

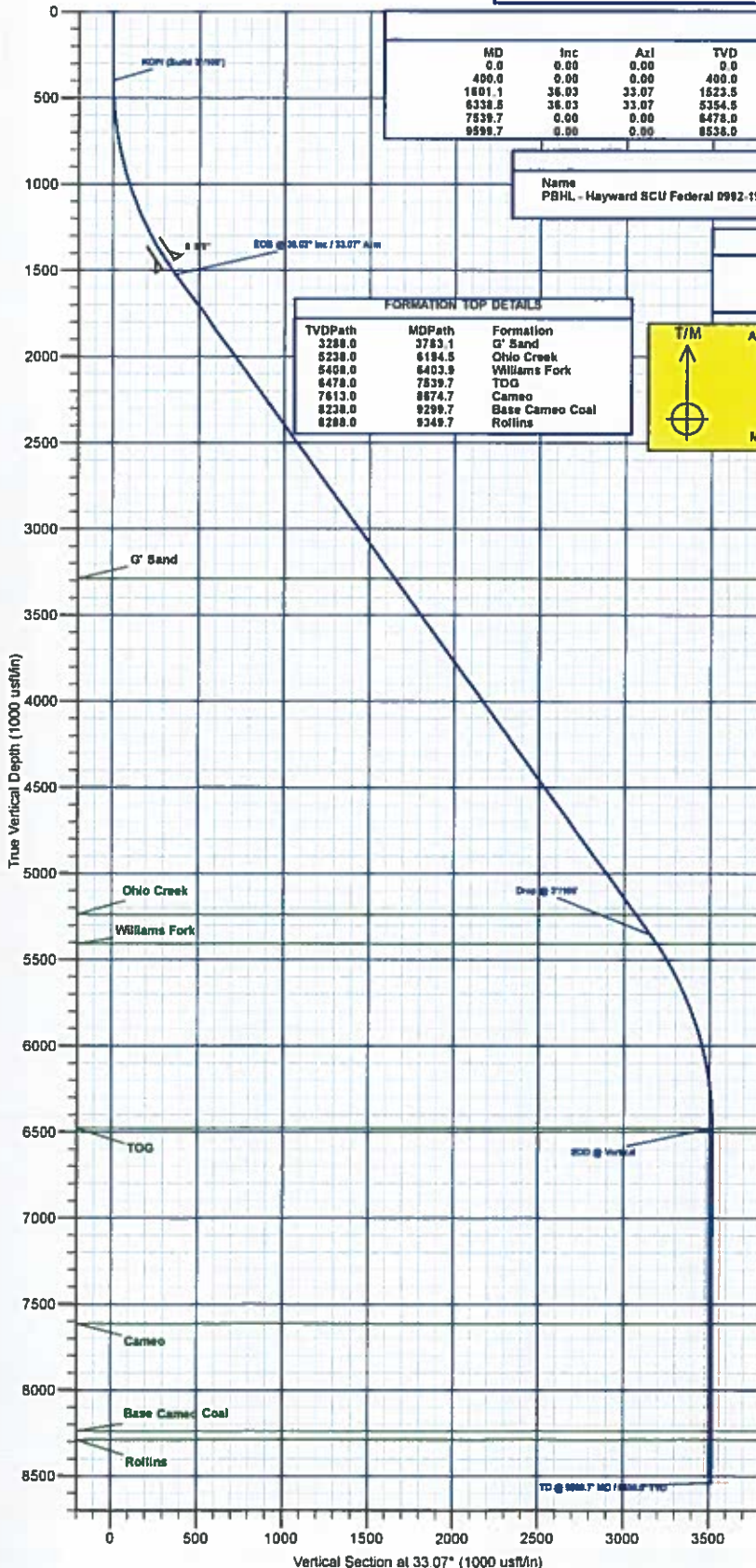


Project: Mesa County, CO  
 Site: Hayward 0993 25-09 Pad  
 Well: Hayward SCU Federal 0992-19-19W  
 Wellbore: B-5  
 Design: Design #1  
 Latitude: 39.244847  
 Longitude: -107.715859  
 Ground Level: 8008.0  
 well @ 8038.0usft (H&P 522)



