

Well Name: **Westbone 1-3-22**

Surface Location: T-Bone 5-3-22 Pad Sec.22-T5N-R66W  
 North American Datum 1983 US State Plane 1983 Colorado Northern Zone

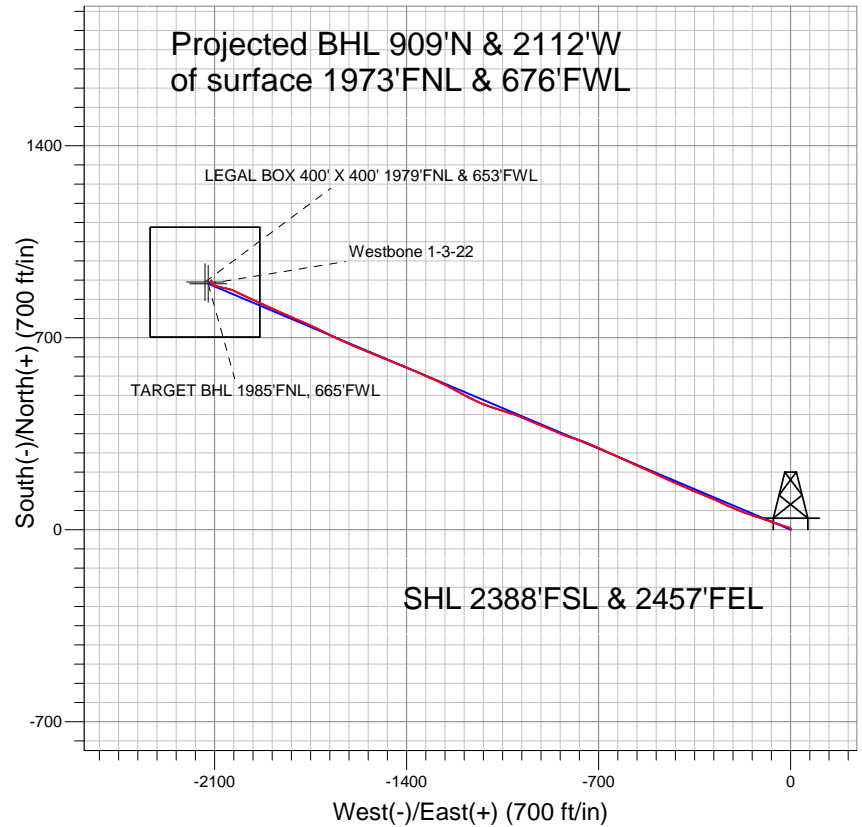
Ground Elevation: 4804.0

| +N/-S | +E/-W | Northing   | Easting    | Latitude  | Longitude   |
|-------|-------|------------|------------|-----------|-------------|
| 0.0   | 0.0   | 1383707.63 | 3204741.67 | 40.384350 | -104.765030 |

Original Well Elev WELL @ 4817.0ft (Original Well Elev)

