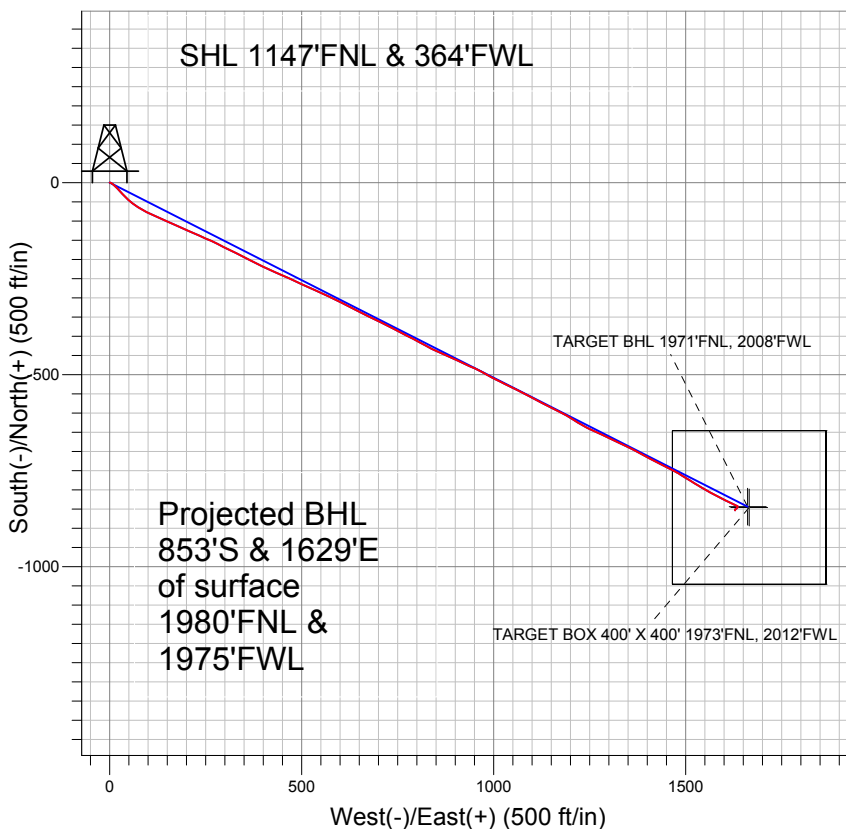
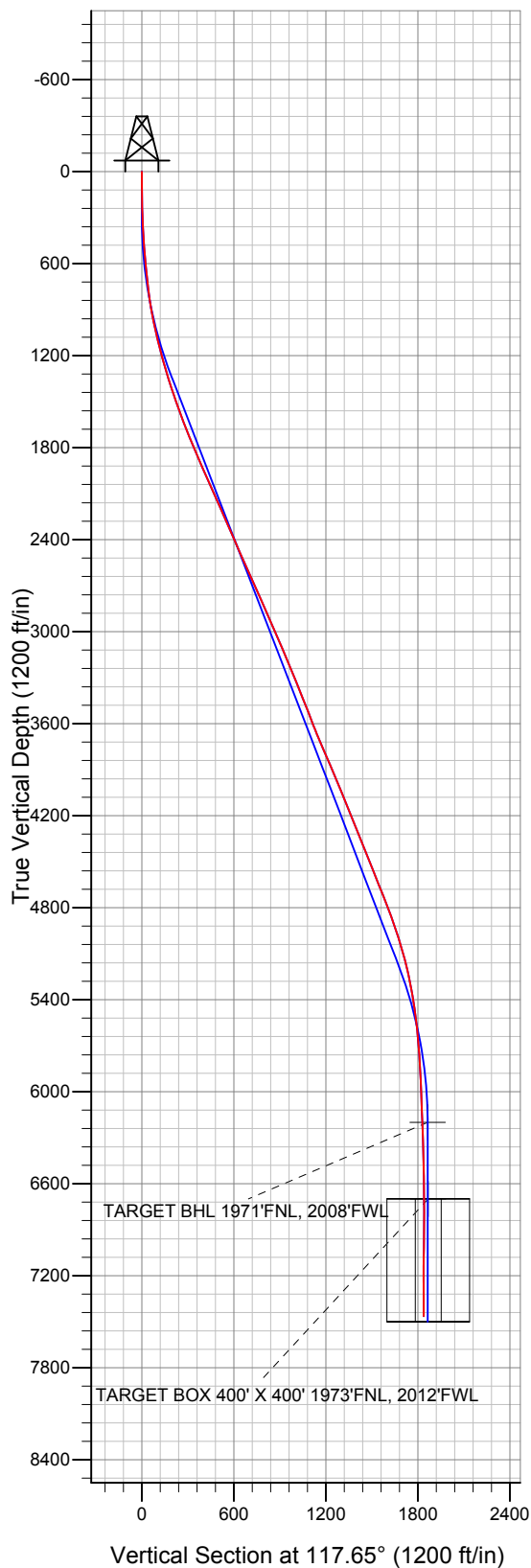