PROJECT DETAILS: Mesa County, CO

Geodetic System: US State Plane 1983  
 Datum: North American Datum 1983  
 Ellipsoid: GRS 1980  
 Zone: Colorado Central Zone  
 System Datum: Mean Sea Level



#### SECTION DETAILS

| MD     | Inc   | Azi   | TVD    | +N-S   | +E-W   | Diag | TFace  | VSect  | Annotation                    |
|--------|-------|-------|--------|--------|--------|------|--------|--------|-------------------------------|
| 0.0    | 0.00  | 0.00  | 0.0    | 0.0    | 0.0    | 0.00 | 0.00   | 0.0    | KOP (Build 3°/100')           |
| 406.0  | 0.00  | 0.00  | 400.0  | 0.0    | 0.0    | 0.00 | 0.00   | 0.0    | EOS @ 38.03° Inc / 33.07° Azm |
| 1801.1 | 36.03 | 33.07 | 1823.5 | 306.2  | 189.4  | 3.00 | 33.07  | 365.4  | Drop @ 3°/100'                |
| 6338.6 | 36.03 | 33.07 | 5354.5 | 2641.5 | 1720.2 | 0.00 | 0.00   | 3152.2 | EOD @ Vertical                |
| 7539.7 | 0.00  | 0.00  | 6478.0 | 2947.7 | 1919.6 | 3.00 | 180.00 | 3517.7 | TD @ 1000.7 MD / 8538.0° TVD  |
| 9599.7 | 0.00  | 0.00  | 8538.0 | 2947.7 | 1919.6 | 0.00 | 0.00   | 3517.7 |                               |

#### DESIGN TARGET DETAILS

| Name                                   | TVD    | +N-S   | +E-W   | Northing   | Easting    | Latitude  | Longitude   |
|--|--------|--------|--------|------------|------------|-----------|-------------|
| PBHL - Hayward SCU Federal 0992-19-19W | 8038.0 | 2947.7 | 1919.6 | 1524822.97 | 2374505.49 | 39.252940 | -107.709080 |

#### WELL DETAILS: Hayward SCU Federal 0992-19-19W

| +N-S | +E-W | Northing   | Easting    | Latitude  | Longitude   |
|------|------|------------|------------|-----------|-------------|
| 0.0  | 0.0  | 1521722.98 | 2372514.53 | 39.244847 | -107.715859 |

#### FORMATION TOP DETAILS

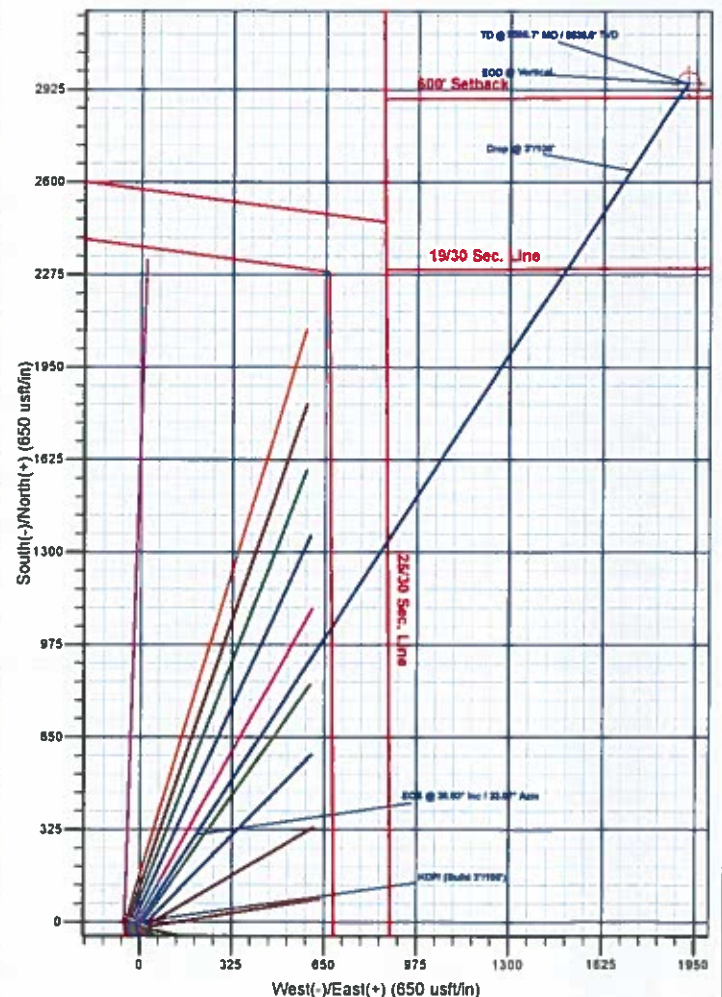
| TVDPath | MDPath | Formation       |
|---------|--------|-----------------|
| 3288.0  | 3783.1 | G' Sand         |
| 5238.0  | 6194.5 | Ohio Creek      |
| 5408.0  | 6403.9 | Williams Fork   |
| 6478.0  | 7539.7 | TOG             |
| 7613.0  | 8874.7 | Cameo           |
| 8238.0  | 9299.7 | Base Cameo Coal |
| 8288.0  | 9349.7 | Rollins         |



