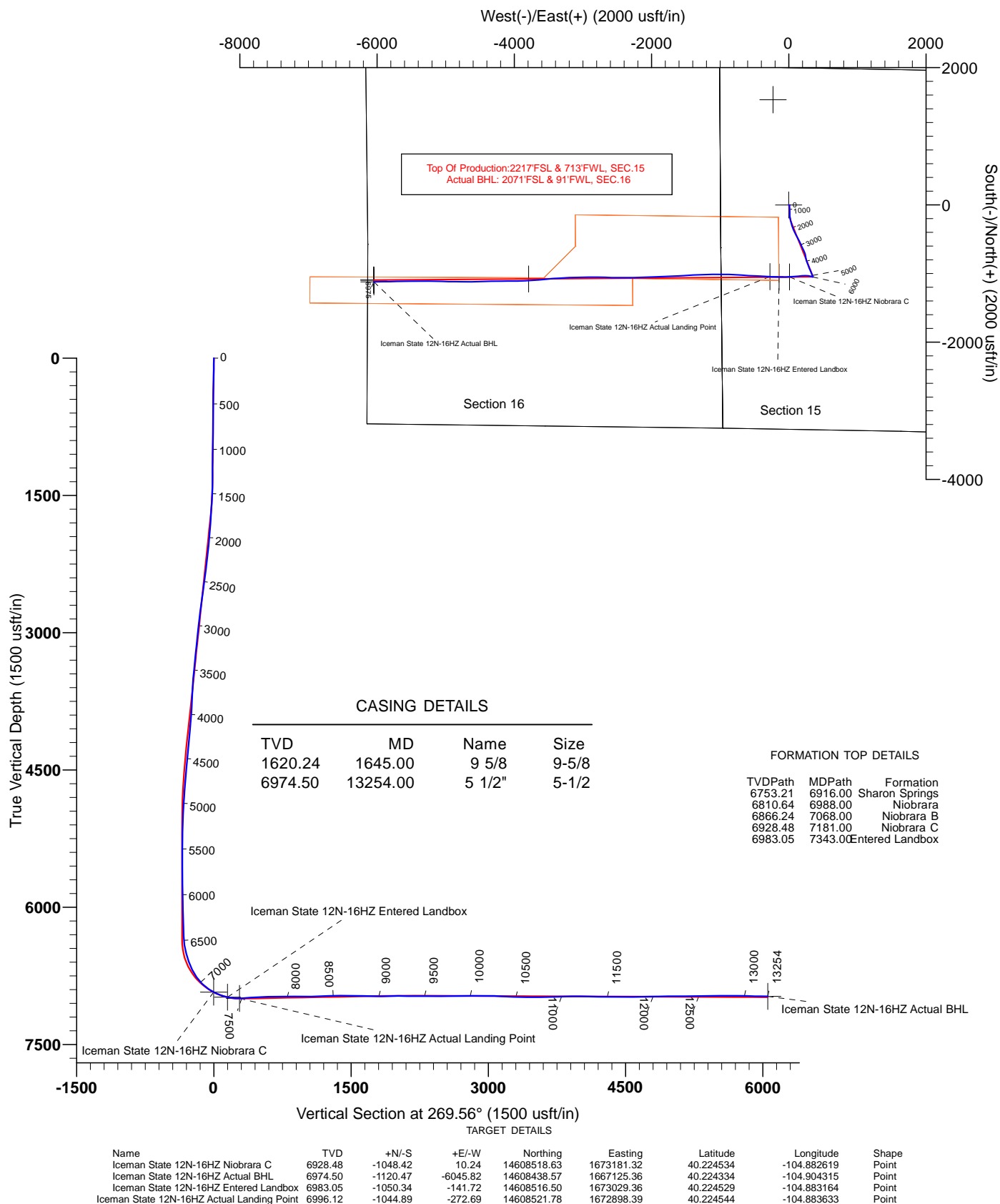


US ROCKIES WATTENBERG PLANNING



Project: WELD-NAD83-UTMFT13N
 Site: 3N-67W-15 Iceman Pad
 Well: ICEMAN STATE 12N-16HZ
 Wellbore: PLAN A
 Design: PDD Actual Surveys