PETROLEUM DEVELOPMENT CORP Weld County CO



LEGEND

- Centennial 22-21DU, Wellbore #1, Plan #2 (3-18-10) V0
- Wellbore #1
- Survey #1

Final Survey Plot

Projected Final Survey -
7794'MD & 7463'TVD @ 1839' VS
0.4 deg Inc 163.1 deg AZ

Project: SEC.21-T4N-R67W
Site: EEE/Ryland 20SD Pad Sec.21-T4N-R67W
Well: Centennial 22-21DU
Plan: Wellbore #1



Directional

PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.21-T4N-R67W

EEE/Ryland 20SD Pad Sec.21-T4N-R67W

Centennial 22-21DU

Wellbore #1

Survey: Survey #1

Standard Survey Report

02 December, 2010

| | | | |
|------------------|---|-------------------------------------|--------------------------------------|
| Company: | PETROLEUM DEVELOPMENT CORP Weld County CO | Local Co-ordinate Reference: | Well Centennial 22-21DU |
| Project: | SEC.21-T4N-R67W | TVD Reference: | WELL @ 4935.0ft (Original Well Elev) |
| Site: | EEE/Ryland 20SD Pad Sec.21-T4N-R67W | MD Reference: | WELL @ 4935.0ft (Original Well Elev) |
| Well: | Centennial 22-21DU | North Reference: | True |
| Wellbore: | Wellbore #1 | Survey Calculation Method: | Minimum Curvature |
| Design: | Wellbore #1 | Database: | Landmark |

| | | | |
|--------------------|--|----------------------|-----------------------------|
| Project | SEC.21-T4N-R67W, Weld County, Colorado | | |
| Map System: | US State Plane 1983 | System Datum: | Mean Sea Level |
| Geo Datum: | North American Datum 1983 | | Using Well Reference Point |
| Map Zone: | Colorado Northern Zone | | Using geodetic scale factor |

| | | | | | |
|-----------------------|----------|-------------------------------------|-----------------|-------------------|-------------------|
| Site | | EEE/Ryland 20SD Pad Sec.21-T4N-R67W | | | |
| Site Position: | | Northing: | 1,353,584.71 ft | Latitude: | 40° 18' 8.856 N |
| From: | Lat/Long | Easting: | 3,166,056.83 ft | Longitude: | 104° 54' 16.632 W |
| Position Uncertainty: | 0.0 ft | Slot Radius: | " | Grid Convergence: | 0.38 ° |

| Well | Centennial 22-21DU | | | | | |
|----------------------|--------------------|--------|---------------------|-----------------|---------------|-------------------|
| Well Position | +N-S | 0.0 ft | Northing: | 1,353,599.79 ft | Latitude: | 40° 18' 9.000 N |
| | +E-W | 0.0 ft | Easting: | 3,166,134.82 ft | Longitude: | 104° 54' 15.624 W |
| Position Uncertainty | | 0.0 ft | Wellhead Elevation: | ft | Ground Level: | 4,922.0 ft |

| | | | | | |
|------------------|-------------------|--------------------|------------------------|----------------------|----------------------------|
| Wellbore | Wellbore #1 | | | | |
| Magnetics | Model Name | Sample Date | Declination (°) | Dip Angle (°) | Field Strength (nT) |
| | IGRF2010 | 10/19/2010 | 9.02 | 66.97 | 53,133 |