Azimuths to True North  
 Magnetic North: 0.00°  
 Magnetic Field  
 Strength: 0.6mT  
 Dip Angle: 0.00°  
 Date: 2/16/2018  
 Model: USER DEFINED

#### REFERENCE INFORMATION

Co-ordinate (N/E) Reference: Well Hayward SCU Federal 0992-19-19W, True North  
 Vertical (TVD) Reference: well @ 8038.0usft (H&P 522)  
 Section (VS) Reference: Slot @ (0.0N, 0.0E)  
 Measured Depth Reference: well @ 8038.0usft (H&P 522)  
 Calculation Method: Minimum Curvature



Plan: Design #1 (Hayward SCU Federal 0992-19-19W/B-5)

Created By:

Date: 9:35, February 22 2018



# **Laramie Energy, LLC**

**Mesa County, CO**

**Hayward 0993 25-09 Pad**

**Hayward SCU Federal 0992-19-19W**

**B-5**

**Plan: Design #1**

## **QES Well Planning Report**

**22 February, 2018**





## Well Planning Report



|           |                                 |                              |                                      |
|-----------|---------------------------------|------------------------------|--------------------------------------|
| Database: | EDM 5000.1 Single User Db       | Local Co-ordinate Reference: | Well Hayward SCU Federal 0992-19-19W |
| Company:  | Laramie Energy, LLC             | TVD Reference:               | well @ 8038.0usft (H&P 522)          |
| Project:  | Mesa County, CO                 | MD Reference:                | well @ 8038.0usft (H&P 522)          |
| Site:     | Hayward 0993 25-09 Pad          | North Reference:             | True                                 |
| Well:     | Hayward SCU Federal 0992-19-19W | Survey Calculation Method:   | Minimum Curvature                    |
| Wellbore: | B-5                             |                              |                                      |
| Design:   | Design #1                       |                              |                                      |

|             |                           |               |                |
|-------------|---------------------------|---------------|----------------|
| Project     | Mesa County, CO           |               |                |
| Map System: | US State Plane 1983       | System Datum: | Mean Sea Level |
| Geo Datum:  | North American Datum 1983 |               |                |
| Map Zone:   | Colorado Central Zone     |               |                |

|                       |          |                        |                   |                   |             |
|-----------------------|----------|------------------------|-------------------|-------------------|-------------|
| Site                  |          | Hayward 0993 25-09 Pad |                   |                   |             |
| Site Position:        |          | Northing:              | 1,519,030.59 usft | Latitude:         | 39 237495   |
| From:                 | Lat/Long | Easting:               | 2,373,084.06 usft | Longitude:        | -107.713617 |
| Position Uncertainty: | 0.0 usft | Slot Radius:           | 13-3/16 "         | Grid Convergence: | -1.40 "     |

