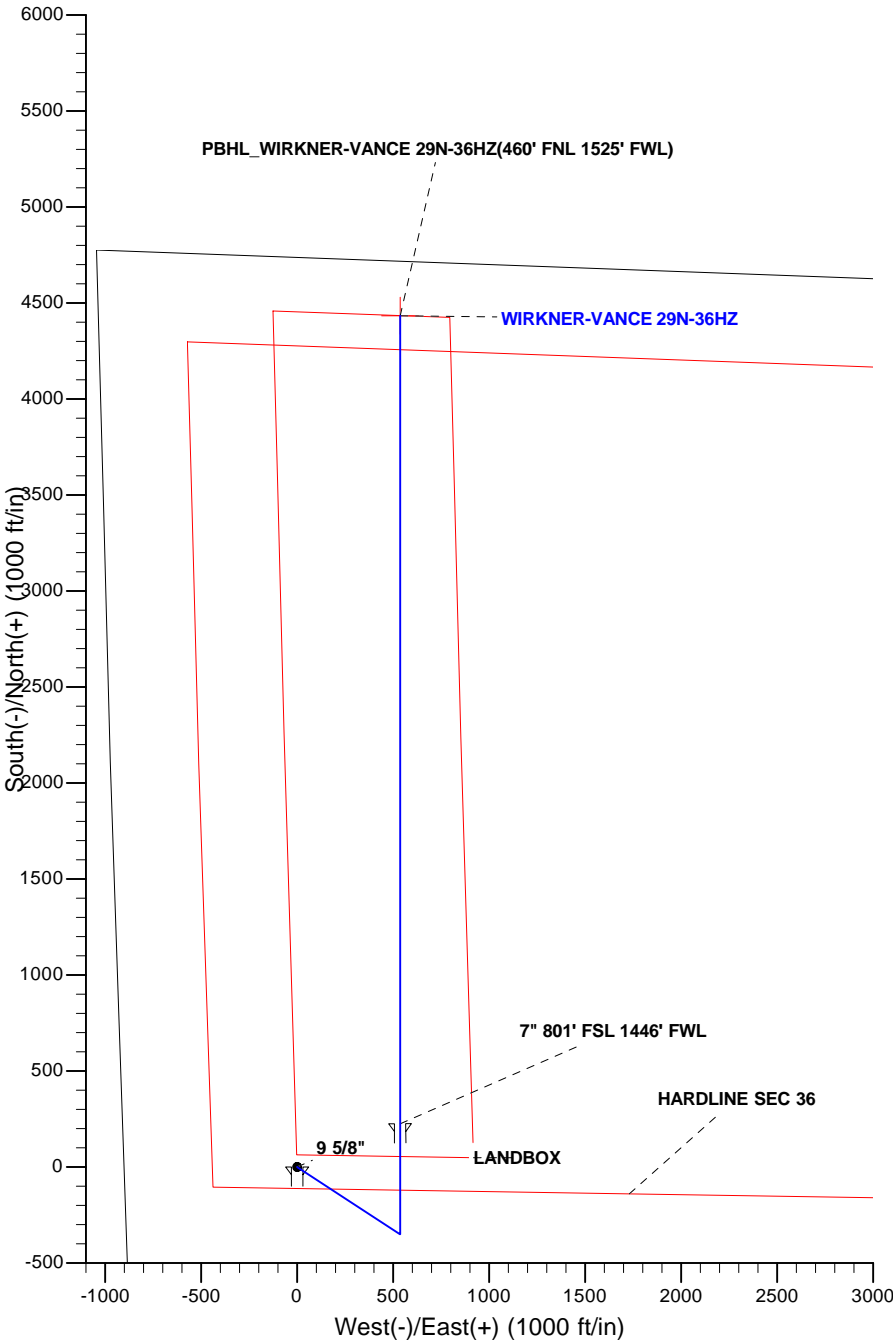
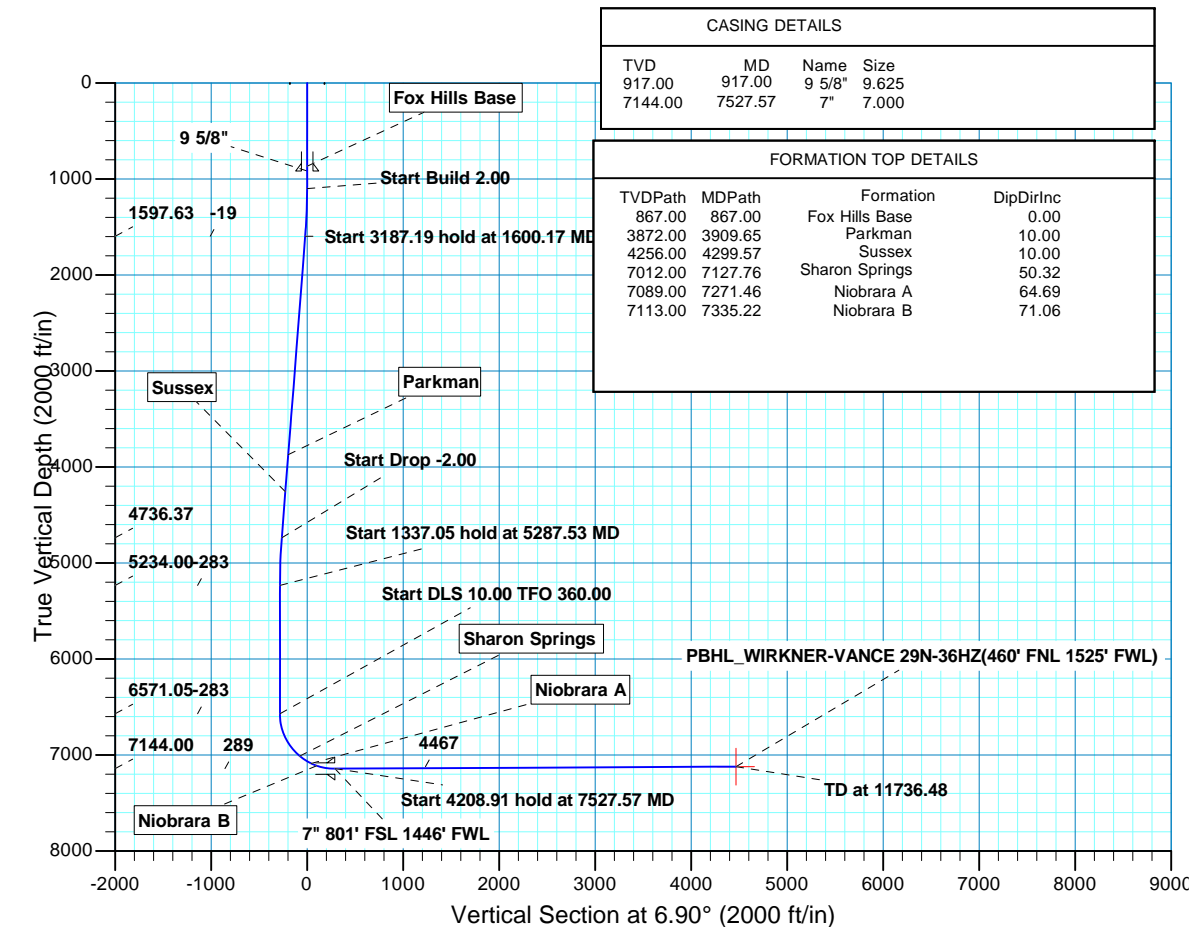