US ROCKIES WATTENBERG PLANNING

**WELD-NAD83-UTMFT13N
3N-67W-15 Iceman Pad
ICEMAN STATE 12N-16HZ**

PLAN A

Design: PDD Actual Surveys

Standard Survey Report

05 October, 2015

PDD
Survey Report

| | | | |
|------------------|--------------------------------|-------------------------------------|------------------------------|
| Company: | US ROCKIES WATTENBERG PLANNING | Local Co-ordinate Reference: | Well ICEMAN STATE 12N-16HZ |
| Project: | WELD-NAD83-UTMFT13N | TVD Reference: | 4798+20 @ 4818.00usft (P462) |
| Site: | 3N-67W-15 Iceman Pad | MD Reference: | 4798+20 @ 4818.00usft (P462) |
| Well: | ICEMAN STATE 12N-16HZ | North Reference: | True |
| Wellbore: | PLAN A | Survey Calculation Method: | Minimum Curvature |
| Design: | PDD Actual Surveys | Database: | EDM 5000.1 Single User Db |

| | | | |
|--------------------|--|----------------------|----------------|
| Project | WELD-NAD83-UTMFT13N | | |
| Map System: | Universal Transverse Mercator (US Survey Feet) | System Datum: | Mean Sea Level |
| Geo Datum: | North American Datum 1983 | | |
| Map Zone: | Zone 13N (108 W to 102 W) | | |

| | | | | | |
|-----------------------|-----------|---|--------------------|-------------------|-------------|
| Site | | 3N-67W-15 Iceman Pad, SECTION 17, TOWNSHIP 3 NORTH, RANGE 67 WEST | | | |
| Site Position: | | Northing: | 14,609,596.89 usft | Latitude: | 40.227495 |
| From: | Lat/Long | Easting: | 1,673,169.65 usft | Longitude: | -104.882656 |
| Position Uncertainty: | 0.00 usft | Slot Radius: | 13-3/16 " | Grid Convergence: | 0.08 ° |

| Well | | ICEMAN STATE 12N-16HZ | | | | |
|----------------------|-------|-----------------------|---------------------|--------------------|---------------|---------------|
| Well Position | +N/-S | 0.00 usft | Northing: | 14,609,567.03 usft | Latitude: | 40.227413 |
| | +E/-W | 0.00 usft | Easting: | 1,673,169.69 usft | Longitude: | -104.882656 |
| Position Uncertainty | | 3.28 usft | Wellhead Elevation: | 0.00 usft | Ground Level: | 4,798.00 usft |

| | | | | | |
|------------------|-------------------|--------------------|------------------------|----------------------|----------------------------|
| Wellbore | PLAN A | | | | |
| Magnetics | Model Name | Sample Date | Declination (°) | Dip Angle (°) | Field Strength (nT) |
| | IGRF2010 | 11/20/2014 | 8.45 | 66.77 | 52,667 |

| | | | | | |
|--------------------------|--------------------------------|---------------------|---------------------|----------------------|------|
| Design | PDD Actual Surveys | | | | |
| Audit Notes: | | | | | |
| Version: | 1.0 | Phase: | ACTUAL | Tie On Depth: | 0.00 |
| Vertical Section: | Depth From (TVD) (usft) | +N/-S (usft) | +E/-W (usft) | Direction (°) | |
| | 0.00 | 0.00 | 0.00 | 269.56 | |

| | | | | | |
|-----------------------|------------------|----------------------------------|-----------------------|---|--|
| Survey Program | Date | 10/5/2015 | | | |
| From (usft) | To (usft) | Survey (Wellbore) | Tool Name | Description | |
| 128.00 | 1,614.00 | Cathedral MWD Surface (PLAN A) | APC_ISCWSA REV 2 MWD | Fixed:v2:standard declination | |
| 1,703.00 | 13,185.00 | PDD MWD+IFR+MSA Surveys (PLAN A) | APC_ISCWSA REV 2 MWD+ | Fixed:v2:Rockies, crustal dec + 3-axis correction | |

| | | | | | | | | | | |
|------------------------------|------------------------|--------------------|------------------------------|---------------------|---------------------|--------------------------------|--------------------------------|-------------------------------|------------------------------|--|
| Survey | | | | | | | | | | |
| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) | |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 128.00 | 1.10 | 62.30 | 127.99 | 0.57 | 1.09 | -1.09 | 0.86 | 0.86 | 0.00 | |
| 190.00 | 0.90 | 38.70 | 189.98 | 1.23 | 1.92 | -1.93 | 0.73 | -0.32 | -38.06 | |
| 252.00 | 1.00 | 93.40 | 251.98 | 1.58 | 2.76 | -2.78 | 1.42 | 0.16 | 88.23 | |
| 314.00 | 1.70 | 120.20 | 313.96 | 1.08 | 4.10 | -4.11 | 1.49 | 1.13 | 43.23 | |
| 376.00 | 2.80 | 154.80 | 375.91 | -0.75 | 5.54 | -5.53 | 2.74 | 1.77 | 55.81 | |
| 460.00 | 3.10 | 161.30 | 459.80 | -4.76 | 7.14 | -7.10 | 0.53 | 0.36 | 7.74 | |
| 545.00 | 3.80 | 175.20 | 544.65 | -9.74 | 8.11 | -8.04 | 1.28 | 0.82 | 16.35 | |
| 630.00 | 4.80 | 175.60 | 629.41 | -16.10 | 8.62 | -8.50 | 1.18 | 1.18 | 0.47 | |
| 715.00 | 6.20 | 179.10 | 714.01 | -24.23 | 8.97 | -8.78 | 1.69 | 1.65 | 4.12 | |