|                      |                                 |              |                     |                   |               |              |
|----------------------|---------------------------------|--------------|---------------------|-------------------|---------------|--------------|
| Well                 | Hayward SCU Federal 0992-19-19W |              |                     |                   |               |              |
| Well Position        | +N/-S                           | 2,677.7 usft | Northing:           | 1,521,722.98 usft | Latitude:     | 39 244847    |
|                      | +E/-W                           | -635.0 usft  | Easting:            | 2,372,514.53 usft | Longitude:    | -107.715859  |
| Position Uncertainty |                                 | 0.0 usft     | Wellhead Elevation: |                   | Ground Level: | 8,008.0 usft |

|           |              |             |                 |               |                     |
|-----------|--------------|-------------|-----------------|---------------|---------------------|
| Wellbore  | B-5          |             |                 |               |                     |
| Magnetics | Model Name   | Sample Date | Declination (°) | Dip Angle (°) | Field Strength (nT) |
|           | User Defined | 2/16/2018   | 0.00            | 0.00          | 0.00000000          |

|                   |                         |              |               |               |
|-------------------|-------------------------|--------------|---------------|---------------|
| Design            | Design #1               |              |               |               |
| Audit Notes:      |                         |              |               |               |
| Version:          | Phase:                  | PROTOTYPE    | Tie On Depth: | 0.0           |
| Vertical Section: | Depth From (TVD) (usft) | +N/-S (usft) | +E/-W (usft)  | Direction (°) |
|                   | 0.0                     | 0.0          | 0.0           | 33.07         |

| Plan Sections         |                 |             |                       |              |              |                         |                        |                       |         |                    |
|-----------------------|-----------------|-------------|-----------------------|--------------|--------------|-------------------------|------------------------|-----------------------|---------|--------------------|
| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) | TFO (°) | Target             |
| 0.0                   | 0.00            | 0.00        | 0.0                   | 0.0          | 0.0          | 0.00                    | 0.00                   | 0.00                  | 0.00    |                    |
| 400.0                 | 0.00            | 0.00        | 400.0                 | 0.0          | 0.0          | 0.00                    | 0.00                   | 0.00                  | 0.00    |                    |
| 1,601.1               | 36.03           | 33.07       | 1,523.5               | 306.2        | 199.4        | 3.00                    | 3.00                   | 0.00                  | 33.07   |                    |
| 6,338.5               | 36.03           | 33.07       | 5,354.5               | 2,641.5      | 1,720.2      | 0.00                    | 0.00                   | 0.00                  | 0.00    |                    |
| 7,539.7               | 0.00            | 0.00        | 6,478.0               | 2,947.7      | 1,919.6      | 3.00                    | -3.00                  | 0.00                  | 180.00  |                    |
| 9,599.7               | 0.00            | 0.00        | 8,538.0               | 2,947.7      | 1,919.6      | 0.00                    | 0.00                   | 0.00                  | 0.00    | PBHL - Hayward SCL |





## Well Planning Report



|           |                                 |                              |                                      |
|-----------|---------------------------------|------------------------------|--------------------------------------|
| Database: | EDM 5000.1 Single User Db       | Local Co-ordinate Reference: | Well Hayward SCU Federal 0992-19-19W |
| Company:  | Laramie Energy, LLC             | TVD Reference:               | well @ 8038.0usft (H&P 522)          |
| Project:  | Mesa County, CO                 | MD Reference:                | well @ 8038.0usft (H&P 522)          |
| Site:     | Hayward 0993 25-09 Pad          | North Reference:             | True                                 |
| Well:     | Hayward SCU Federal 0992-19-19W | Survey Calculation Method:   | Minimum Curvature                    |
| Wellbore: | B-5                             |                              |                                      |
| Design:   | Design #1                       |                              |                                      |