| WELL DETAILS: WIRKNER-VANCE 29N-36HZ  |       |               |         |                        |        |                       |             |   |        |                           |  |            |  |              |  |       |  |
|---------------------------------------|-------|---------------|---------|------------------------|--------|-----------------------|-------------|---|--------|---------------------------|--|------------|--|--------------|--|-------|--|
| GL 4822 & KB 17 @ 4839.00ft (ASSUMED) |       |               |         |                        |        |                       |             |   |        |                           |  |            |  |              |  |       |  |
| +N/-S<br>0.00                         |       | +E/-W<br>0.00 |         | Northing<br>1307369.94 |        | Easting<br>3182959.42 |             | Latitude<br>40.1752719                          |        | Longitude<br>-104.8452430 |  |            |  |              |  |       |  |
| SECTION DETAILS                       |       |               |         |                        |        |                       |             |   |        |                           |  |            |  |              |  |       |  |
| MD                                    | Inc   | Azi           | TVD     | +N/-S                  | +E/-W  | Dleg                  | TFace       | VSect   | Target |                           |  |            |  |              |  |       |  |
| 0.00                                  | 0.00  | 0.00          | 0.00    | 0.00                   | 0.00   | 0.00                  | 0.00        | 0.00  | 0.00   |                           |  |            |  |              |  |       |  |
| 1100.00                               | 0.00  | 0.00          | 1100.00 | 0.00                   | 0.00   | 0.00                  | 0.00        | 0.00  | 0.00   |                           |  |            |  |              |  |       |  |
| 1600.17                               | 10.00 | 123.11        | 1597.63 | -23.79                 | 36.48  | 2.00                  | 123.11      | -19.23  |        |                           |  |            |  |              |  |       |  |
| 4787.36                               | 10.00 | 123.11        | 4736.37 | -326.21                | 500.22 | 0.00                  | 0.00        | -263.75   |        |                           |  |            |  |              |  |       |  |
| 5287.53                               | 0.00  | 0.00          | 5234.00 | -350.00                | 536.70 | 2.00                  | 180.00      | -282.98   |        |                           |  |            |  |              |  |       |  |
| 6624.58                               | 0.00  | 0.00          | 6571.05 | -350.00                | 536.70 | 0.00                  | 0.00        | -282.98   |        |                           |  |            |  |              |  |       |  |
| 7527.57                               | 90.30 | 360.00        | 7144.00 | 225.95                 | 536.70 | 10.00                 | 360.00      | 288.80  |        |                           |  |            |  |              |  |       |  |
| 11736.48                              | 90.30 | 360.00        | 7122.00 | 4434.80                | 536.70 | 0.00                  | 0.004467.16 | PBHL_WIRKNER-VANCE 29N-36HZ(460' FNL 1525' FWL) |        |                           |  |            |  |              |  |       |  |
| DESIGN TARGET DETAILS                 |       |               |         |                        |        |                       |             |   |        |                           |  |            |  |              |  |       |  |
| Name                                  |       | TVD           |         | +N/-S                  |        | +E/-W                 |             | Northing  |        | Easting                   |  | Latitude   |  | Longitude    |  | Shape |  |
| PBHL                                  |       | 7122.00       |         | 4434.80                |        | 536.70                |             | 1311808.57                                      |        | 3183463.36                |  | 40.1874460 |  | -104.8433220 |  | Point |  |
| - plan hits target center             |       |               |         |                        |        |                       |             |   |        |                           |  |            |  |              |  |       |  |





**Scientific Drilling**

## **US ROCKIES REGION PLANNING**

**COLORADO NORTHERN ZONE - 83**

**WIRKNER-VANCE 3C-36HZ PAD**

**WIRKNER-VANCE 29N-36HZ**

**OH**

**Plan: PLAN #1 PRELIMINARY**

## **Standard Planning Report**

**06 August, 2013**

|                  |                             |                                     |                                       |
|------------------|-----------------------------|-------------------------------------|---------------------------------------|
| <b>Database:</b> | EDM5000-RobertS-Local       | <b>Local Co-ordinate Reference:</b> | Well WIRKNER-VANCE 29N-36HZ           |
| <b>Company:</b>  | US ROCKIES REGION PLANNING  | <b>TVD Reference:</b>               | GL 4822 & KB 17 @ 4839.00ft (ASSUMED) |
| <b>Project:</b>  | COLORADO NORTHERN ZONE - 83 | <b>MD Reference:</b>                | GL 4822 & KB 17 @ 4839.00ft (ASSUMED) |
| <b>Site:</b>     | WIRKNER-VANCE 3C-36HZ PAD   | <b>North Reference:</b>             | True                                  |
| <b>Well:</b>     | WIRKNER-VANCE 29N-36HZ      | <b>Survey Calculation Method:</b>   | Minimum Curvature                     |
| <b>Wellbore:</b> | OH                          |                                     |                                       |
| <b>Design:</b>   | PLAN #1 PRELIMINARY         |                                     |                                       |