Slot

## Mineral Resources Inc



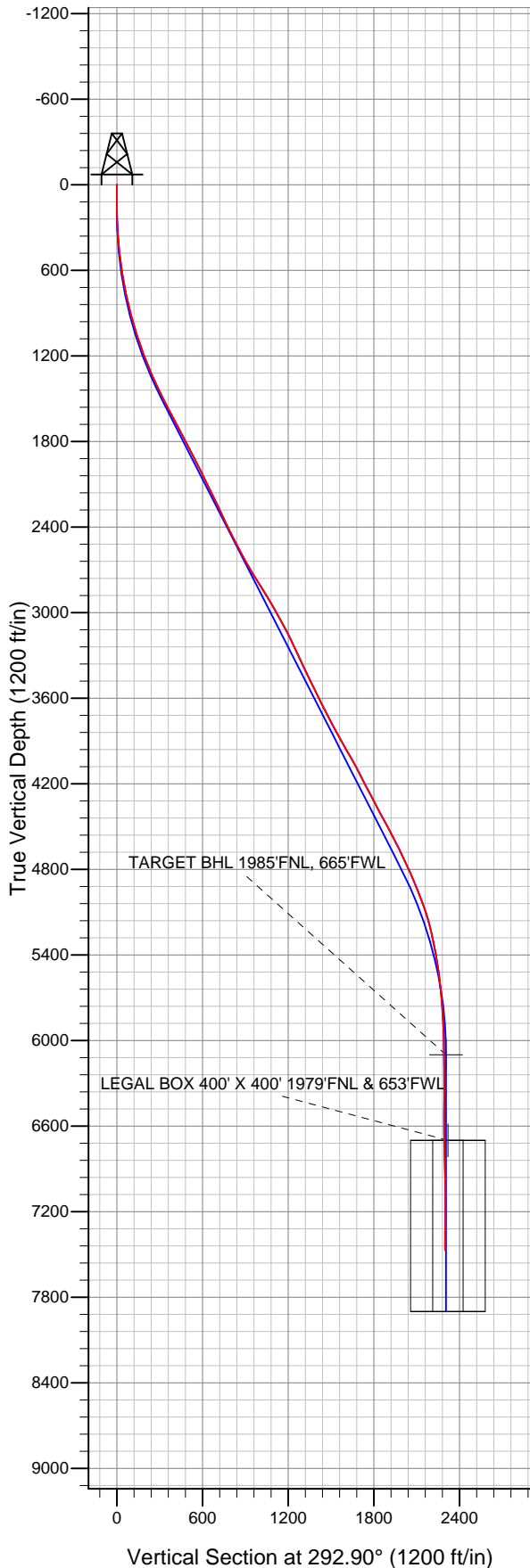
### LEGEND

- ◆ Westbone 1-3-22, Wellbore #1, Plan #1 (5-16-11) V0
- Wellbore #1
- Survey #1

## Final Survey Plot

Projected Final Survey -  
 7979'MD & 7469'TVD @ 2299'VS  
 1.8 deg Inc 31.5 deg AZ

Project: SEC.22-T5N-R66W  
 Site: T-Bone 5-3-22 Pad Sec.22-T5N-R66W  
 Well: Westbone 1-3-22  
 Plan: Wellbore #1





# **Directional**

## **Mineral Resources Inc**

**SEC.22-T5N-R66W**

**T-Bone 5-3-22 Pad Sec.22-T5N-R66W**

**Westbone 1-3-22**

**Wellbore #1**

**Survey: Survey #1**

## **Standard Survey Report**

**23 April, 2012**

| Survey      | Wellbore Data       |                 |             |                     |            |            |                       |                       |                      |                     |
|-------------|---------------------|-----------------|-------------|---------------------|------------|------------|-----------------------|-----------------------|----------------------|---------------------|
|             | 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) |
| Main Survey | 0.0                 | 0.00            | 0.00        | 0.0                 | 0.0        | 0.0        | 0.0                   | 0.00                  | 0.00                 | 0.00                |
|             | 156.0               | 1.10            | 18.10       | 156.0               | 1.4        | 0.5        | 0.1                   | 0.71                  | 0.71                 | 0.00                |
|             | 242.0               | 1.70            | 324.50      | 242.0               | 3.2        | 0.0        | 1.3                   | 1.59                  | 0.70                 | -62.33              |
|             | 331.0               | 3.30            | 305.30      | 330.9               | 5.8        | -2.9       | 4.9                   | 2.00                  | 1.80                 | -21.57              |
|             | 422.0               | 4.90            | 287.00      | 421.6               | 8.5        | -8.7       | 11.3                  | 2.25                  | 1.76                 | -20.11              |
|             | 514.0               | 7.10            | 286.30      | 513.1               | 11.2       | -17.9      | 20.9                  | 2.39                  | 2.39                 | -0.76               |
|             | 606.0               | 9.40            | 290.80      | 604.2               | 15.5       | -30.4      | 34.0                  | 2.59                  | 2.50                 | 4.89                |
|             | 702.0               | 10.10           | 289.10      | 698.8               | 21.0       | -45.7      | 50.3                  | 0.79                  | 0.73                 | -1.77               |
|             | 797.0               | 12.50           | 289.20      | 791.9               | 27.1       | -63.3      | 68.9                  | 2.53                  | 2.53                 | 0.11                |
|             | 890.0               | 14.90           | 288.60      | 882.3               | 34.2       | -84.1      | 90.8                  | 2.59                  | 2.58                 | -0.65               |
|             | 982.0               | 16.20           | 288.00      | 970.9               | 42.0       | -107.6     | 115.4                 | 1.42                  | 1.41                 | -0.65               |
|             | 1,075.0             | 17.60           | 287.80      | 1,059.9             | 50.3       | -133.3     | 142.3                 | 1.51                  | 1.51                 | -0.22               |
|             | 1,168.0             | 19.20           | 289.50      | 1,148.2             | 59.7       | -161.1     | 171.6                 | 1.81                  | 1.72                 | 1.83                |