## Planned 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) |
|--------------------------------------|-----------------|-------------|-----------------------|--------------|--------------|-------------------------|-------------------------|------------------------|-----------------------|
| 0.0                                  | 0.00            | 0.00        | 0.0                   | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 100.0                                | 0.00            | 0.00        | 100.0                 | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 200.0                                | 0.00            | 0.00        | 200.0                 | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 300.0                                | 0.00            | 0.00        | 300.0                 | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| <b>KOP/ (Build 3°/100°)</b>          |                 |             |                       |              |              |                         |                         |                        |                       |
| 400.0                                | 0.00            | 0.00        | 400.0                 | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 500.0                                | 3.00            | 33.07       | 500.0                 | 2.2          | 1.4          | 2.6                     | 3.00                    | 3.00                   | 0.00                  |
| 600.0                                | 6.00            | 33.07       | 599.6                 | 8.8          | 5.7          | 10.5                    | 3.00                    | 3.00                   | 0.00                  |
| 700.0                                | 9.00            | 33.07       | 698.8                 | 19.7         | 12.8         | 23.5                    | 3.00                    | 3.00                   | 0.00                  |
| 800.0                                | 12.00           | 33.07       | 797.1                 | 35.0         | 22.8         | 41.7                    | 3.00                    | 3.00                   | 0.00                  |
| 900.0                                | 15.00           | 33.07       | 894.3                 | 54.5         | 35.5         | 65.1                    | 3.00                    | 3.00                   | 0.00                  |
| 1,000.0                              | 18.00           | 33.07       | 990.2                 | 78.3         | 51.0         | 93.5                    | 3.00                    | 3.00                   | 0.00                  |
| 1,100.0                              | 21.00           | 33.07       | 1,084.4               | 106.3        | 69.2         | 126.9                   | 3.00                    | 3.00                   | 0.00                  |
| 1,200.0                              | 24.00           | 33.07       | 1,176.8               | 138.4        | 90.1         | 165.1                   | 3.00                    | 3.00                   | 0.00                  |
| 1,300.0                              | 27.00           | 33.07       | 1,267.1               | 174.4        | 113.6        | 208.2                   | 3.00                    | 3.00                   | 0.00                  |
| 1,400.0                              | 30.00           | 33.07       | 1,354.9               | 214.4        | 139.6        | 255.9                   | 3.00                    | 3.00                   | 0.00                  |
| 1,500.0                              | 33.00           | 33.07       | 1,440.2               | 258.2        | 168.1        | 308.1                   | 3.00                    | 3.00                   | 0.00                  |
| <b>B 5/8"</b>                        |                 |             |                       |              |              |                         |                         |                        |                       |
| 1,530.0                              | 33.90           | 33.07       | 1,465.2               | 272.0        | 177.2        | 324.7                   | 3.00                    | 3.00                   | 0.00                  |
| <b>EOB @ 36.03° Inc / 33.07° Azm</b> |                 |             |                       |              |              |                         |                         |                        |                       |
| 1,601.1                              | 36.03           | 33.07       | 1,523.5               | 306.2        | 199.4        | 365.4                   | 3.00                    | 3.00                   | 0.00                  |
| 1,700.0                              | 36.03           | 33.07       | 1,603.5               | 354.9        | 231.2        | 423.6                   | 0.00                    | 0.00                   | 0.00                  |
| 1,800.0                              | 36.03           | 33.07       | 1,684.3               | 404.2        | 263.3        | 482.4                   | 0.00                    | 0.00                   | 0.00                  |
| 1,900.0                              | 36.03           | 33.07       | 1,765.2               | 453.5        | 295.4        | 541.2                   | 0.00                    | 0.00                   | 0.00                  |
| 2,000.0                              | 36.03           | 33.07       | 1,846.1               | 502.8        | 327.5        | 600.1                   | 0.00                    | 0.00                   | 0.00                  |
| 2,100.0                              | 36.03           | 33.07       | 1,926.9               | 552.1        | 359.6        | 658.9                   | 0.00                    | 0.00                   | 0.00                  |
| 2,200.0                              | 36.03           | 33.07       | 2,007.8               | 601.4        | 391.7        | 717.7                   | 0.00                    | 0.00                   | 0.00                  |