|                    |  |                      |                |
|--------------------|--|----------------------|----------------|
| <b>Project</b>     | COLORADO NORTHERN ZONE - 83, KERR MCGEE OIL & GAS ONSHORE LP |                      |                |
| <b>Map System:</b> | US State Plane 1983  | <b>System Datum:</b> | Mean Sea Level |
| <b>Geo Datum:</b>  | North American Datum 1983                                    |                      |                |
| <b>Map Zone:</b>   | Colorado Northern Zone                                       |                      |                |

|                              |  |                     |                   |                                 |
|------------------------------|--|---------------------|-------------------|---------------------------------|
| <b>Site</b>                  | WIRKNER-VANCE 3C-36HZ PAD, SECTION 36 T3N R67W |                     |                   |                                 |
| <b>Site Position:</b>        |  | <b>Northing:</b>    | 1,307,250.94 usft | <b>Latitude:</b> 40.1749450     |
| <b>From:</b>                 | Lat/Long                                       | <b>Easting:</b>     | 3,182,974.56 usft | <b>Longitude:</b> -104.8451920  |
| <b>Position Uncertainty:</b> | 0.00 ft  | <b>Slot Radius:</b> | 13.200 in         | <b>Grid Convergence:</b> 0.42 ° |

|                             |   |           |                            |                                  |
|-----------------------------|---|-----------|----------------------------|----------------------------------|
| <b>Well</b>                 | WIRKNER-VANCE 29N-36HZ, 854 FSL 396 FWL |           |                            |                                  |
| <b>Well Position</b>        | <b>+N/-S</b>                            | 119.10 ft | <b>Northing:</b>           | 1,307,369.94 usft                |
|                             | <b>+E/-W</b>                            | -14.25 ft | <b>Easting:</b>            | 3,182,959.43 usft                |
| <b>Position Uncertainty</b> |   | 0.00 ft   | <b>Wellhead Elevation:</b> | <b>Latitude:</b> 40.1752720      |
|                             |   |           |                            | <b>Longitude:</b> -104.8452430   |
|                             |   |           |                            | <b>Ground Level:</b> 4,822.00 ft |

|                  |                   |                    |                        |                      |                            |
|------------------|-------------------|--------------------|------------------------|----------------------|----------------------------|
| <b>Wellbore</b>  | OH                |                    |                        |                      |                            |
| <b>Magnetics</b> | <b>Model Name</b> | <b>Sample Date</b> | <b>Declination (°)</b> | <b>Dip Angle (°)</b> | <b>Field Strength (nT)</b> |
|                  | BGGM2013          | 2013/06/18         | 8.65                   | 66.78                | 52,727                     |

|                          |                              |                   |                      |                      |
|--------------------------|------------------------------|-------------------|----------------------|----------------------|
| <b>Design</b>            | PLAN #1 PRELIMINARY          |                   |                      |                      |
| <b>Audit Notes:</b>      |                              |                   |                      |                      |
| <b>Version:</b>          | <b>Phase:</b>                | PLAN              | <b>Tie On Depth:</b> | 0.00                 |
| <b>Vertical Section:</b> | <b>Depth From (TVD) (ft)</b> | <b>+N/-S (ft)</b> | <b>+E/-W (ft)</b>    | <b>Direction (°)</b> |
|                          | 0.00                         | 0.00              | 0.00                 | 6.90                 |

| <b>Plan Sections</b> |                 |             |                     |            |            |                       |                      |                     |         |                 |
|----------------------|-----------------|-------------|---------------------|------------|------------|-----------------------|----------------------|---------------------|---------|-----------------|
| Measured Depth (ft)  | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) | TFO (°) | Target          |
| 0.00                 | 0.00            | 0.00        | 0.00                | 0.00       | 0.00       | 0.00                  | 0.00                 | 0.00                | 0.00    |                 |
| 1,100.00             | 0.00            | 0.00        | 1,100.00            | 0.00       | 0.00       | 0.00                  | 0.00                 | 0.00                | 0.00    |                 |
| 1,600.17             | 10.00           | 123.11      | 1,597.63            | -23.79     | 36.48      | 2.00                  | 2.00                 | 0.00                | 123.11  |                 |
| 4,787.36             | 10.00           | 123.11      | 4,736.37            | -326.21    | 500.22     | 0.00                  | 0.00                 | 0.00                | 0.00    |                 |
| 5,287.53             | 0.00            | 0.00        | 5,234.00            | -350.00    | 536.70     | 2.00                  | -2.00                | 0.00                | 180.00  |                 |
| 6,624.58             | 0.00            | 0.00        | 6,571.05            | -350.00    | 536.70     | 0.00                  | 0.00                 | 0.00                | 0.00    |                 |
| 7,527.57             | 90.30           | 360.00      | 7,144.00            | 225.95     | 536.70     | 10.00                 | 10.00                | 0.00                | 360.00  |                 |
| 11,736.48            | 90.30           | 360.00      | 7,122.00            | 4,434.80   | 536.70     | 0.00                  | 0.00                 | 0.00                | 0.00    | PBHL_WIRKNER-VA |

|                  |                             |                                     |                                       |
|------------------|-----------------------------|-------------------------------------|---------------------------------------|
| <b>Database:</b> | EDM5000-RobertS-Local       | <b>Local Co-ordinate Reference:</b> | Well WIRKNER-VANCE 29N-36HZ           |
| <b>Company:</b>  | US ROCKIES REGION PLANNING  | <b>TVD Reference:</b>               | GL 4822 & KB 17 @ 4839.00ft (ASSUMED) |
| <b>Project:</b>  | COLORADO NORTHERN ZONE - 83 | <b>MD Reference:</b>                | GL 4822 & KB 17 @ 4839.00ft (ASSUMED) |
| <b>Site:</b>     | WIRKNER-VANCE 3C-36HZ PAD   | <b>North Reference:</b>             | True                                  |
| <b>Well:</b>     | WIRKNER-VANCE 29N-36HZ      | <b>Survey Calculation Method:</b>   | Minimum Curvature                     |
| <b>Wellbore:</b> | OH                          |                                     |                                       |
| <b>Design:</b>   | PLAN #1 PRELIMINARY         |                                     |                                       |

