

Well Name: **Cottonwood 34-33**

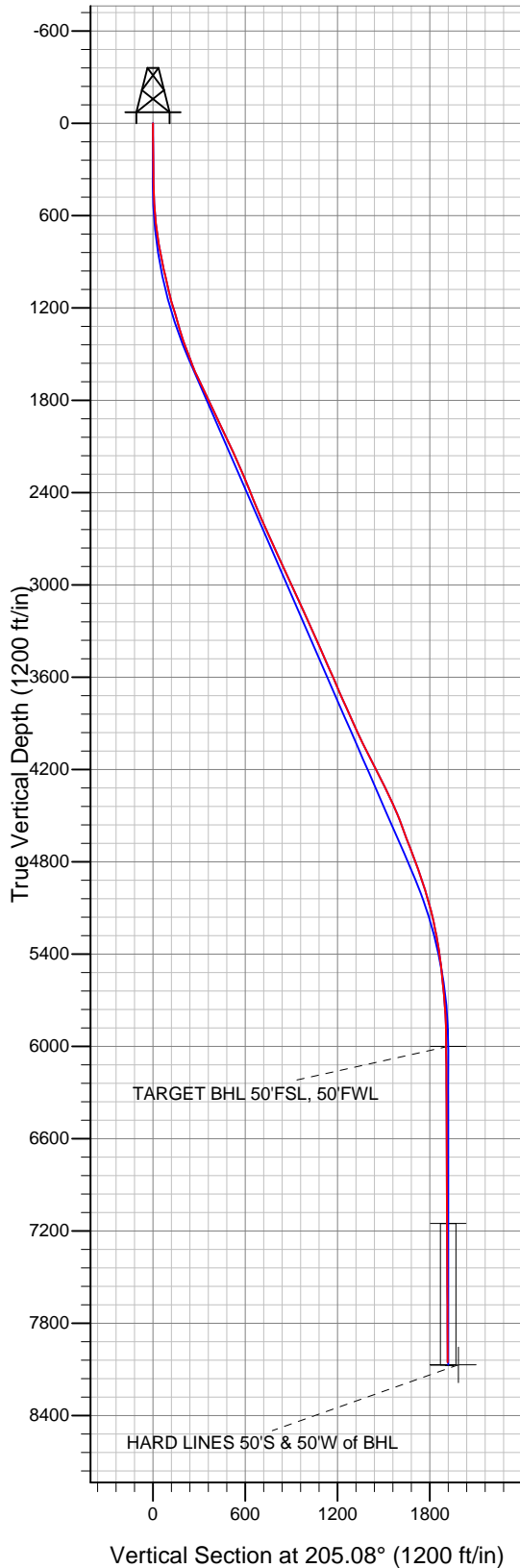
Surface Location: Cottonwood 12-33 Pad Sec. 33-T2N-R66W
North American Datum 1983 US State Plane 1983 Colorado Northern Zone

Ground Elevation: 4949.0

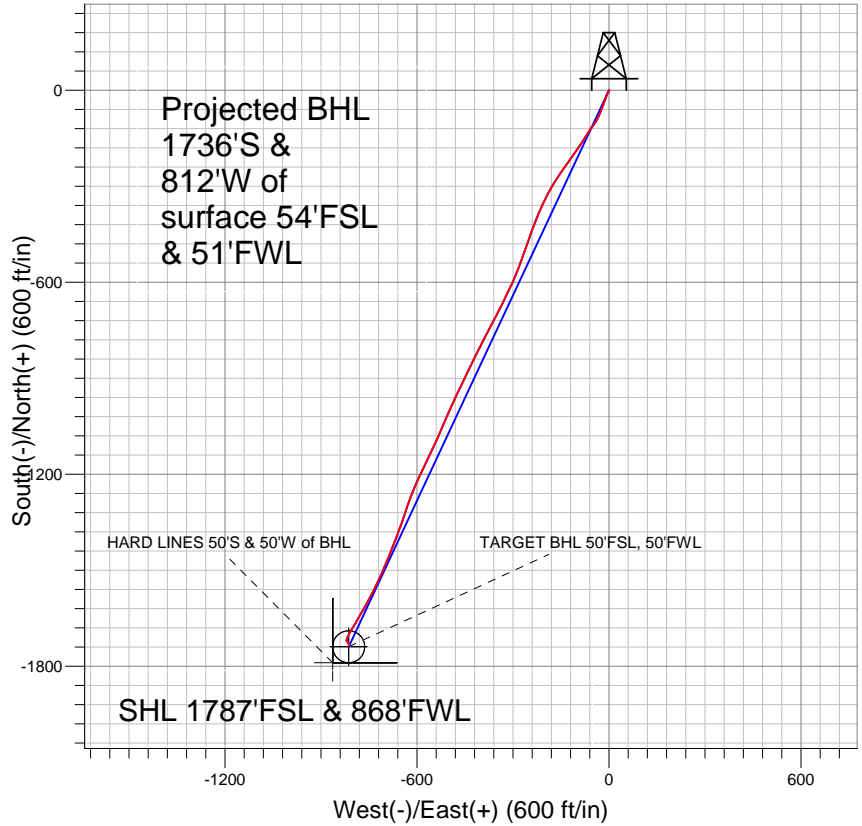
| +N/-S | +E/-W | Northing | Easting | Latitude | Longitude |
|-------|-------|------------|------------|-----------------|-------------------|
| 0.0 | 0.0 | 1277256.76 | 3199056.90 | 40° 5' 32.168 N | 104° 47' 18.607 W |