PDD

Survey Report

| | | | |
|------------------|--------------------------------|-------------------------------------|------------------------------|
| Company: | US ROCKIES WATTENBERG PLANNING | Local Co-ordinate Reference: | Well ICEMAN STATE 12N-16HZ |
| Project: | WELD-NAD83-UTMFT13N | TVD Reference: | 4798+20 @ 4818.00usft (P462) |
| Site: | 3N-67W-15 Iceman Pad | MD Reference: | 4798+20 @ 4818.00usft (P462) |
| Well: | ICEMAN STATE 12N-16HZ | North Reference: | True |
| Wellbore: | PLAN A | Survey Calculation Method: | Minimum Curvature |
| Design: | PDD Actual Surveys | Database: | EDM 5000.1 Single User Db |

| Survey | | | | | | | | | |
|-----------------------|-----------------|-------------|-----------------------|--------------|--------------|-------------------------|-------------------------|------------------------|-----------------------|
| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |
| 799.00 | 7.30 | 176.10 | 797.43 | -34.09 | 9.40 | -9.14 | 1.37 | 1.31 | -3.57 |
| 883.00 | 8.30 | 175.80 | 880.65 | -45.46 | 10.21 | -9.86 | 1.19 | 1.19 | -0.36 |
| 968.00 | 9.80 | 175.20 | 964.59 | -58.79 | 11.26 | -10.81 | 1.77 | 1.76 | -0.71 |
| 1,052.00 | 11.80 | 174.60 | 1,047.10 | -74.47 | 12.67 | -12.10 | 2.38 | 2.38 | -0.71 |
| 1,136.00 | 13.80 | 176.80 | 1,129.01 | -93.02 | 14.04 | -13.32 | 2.45 | 2.38 | 2.62 |
| 1,219.00 | 14.90 | 179.90 | 1,209.42 | -113.58 | 14.61 | -13.74 | 1.62 | 1.33 | 3.73 |
| 1,304.00 | 14.90 | 179.30 | 1,291.56 | -135.43 | 14.76 | -13.72 | 0.18 | 0.00 | -0.71 |
| 1,390.00 | 14.80 | 176.40 | 1,374.69 | -157.45 | 15.59 | -14.38 | 0.87 | -0.12 | -3.37 |
| 1,475.00 | 15.70 | 171.40 | 1,456.70 | -179.66 | 17.99 | -16.61 | 1.87 | 1.06 | -5.88 |
| 1,559.00 | 15.80 | 167.50 | 1,537.55 | -202.06 | 22.16 | -20.61 | 1.27 | 0.12 | -4.64 |
| 1,614.00 | 16.00 | 166.70 | 1,590.44 | -216.75 | 25.53 | -23.86 | 0.54 | 0.36 | -1.45 |
| 1,703.00 | 16.29 | 168.93 | 1,675.94 | -240.94 | 30.75 | -28.89 | 0.77 | 0.32 | 2.50 |
| 1,894.00 | 15.37 | 163.96 | 1,859.70 | -291.55 | 42.88 | -40.64 | 0.86 | -0.48 | -2.60 |
| 2,083.00 | 15.16 | 159.05 | 2,042.04 | -338.70 | 58.64 | -56.04 | 0.69 | -0.11 | -2.60 |
| 2,273.00 | 15.73 | 153.16 | 2,225.19 | -384.89 | 79.15 | -76.19 | 0.88 | 0.30 | -3.10 |
| 2,463.00 | 16.77 | 152.24 | 2,407.60 | -432.12 | 103.55 | -100.23 | 0.56 | 0.55 | -0.49 |
| 2,654.00 | 16.33 | 152.31 | 2,590.69 | -480.27 | 128.86 | -125.17 | 0.23 | -0.23 | 0.04 |