| Planned Survey                          |                 |             |                     |            |            |                       |                       |                      |                     |
|---|-----------------|-------------|---------------------|------------|------------|-----------------------|-----------------------|----------------------|---------------------|
| Measured Depth (ft)                     | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) |
| 0.00                                    | 0.00            | 0.00        | 0.00                | 0.00       | 0.00       | 0.00                  | 0.00                  | 0.00                 | 0.00                |
| 100.00                                  | 0.00            | 0.00        | 100.00              | 0.00       | 0.00       | 0.00                  | 0.00                  | 0.00                 | 0.00                |
| 200.00                                  | 0.00            | 0.00        | 200.00              | 0.00       | 0.00       | 0.00                  | 0.00                  | 0.00                 | 0.00                |
| 300.00                                  | 0.00            | 0.00        | 300.00              | 0.00       | 0.00       | 0.00                  | 0.00                  | 0.00                 | 0.00                |
| 400.00                                  | 0.00            | 0.00        | 400.00              | 0.00       | 0.00       | 0.00                  | 0.00                  | 0.00                 | 0.00                |
| 500.00                                  | 0.00            | 0.00        | 500.00              | 0.00       | 0.00       | 0.00                  | 0.00                  | 0.00                 | 0.00                |
| 600.00                                  | 0.00            | 0.00        | 600.00              | 0.00       | 0.00       | 0.00                  | 0.00                  | 0.00                 | 0.00                |
| 700.00                                  | 0.00            | 0.00        | 700.00              | 0.00       | 0.00       | 0.00                  | 0.00                  | 0.00                 | 0.00                |
| 800.00                                  | 0.00            | 0.00        | 800.00              | 0.00       | 0.00       | 0.00                  | 0.00                  | 0.00                 | 0.00                |
| 867.00                                  | 0.00            | 0.00        | 867.00              | 0.00       | 0.00       | 0.00                  | 0.00                  | 0.00                 | 0.00                |
| <b>Fox Hills Base</b>                   |                 |             |                     |            |            |                       |                       |                      |                     |
| 900.00                                  | 0.00            | 0.00        | 900.00              | 0.00       | 0.00       | 0.00                  | 0.00                  | 0.00                 | 0.00                |
| 917.00                                  | 0.00            | 0.00        | 917.00              | 0.00       | 0.00       | 0.00                  | 0.00                  | 0.00                 | 0.00                |
| <b>9 5/8"</b>                           |                 |             |                     |            |            |                       |                       |                      |                     |
| 1,000.00                                | 0.00            | 0.00        | 1,000.00            | 0.00       | 0.00       | 0.00                  | 0.00                  | 0.00                 | 0.00                |
| 1,100.00                                | 0.00            | 0.00        | 1,100.00            | 0.00       | 0.00       | 0.00                  | 0.00                  | 0.00                 | 0.00                |
| <b>Start Build 2.00</b>                 |                 |             |                     |            |            |                       |                       |                      |                     |
| 1,200.00                                | 2.00            | 123.11      | 1,199.98            | -0.95      | 1.46       | -0.77                 | 2.00                  | 2.00                 | 0.00                |
| 1,300.00                                | 4.00            | 123.11      | 1,299.84            | -3.81      | 5.85       | -3.08                 | 2.00                  | 2.00                 | 0.00                |
| 1,400.00                                | 6.00            | 123.11      | 1,399.45            | -8.57      | 13.15      | -6.93                 | 2.00                  | 2.00                 | 0.00                |
| 1,500.00                                | 8.00            | 123.11      | 1,498.70            | -15.23     | 23.35      | -12.31                | 2.00                  | 2.00                 | 0.00                |
| 1,600.00                                | 10.00           | 123.11      | 1,597.47            | -23.77     | 36.46      | -19.22                | 2.00                  | 2.00                 | 0.00                |
| 1,600.17                                | 10.00           | 123.11      | 1,597.63            | -23.79     | 36.48      | -19.23                | 2.00                  | 2.00                 | 0.00                |
| <b>Start 3187.19 hold at 1600.17 MD</b> |                 |             |                     |            |            |                       |                       |                      |                     |
| 1,700.00                                | 10.00           | 123.11      | 1,695.95            | -33.26     | 51.01      | -26.89                | 0.00                  | 0.00                 | 0.00                |
| 1,800.00                                | 10.00           | 123.11      | 1,794.42            | -42.75     | 65.56      | -34.57                | 0.00                  | 0.00                 | 0.00                |
| 1,900.00                                | 10.00           | 123.11      | 1,892.90            | -52.24     | 80.11      | -42.24                | 0.00                  | 0.00                 | 0.00                |
| 2,000.00                                | 10.00           | 123.11      | 1,991.38            | -61.73     | 94.66      | -49.91                | 0.00                  | 0.00                 | 0.00                |
| 2,100.00                                | 10.00           | 123.11      | 2,089.86            | -71.22     | 109.21     | -57.58                | 0.00                  | 0.00                 | 0.00                |
| 2,200.00                                | 10.00           | 123.11      | 2,188.34            | -80.71     | 123.76     | -65.25                | 0.00                  | 0.00                 | 0.00                |
| 2,300.00                                | 10.00           | 123.11      | 2,286.82            | -90.19     | 138.31     | -72.92                | 0.00                  | 0.00                 | 0.00                |
| 2,400.00                                | 10.00           | 123.11      | 2,385.30            | -99.68     | 152.86     | -80.60                | 0.00                  | 0.00                 | 0.00                |
| 2,500.00                                | 10.00           | 123.11      | 2,483.78            | -109.17    | 167.41     | -88.27                | 0.00                  | 0.00                 | 0.00                |
| 2,600.00                                | 10.00           | 123.11      | 2,582.26            | -118.66    | 181.96     | -95.94                | 0.00                  | 0.00                 | 0.00                |
| 2,700.00                                | 10.00           | 123.11      | 2,680.74            | -128.15    | 196.51     | -103.61               | 0.00                  | 0.00                 | 0.00                |
| 2,800.00                                | 10.00           | 123.11      | 2,779.22            | -137.64    | 211.06     | -111.28               | 0.00                  | 0.00                 | 0.00                |
| 2,900.00                                | 10.00           | 123.11      | 2,877.70            | -147.13    | 225.61     | -118.96               | 0.00                  | 0.00                 | 0.00                |
| 3,000.00                                | 10.00           | 123.11      | 2,976.18            | -156.61    | 240.16     | -126.63               | 0.00                  | 0.00                 | 0.00                |
| 3,100.00                                | 10.00           | 123.11      | 3,074.66            | -166.10    | 254.71     | -134.30               | 0.00                  | 0.00                 | 0.00                |
| 3,200.00                                | 10.00           | 123.11      | 3,173.14            | -175.59    | 269.26     | -141.97               | 0.00                  | 0.00                 | 0.00                |
| 3,300.00                                | 10.00           | 123.11      | 3,271.62            | -185.08    | 283.81     | -149.64               | 0.00                  | 0.00                 | 0.00                |
| 3,400.00                                | 10.00           | 123.11      | 3,370.10            | -194.57    | 298.36     | -157.31               | 0.00                  | 0.00                 | 0.00                |
| 3,500.00                                | 10.00           | 123.11      | 3,468.58            | -204.06    | 312.91     | -164.99               | 0.00                  | 0.00                 | 0.00                |
| 3,600.00                                | 10.00           | 123.11      | 3,567.06            | -213.55    | 327.46     | -172.66               | 0.00                  | 0.00                 | 0.00                |
| 3,700.00                                | 10.00           | 123.11      | 3,665.54            | -223.03    | 342.01     | -180.33               | 0.00                  | 0.00                 | 0.00                |
| 3,800.00                                | 10.00           | 123.11      | 3,764.02            | -232.52    | 356.56     | -188.00               | 0.00                  | 0.00                 | 0.00                |
| 3,900.00                                | 10.00           | 123.11      | 3,862.50            | -242.01    | 371.11     | -195.67               | 0.00                  | 0.00                 | 0.00                |
| 3,909.65                                | 10.00           | 123.11      | 3,872.00            | -242.93    | 372.51     | -196.41               | 0.00                  | 0.00                 | 0.00                |
| <b>Parkman</b>                          |                 |             |                     |            |            |                       |                       |                      |                     |
| 4,000.00                                | 10.00           | 123.11      | 3,960.98            | -251.50    | 385.66     | -203.34               | 0.00                  | 0.00                 | 0.00                |
| 4,100.00                                | 10.00           | 123.11      | 4,059.46            | -260.99    | 400.21     | -211.02               | 0.00                  | 0.00                 | 0.00                |
| 4,200.00                                | 10.00           | 123.11      | 4,157.94            | -270.48    | 414.76     | -218.69               | 0.00                  | 0.00                 | 0.00                |
| 4,299.58                                | 10.00           | 123.11      | 4,256.00            | -279.93    | 429.25     | -226.33               | 0.00                  | 0.00                 | 0.00                |

