      | 178.75    | 11857.01       | 8301.01              | 11860.11      | -11860.91            | -81.67               | 429063.99           | 674119.13          | 2.29                   |         |
| 23410.00                                                              | 89.14      | 175.54    | 11858.12       | 8302.12              | 11954.00      | -11954.78            | -76.98               | 428970.12           | 674123.82          | 3.44                   |         |
| 23504.00                                                              | 90.26      | 176.74    | 11858.61       | 8302.61              | 12047.82      | -12048.56            | -70.66               | 428876.34           | 674130.14          | 1.75                   |         |
| 23599.00                                                              | 89.81      | 177.63    | 11858.55       | 8302.55              | 12142.74      | -12143.44            | -65.99               | 428781.46           | 674134.81          | 1.05                   |         |
| 23693.00                                                              | 91.15      | 178.50    | 11857.77       | 8301.77              | 12236.70      | -12237.38            | -62.82               | 428687.52           | 674137.98          | 1.70                   |         |
| 23788.00                                                              | 91.30      | 181.41    | 11855.73       | 8299.73              | 12331.66      | -12332.35            | -62.74               | 428592.55           | 674138.06          | 3.07                   |         |
| 23883.00                                                              | 90.00      | 179.38    | 11854.66       | 8298.66              | 12426.64      | -12427.34            | -63.40               | 428497.56           | 674137.40          | 2.54                   |         |
| 23978.00                                                              | 91.05      | 178.38    | 11853.79       | 8297.79              | 12521.63      | -12522.31            | -61.54               | 428402.59           | 674139.26          | 1.53                   |         |
| 24074.00                                                              | 91.23      | 178.52    | 11851.88       | 8295.88              | 12617.59      | -12618.26            | -58.94               | 428306.64           | 674141.86          | 0.24                   |         |
| 24168.00                                                              | 91.17      | 179.61    | 11849.91       | 8293.91              | 12711.56      | -12712.22            | -57.41               | 428212.68           | 674143.39          | 1.16                   |         |
| 24263.00                                                              | 87.78      | 180.01    | 11850.78       | 8294.78              | 12806.54      | -12807.20            | -57.10               | 428117.70           | 674143.70          | 3.59                   |         |
| 24358.00                                                              | 88.85      | 179.73    | 11853.57       | 8297.57              | 12901.50      | -12902.16            | -56.88               | 428022.74           | 674143.92          | 1.16                   |         |
| 24452.00                                                              | 88.52      | 178.45    | 11855.73       | 8299.73              | 12995.47      | -12996.12            | -55.39               | 427928.78           | 674145.41          | 1.41                   |         |
| 24547.00                                                              | 89.81      | 180.08    | 11857.11       | 8301.11              | 13090.45      | -13091.10            | -54.17               | 427833.80           | 674146.63          | 2.19                   |         |
| 24642.00                                                              | 87.59      | 181.27    | 11859.27       | 8303.27              | 13185.40      | -13186.06            | -55.29               | 427738.84           | 674145.51          | 2.65                   |         |

## 5D Survey Report

| Survey Points: (Relative to Slot centre)(TVD relative to Drill Floor) |            |           |                |                      |               |                      |                      |                     |                    |                        |                 |
|-----------------------------------------------------------------------|------------|-----------|----------------|----------------------|---------------|----------------------|----------------------|---------------------|--------------------|------------------------|-----------------|
| MD<br>(US ft)                                                         | Inc<br>(°) | Az<br>(°) | TVD<br>(US ft) | TVD (MSL)<br>(US ft) | VS<br>(US ft) | N. Offset<br>(US ft) | E. Offset<br>(US ft) | Northing<br>(US ft) | Easting<br>(US ft) | DLS<br>(°/100US<br>ft) | Comment         |
| 24736.00                                                              | 92.20      | 183.79    | 11859.44       | 8303.44              | 13279.25      | -13279.94            | -59.44               | 427644.96           | 674141.36          | 5.59                   |                 |
| 24798.00                                                              | 92.47      | 186.45    | 11856.91       | 8300.91              | 13340.91      | -13341.63            | -64.96               | 427583.27           | 674135.84          | 4.31                   | Last WFT<br>SVY |
| 24830.00                                                              | 92.47      | 186.45    | 11855.53       | 8299.53              | 13372.65      | -13373.40            | -68.56               | 427551.50           | 674132.24          | 0.00                   | PTB             |