| 2,844.00 | 14.89 | 151.63 | 2,773.67 | -525.42 | 152.88 | -148.84 | 0.76 | -0.76 | -0.35 |
| 3,034.00 | 15.10 | 154.28 | 2,957.20 | -569.20 | 175.22 | -170.85 | 0.38 | 0.11 | 1.39 |
| 3,225.00 | 14.39 | 158.52 | 3,141.92 | -613.70 | 194.71 | -190.00 | 0.68 | -0.37 | 2.22 |
| 3,414.00 | 13.30 | 153.79 | 3,325.43 | -655.06 | 212.92 | -207.88 | 0.83 | -0.58 | -2.50 |
| 3,602.00 | 11.74 | 155.45 | 3,508.95 | -691.86 | 230.42 | -225.10 | 0.85 | -0.83 | 0.88 |
| 3,790.00 | 14.27 | 169.45 | 3,692.16 | -732.05 | 242.61 | -236.99 | 2.14 | 1.35 | 7.45 |
| 3,981.00 | 16.81 | 169.88 | 3,876.16 | -782.39 | 251.78 | -245.76 | 1.33 | 1.33 | 0.22 |
| 4,172.00 | 16.09 | 159.25 | 4,059.38 | -834.36 | 266.02 | -259.60 | 1.62 | -0.38 | -5.57 |
| 4,361.00 | 15.53 | 158.74 | 4,241.23 | -882.43 | 284.47 | -277.68 | 0.31 | -0.30 | -0.27 |
| 4,550.00 | 13.85 | 158.69 | 4,424.04 | -927.09 | 301.87 | -294.74 | 0.89 | -0.89 | -0.03 |
| 4,740.00 | 12.26 | 156.28 | 4,609.13 | -966.75 | 318.25 | -310.81 | 0.89 | -0.84 | -1.26 |
| 4,931.00 | 9.88 | 156.90 | 4,796.56 | -1,000.39 | 332.83 | -325.14 | 1.25 | -1.24 | 0.33 |
| 5,122.00 | 6.60 | 156.14 | 4,985.56 | -1,025.51 | 343.70 | -335.82 | 1.72 | -1.72 | -0.40 |
| 5,313.00 | 2.65 | 158.41 | 5,175.90 | -1,039.66 | 349.77 | -341.78 | 2.07 | -2.07 | 1.19 |
| 5,503.00 | 1.56 | 159.29 | 5,365.77 | -1,046.15 | 352.30 | -344.25 | 0.57 | -0.57 | 0.46 |
| 5,694.00 | 0.68 | 236.12 | 5,556.74 | -1,049.21 | 352.27 | -344.21 | 0.81 | -0.46 | 40.22 |
| 5,884.00 | 0.65 | 273.99 | 5,746.73 | -1,049.76 | 350.26 | -342.18 | 0.23 | -0.01 | 19.93 |
| 6,074.00 | 1.05 | 298.03 | 5,936.71 | -1,048.87 | 347.64 | -339.57 | 0.28 | 0.21 | 12.65 |
| 6,169.00 | 1.50 | 293.50 | 6,031.69 | -1,047.96 | 345.73 | -337.67 | 0.49 | 0.48 | -4.76 |
| 6,360.00 | 2.10 | 294.38 | 6,222.59 | -1,045.52 | 340.24 | -332.20 | 0.31 | 0.31 | 0.46 |
| 6,455.00 | 1.94 | 298.22 | 6,317.53 | -1,044.04 | 337.24 | -329.21 | 0.22 | -0.17 | 4.04 |
| 6,549.00 | 8.32 | 280.84 | 6,411.11 | -1,042.01 | 329.15 | -321.14 | 6.91 | 6.79 | -18.49 |
| 6,645.00 | 15.15 | 284.17 | 6,505.05 | -1,037.62 | 310.14 | -302.16 | 7.15 | 7.11 | 3.47 |
| 6,740.00 | 20.88 | 277.37 | 6,595.37 | -1,032.41 | 281.29 | -273.35 | 6.42 | 6.03 | -7.16 |
| 6,835.00 | 25.60 | 269.39 | 6,682.65 | -1,030.45 | 243.95 | -236.02 | 5.96 | 4.97 | -8.40 |
| 6,931.00 | 34.50 | 266.14 | 6,765.67 | -1,032.51 | 195.98 | -188.05 | 9.42 | 9.27 | -3.39 |