|                  |                             |                                     |                                       |
|------------------|-----------------------------|-------------------------------------|---------------------------------------|
| <b>Database:</b> | EDM5000-RobertS-Local       | <b>Local Co-ordinate Reference:</b> | Well WIRKNER-VANCE 29N-36HZ           |
| <b>Company:</b>  | US ROCKIES REGION PLANNING  | <b>TVD Reference:</b>               | GL 4822 & KB 17 @ 4839.00ft (ASSUMED) |
| <b>Project:</b>  | COLORADO NORTHERN ZONE - 83 | <b>MD Reference:</b>                | GL 4822 & KB 17 @ 4839.00ft (ASSUMED) |
| <b>Site:</b>     | WIRKNER-VANCE 3C-36HZ PAD   | <b>North Reference:</b>             | True                                  |
| <b>Well:</b>     | WIRKNER-VANCE 29N-36HZ      | <b>Survey Calculation Method:</b>   | Minimum Curvature                     |
| <b>Wellbore:</b> | OH                          |                                     |                                       |
| <b>Design:</b>   | PLAN #1 PRELIMINARY         |                                     |                                       |

| Planned Survey  |                 |             |                     |            |            |                       |                       |                      |                     |
|---|-----------------|-------------|---------------------|------------|------------|-----------------------|-----------------------|----------------------|---------------------|
| Measured Depth (ft)   | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) |
| <b>Sussex</b>   |                 |             |                     |            |            |                       |                       |                      |                     |
| 4,300.00  | 10.00           | 123.11      | 4,256.42            | -279.97    | 429.31     | -226.36               | 0.00                  | 0.00                 | 0.00                |
| 4,400.00  | 10.00           | 123.11      | 4,354.90            | -289.46    | 443.86     | -234.03               | 0.00                  | 0.00                 | 0.00                |
| 4,500.00  | 10.00           | 123.11      | 4,453.38            | -298.94    | 458.41     | -241.70               | 0.00                  | 0.00                 | 0.00                |
| 4,600.00  | 10.00           | 123.11      | 4,551.86            | -308.43    | 472.96     | -249.38               | 0.00                  | 0.00                 | 0.00                |
| 4,700.00  | 10.00           | 123.11      | 4,650.34            | -317.92    | 487.51     | -257.05               | 0.00                  | 0.00                 | 0.00                |
| 4,787.36  | 10.00           | 123.11      | 4,736.37            | -326.21    | 500.22     | -263.75               | 0.00                  | 0.00                 | 0.00                |
| <b>Start Drop -2.00</b>   |                 |             |                     |            |            |                       |                       |                      |                     |
| 4,800.00  | 9.75            | 123.11      | 4,748.82            | -327.39    | 502.04     | -264.71               | 2.00                  | -2.00                | 0.00                |
| 4,900.00  | 7.75            | 123.11      | 4,847.65            | -335.70    | 514.78     | -271.43               | 2.00                  | -2.00                | 0.00                |
| 5,000.00  | 5.75            | 123.11      | 4,946.95            | -342.12    | 524.62     | -276.62               | 2.00                  | -2.00                | 0.00                |
| 5,100.00  | 3.75            | 123.11      | 5,046.61            | -346.65    | 531.56     | -280.27               | 2.00                  | -2.00                | 0.00                |
| 5,200.00  | 1.75            | 123.11      | 5,146.49            | -349.27    | 535.58     | -282.39               | 2.00                  | -2.00                | 0.00                |
| 5,287.53  | 0.00            | 0.00        | 5,234.00            | -350.00    | 536.70     | -282.98               | 2.00                  | -2.00                | 0.00                |
| <b>Start 1337.05 hold at 5287.53 MD</b>                         |                 |             |                     |            |            |                       |                       |                      |                     |
| 5,300.00  | 0.00            | 0.00        | 5,246.47            | -350.00    | 536.70     | -282.98               | 0.00                  | 0.00                 | 0.00                |
| 5,400.00  | 0.00            | 0.00        | 5,346.47            | -350.00    | 536.70     | -282.98               | 0.00                  | 0.00                 | 0.00                |
| 5,500.00  | 0.00            | 0.00        | 5,446.47            | -350.00    | 536.70     | -282.98               | 0.00                  | 0.00                 | 0.00                |
| 5,600.00  | 0.00            | 0.00        | 5,546.47            | -350.00    | 536.70     | -282.98               | 0.00                  | 0.00                 | 0.00                |
| 5,700.00  | 0.00            | 0.00        | 5,646.47            | -350.00    | 536.70     | -282.98               | 0.00                  | 0.00                 | 0.00                |
| 5,800.00  | 0.00            | 0.00        | 5,746.47            | -350.00    | 536.70     | -282.98               | 0.00                  | 0.00                 | 0.00                |
| 5,900.00  | 0.00            | 0.00        | 5,846.47            | -350.00    | 536.70     | -282.98               | 0.00                  | 0.00                 | 0.00                |