| | | | | | |
|--------------------------|------------------------------|-------------------|-------------------|----------------------|-----|
| Design | Wellbore #1 | | | | |
| Audit Notes: | | | | | |
| Version: | 1.0 | Phase: | ACTUAL | Tie On Depth: | 0.0 |
| Vertical Section: | Depth From (TVD) (ft) | +N/-S (ft) | +E/-W (ft) | Direction (°) | |
| | 0.0 | 0.0 | 0.0 | 117.65 | |

| | | | | | |
|-----------------------|----------------|--------------------------|------------------|--------------------|--|
| Survey Program | Date | 12/2/2010 | | | |
| From (ft) | To (ft) | Survey (Wellbore) | Tool Name | Description | |
| 147.0 | 7,794.0 | Survey #1 (Wellbore #1) | MWD | MWD - Standard | |

| | | | | | | | | | | |
|----------------------------|------------------------|--------------------|----------------------------|-------------------|-------------------|------------------------------|------------------------------|-----------------------------|----------------------------|--|
| 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) | |
| 0.0 | 0.00 | 0.00 | 0.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | |
| 147.0 | 1.10 | 101.10 | 147.0 | -0.3 | 1.4 | 1.4 | 0.75 | 0.75 | 0.00 | |
| 238.0 | 1.10 | 114.60 | 238.0 | -0.8 | 3.0 | 3.1 | 0.28 | 0.00 | 14.84 | |
| 329.0 | 2.20 | 121.50 | 328.9 | -2.1 | 5.3 | 5.7 | 1.23 | 1.21 | 7.58 | |
| 421.0 | 3.90 | 127.70 | 420.8 | -4.9 | 9.3 | 10.5 | 1.88 | 1.85 | 6.74 | |
| 511.0 | 4.90 | 133.70 | 510.5 | -9.4 | 14.5 | 17.2 | 1.22 | 1.11 | 6.67 | |
| 604.0 | 5.60 | 136.00 | 603.1 | -15.5 | 20.5 | 25.4 | 0.79 | 0.75 | 2.47 | |
| 653.0 | 6.00 | 137.70 | 651.9 | -19.1 | 23.9 | 30.0 | 0.89 | 0.82 | 3.47 | |
| 731.0 | 6.60 | 138.70 | 729.4 | -25.4 | 29.6 | 38.0 | 0.78 | 0.77 | 1.28 | |
| 824.0 | 8.70 | 136.60 | 821.6 | -34.6 | 38.0 | 49.7 | 2.28 | 2.26 | -2.26 | |
| 918.0 | 10.30 | 131.60 | 914.3 | -45.3 | 49.1 | 64.6 | 1.91 | 1.70 | -5.32 | |
| 1,011.0 | 12.20 | 127.10 | 1,005.5 | -56.8 | 63.2 | 82.3 | 2.25 | 2.04 | -4.84 | |