|                  |                                   |                                     |                                      |
|------------------|-----------------------------------|-------------------------------------|--------------------------------------|
| <b>Company:</b>  | Mineral Resources Inc             | <b>Local Co-ordinate Reference:</b> | Well Westbone 1-3-22                 |
| <b>Project:</b>  | SEC.22-T5N-R66W                   | <b>TVD Reference:</b>               | WELL @ 4817.0ft (Original Well Elev) |
| <b>Site:</b>     | T-Bone 5-3-22 Pad Sec.22-T5N-R66W | <b>MD Reference:</b>                | WELL @ 4817.0ft (Original Well Elev) |
| <b>Well:</b>     | Westbone 1-3-22                   | <b>North Reference:</b>             | True                                 |
| <b>Wellbore:</b> | Wellbore #1                       | <b>Survey Calculation Method:</b>   | Minimum Curvature                    |
| <b>Design:</b>   | Wellbore #1                       | <b>Database:</b>                    | Landmark                             |

| 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) |  |
| 1,262.0             | 21.40           | 291.20      | 1,236.3             | 71.0       | -191.6     | 204.2                 | 2.42                  | 2.34                 | 1.81                |  |
| 1,355.0             | 23.30           | 295.70      | 1,322.3             | 85.2       | -224.0     | 239.5                 | 2.75                  | 2.04                 | 4.84                |  |
| 1,448.0             | 25.60           | 294.40      | 1,407.0             | 101.4      | -258.9     | 278.0                 | 2.54                  | 2.47                 | -1.40               |  |
| 1,540.0             | 27.00           | 292.80      | 1,489.5             | 117.7      | -296.3     | 318.7                 | 1.71                  | 1.52                 | -1.74               |  |
| 1,633.0             | 27.20           | 291.80      | 1,572.2             | 133.8      | -335.5     | 361.1                 | 0.53                  | 0.22                 | -1.08               |  |
| 1,726.0             | 28.10           | 293.20      | 1,654.6             | 150.3      | -375.3     | 404.3                 | 1.19                  | 0.97                 | 1.51                |  |
| 1,819.0             | 27.90           | 294.20      | 1,736.7             | 167.9      | -415.3     | 447.9                 | 0.55                  | -0.22                | 1.08                |  |
| 1,912.0             | 27.30           | 294.40      | 1,819.2             | 185.6      | -454.6     | 491.0                 | 0.65                  | -0.65                | 0.22                |  |
| 2,005.0             | 27.00           | 294.60      | 1,901.9             | 203.2      | -493.2     | 533.4                 | 0.34                  | -0.32                | 0.22                |  |
| 2,098.0             | 27.10           | 295.30      | 1,984.7             | 221.1      | -531.5     | 575.7                 | 0.36                  | 0.11                 | 0.75                |  |
| 2,191.0             | 25.50           | 293.50      | 2,068.1             | 238.1      | -569.1     | 616.9                 | 1.92                  | -1.72                | -1.94               |  |
| 2,284.0             | 26.40           | 295.40      | 2,151.7             | 254.9      | -606.1     | 657.5                 | 1.32                  | 0.97                 | 2.04                |  |
| 2,376.0             | 25.60           | 293.80      | 2,234.4             | 271.7      | -642.8     | 697.8                 | 1.16                  | -0.87                | -1.74               |  |
| 2,469.0             | 25.20           | 294.80      | 2,318.4             | 288.1      | -679.1     | 737.7                 | 0.63                  | -0.43                | 1.08                |  |