Original Well Elev WELL @ 4964.0ft (Original Well Elev)

Slot



Anadarko, Weld County CO



LEGEND

- Cottonwood 34-33, Wellbore #1, Plan #1 (11-08-10) V0
- Wellbore #1
- Survey #1

Final Survey Plot

Projected Final Survey -
8425'MD & 8054'TVD @ 1916' VS
0.1 deg Inc 168.2 deg AZ

Project: SEC.33-T2N-R66W
Site: Cottonwood 12-33 Pad Sec. 33-T2N-R66W
Well: Cottonwood 34-33
Plan: Wellbore #1



Anadarko, Weld County CO

SEC.33-T2N-R66W

Cottonwood 12-33 Pad Sec. 33-T2N-R66W

Cottonwood 34-33

Wellbore #1

Survey: Survey #1

Standard Survey Report

10 January, 2011



| | | | |
|------------------|---------------------------------------|-------------------------------------|--------------------------------------|
| Company: | Anadarko, Weld County CO | Local Co-ordinate Reference: | Well Cottonwood 34-33 |
| Project: | SEC.33-T2N-R66W | TVD Reference: | WELL @ 4964.0ft (Original Well Elev) |
| Site: | Cottonwood 12-33 Pad Sec. 33-T2N-R66W | MD Reference: | WELL @ 4964.0ft (Original Well Elev) |
| Well: | Cottonwood 34-33 | North Reference: | True |
| Wellbore: | Wellbore #1 | Survey Calculation Method: | Minimum Curvature |
| Design: | Wellbore #1 | Database: | Landmark |

| | | | |
|--------------------|--|----------------------|-----------------------------|
| Project | SEC.33-T2N-R66W, 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 | Cottonwood 12-33 Pad Sec. 33-T2N-R66W | | |
| Site Position: | | Northing: | 1,277,263.75 ft |
| From: | Lat/Long | Easting: | 3,199,064.12 ft |
| Position Uncertainty: | 0.0 ft | Slot Radius: | " |
| | | Latitude: | 40° 5' 32.237 N |
| | | Longitude: | 104° 47' 18.514 W |
| | | Grid Convergence: | 0.46 ° |

| | | | |
|-----------------------------|------------------|----------------------------|----------------------------------|
| Well | Cottonwood 34-33 | | |
| Well Position | +N-S | 0.0 ft | Northing: 1,277,256.76 ft |
| | +E-W | 0.0 ft | Easting: 3,199,056.90 ft |
| Position Uncertainty | 0.0 ft | Wellhead Elevation: | ft |
| | | Latitude: | 40° 5' 32.168 N |
| | | Longitude: | 104° 47' 18.607 W |
| | | Ground Level: | 4,949.0 ft |

| | | | | | |
|------------------|-------------------|--------------------|------------------------|----------------------|----------------------------|
| Wellbore | Wellbore #1 | | | | |
| Magnetics | Model Name | Sample Date | Declination (°) | Dip Angle (°) | Field Strength (nT) |
| | IGRF2010 | 11/8/2010 | 8.93 | 66.82 | 53,029 |