| 2,300.0                              | 36.03           | 33.07       | 2,088.7               | 650.7        | 423.8        | 776.5                   | 0.00                    | 0.00                   | 0.00                  |
| 2,400.0                              | 36.03           | 33.07       | 2,169.5               | 700.0        | 455.9        | 835.4                   | 0.00                    | 0.00                   | 0.00                  |
| 2,500.0                              | 36.03           | 33.07       | 2,250.4               | 749.3        | 488.0        | 894.2                   | 0.00                    | 0.00                   | 0.00                  |
| 2,600.0                              | 36.03           | 33.07       | 2,331.3               | 798.6        | 520.1        | 953.0                   | 0.00                    | 0.00                   | 0.00                  |
| 2,700.0                              | 36.03           | 33.07       | 2,412.1               | 847.9        | 552.2        | 1,011.8                 | 0.00                    | 0.00                   | 0.00                  |
| 2,800.0                              | 36.03           | 33.07       | 2,493.0               | 897.2        | 584.3        | 1,070.7                 | 0.00                    | 0.00                   | 0.00                  |
| 2,900.0                              | 36.03           | 33.07       | 2,573.9               | 946.5        | 616.4        | 1,129.5                 | 0.00                    | 0.00                   | 0.00                  |
| 3,000.0                              | 36.03           | 33.07       | 2,654.7               | 995.8        | 648.5        | 1,188.3                 | 0.00                    | 0.00                   | 0.00                  |
| 3,100.0                              | 36.03           | 33.07       | 2,735.6               | 1,045.1      | 680.6        | 1,247.1                 | 0.00                    | 0.00                   | 0.00                  |
| 3,200.0                              | 36.03           | 33.07       | 2,816.5               | 1,094.4      | 712.7        | 1,306.0                 | 0.00                    | 0.00                   | 0.00                  |
| 3,300.0                              | 36.03           | 33.07       | 2,897.3               | 1,143.7      | 744.8        | 1,364.8                 | 0.00                    | 0.00                   | 0.00                  |
| 3,400.0                              | 36.03           | 33.07       | 2,978.2               | 1,192.9      | 776.9        | 1,423.6                 | 0.00                    | 0.00                   | 0.00                  |
| 3,500.0                              | 36.03           | 33.07       | 3,059.1               | 1,242.2      | 809.0        | 1,482.4                 | 0.00                    | 0.00                   | 0.00                  |
| 3,600.0                              | 36.03           | 33.07       | 3,139.9               | 1,291.5      | 841.1        | 1,541.3                 | 0.00                    | 0.00                   | 0.00                  |
| 3,700.0                              | 36.03           | 33.07       | 3,220.8               | 1,340.8      | 873.2        | 1,600.1                 | 0.00                    | 0.00                   | 0.00                  |
| <b>G' Sand</b>                       |                 |             |                       |              |              |                         |                         |                        |                       |
| 3,783.1                              | 36.03           | 33.07       | 3,288.0               | 1,381.8      | 899.9        | 1,649.0                 | 0.00                    | 0.00                   | 0.00                  |
| 3,800.0                              | 36.03           | 33.07       | 3,301.7               | 1,390.1      | 905.3        | 1,658.9                 | 0.00                    | 0.00                   | 0.00                  |
| 3,900.0                              | 36.03           | 33.07       | 3,382.5               | 1,439.4      | 937.4        | 1,717.7                 | 0.00                    | 0.00                   | 0.00                  |
| 4,000.0                              | 36.03           | 33.07       | 3,463.4               | 1,488.7      | 969.5        | 1,776.6                 | 0.00                    | 0.00                   | 0.00                  |
| 4,100.0                              | 36.03           | 33.07       | 3,544.3               | 1,538.0      | 1,001.6      | 1,835.4                 | 0.00                    | 0.00                   | 0.00                  |
| 4,200.0                              | 36.03           | 33.07       | 3,625.1               | 1,587.3      | 1,033.7      | 1,894.2                 | 0.00                    | 0.00                   | 0.00                  |
| 4,300.0                              | 36.03           | 33.07       | 3,706.0               | 1,636.6      | 1,065.8      | 1,953.1                 | 0.00                    | 0.00                   | 0.00                  |
| 4,400.0                              | 36.03           | 33.07       | 3,786.9               | 1,685.9      | 1,097.9      | 2,011.9                 | 0.00                    | 0.00                   | 0.00                  |
| 4,500.0                              | 36.03           | 33.07       | 3,867.7               | 1,735.2      | 1,130.0      | 2,070.7                 | 0.00                    | 0.00                   | 0.00                  |
| 4,600.0                              | 36.03           | 33.07       | 3,948.6               | 1,784.5      | 1,162.1      | 2,129.5                 | 0.00                    | 0.00                   | 0.00                  |
| 4,700.0                              | 36.03           | 33.07       | 4,029.5               | 1,833.8      | 1,194.2      | 2,188.4                 | 0.00                    | 0.00                   | 0.00                  |