| 2,561.0             | 25.90           | 293.80      | 2,401.4             | 304.5      | -715.3     | 777.4                 | 0.89                  | 0.76                 | -1.09               |  |
| 2,654.0             | 26.90           | 290.80      | 2,484.7             | 320.1      | -753.5     | 818.7                 | 1.79                  | 1.08                 | -3.23               |  |
| 2,746.0             | 27.70           | 287.70      | 2,566.5             | 334.0      | -793.4     | 860.8                 | 1.77                  | 0.87                 | -3.37               |  |
| 2,839.0             | 29.50           | 292.30      | 2,648.2             | 349.3      | -835.1     | 905.2                 | 3.06                  | 1.94                 | 4.95                |  |
| 2,932.0             | 31.60           | 292.30      | 2,728.2             | 367.2      | -878.9     | 952.5                 | 2.26                  | 2.26                 | 0.00                |  |
| 3,025.0             | 32.60           | 292.80      | 2,807.0             | 386.2      | -924.5     | 1,001.9               | 1.11                  | 1.08                 | 0.54                |  |
| 3,118.0             | 31.30           | 292.60      | 2,885.9             | 405.2      | -969.9     | 1,051.1               | 1.40                  | -1.40                | -0.22               |  |
| 3,210.0             | 28.90           | 289.40      | 2,965.5             | 421.8      | -1,013.0   | 1,097.2               | 3.14                  | -2.61                | -3.48               |  |
| 3,304.0             | 29.60           | 287.10      | 3,047.5             | 436.1      | -1,056.6   | 1,143.0               | 1.41                  | 0.74                 | -2.45               |  |
| 3,397.0             | 27.90           | 288.80      | 3,129.1             | 449.9      | -1,099.1   | 1,187.6               | 2.03                  | -1.83                | 1.83                |  |
| 3,490.0             | 24.70           | 293.50      | 3,212.4             | 464.7      | -1,137.6   | 1,228.7               | 4.10                  | -3.44                | 5.05                |  |
| 3,583.0             | 25.00           | 299.00      | 3,296.8             | 481.9      | -1,172.6   | 1,267.7               | 2.51                  | 0.32                 | 5.91                |  |
| 3,676.0             | 25.70           | 298.50      | 3,380.9             | 501.1      | -1,207.5   | 1,307.3               | 0.79                  | 0.75                 | -0.54               |  |
| 3,770.0             | 26.40           | 297.20      | 3,465.3             | 520.4      | -1,244.0   | 1,348.4               | 0.96                  | 0.74                 | -1.38               |  |
| 3,863.0             | 26.10           | 293.70      | 3,548.8             | 538.0      | -1,281.1   | 1,389.5               | 1.70                  | -0.32                | -3.76               |  |
| 3,956.0             | 26.50           | 295.60      | 3,632.1             | 555.2      | -1,318.6   | 1,430.7               | 1.00                  | 0.43                 | 2.04                |  |
| 4,050.0             | 27.00           | 293.50      | 3,716.1             | 572.8      | -1,357.0   | 1,473.0               | 1.14                  | 0.53                 | -2.23               |  |
| 4,143.0             | 28.20           | 292.20      | 3,798.5             | 589.5      | -1,396.7   | 1,516.1               | 1.44                  | 1.29                 | -1.40               |  |
| 4,236.0             | 29.10           | 291.80      | 3,880.1             | 606.2      | -1,438.1   | 1,560.6               | 0.99                  | 0.97                 | -0.43               |  |
| 4,329.0             | 29.80           | 292.60      | 3,961.1             | 623.5      | -1,480.4   | 1,606.4               | 0.86                  | 0.75                 | 0.86                |  |