PDD Survey Report

| | | | |
|------------------|--------------------------------|-------------------------------------|------------------------------|
| Company: | US ROCKIES WATTENBERG PLANNING | Local Co-ordinate Reference: | Well ICEMAN STATE 12N-16HZ |
| Project: | WELD-NAD83-UTMFT13N | TVD Reference: | 4798+20 @ 4818.00usft (P462) |
| Site: | 3N-67W-15 Iccman Pad | MD Reference: | 4798+20 @ 4818.00usft (P462) |
| Well: | ICEMAN STATE 12N-16HZ | North Reference: | True |
| Wellbore: | PLAN A | Survey Calculation Method: | Minimum Curvature |
| Design: | PDD Actual Surveys | Database: | EDM 5000.1 Single User Db |

| Survey | | | | | | | | | |
|-----------------------|-----------------|-------------|-----------------------|--------------|--------------|-------------------------|-------------------------|------------------------|-----------------------|
| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |
| 7,026.00 | 45.77 | 263.51 | 6,838.19 | -1,038.18 | 135.12 | -127.14 | 11.99 | 11.86 | -2.77 |
| 7,121.00 | 56.24 | 265.62 | 6,897.89 | -1,045.07 | 61.72 | -53.69 | 11.15 | 11.02 | 2.22 |
| 7,216.00 | 66.05 | 267.57 | 6,943.69 | -1,049.94 | -21.24 | 29.30 | 10.48 | 10.33 | 2.05 |
| 7,311.00 | 74.79 | 270.95 | 6,975.50 | -1,051.02 | -110.64 | 118.70 | 9.79 | 9.20 | 3.56 |
| 7,406.00 | 84.10 | 272.66 | 6,992.88 | -1,048.06 | -203.87 | 211.92 | 9.96 | 9.80 | 1.80 |
| 7,501.00 | 92.94 | 272.60 | 6,995.33 | -1,043.71 | -298.65 | 306.66 | 9.31 | 9.31 | -0.06 |
| 7,596.00 | 94.48 | 272.02 | 6,989.19 | -1,039.88 | -393.37 | 401.34 | 1.73 | 1.62 | -0.61 |
| 7,692.00 | 93.59 | 272.83 | 6,982.43 | -1,035.83 | -489.04 | 496.98 | 1.25 | -0.93 | 0.84 |
| 7,787.00 | 91.47 | 273.95 | 6,978.24 | -1,030.22 | -583.78 | 591.67 | 2.52 | -2.23 | 1.18 |
| 7,882.00 | 90.93 | 273.58 | 6,976.25 | -1,023.98 | -678.55 | 686.40 | 0.69 | -0.57 | -0.39 |
| 7,977.00 | 89.49 | 274.00 | 6,975.90 | -1,017.70 | -773.34 | 781.13 | 1.58 | -1.52 | 0.44 |
| 8,072.00 | 89.33 | 271.20 | 6,976.88 | -1,013.40 | -868.23 | 875.99 | 2.95 | -0.17 | -2.95 |
| 8,167.00 | 89.98 | 269.93 | 6,977.45 | -1,012.46 | -963.22 | 970.97 | 1.50 | 0.68 | -1.34 |
| 8,262.00 | 91.03 | 269.64 | 6,976.61 | -1,012.82 | -1,058.21 | 1,065.96 | 1.15 | 1.11 | -0.31 |
| 8,357.00 | 93.02 | 269.48 | 6,973.26 | -1,013.54 | -1,153.15 | 1,160.90 | 2.10 | 2.09 | -0.17 |
| 8,453.00 | 91.83 | 268.38 | 6,969.20 | -1,015.34 | -1,249.04 | 1,256.80 | 1.69 | -1.24 | -1.15 |
| 8,548.00 | 90.51 | 266.90 | 6,967.26 | -1,019.25 | -1,343.94 | 1,351.72 | 2.09 | -1.39 | -1.56 |