| | | | |
|------------------|---|-------------------------------------|--------------------------------------|
| Company: | PETROLEUM DEVELOPMENT CORP Weld County CO | Local Co-ordinate Reference: | Well Centennial 22-21DU |
| Project: | SEC.21-T4N-R67W | TVD Reference: | WELL @ 4935.0ft (Original Well Elev) |
| Site: | EEE/Ryland 20SD Pad Sec.21-T4N-R67W | MD Reference: | WELL @ 4935.0ft (Original Well Elev) |
| Well: | Centennial 22-21DU | North Reference: | True |
| Wellbore: | Wellbore #1 | Survey Calculation Method: | Minimum Curvature |
| Design: | Wellbore #1 | Database: | 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) |
| 1,105.0 | 14.70 | 120.00 | 1,096.9 | -68.7 | 81.5 | 104.0 | 3.18 | 2.66 | -7.55 |
| 1,198.0 | 14.20 | 115.60 | 1,187.0 | -79.6 | 102.0 | 127.2 | 1.30 | -0.54 | -4.73 |
| 1,292.0 | 16.50 | 114.90 | 1,277.6 | -90.2 | 124.5 | 152.1 | 2.45 | 2.45 | -0.74 |
| 1,386.0 | 17.50 | 112.00 | 1,367.5 | -101.1 | 149.7 | 179.5 | 1.39 | 1.06 | -3.09 |
| 1,479.0 | 18.70 | 114.80 | 1,455.9 | -112.6 | 176.2 | 208.3 | 1.59 | 1.29 | 3.01 |
| 1,573.0 | 20.40 | 114.60 | 1,544.5 | -125.7 | 204.8 | 239.7 | 1.81 | 1.81 | -0.21 |
| 1,666.0 | 20.50 | 113.00 | 1,631.6 | -138.8 | 234.5 | 272.1 | 0.61 | 0.11 | -1.72 |
| 1,759.0 | 21.60 | 114.70 | 1,718.4 | -152.3 | 265.0 | 305.5 | 1.35 | 1.18 | 1.83 |
| 1,853.0 | 23.10 | 116.70 | 1,805.4 | -167.9 | 297.2 | 341.2 | 1.79 | 1.60 | 2.13 |
| 1,947.0 | 23.10 | 116.40 | 1,891.8 | -184.3 | 330.2 | 378.0 | 0.13 | 0.00 | -0.32 |
| 2,040.0 | 24.50 | 116.80 | 1,976.9 | -201.1 | 363.8 | 415.6 | 1.52 | 1.51 | 0.43 |
| 2,134.0 | 24.50 | 115.70 | 2,062.5 | -218.4 | 398.7 | 454.5 | 0.49 | 0.00 | -1.17 |
| 2,227.0 | 23.80 | 114.20 | 2,147.3 | -234.4 | 433.2 | 492.5 | 1.00 | -0.75 | -1.61 |
| 2,321.0 | 23.60 | 113.50 | 2,233.4 | -249.7 | 467.8 | 530.2 | 0.37 | -0.21 | -0.74 |
| 2,414.0 | 23.70 | 114.50 | 2,318.6 | -264.9 | 501.9 | 567.5 | 0.44 | 0.11 | 1.08 |
| 2,508.0 | 23.60 | 115.10 | 2,404.7 | -280.7 | 536.1 | 605.1 | 0.28 | -0.11 | 0.64 |
| 2,602.0 | 24.00 | 114.80 | 2,490.7 | -296.7 | 570.5 | 643.0 | 0.44 | 0.43 | -0.32 |
| 2,695.0 | 24.10 | 116.60 | 2,575.6 | -313.1 | 604.6 | 680.9 | 0.80 | 0.11 | 1.94 |
| 2,789.0 | 24.50 | 116.90 | 2,661.3 | -330.6 | 639.2 | 719.6 | 0.45 | 0.43 | 0.32 |
| 2,882.0 | 23.40 | 116.40 | 2,746.3 | -347.5 | 672.9 | 757.3 | 1.20 | -1.18 | -0.54 |
| 2,976.0 | 23.80 | 116.30 | 2,832.4 | -364.2 | 706.6 | 794.9 | 0.43 | 0.43 | -0.11 |
| 3,069.0 | 23.70 | 117.20 | 2,917.5 | -381.0 | 740.1 | 832.4 | 0.40 | -0.11 | 0.97 |
| 3,163.0 | 24.10 | 117.30 | 3,003.5 | -398.5 | 773.9 | 870.5 | 0.43 | 0.43 | 0.11 |