| 6,000.00  | 0.00            | 0.00        | 5,946.47            | -350.00    | 536.70     | -282.98               | 0.00                  | 0.00                 | 0.00                |
| 6,100.00  | 0.00            | 0.00        | 6,046.47            | -350.00    | 536.70     | -282.98               | 0.00                  | 0.00                 | 0.00                |
| 6,200.00  | 0.00            | 0.00        | 6,146.47            | -350.00    | 536.70     | -282.98               | 0.00                  | 0.00                 | 0.00                |
| 6,300.00  | 0.00            | 0.00        | 6,246.47            | -350.00    | 536.70     | -282.98               | 0.00                  | 0.00                 | 0.00                |
| 6,400.00  | 0.00            | 0.00        | 6,346.47            | -350.00    | 536.70     | -282.98               | 0.00                  | 0.00                 | 0.00                |
| 6,500.00  | 0.00            | 0.00        | 6,446.47            | -350.00    | 536.70     | -282.98               | 0.00                  | 0.00                 | 0.00                |
| 6,600.00  | 0.00            | 0.00        | 6,546.47            | -350.00    | 536.70     | -282.98               | 0.00                  | 0.00                 | 0.00                |
| 6,624.58  | 0.00            | 0.00        | 6,571.05            | -350.00    | 536.70     | -282.98               | 0.00                  | 0.00                 | 0.00                |
| <b>Start DLS 10.00 TFO 360.00</b>                               |                 |             |                     |            |            |                       |                       |                      |                     |
| 6,700.00  | 7.54            | 360.00      | 6,646.25            | -345.04    | 536.70     | -278.06               | 10.00                 | 10.00                | 0.00                |
| 6,800.00  | 17.54           | 360.00      | 6,743.74            | -323.35    | 536.70     | -256.53               | 10.00                 | 10.00                | 0.00                |
| 6,900.00  | 27.54           | 360.00      | 6,835.99            | -285.07    | 536.70     | -218.52               | 10.00                 | 10.00                | 0.00                |
| 7,000.00  | 37.54           | 360.00      | 6,920.18            | -231.34    | 536.70     | -165.19               | 10.00                 | 10.00                | 0.00                |
| 7,100.00  | 47.54           | 360.00      | 6,993.76            | -163.82    | 536.70     | -98.15                | 10.00                 | 10.00                | 0.00                |
| 7,127.76  | 50.32           | 360.00      | 7,012.00            | -142.89    | 536.70     | -77.37                | 10.00                 | 10.00                | 0.00                |
| <b>Sharon Springs</b>   |                 |             |                     |            |            |                       |                       |                      |                     |
| 7,200.00  | 57.54           | 360.00      | 7,054.50            | -84.54     | 536.70     | -19.44                | 10.00                 | 10.00                | 0.00                |
| 7,271.46  | 64.69           | 360.00      | 7,089.00            | -22.01     | 536.70     | 42.63                 | 10.00                 | 10.00                | 0.00                |
| <b>Niobrara A</b>   |                 |             |                     |            |            |                       |                       |                      |                     |
| 7,300.00  | 67.54           | 360.00      | 7,100.56            | 4.09       | 536.70     | 68.54                 | 10.00                 | 10.00                | 0.00                |
| 7,335.22  | 71.06           | 360.00      | 7,113.00            | 37.03      | 536.70     | 101.24                | 10.00                 | 10.00                | 0.00                |
| <b>Niobrara B</b>   |                 |             |                     |            |            |                       |                       |                      |                     |
| 7,400.00  | 77.54           | 360.00      | 7,130.52            | 99.36      | 536.70     | 163.12                | 10.00                 | 10.00                | 0.00                |
| 7,500.00  | 87.54           | 360.00      | 7,143.48            | 198.39     | 536.70     | 261.43                | 10.00                 | 10.00                | 0.00                |
| 7,527.57  | 90.30           | 360.00      | 7,144.00            | 225.95     | 536.70     | 288.79                | 10.00                 | 10.00                | 0.00                |
| <b>Start 4208.91 hold at 7527.57 MD - 7" 801' FSL 1446' FWL</b> |                 |             |                     |            |            |                       |                       |                      |                     |
| 7,600.00  | 90.30           | 360.00      | 7,143.62            | 298.38     | 536.70     | 360.70                | 0.00                  | 0.00                 | 0.00                |
| 7,700.00  | 90.30           | 360.00      | 7,143.10            | 398.38     | 536.70     | 459.97                | 0.00                  | 0.00                 | 0.00                |
| 7,800.00  | 90.30           | 360.00      | 7,142.58            | 498.38     | 536.70     | 559.25                | 0.00                  | 0.00                 | 0.00                |
| 7,900.00  | 90.30           | 360.00      | 7,142.05            | 598.37     | 536.70     | 658.52                | 0.00                  | 0.00                 | 0.00                |
| 8,000.00  | 90.30           | 360.00      | 7,141.53            | 698.37     | 536.70     | 757.80                | 0.00                  | 0.00                 | 0.00                |