| | | | | | |
|--------------------------|------------------------------|------------------|------------------|----------------------|-----|
| 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 | 205.08 | |

| | | | | | |
|-----------------------|----------------|--------------------------|------------------|--------------------|--|
| Survey Program | Date | 1/10/2011 | | | |
| From (ft) | To (ft) | Survey (Wellbore) | Tool Name | Description | |
| 146.0 | 8,425.0 | 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 | |
| 146.0 | 1.10 | 194.30 | 146.0 | -1.4 | -0.3 | 1.4 | 0.75 | 0.75 | 0.00 | |
| 235.0 | 0.70 | 183.00 | 235.0 | -2.7 | -0.6 | 2.7 | 0.49 | -0.45 | -12.70 | |
| 325.0 | 0.40 | 178.70 | 325.0 | -3.6 | -0.6 | 3.5 | 0.34 | -0.33 | -4.78 | |
| 417.0 | 1.30 | 206.80 | 417.0 | -4.8 | -1.1 | 4.8 | 1.05 | 0.98 | 30.54 | |
| 508.0 | 3.00 | 212.60 | 507.9 | -7.8 | -2.8 | 8.2 | 1.88 | 1.87 | 6.37 | |
| 600.0 | 5.00 | 207.20 | 599.7 | -13.4 | -5.9 | 14.6 | 2.21 | 2.17 | -5.87 | |
| 692.0 | 7.70 | 198.50 | 691.1 | -22.8 | -9.7 | 24.8 | 3.11 | 2.93 | -9.46 | |
| 787.0 | 9.60 | 198.80 | 785.0 | -36.3 | -14.3 | 39.0 | 2.00 | 2.00 | 0.32 | |
| 882.0 | 11.60 | 201.50 | 878.4 | -52.7 | -20.4 | 56.4 | 2.17 | 2.11 | 2.84 | |
| 955.0 | 12.40 | 202.50 | 949.8 | -66.8 | -26.1 | 71.5 | 1.13 | 1.10 | 1.37 | |
| 987.0 | 12.80 | 200.50 | 981.0 | -73.3 | -28.6 | 78.5 | 1.85 | 1.25 | -6.25 | |
| 1,082.0 | 12.90 | 209.10 | 1,073.7 | -92.4 | -37.5 | 99.6 | 2.01 | 0.11 | 9.05 | |