## Well Planning Report



|           |                                 |                              |                                      |
|-----------|---------------------------------|------------------------------|--------------------------------------|
| Database: | EDM 5000.1 Single User Db       | Local Co-ordinate Reference: | Well Hayward SCU Federal 0992-19-19W |
| Company:  | Laramie Energy, LLC             | TVD Reference:               | well @ 8038.0usft (H&P 522)          |
| Project:  | Mesa County, CO                 | MD Reference:                | well @ 8038.0usft (H&P 522)          |
| Site:     | Hayward 0993 25-09 Pad          | North Reference:             | True                                 |
| Well:     | Hayward SCU Federal 0992-19-19W | Survey Calculation Method:   | Minimum Curvature                    |
| Wellbore: | B-5                             |                              |                                      |
| Design:   | Design #1                       |                              |                                      |

## Planned 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) |
|-----------------------|-----------------|-------------|-----------------------|--------------|--------------|-------------------------|-------------------------|------------------------|-----------------------|
| 4,800.0               | 36.03           | 33.07       | 4,110.3               | 1,883.1      | 1,226.3      | 2,247.2                 | 0.00                    | 0.00                   | 0.00                  |
| 4,900.0               | 36.03           | 33.07       | 4,191.2               | 1,932.4      | 1,258.4      | 2,306.0                 | 0.00                    | 0.00                   | 0.00                  |
| 5,000.0               | 36.03           | 33.07       | 4,272.1               | 1,981.7      | 1,290.5      | 2,364.8                 | 0.00                    | 0.00                   | 0.00                  |
| 5,100.0               | 36.03           | 33.07       | 4,352.9               | 2,031.0      | 1,322.6      | 2,423.7                 | 0.00                    | 0.00                   | 0.00                  |
| 5,200.0               | 36.03           | 33.07       | 4,433.8               | 2,080.2      | 1,354.7      | 2,482.5                 | 0.00                    | 0.00                   | 0.00                  |
| 5,300.0               | 36.03           | 33.07       | 4,514.7               | 2,129.5      | 1,386.8      | 2,541.3                 | 0.00                    | 0.00                   | 0.00                  |
| 5,400.0               | 36.03           | 33.07       | 4,595.5               | 2,178.8      | 1,418.9      | 2,600.1                 | 0.00                    | 0.00                   | 0.00                  |
| 5,500.0               | 36.03           | 33.07       | 4,676.4               | 2,228.1      | 1,451.0      | 2,659.0                 | 0.00                    | 0.00                   | 0.00                  |
| 5,600.0               | 36.03           | 33.07       | 4,757.3               | 2,277.4      | 1,483.1      | 2,717.8                 | 0.00                    | 0.00                   | 0.00                  |
| 5,700.0               | 36.03           | 33.07       | 4,838.1               | 2,326.7      | 1,515.2      | 2,776.6                 | 0.00                    | 0.00                   | 0.00                  |
| 5,800.0               | 36.03           | 33.07       | 4,919.0               | 2,376.0      | 1,547.3      | 2,835.4                 | 0.00                    | 0.00                   | 0.00                  |
| 5,900.0               | 36.03           | 33.07       | 4,999.9               | 2,425.3      | 1,579.5      | 2,894.3                 | 0.00                    | 0.00                   | 0.00                  |
| 6,000.0               | 36.03           | 33.07       | 5,080.7               | 2,474.6      | 1,611.6      | 2,953.1                 | 0.00                    | 0.00                   | 0.00                  |
| 6,100.0               | 36.03           | 33.07       | 5,161.6               | 2,523.9      | 1,643.7      | 3,011.9                 | 0.00                    | 0.00                   | 0.00                  |