|                  |                             |                                     |                                       |
|------------------|-----------------------------|-------------------------------------|---------------------------------------|
| <b>Database:</b> | EDM5000-RobertS-Local       | <b>Local Co-ordinate Reference:</b> | Well WIRKNER-VANCE 29N-36HZ           |
| <b>Company:</b>  | US ROCKIES REGION PLANNING  | <b>TVD Reference:</b>               | GL 4822 & KB 17 @ 4839.00ft (ASSUMED) |
| <b>Project:</b>  | COLORADO NORTHERN ZONE - 83 | <b>MD Reference:</b>                | GL 4822 & KB 17 @ 4839.00ft (ASSUMED) |
| <b>Site:</b>     | WIRKNER-VANCE 3C-36HZ PAD   | <b>North Reference:</b>             | True                                  |
| <b>Well:</b>     | WIRKNER-VANCE 29N-36HZ      | <b>Survey Calculation Method:</b>   | Minimum Curvature                     |
| <b>Wellbore:</b> | OH                          |                                     |                                       |
| <b>Design:</b>   | PLAN #1 PRELIMINARY         |                                     |                                       |

| Planned Survey   |                 |             |                     |            |            |                       |                       |                      |                     |
|--|-----------------|-------------|---------------------|------------|------------|-----------------------|-----------------------|----------------------|---------------------|
| Measured Depth (ft)  | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) |
| 8,100.00   | 90.30           | 360.00      | 7,141.01            | 798.37     | 536.70     | 857.07                | 0.00                  | 0.00                 | 0.00                |
| 8,200.00   | 90.30           | 360.00      | 7,140.49            | 898.37     | 536.70     | 956.34                | 0.00                  | 0.00                 | 0.00                |
| 8,300.00   | 90.30           | 360.00      | 7,139.96            | 998.37     | 536.70     | 1,055.62              | 0.00                  | 0.00                 | 0.00                |
| 8,400.00   | 90.30           | 360.00      | 7,139.44            | 1,098.37   | 536.70     | 1,154.89              | 0.00                  | 0.00                 | 0.00                |
| 8,500.00   | 90.30           | 360.00      | 7,138.92            | 1,198.37   | 536.70     | 1,254.17              | 0.00                  | 0.00                 | 0.00                |
| 8,600.00   | 90.30           | 360.00      | 7,138.39            | 1,298.37   | 536.70     | 1,353.44              | 0.00                  | 0.00                 | 0.00                |
| 8,700.00   | 90.30           | 360.00      | 7,137.87            | 1,398.36   | 536.70     | 1,452.72              | 0.00                  | 0.00                 | 0.00                |
| 8,800.00   | 90.30           | 360.00      | 7,137.35            | 1,498.36   | 536.70     | 1,551.99              | 0.00                  | 0.00                 | 0.00                |
| 8,900.00   | 90.30           | 360.00      | 7,136.83            | 1,598.36   | 536.70     | 1,651.26              | 0.00                  | 0.00                 | 0.00                |
| 9,000.00   | 90.30           | 360.00      | 7,136.30            | 1,698.36   | 536.70     | 1,750.54              | 0.00                  | 0.00                 | 0.00                |
| 9,100.00   | 90.30           | 360.00      | 7,135.78            | 1,798.36   | 536.70     | 1,849.81              | 0.00                  | 0.00                 | 0.00                |
| 9,200.00   | 90.30           | 360.00      | 7,135.26            | 1,898.36   | 536.70     | 1,949.09              | 0.00                  | 0.00                 | 0.00                |
| 9,300.00   | 90.30           | 360.00      | 7,134.74            | 1,998.36   | 536.70     | 2,048.36              | 0.00                  | 0.00                 | 0.00                |
| 9,400.00   | 90.30           | 360.00      | 7,134.21            | 2,098.35   | 536.70     | 2,147.64              | 0.00                  | 0.00                 | 0.00                |
| 9,500.00   | 90.30           | 360.00      | 7,133.69            | 2,198.35   | 536.70     | 2,246.91              | 0.00                  | 0.00                 | 0.00                |
| 9,600.00   | 90.30           | 360.00      | 7,133.17            | 2,298.35   | 536.70     | 2,346.18              | 0.00                  | 0.00                 | 0.00                |
| 9,700.00   | 90.30           | 360.00      | 7,132.64            | 2,398.35   | 536.70     | 2,445.46              | 0.00                  | 0.00                 | 0.00                |
| 9,800.00   | 90.30           | 360.00      | 7,132.12            | 2,498.35   | 536.70     | 2,544.73              | 0.00                  | 0.00                 | 0.00                |
| 9,900.00   | 90.30           | 360.00      | 7,131.60            | 2,598.35   | 536.70     | 2,644.01              | 0.00                  | 0.00                 | 0.00                |
| 10,000.00  | 90.30           | 360.00      | 7,131.08            | 2,698.35   | 536.70     | 2,743.28              | 0.00                  | 0.00                 | 0.00                |
| 10,100.00  | 90.30           | 360.00      | 7,130.55            | 2,798.34   | 536.70     | 2,842.56              | 0.00                  | 0.00                 | 0.00                |
| 10,200.00  | 90.30           | 360.00      | 7,130.03            | 2,898.34   | 536.70     | 2,941.83              | 0.00                  | 0.00                 | 0.00                |
| 10,300.00  | 90.30           | 360.00      | 7,129.51            | 2,998.34   | 536.70     | 3,041.10              | 0.00                  | 0.00                 | 0.00                |
| 10,400.00  | 90.30           | 360.00      | 7,128.99            | 3,098.34   | 536.70     | 3,140.38              | 0.00                  | 0.00                 | 0.00                |
| 10,500.00  | 90.30           | 360.00      | 7,128.46            | 3,198.34   | 536.70     | 3,239.65              | 0.00                  | 0.00                 | 0.00                |
| 10,600.00  | 90.30           | 360.00      | 7,127.94            | 3,298.34   | 536.70     | 3,338.93              | 0.00                  | 0.00                 | 0.00                |
| 10,700.00  | 90.30           | 360.00      | 7,127.42            | 3,398.34   | 536.70     | 3,438.20              | 0.00                  | 0.00                 | 0.00                |
| 10,800.00  | 90.30           | 360.00      | 7,126.90            | 3,498.34   | 536.70     | 3,537.48              | 0.00                  | 0.00                 | 0.00                |
| 10,900.00  | 90.30           | 360.00      | 7,126.37            | 3,598.33   | 536.70     | 3,636.75              | 0.00                  | 0.00                 | 0.00                |
| 11,000.00  | 90.30           | 360.00      | 7,125.85            | 3,698.33   | 536.70     | 3,736.02              | 0.00                  | 0.00                 | 0.00                |
| 11,100.00  | 90.30           | 360.00      | 7,125.33            | 3,798.33   | 536.70     | 3,835.30              | 0.00                  | 0.00                 | 0.00                |
| 11,200.00  | 90.30           | 360.00      | 7,124.80            | 3,898.33   | 536.70     | 3,934.57              | 0.00                  | 0.00                 | 0.00                |
| 11,300.00  | 90.30           | 360.00      | 7,124.28            | 3,998.33   | 536.70     | 4,033.85              | 0.00                  | 0.00                 | 0.00                |
| 11,400.00  | 90.30           | 360.00      | 7,123.76            | 4,098.33   | 536.70     | 4,133.12              | 0.00                  | 0.00                 | 0.00                |
| 11,500.00  | 90.30           | 360.00      | 7,123.24            | 4,198.33   | 536.70     | 4,232.40              | 0.00                  | 0.00                 | 0.00                |
| 11,600.00  | 90.30           | 360.00      | 7,122.71            | 4,298.32   | 536.70     | 4,331.67              | 0.00                  | 0.00                 | 0.00                |
| 11,700.00  | 90.30           | 360.00      | 7,122.19            | 4,398.32   | 536.70     | 4,430.94              | 0.00                  | 0.00                 | 0.00                |
| 11,736.48  | 90.30           | 360.00      | 7,122.00            | 4,434.80   | 536.70     | 4,467.16              | 0.00                  | 0.00                 | 0.00                |
| TD at 11736.48 - PBHL_WIRKNER-VANCE 29N-36HZ(460' FNL 1525' FWL) |                 |             |                     |            |            |                       |                       |                      |                     |