| | | | |
|------------------|---------------------------------------|-------------------------------------|--------------------------------------|
| Company: | Anadarko, Weld County CO | Local Co-ordinate Reference: | Well Cottonwood 34-33 |
| Project: | SEC.33-T2N-R66W | TVD Reference: | WELL @ 4964.0ft (Original Well Elev) |
| Site: | Cottonwood 12-33 Pad Sec. 33-T2N-R66W | MD Reference: | WELL @ 4964.0ft (Original Well Elev) |
| Well: | Cottonwood 34-33 | 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) |
|---------------------|-----------------|-------------|---------------------|------------|------------|-----------------------|-----------------------|----------------------|---------------------|
| 1,177.0 | 16.40 | 217.30 | 1,165.6 | -112.3 | -50.7 | 123.3 | 4.27 | 3.68 | 8.63 |
| 1,272.0 | 16.70 | 212.20 | 1,256.6 | -134.6 | -66.1 | 149.9 | 1.56 | 0.32 | -5.37 |
| 1,367.0 | 17.00 | 212.70 | 1,347.5 | -157.8 | -80.9 | 177.2 | 0.35 | 0.32 | 0.53 |
| 1,462.0 | 19.80 | 213.90 | 1,437.7 | -182.8 | -97.4 | 206.9 | 2.97 | 2.95 | 1.26 |
| 1,558.0 | 21.40 | 216.30 | 1,527.5 | -210.5 | -116.8 | 240.1 | 1.88 | 1.67 | 2.50 |
| 1,653.0 | 23.30 | 215.10 | 1,615.4 | -239.8 | -137.9 | 275.6 | 2.06 | 2.00 | -1.26 |
| 1,748.0 | 26.00 | 213.20 | 1,701.7 | -272.6 | -160.1 | 314.8 | 2.96 | 2.84 | -2.00 |
| 1,843.0 | 25.70 | 209.80 | 1,787.2 | -307.9 | -181.8 | 355.9 | 1.59 | -0.32 | -3.58 |
| 1,938.0 | 26.00 | 206.10 | 1,872.7 | -344.5 | -201.2 | 397.3 | 1.73 | 0.32 | -3.89 |
| 2,036.0 | 25.50 | 203.20 | 1,961.0 | -383.2 | -218.9 | 439.8 | 1.38 | -0.51 | -2.96 |
| 2,131.0 | 25.10 | 199.90 | 2,046.9 | -420.9 | -233.8 | 480.3 | 1.54 | -0.42 | -3.47 |
| 2,226.0 | 24.30 | 199.60 | 2,133.2 | -458.3 | -247.2 | 519.9 | 0.85 | -0.84 | -0.32 |
| 2,321.0 | 24.40 | 199.70 | 2,219.8 | -495.1 | -260.4 | 558.8 | 0.11 | 0.11 | 0.11 |
| 2,417.0 | 23.00 | 200.10 | 2,307.7 | -531.4 | -273.5 | 597.3 | 1.47 | -1.46 | 0.42 |
| 2,512.0 | 21.60 | 201.50 | 2,395.6 | -565.1 | -286.3 | 633.2 | 1.58 | -1.47 | 1.47 |
| 2,607.0 | 22.80 | 204.20 | 2,483.5 | -598.2 | -300.3 | 669.1 | 1.66 | 1.26 | 2.84 |
| 2,702.0 | 23.60 | 205.30 | 2,570.8 | -632.2 | -316.0 | 706.5 | 0.96 | 0.84 | 1.16 |
| 2,798.0 | 24.20 | 206.60 | 2,658.6 | -667.1 | -333.0 | 745.4 | 0.83 | 0.63 | 1.35 |
| 2,893.0 | 24.70 | 207.30 | 2,745.1 | -702.2 | -350.8 | 784.7 | 0.61 | 0.53 | 0.74 |
| 2,988.0 | 24.70 | 208.30 | 2,831.4 | -737.3 | -369.3 | 824.3 | 0.44 | 0.00 | 1.05 |
| 3,083.0 | 24.10 | 207.50 | 2,917.9 | -772.0 | -387.7 | 863.5 | 0.72 | -0.63 | -0.84 |
| 3,178.0 | 24.80 | 207.00 | 3,004.4 | -806.9 | -405.7 | 902.8 | 0.77 | 0.74 | -0.53 |
| 3,273.0 | 25.20 | 206.40 | 3,090.5 | -842.8 | -423.7 | 943.0 | 0.50 | 0.42 | -0.63 |
| 3,369.0 | 24.80 | 204.20 | 3,177.5 | -879.5 | -441.1 | 983.5 | 1.05 | -0.42 | -2.29 |