| 8,644.00 | 89.05 | 266.40 | 6,967.62 | -1,024.86 | -1,439.77 | 1,447.60 | 1.61 | -1.52 | -0.52 |
| 8,739.00 | 89.66 | 265.55 | 6,968.69 | -1,031.52 | -1,534.53 | 1,542.40 | 1.10 | 0.64 | -0.89 |
| 8,834.00 | 88.57 | 268.31 | 6,970.16 | -1,036.61 | -1,629.37 | 1,637.28 | 3.12 | -1.15 | 2.91 |
| 8,930.00 | 88.33 | 268.09 | 6,972.76 | -1,039.63 | -1,725.29 | 1,733.22 | 0.34 | -0.25 | -0.23 |
| 9,025.00 | 90.52 | 267.70 | 6,973.71 | -1,043.11 | -1,820.21 | 1,828.17 | 2.34 | 2.31 | -0.41 |
| 9,121.00 | 92.08 | 267.58 | 6,971.53 | -1,047.07 | -1,916.10 | 1,924.09 | 1.63 | 1.63 | -0.13 |
| 9,216.00 | 89.43 | 268.54 | 6,970.28 | -1,050.28 | -2,011.03 | 2,019.04 | 2.97 | -2.79 | 1.01 |
| 9,311.00 | 89.61 | 267.97 | 6,971.08 | -1,053.17 | -2,105.98 | 2,114.01 | 0.63 | 0.19 | -0.60 |
| 9,407.00 | 90.40 | 267.52 | 6,971.07 | -1,056.95 | -2,201.91 | 2,209.96 | 0.95 | 0.82 | -0.47 |
| 9,502.00 | 89.69 | 270.34 | 6,970.99 | -1,058.73 | -2,296.88 | 2,304.94 | 3.06 | -0.75 | 2.97 |
| 9,597.00 | 89.30 | 269.91 | 6,971.83 | -1,058.52 | -2,391.88 | 2,399.93 | 0.61 | -0.41 | -0.45 |
| 9,693.00 | 90.24 | 269.26 | 6,972.22 | -1,059.21 | -2,487.87 | 2,495.93 | 1.19 | 0.98 | -0.68 |
| 9,788.00 | 90.34 | 271.91 | 6,971.74 | -1,058.24 | -2,582.86 | 2,590.91 | 2.79 | 0.11 | 2.79 |
| 9,882.00 | 91.31 | 272.44 | 6,970.38 | -1,054.68 | -2,676.78 | 2,684.80 | 1.18 | 1.03 | 0.56 |
| 9,978.00 | 89.67 | 270.39 | 6,969.56 | -1,052.31 | -2,772.74 | 2,780.74 | 2.73 | -1.71 | -2.14 |
| 10,072.00 | 90.01 | 269.57 | 6,969.82 | -1,052.34 | -2,866.73 | 2,874.73 | 0.94 | 0.36 | -0.87 |
| 10,166.00 | 90.73 | 268.87 | 6,969.22 | -1,053.62 | -2,960.72 | 2,968.73 | 1.07 | 0.77 | -0.74 |
| 10,262.00 | 87.99 | 268.73 | 6,970.29 | -1,055.63 | -3,056.69 | 3,064.70 | 2.86 | -2.85 | -0.15 |
| 10,357.00 | 87.20 | 268.03 | 6,974.28 | -1,058.31 | -3,151.56 | 3,159.60 | 1.11 | -0.83 | -0.74 |
| 10,452.00 | 87.13 | 267.72 | 6,978.97 | -1,061.83 | -3,246.38 | 3,254.44 | 0.33 | -0.07 | -0.33 |
| 10,547.00 | 88.84 | 266.07 | 6,982.32 | -1,066.97 | -3,341.18 | 3,349.27 | 2.50 | 1.80 | -1.74 |
| 10,642.00 | 89.77 | 265.50 | 6,983.47 | -1,073.96 | -3,435.91 | 3,444.06 | 1.15 | 0.98 | -0.60 |
| 10,737.00 | 90.47 | 264.62 | 6,983.27 | -1,082.14 | -3,530.56 | 3,538.76 | 1.18 | 0.74 | -0.93 |
| 10,832.00 | 91.68 | 264.50 | 6,981.49 | -1,091.14 | -3,625.11 | 3,633.38 | 1.28 | 1.27 | -0.13 |
| 10,927.00 | 91.61 | 266.09 | 6,978.76 | -1,098.93 | -3,719.75 | 3,728.08 | 1.67 | -0.07 | 1.67 |
| 11,022.00 | 90.63 | 268.02 | 6,976.90 | -1,103.81 | -3,814.60 | 3,822.96 | 2.28 | -1.03 | 2.03 |