| 4,422.0             | 28.60           | 291.60      | 4,042.3             | 640.6      | -1,522.4   | 1,651.7               | 1.39                  | -1.29                | -1.08               |  |
| 4,513.0             | 28.00           | 292.80      | 4,122.4             | 656.9      | -1,562.4   | 1,694.9               | 0.91                  | -0.66                | 1.32                |  |
| 4,606.0             | 27.30           | 293.50      | 4,204.8             | 673.8      | -1,602.1   | 1,738.0               | 0.83                  | -0.75                | 0.75                |  |
| 4,699.0             | 28.30           | 295.90      | 4,287.0             | 692.0      | -1,641.5   | 1,781.4               | 1.61                  | 1.08                 | 2.58                |  |
| 4,792.0             | 27.10           | 296.40      | 4,369.4             | 711.0      | -1,680.3   | 1,824.5               | 1.31                  | -1.29                | 0.54                |  |
| 4,885.0             | 28.70           | 295.70      | 4,451.6             | 730.1      | -1,719.4   | 1,868.0               | 1.76                  | 1.72                 | -0.75               |  |
| 4,978.0             | 27.90           | 294.10      | 4,533.4             | 748.7      | -1,759.4   | 1,912.0               | 1.19                  | -0.86                | -1.72               |  |
| 5,071.0             | 27.40           | 292.50      | 4,615.8             | 765.8      | -1,799.0   | 1,955.2               | 0.96                  | -0.54                | -1.72               |  |
| 5,163.0             | 26.20           | 294.60      | 4,697.9             | 782.3      | -1,837.0   | 1,996.6               | 1.66                  | -1.30                | 2.28                |  |
| 5,257.0             | 23.80           | 293.80      | 4,783.1             | 798.6      | -1,873.2   | 2,036.4               | 2.58                  | -2.55                | -0.85               |  |
| 5,349.0             | 23.40           | 294.30      | 4,867.4             | 813.6      | -1,906.9   | 2,073.2               | 0.49                  | -0.43                | 0.54                |  |
| 5,442.0             | 21.60           | 295.00      | 4,953.4             | 828.5      | -1,939.2   | 2,108.8               | 1.96                  | -1.94                | 0.75                |  |
| 5,535.0             | 20.20           | 294.40      | 5,040.2             | 842.3      | -1,969.4   | 2,141.9               | 1.52                  | -1.51                | -0.65               |  |
| 5,628.0             | 16.70           | 295.10      | 5,128.4             | 854.6      | -1,996.1   | 2,171.3               | 3.77                  | -3.76                | 0.75                |  |
| 5,721.0             | 14.10           | 297.00      | 5,218.1             | 865.4      | -2,018.3   | 2,196.0               | 2.85                  | -2.80                | 2.04                |  |
| 5,814.0             | 11.60           | 291.80      | 5,308.8             | 874.1      | -2,037.1   | 2,216.6               | 2.96                  | -2.69                | -5.59               |  |
| 5,907.0             | 9.80            | 281.90      | 5,400.1             | 879.2      | -2,053.5   | 2,233.8               | 2.76                  | -1.94                | -10.65              |  |
| 5,999.0             | 9.20            | 279.10      | 5,490.9             | 881.9      | -2,068.4   | 2,248.6               | 0.82                  | -0.65                | -3.04               |  |
| 6,092.0             | 6.80            | 284.50      | 5,583.0             | 884.5      | -2,081.1   | 2,261.3               | 2.70                  | -2.58                | 5.81                |  |
| 6,185.0             | 5.30            | 289.40      | 5,675.5             | 887.3      | -2,090.5   | 2,271.0               | 1.70                  | -1.61                | 5.27                |  |