| 3,463.0 | 24.30 | 206.30 | 3,263.0 | -914.8 | -457.7 | 1,022.6 | 1.07 | -0.53 | 2.23 |
| 3,558.0 | 23.30 | 205.80 | 3,349.9 | -949.2 | -474.6 | 1,060.9 | 1.07 | -1.05 | -0.53 |
| 3,654.0 | 24.50 | 203.90 | 3,437.7 | -984.5 | -490.9 | 1,099.8 | 1.48 | 1.25 | -1.98 |
| 3,749.0 | 23.30 | 203.80 | 3,524.5 | -1,019.7 | -506.5 | 1,138.3 | 1.26 | -1.26 | -0.11 |
| 3,844.0 | 23.40 | 202.50 | 3,611.8 | -1,054.4 | -521.3 | 1,175.9 | 0.55 | 0.11 | -1.37 |
| 3,939.0 | 23.60 | 203.80 | 3,698.9 | -1,089.2 | -536.1 | 1,213.8 | 0.58 | 0.21 | 1.37 |
| 4,034.0 | 24.80 | 206.50 | 3,785.5 | -1,124.4 | -552.7 | 1,252.7 | 1.72 | 1.26 | 2.84 |
| 4,129.0 | 24.00 | 205.50 | 3,872.0 | -1,159.7 | -569.9 | 1,291.9 | 0.95 | -0.84 | -1.05 |
| 4,225.0 | 24.60 | 205.50 | 3,959.5 | -1,195.3 | -586.9 | 1,331.4 | 0.63 | 0.63 | 0.00 |
| 4,320.0 | 26.50 | 203.20 | 4,045.2 | -1,232.7 | -603.8 | 1,372.4 | 2.26 | 2.00 | -2.42 |
| 4,415.0 | 27.60 | 199.80 | 4,129.9 | -1,272.9 | -619.6 | 1,415.5 | 2.00 | 1.16 | -3.58 |
| 4,510.0 | 26.90 | 199.70 | 4,214.3 | -1,313.8 | -634.3 | 1,458.8 | 0.74 | -0.74 | -0.11 |
| 4,605.0 | 26.00 | 198.80 | 4,299.4 | -1,353.8 | -648.2 | 1,500.9 | 1.04 | -0.95 | -0.95 |
| 4,700.0 | 25.70 | 201.50 | 4,384.9 | -1,392.6 | -662.5 | 1,542.2 | 1.28 | -0.32 | 2.84 |
| 4,796.0 | 23.10 | 201.30 | 4,472.3 | -1,429.5 | -677.0 | 1,581.7 | 2.71 | -2.71 | -0.21 |
| 4,891.0 | 20.50 | 202.00 | 4,560.5 | -1,462.3 | -690.0 | 1,616.9 | 2.75 | -2.74 | 0.74 |
| 4,985.0 | 20.20 | 203.90 | 4,648.6 | -1,492.4 | -702.7 | 1,649.6 | 0.77 | -0.32 | 2.02 |
| 5,080.0 | 20.80 | 204.40 | 4,737.6 | -1,522.8 | -716.3 | 1,682.9 | 0.66 | 0.63 | 0.53 |
| 5,176.0 | 20.60 | 204.80 | 4,827.4 | -1,553.6 | -730.5 | 1,716.8 | 0.26 | -0.21 | 0.42 |
| 5,271.0 | 18.90 | 209.00 | 4,916.8 | -1,582.3 | -744.9 | 1,748.9 | 2.33 | -1.79 | 4.42 |
| 5,366.0 | 16.30 | 209.80 | 5,007.4 | -1,607.3 | -759.0 | 1,777.5 | 2.75 | -2.74 | 0.84 |
| 5,461.0 | 14.80 | 209.60 | 5,098.9 | -1,629.4 | -771.6 | 1,802.9 | 1.58 | -1.58 | -0.21 |
| 5,556.0 | 12.60 | 209.60 | 5,191.2 | -1,649.0 | -782.8 | 1,825.3 | 2.32 | -2.32 | 0.00 |
| 5,651.0 | 10.70 | 209.80 | 5,284.2 | -1,665.7 | -792.3 | 1,844.4 | 2.00 | -2.00 | 0.21 |
| 5,747.0 | 8.70 | 210.90 | 5,378.8 | -1,679.6 | -800.4 | 1,860.5 | 2.09 | -2.08 | 1.15 |
| 5,842.0 | 6.70 | 212.00 | 5,473.0 | -1,690.5 | -807.0 | 1,873.2 | 2.11 | -2.11 | 1.16 |
| 5,937.0 | 5.70 | 208.30 | 5,567.4 | -1,699.3 | -812.2 | 1,883.4 | 1.13 | -1.05 | -3.89 |
| 6,032.0 | 5.10 | 205.50 | 5,662.0 | -1,707.3 | -816.3 | 1,892.3 | 0.69 | -0.63 | -2.95 |
| 6,127.0 | 4.30 | 195.80 | 5,756.7 | -1,714.5 | -819.1 | 1,900.1 | 1.18 | -0.84 | -10.21 |
| 6,222.0 | 2.00 | 181.50 | 5,851.5 | -1,719.6 | -820.1 | 1,905.1 | 2.54 | -2.42 | -15.05 |