| 3,257.0 | 23.00 | 119.00 | 3,089.7 | -416.2 | 807.1 | 908.0 | 1.38 | -1.17 | 1.81 |
| 3,350.0 | 23.00 | 115.60 | 3,175.3 | -432.9 | 839.3 | 944.4 | 1.43 | 0.00 | -3.66 |
| 3,444.0 | 22.20 | 114.00 | 3,262.1 | -448.0 | 872.1 | 980.4 | 1.07 | -0.85 | -1.70 |
| 3,538.0 | 22.30 | 115.10 | 3,349.1 | -462.8 | 904.5 | 1,016.0 | 0.46 | 0.11 | 1.17 |
| 3,632.0 | 21.70 | 113.70 | 3,436.2 | -477.4 | 936.6 | 1,051.1 | 0.85 | -0.64 | -1.49 |
| 3,725.0 | 21.30 | 118.50 | 3,522.7 | -492.3 | 967.1 | 1,085.2 | 1.94 | -0.43 | 5.16 |
| 3,819.0 | 21.10 | 117.80 | 3,610.4 | -508.4 | 997.1 | 1,119.2 | 0.34 | -0.21 | -0.74 |
| 3,912.0 | 23.00 | 115.70 | 3,696.6 | -524.0 | 1,028.3 | 1,154.1 | 2.21 | 2.04 | -2.26 |
| 4,006.0 | 23.30 | 116.40 | 3,783.0 | -540.3 | 1,061.5 | 1,191.0 | 0.43 | 0.32 | 0.74 |
| 4,099.0 | 23.20 | 117.80 | 3,868.5 | -557.0 | 1,094.2 | 1,227.7 | 0.60 | -0.11 | 1.51 |
| 4,193.0 | 22.30 | 117.50 | 3,955.1 | -573.9 | 1,126.4 | 1,264.1 | 0.97 | -0.96 | -0.32 |
| 4,286.0 | 22.90 | 116.10 | 4,041.0 | -590.0 | 1,158.3 | 1,299.8 | 0.87 | 0.65 | -1.51 |
| 4,380.0 | 21.70 | 119.80 | 4,128.0 | -606.7 | 1,189.8 | 1,335.4 | 1.96 | -1.28 | 3.94 |
| 4,474.0 | 22.50 | 123.10 | 4,215.1 | -625.1 | 1,219.9 | 1,370.7 | 1.57 | 0.85 | 3.51 |
| 4,567.0 | 21.40 | 114.70 | 4,301.3 | -641.9 | 1,250.3 | 1,405.4 | 3.57 | -1.18 | -9.03 |
| 4,661.0 | 22.20 | 114.50 | 4,388.6 | -656.5 | 1,282.0 | 1,440.2 | 0.85 | 0.85 | -0.21 |
| 4,754.0 | 22.00 | 115.90 | 4,474.8 | -671.4 | 1,313.7 | 1,475.2 | 0.61 | -0.22 | 1.51 |
| 4,848.0 | 21.90 | 115.80 | 4,562.0 | -686.7 | 1,345.3 | 1,510.3 | 0.11 | -0.11 | -0.11 |
| 4,941.0 | 21.30 | 118.00 | 4,648.4 | -702.2 | 1,375.8 | 1,544.5 | 1.08 | -0.65 | 2.37 |
| 5,035.0 | 21.30 | 118.30 | 4,736.0 | -718.3 | 1,405.9 | 1,578.7 | 0.12 | 0.00 | 0.32 |
| 5,128.0 | 21.00 | 115.80 | 4,822.8 | -733.5 | 1,435.8 | 1,612.2 | 1.02 | -0.32 | -2.69 |
| 5,222.0 | 20.30 | 117.80 | 4,910.7 | -748.5 | 1,465.4 | 1,645.4 | 1.06 | -0.74 | 2.13 |
| 5,315.0 | 16.40 | 121.50 | 4,999.0 | -762.9 | 1,490.9 | 1,674.6 | 4.37 | -4.19 | 3.98 |
| 5,409.0 | 15.60 | 122.40 | 5,089.3 | -776.6 | 1,512.8 | 1,700.5 | 0.89 | -0.85 | 0.96 |
| 5,502.0 | 14.20 | 120.70 | 5,179.2 | -789.1 | 1,533.2 | 1,724.3 | 1.58 | -1.51 | -1.83 |
| 5,596.0 | 12.00 | 119.30 | 5,270.8 | -799.8 | 1,551.6 | 1,745.6 | 2.36 | -2.34 | -1.49 |
| 5,689.0 | 9.80 | 119.80 | 5,362.1 | -808.4 | 1,566.9 | 1,763.2 | 2.37 | -2.37 | 0.54 |
| 5,783.0 | 8.40 | 117.60 | 5,454.9 | -815.6 | 1,580.0 | 1,778.0 | 1.53 | -1.49 | -2.34 |
| 5,877.0 | 6.70 | 116.80 | 5,548.1 | -821.2 | 1,591.0 | 1,790.4 | 1.81 | -1.81 | -0.85 |
| 5,970.0 | 5.30 | 115.70 | 5,640.6 | -825.5 | 1,599.7 | 1,800.1 | 1.51 | -1.51 | -1.18 |