| Design Targets            |               |              |          |            |            |                 |                |            |              |
|---------------------------|---------------|--------------|----------|------------|------------|-----------------|----------------|------------|--------------|
| Target Name               | Dip Angle (°) | Dip Dir. (°) | TVD (ft) | +N/-S (ft) | +E/-W (ft) | Northing (usft) | Easting (usft) | Latitude   | Longitude    |
| - hit/miss target         |               |              |          |            |            |                 |                |            |              |
| - Shape                   |               |              |          |            |            |                 |                |            |              |
| PBHL_WIRKNER-VANC         | 0.00          | 0.00         | 7,122.00 | 4,434.80   | 536.70     | 1,311,808.57    | 3,183,463.36   | 40.1874460 | -104.8433220 |
| - plan hits target center |               |              |          |            |            |                 |                |            |              |
| - Point                   |               |              |          |            |            |                 |                |            |              |

|                  |                             |                                     |                                       |
|------------------|-----------------------------|-------------------------------------|---------------------------------------|
| <b>Database:</b> | EDM5000-RobertS-Local       | <b>Local Co-ordinate Reference:</b> | Well WIRKNER-VANCE 29N-36HZ           |
| <b>Company:</b>  | US ROCKIES REGION PLANNING  | <b>TVD Reference:</b>               | GL 4822 & KB 17 @ 4839.00ft (ASSUMED) |
| <b>Project:</b>  | COLORADO NORTHERN ZONE - 83 | <b>MD Reference:</b>                | GL 4822 & KB 17 @ 4839.00ft (ASSUMED) |
| <b>Site:</b>     | WIRKNER-VANCE 3C-36HZ PAD   | <b>North Reference:</b>             | True                                  |
| <b>Well:</b>     | WIRKNER-VANCE 29N-36HZ      | <b>Survey Calculation Method:</b>   | Minimum Curvature                     |
| <b>Wellbore:</b> | OH                          |                                     |                                       |
| <b>Design:</b>   | PLAN #1 PRELIMINARY         |                                     |                                       |

| Casing Points       |                     |                       |                      |                    |  |
|---------------------|---------------------|-----------------------|----------------------|--------------------|--|
| Measured Depth (ft) | Vertical Depth (ft) | Name                  | Casing Diameter (in) | Hole Diameter (in) |  |
| 917.00              | 917.00              | 9 5/8"                | 9.625                | 12.250             |  |
| 7,527.57            | 7,144.00            | 7" 801' FSL 1446' FWL | 7.000                | 7.500              |  |

| Formations          |                     |                |           |         |                   |
|---------------------|---------------------|----------------|-----------|---------|-------------------|
| Measured Depth (ft) | Vertical Depth (ft) | Name           | Lithology | Dip (°) | Dip Direction (°) |
| 867.00              | 867.00              | Fox Hills Base |           |         |                   |
| 3,909.65            | 3,872.00            | Parkman        |           |         |                   |
| 4,299.58            | 4,256.00            | Sussex         |           |         |                   |
| 7,127.76            | 7,012.00            | Sharon Springs |           |         |                   |
| 7,271.46            | 7,089.00            | Niobrara A     |           |         |                   |
| 7,335.22            | 7,113.00            | Niobrara B     |           |         |                   |

| Plan Annotations    |                     |                   |            |                                  |  |
|---------------------|---------------------|-------------------|------------|----------------------------------|--|
| Measured Depth (ft) | Vertical Depth (ft) | Local Coordinates |            |                                  |  |
|                     |                     | +N/-S (ft)        | +E/-W (ft) | Comment                          |  |
| 1,100.00            | 1,100.00            | 0.00              | 0.00       | Start Build 2.00                 |  |
| 1,600.17            | 1,597.63            | -23.79            | 36.48      | Start 3187.19 hold at 1600.17 MD |  |
| 4,787.36            | 4,736.37            | -326.21           | 500.22     | Start Drop -2.00                 |  |
| 5,287.53            | 5,234.00            | -350.00           | 536.70     | Start 1337.05 hold at 5287.53 MD |  |
| 6,624.58            | 6,571.05            | -350.00           | 536.70     | Start DLS 10.00 TFO 360.00       |  |
| 7,527.57            | 7,144.00            | 225.95            | 536.70     | Start 4208.91 hold at 7527.57 MD |  |
| 11,736.48           | 7,122.00            | 4,434.80          | 536.70     | TD at 11736.48                   |  |