PDD Survey Report

| | | | |
|------------------|--------------------------------|-------------------------------------|------------------------------|
| Company: | US ROCKIES WATTENBERG PLANNING | Local Co-ordinate Reference: | Well ICEMAN STATE 12N-16HZ |
| Project: | WELD-NAD83-UTMFT13N | TVD Reference: | 4798+20 @ 4818.00usft (P462) |
| Site: | 3N-67W-15 Iceman Pad | MD Reference: | 4798+20 @ 4818.00usft (P462) |
| Well: | ICEMAN STATE 12N-16HZ | North Reference: | True |
| Wellbore: | PLAN A | Survey Calculation Method: | Minimum Curvature |
| Design: | PDD Actual Surveys | Database: | EDM 5000.1 Single User Db |

| Survey | | | | | | | | | | |
|-----------------------|-----------------|-------------|-----------------------|--------------|--------------|-------------------------|-------------------------|------------------------|-----------------------|--|
| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) | |
| 11,117.00 | 91.96 | 267.74 | 6,974.75 | -1,107.32 | -3,909.51 | 3,917.90 | 1.43 | 1.40 | -0.29 | |
| 11,212.00 | 89.39 | 270.10 | 6,973.64 | -1,109.11 | -4,004.47 | 4,012.87 | 3.67 | -2.71 | 2.48 | |
| 11,306.00 | 88.50 | 269.35 | 6,975.37 | -1,109.56 | -4,098.45 | 4,106.85 | 1.24 | -0.95 | -0.80 | |
| 11,401.00 | 88.57 | 269.44 | 6,977.80 | -1,110.57 | -4,193.41 | 4,201.82 | 0.12 | 0.07 | 0.09 | |
| 11,496.00 | 88.83 | 269.17 | 6,979.95 | -1,111.72 | -4,288.38 | 4,296.79 | 0.39 | 0.27 | -0.28 | |
| 11,591.00 | 89.21 | 268.37 | 6,981.58 | -1,113.76 | -4,383.35 | 4,391.77 | 0.93 | 0.40 | -0.84 | |
| 11,687.00 | 91.21 | 268.90 | 6,981.22 | -1,116.04 | -4,479.31 | 4,487.75 | 2.16 | 2.08 | 0.55 | |
| 11,782.00 | 92.18 | 268.35 | 6,978.41 | -1,118.32 | -4,574.24 | 4,582.70 | 1.17 | 1.02 | -0.58 | |
| 11,877.00 | 90.12 | 270.29 | 6,976.51 | -1,119.45 | -4,669.21 | 4,677.67 | 2.98 | -2.17 | 2.04 | |
| 11,973.00 | 89.84 | 270.91 | 6,976.54 | -1,118.44 | -4,765.20 | 4,773.65 | 0.71 | -0.29 | 0.65 | |
| 12,068.00 | 91.23 | 270.77 | 6,975.65 | -1,117.05 | -4,860.18 | 4,868.62 | 1.47 | 1.46 | -0.15 | |
| 12,163.00 | 92.31 | 270.49 | 6,972.72 | -1,116.01 | -4,955.13 | 4,963.56 | 1.17 | 1.14 | -0.29 | |
| 12,258.00 | 90.25 | 271.59 | 6,970.60 | -1,114.28 | -5,050.09 | 5,058.49 | 2.46 | -2.17 | 1.16 | |
| 12,353.00 | 89.08 | 271.13 | 6,971.15 | -1,112.03 | -5,145.06 | 5,153.44 | 1.32 | -1.23 | -0.48 | |
| 12,449.00 | 89.90 | 270.55 | 6,972.01 | -1,110.62 | -5,241.04 | 5,249.42 | 1.05 | 0.85 | -0.60 | |
| 12,544.00 | 90.86 | 270.39 | 6,971.38 | -1,109.84 | -5,336.03 | 5,344.40 | 1.02 | 1.01 | -0.17 | |
| 12,640.00 | 91.79 | 268.90 | 6,969.16 | -1,110.44 | -5,432.00 | 5,440.37 | 1.83 | 0.97 | -1.55 | |
| 12,735.00 | 90.69 | 268.41 | 6,967.10 | -1,112.66 | -5,526.95 | 5,535.33 | 1.27 | -1.16 | -0.52 | |
| 12,830.00 | 89.46 | 269.24 | 6,966.98 | -1,114.61 | -5,621.93 | 5,630.32 | 1.56 | -1.29 | 0.87 | |
| 12,926.00 | 88.75 | 269.34 | 6,968.48 | -1,115.80 | -5,717.91 | 5,726.31 | 0.75 | -0.74 | 0.10 | |
| 13,020.00 | 88.96 | 269.56 | 6,970.35 | -1,116.70 | -5,811.89 | 5,820.29 | 0.32 | 0.22 | 0.23 | |
| 13,115.00 | 88.89 | 268.90 | 6,972.14 | -1,117.98 | -5,906.86 | 5,915.27 | 0.70 | -0.07 | -0.69 | |
| 13,185.00 | 89.07 | 269.00 | 6,973.38 | -1,119.26 | -5,976.84 | 5,985.26 | 0.29 | 0.26 | 0.14 | |
| 13,254.00 | 89.07 | 269.00 | 6,974.50 | -1,120.47 | -6,045.82 | 6,054.25 | 0.00 | 0.00 | 0.00 | |