| | | | |
|------------------|---|-------------------------------------|--------------------------------------|
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| Project: | SEC.21-T4N-R67W | TVD Reference: | WELL @ 4935.0ft (Original Well Elev) |
| Site: | EEE/Ryland 20SD Pad Sec.21-T4N-R67W | MD Reference: | WELL @ 4935.0ft (Original Well Elev) |
| Well: | Centennial 22-21DU | North Reference: | True |
| Wellbore: | Wellbore #1 | Survey Calculation Method: | Minimum Curvature |
| Design: | Wellbore #1 | Database: | 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) |
| 6,064.0 | 4.10 | 116.10 | 5,734.2 | -828.9 | 1,606.6 | 1,807.8 | 1.28 | -1.28 | 0.43 |
| 6,158.0 | 3.20 | 116.00 | 5,828.1 | -831.5 | 1,612.0 | 1,813.8 | 0.96 | -0.96 | -0.11 |
| 6,251.0 | 2.70 | 116.70 | 5,920.9 | -833.7 | 1,616.3 | 1,818.6 | 0.54 | -0.54 | 0.75 |
| 6,344.0 | 2.30 | 116.30 | 6,013.8 | -835.5 | 1,619.9 | 1,822.6 | 0.43 | -0.43 | -0.43 |
| 6,437.0 | 2.00 | 114.00 | 6,106.8 | -837.0 | 1,623.0 | 1,826.1 | 0.34 | -0.32 | -2.47 |
| 6,531.0 | 1.80 | 115.20 | 6,200.7 | -838.2 | 1,625.9 | 1,829.2 | 0.22 | -0.21 | 1.28 |
| 6,531.4 | 1.80 | 115.20 | 6,201.2 | -838.3 | 1,625.9 | 1,829.2 | 0.00 | 0.00 | 0.00 |
| TARGET BHL 1971'FNL, 2008'FWL | | | | | | | | | |
| 6,625.0 | 2.00 | 116.80 | 6,294.7 | -839.6 | 1,628.7 | 1,832.3 | 0.22 | 0.21 | 1.71 |
| 6,718.0 | 1.90 | 114.20 | 6,387.6 | -841.0 | 1,631.5 | 1,835.5 | 0.14 | -0.11 | -2.80 |
| 6,812.0 | 1.60 | 109.00 | 6,481.6 | -842.0 | 1,634.2 | 1,838.3 | 0.36 | -0.32 | -5.53 |
| 6,905.0 | 0.80 | 145.70 | 6,574.6 | -843.0 | 1,635.8 | 1,840.2 | 1.15 | -0.86 | 39.46 |
| 6,999.0 | 0.80 | 192.50 | 6,668.5 | -844.2 | 1,636.0 | 1,840.9 | 0.68 | 0.00 | 49.79 |
| 7,030.3 | 0.92 | 201.93 | 6,699.8 | -844.6 | 1,635.9 | 1,841.0 | 0.59 | 0.38 | 30.18 |
| TARGET BOX 400' X 400' 1973'FNL, 2012'FWL | | | | | | | | | |
| 7,092.0 | 1.20 | 214.40 | 6,761.5 | -845.6 | 1,635.3 | 1,841.0 | 0.59 | 0.46 | 20.19 |
| 7,186.0 | 2.20 | 219.50 | 6,855.5 | -847.8 | 1,633.6 | 1,840.5 | 1.07 | 1.06 | 5.43 |
| 7,279.0 | 1.20 | 238.70 | 6,948.4 | -849.7 | 1,631.7 | 1,839.6 | 1.22 | -1.08 | 20.65 |
| 7,373.0 | 0.90 | 237.60 | 7,042.4 | -850.6 | 1,630.2 | 1,838.8 | 0.32 | -0.32 | -1.17 |
| 7,467.0 | 0.50 | 229.60 | 7,136.4 | -851.3 | 1,629.3 | 1,838.3 | 0.44 | -0.43 | -8.51 |
| 7,560.0 | 0.40 | 196.20 | 7,229.4 | -851.9 | 1,628.9 | 1,838.2 | 0.30 | -0.11 | -35.91 |
| 7,654.0 | 0.40 | 163.10 | 7,323.4 | -852.5 | 1,628.9 | 1,838.5 | 0.24 | 0.00 | -35.21 |
| 7,747.0 | 0.40 | 163.10 | 7,416.4 | -853.1 | 1,629.1 | 1,838.9 | 0.00 | 0.00 | 0.00 |
| 7,794.0 | 0.40 | 163.10 | 7,463.4 | -853.4 | 1,629.1 | 1,839.1 | 0.00 | 0.00 | 0.00 |

| | | |
|-------------------|--------------------|-------------|
| Checked By: _____ | Approved By: _____ | Date: _____ |
|-------------------|--------------------|-------------|