| | | | |
|------------------|---------------------------------------|-------------------------------------|--------------------------------------|
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| Project: | SEC.33-T2N-R66W | TVD Reference: | WELL @ 4964.0ft (Original Well Elev) |
| Site: | Cottonwood 12-33 Pad Sec. 33-T2N-R66W | MD Reference: | WELL @ 4964.0ft (Original Well Elev) |
| Well: | Cottonwood 34-33 | 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) |
|--|-----------------|-------------|---------------------|------------|------------|-----------------------|-----------------------|----------------------|---------------------|
| 6,318.0 | 1.10 | 120.10 | 5,947.5 | -1,721.8 | -819.3 | 1,906.7 | 1.84 | -0.94 | -63.96 |
| 6,370.8 | 1.07 | 134.35 | 6,000.3 | -1,722.4 | -818.5 | 1,906.9 | 0.51 | -0.05 | 26.99 |
| TARGET BHL 50'FSL, 50'FWL | | | | | | | | | |
| 6,413.0 | 1.10 | 145.70 | 6,042.5 | -1,723.0 | -818.0 | 1,907.3 | 0.51 | 0.06 | 26.89 |
| 6,508.0 | 1.00 | 142.90 | 6,137.5 | -1,724.4 | -817.0 | 1,908.1 | 0.12 | -0.11 | -2.95 |
| 6,603.0 | 0.90 | 146.00 | 6,232.4 | -1,725.7 | -816.1 | 1,908.9 | 0.12 | -0.11 | 3.26 |
| 6,730.0 | 0.70 | 140.80 | 6,359.4 | -1,727.1 | -815.0 | 1,909.7 | 0.17 | -0.16 | -4.09 |
| 6,825.0 | 0.60 | 137.90 | 6,454.4 | -1,727.9 | -814.3 | 1,910.2 | 0.11 | -0.11 | -3.05 |
| 6,920.0 | 0.60 | 142.70 | 6,549.4 | -1,728.7 | -813.7 | 1,910.6 | 0.05 | 0.00 | 5.05 |
| 7,015.0 | 0.40 | 142.50 | 6,644.4 | -1,729.3 | -813.2 | 1,911.0 | 0.21 | -0.21 | -0.21 |
| 7,111.0 | 0.40 | 157.10 | 6,740.4 | -1,729.9 | -812.9 | 1,911.4 | 0.11 | 0.00 | 15.21 |
| 7,206.0 | 0.40 | 147.10 | 6,835.4 | -1,730.5 | -812.6 | 1,911.8 | 0.07 | 0.00 | -10.53 |
| 7,301.0 | 0.40 | 170.60 | 6,930.4 | -1,731.1 | -812.3 | 1,912.2 | 0.17 | 0.00 | 24.74 |
| 7,396.0 | 0.30 | 196.80 | 7,025.4 | -1,731.7 | -812.3 | 1,912.7 | 0.20 | -0.11 | 27.58 |
| 7,491.0 | 0.10 | 174.90 | 7,120.4 | -1,732.0 | -812.4 | 1,913.1 | 0.22 | -0.21 | -23.05 |
| 7,521.6 | 0.10 | 162.73 | 7,151.0 | -1,732.0 | -812.4 | 1,913.1 | 0.07 | -0.02 | -39.76 |
| TARGET CIRCLE 50'FSL & 50'FWL | | | | | | | | | |
| 7,586.0 | 0.10 | 136.40 | 7,215.4 | -1,732.1 | -812.3 | 1,913.2 | 0.07 | 0.01 | -40.89 |
| 7,682.0 | 0.10 | 105.70 | 7,311.4 | -1,732.2 | -812.2 | 1,913.2 | 0.06 | 0.00 | -31.98 |
| 7,777.0 | 0.90 | 250.70 | 7,406.4 | -1,732.5 | -812.8 | 1,913.7 | 1.04 | 0.84 | 152.63 |
| 7,872.0 | 0.30 | 146.80 | 7,501.4 | -1,732.9 | -813.4 | 1,914.3 | 1.07 | -0.63 | -109.37 |
| 7,968.0 | 0.50 | 157.70 | 7,597.4 | -1,733.5 | -813.1 | 1,914.8 | 0.22 | 0.21 | 11.35 |
| 8,062.0 | 0.40 | 144.10 | 7,691.4 | -1,734.2 | -812.7 | 1,915.2 | 0.15 | -0.11 | -14.47 |
| 8,158.0 | 0.40 | 169.30 | 7,787.4 | -1,734.8 | -812.5 | 1,915.6 | 0.18 | 0.00 | 26.25 |
| 8,374.0 | 0.10 | 168.20 | 8,003.4 | -1,735.7 | -812.3 | 1,916.4 | 0.14 | -0.14 | -0.51 |
| 8,425.0 | 0.10 | 168.20 | 8,054.4 | -1,735.8 | -812.3 | 1,916.5 | 0.00 | 0.00 | 0.00 |
| HARD LINES 50'S & 50'W of BHL | | | | | | | | | |

Checked By: _____ Approved By: _____ Date: _____