|                  |                                   |                                     |                                      |
|------------------|-----------------------------------|-------------------------------------|--------------------------------------|
| <b>Company:</b>  | Mineral Resources Inc             | <b>Local Co-ordinate Reference:</b> | Well Westbone 1-3-22                 |
| <b>Project:</b>  | SEC.22-T5N-R66W                   | <b>TVD Reference:</b>               | WELL @ 4817.0ft (Original Well Elev) |
| <b>Site:</b>     | T-Bone 5-3-22 Pad Sec.22-T5N-R66W | <b>MD Reference:</b>                | WELL @ 4817.0ft (Original Well Elev) |
| <b>Well:</b>     | Westbone 1-3-22                   | <b>North Reference:</b>             | True                                 |
| <b>Wellbore:</b> | Wellbore #1                       | <b>Survey Calculation Method:</b>   | Minimum Curvature                    |
| <b>Design:</b>   | Wellbore #1                       | <b>Database:</b>                    | Landmark                             |

## 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) |
|---|-----------------|-------------|---------------------|------------|------------|-----------------------|-----------------------|----------------------|---------------------|
| 6,278.0   | 4.00            | 288.20      | 5,768.1             | 889.7      | -2,097.6   | 2,278.5               | 1.40                  | -1.40                | -1.29               |
| 6,371.0   | 2.80            | 290.20      | 5,861.0             | 891.5      | -2,102.8   | 2,284.0               | 1.30                  | -1.29                | 2.15                |
| 6,464.0   | 2.00            | 288.80      | 5,953.9             | 892.8      | -2,106.5   | 2,287.9               | 0.86                  | -0.86                | -1.51               |
| 6,558.0   | 1.10            | 295.30      | 6,047.9             | 893.8      | -2,108.9   | 2,290.4               | 0.97                  | -0.96                | 6.91                |
| 6,610.4   | 0.98            | 288.49      | 6,100.2             | 894.1      | -2,109.7   | 2,291.4               | 0.33                  | -0.23                | -13.00              |
| <b>TARGET BHL 1985'FNL, 665'FWL</b>                 |                 |             |                     |            |            |                       |                       |                      |                     |
| 6,650.0   | 0.90            | 282.20      | 6,139.9             | 894.3      | -2,110.4   | 2,292.0               | 0.33                  | -0.20                | -15.88              |
| 6,742.0   | 0.40            | 279.50      | 6,231.8             | 894.5      | -2,111.4   | 2,293.1               | 0.54                  | -0.54                | -2.93               |
| 6,835.0   | 0.30            | 71.40       | 6,324.8             | 894.6      | -2,111.5   | 2,293.2               | 0.73                  | -0.11                | 163.33              |
| 6,928.0   | 0.30            | 51.80       | 6,417.8             | 894.9      | -2,111.1   | 2,292.9               | 0.11                  | 0.00                 | -21.08              |
| 7,020.0   | 1.10            | 76.40       | 6,509.8             | 895.2      | -2,110.0   | 2,292.1               | 0.91                  | 0.87                 | 26.74               |
| 7,113.0   | 1.00            | 350.30      | 6,602.8             | 896.2      | -2,109.3   | 2,291.8               | 1.54                  | -0.11                | -92.58              |
| 7,207.0   | 1.50            | 308.20      | 6,696.8             | 897.8      | -2,110.4   | 2,293.4               | 1.08                  | 0.53                 | -44.79              |
| 7,210.8   | 1.50            | 307.41      | 6,700.6             | 897.9      | -2,110.5   | 2,293.5               | 0.55                  | -0.09                | -20.63              |
| <b>LEGAL BOX 400' X 400' 1979'FNL &amp; 653'FWL</b> |                 |             |                     |            |            |                       |                       |                      |                     |
| 7,299.0   | 1.50            | 288.90      | 6,788.8             | 898.9      | -2,112.5   | 2,295.8               | 0.55                  | 0.00                 | -20.99              |
| 7,423.0   | 0.80            | 290.50      | 6,912.7             | 899.8      | -2,114.8   | 2,298.3               | 0.57                  | -0.56                | 1.29                |
| 7,485.0   | 0.70            | 345.40      | 6,974.7             | 900.3      | -2,115.3   | 2,298.9               | 1.12                  | -0.16                | 88.55               |
| 7,578.0   | 0.70            | 345.40      | 7,067.7             | 901.4      | -2,115.6   | 2,299.6               | 0.00                  | 0.00                 | 0.00                |
| 7,671.0   | 0.80            | 18.60       | 7,160.7             | 902.5      | -2,115.5   | 2,300.0               | 0.47                  | 0.11                 | 35.70               |
| 7,764.0   | 1.40            | 31.00       | 7,253.7             | 904.1      | -2,114.7   | 2,299.9               | 0.69                  | 0.65                 | 13.33               |
| 7,856.0   | 1.50            | 34.50       | 7,345.7             | 906.1      | -2,113.5   | 2,299.5               | 0.15                  | 0.11                 | 3.80                |
| 7,932.0   | 1.80            | 31.50       | 7,421.6             | 907.9      | -2,112.3   | 2,299.1               | 0.41                  | 0.39                 | -3.95               |
| 7,979.0   | 1.80            | 31.50       | 7,468.6             | 909.2      | -2,111.5   | 2,298.9               | 0.00                  | 0.00                 | 0.00                |

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_