| Design Targets | | | | | | | | | | |
|---|---------------|--------------|------------|--------------|--------------|-----------------|----------------|-----------|-------------|--|
| Target Name | Dip Angle (°) | Dip Dir. (°) | TVD (usft) | +N/-S (usft) | +E/-W (usft) | Northing (usft) | Easting (usft) | Latitude | Longitude | |
| - hit/miss target | | | | | | | | | | |
| - Shape | | | | | | | | | | |
| Iceman State 12N-16HZ | 0.00 | 0.00 | 6,928.48 | -1,048.42 | 10.24 | 14,608,518.62 | 1,673,181.32 | 40.224534 | -104.882620 | |
| - actual wellpath misses target center by 0.01usft at 7181.01usft MD (6928.48 TVD, -1048.42 N, 10.23 E) | | | | | | | | | | |
| - Point | | | | | | | | | | |
| Iceman State 12N-16HZ | 0.00 | 0.00 | 6,974.50 | -1,120.47 | -6,045.82 | 14,608,438.56 | 1,667,125.36 | 40.224334 | -104.904316 | |
| - actual wellpath hits target center | | | | | | | | | | |
| - Point | | | | | | | | | | |
| Iceman State 12N-16HZ | 0.00 | 0.00 | 6,983.05 | -1,050.34 | -141.72 | 14,608,516.50 | 1,673,029.36 | 40.224529 | -104.883164 | |
| - actual wellpath misses target center by 0.02usft at 7342.98usft MD (6983.04 TVD, -1050.34 N, -141.71 E) | | | | | | | | | | |
| - Point | | | | | | | | | | |
| Iceman State 12N-16HZ | 0.00 | 0.00 | 6,996.12 | -1,044.89 | -272.69 | 14,608,521.78 | 1,672,898.38 | 40.224544 | -104.883633 | |
| - actual wellpath misses target center by 0.02usft at 7475.02usft MD (6996.12 TVD, -1044.89 N, -272.71 E) | | | | | | | | | | |
| - Point | | | | | | | | | | |

PDD

Survey Report

| | | | |
|------------------|--------------------------------|-------------------------------------|------------------------------|
| Company: | US ROCKIES WATTENBERG PLANNING | Local Co-ordinate Reference: | Well ICEMAN STATE 12N-16HZ |
| Project: | WELD-NAD83-UTMFT13N | TVD Reference: | 4798+20 @ 4818.00usft (P462) |
| Site: | 3N-67W-15 Iceman Pad | MD Reference: | 4798+20 @ 4818.00usft (P462) |
| Well: | ICEMAN STATE 12N-16HZ | North Reference: | True |
| Wellbore: | PLAN A | Survey Calculation Method: | Minimum Curvature |
| Design: | PDD Actual Surveys | Database: | EDM 5000.1 Single User Db |

| Casing Points | | | | | |
|-----------------------|-----------------------|--------|--|---------------------|-------------------|
| Measured Depth (usft) | Vertical Depth (usft) | Name | | Casing Diameter (") | Hole Diameter (") |
| 1,645.00 | 1,620.24 | 9 5/8 | | 9-5/8 | 13-1/2 |
| 13,254.00 | 6,974.50 | 5 1/2" | | 5-1/2 | 8-1/2 |

| Formations | | | | | |
|-----------------------|-----------------------|-----------------|-----------|---------|-------------------|
| Measured Depth (usft) | Vertical Depth (usft) | Name | Lithology | Dip (°) | Dip Direction (°) |
| 6,916.00 | 6,753.21 | Sharon Springs | | 0.00 | |
| 6,988.00 | 6,810.64 | Niobrara | | 0.00 | |
| 7,068.00 | 6,866.24 | Niobrara B | | 0.00 | |
| 7,181.00 | 6,928.48 | Niobrara C | | 0.00 | |
| 7,343.00 | 6,983.05 | Entered Landbox | | 0.00 | |

| Design Annotations | | | | | |
|-----------------------|-----------------------|-------------------|--------------|-------------------|--|
| Measured Depth (usft) | Vertical Depth (usft) | Local Coordinates | | Comment | |
| | | +N/-S (usft) | +E/-W (usft) | | |
| 13,254.00 | 6,974.50 | -1,120.47 | -6,045.82 | Projection to Bit | |

Checked By: _____ Approved By: _____ Date: _____