| Ohio Creek            |                 |             |                       |              |              |                         |                         |                        |                       |
| 6,194.5               | 36.03           | 33.07       | 5,238.0               | 2,570.5      | 1,674.0      | 3,067.5                 | 0.00                    | 0.00                   | 0.00                  |
| 6,200.0               | 36.03           | 33.07       | 5,242.5               | 2,573.2      | 1,675.8      | 3,070.7                 | 0.00                    | 0.00                   | 0.00                  |
| 6,300.0               | 36.03           | 33.07       | 5,323.3               | 2,622.5      | 1,707.9      | 3,129.6                 | 0.00                    | 0.00                   | 0.00                  |
| Drop @ 3°/100'        |                 |             |                       |              |              |                         |                         |                        |                       |
| 6,338.5               | 36.03           | 33.07       | 5,354.5               | 2,641.5      | 1,720.2      | 3,152.2                 | 0.00                    | 0.00                   | 0.00                  |
| 6,400.0               | 34.19           | 33.07       | 5,404.8               | 2,671.1      | 1,739.5      | 3,187.6                 | 3.00                    | -3.00                  | 0.00                  |
| Williams Fork         |                 |             |                       |              |              |                         |                         |                        |                       |
| 6,403.9               | 34.07           | 33.07       | 5,408.0               | 2,672.9      | 1,740.7      | 3,189.8                 | 3.00                    | -3.00                  | 0.00                  |
| 6,500.0               | 31.19           | 33.07       | 5,488.9               | 2,716.4      | 1,769.0      | 3,241.6                 | 3.00                    | -3.00                  | 0.00                  |
| 6,600.0               | 28.19           | 33.07       | 5,575.8               | 2,757.9      | 1,796.0      | 3,291.1                 | 3.00                    | -3.00                  | 0.00                  |
| 6,700.0               | 25.19           | 33.07       | 5,665.1               | 2,795.5      | 1,820.5      | 3,336.0                 | 3.00                    | -3.00                  | 0.00                  |
| 6,800.0               | 22.19           | 33.07       | 5,756.7               | 2,829.2      | 1,842.5      | 3,376.2                 | 3.00                    | -3.00                  | 0.00                  |
| 6,900.0               | 19.19           | 33.07       | 5,850.2               | 2,858.8      | 1,861.7      | 3,411.5                 | 3.00                    | -3.00                  | 0.00                  |
| 7,000.0               | 16.19           | 33.07       | 5,945.5               | 2,884.2      | 1,878.3      | 3,441.9                 | 3.00                    | -3.00                  | 0.00                  |
| 7,100.0               | 13.19           | 33.07       | 6,042.2               | 2,905.5      | 1,892.1      | 3,467.3                 | 3.00                    | -3.00                  | 0.00                  |
| 7,200.0               | 10.19           | 33.07       | 6,140.1               | 2,922.4      | 1,903.2      | 3,487.5                 | 3.00                    | -3.00                  | 0.00                  |
| 7,300.0               | 7.19            | 33.07       | 6,239.0               | 2,935.1      | 1,911.4      | 3,502.6                 | 3.00                    | -3.00                  | 0.00                  |
| 7,400.0               | 4.19            | 33.07       | 6,338.5               | 2,943.4      | 1,916.9      | 3,512.5                 | 3.00                    | -3.00                  | 0.00                  |
| 7,500.0               | 1.19            | 33.07       | 6,438.3               | 2,947.3      | 1,919.4      | 3,517.2                 | 3.00                    | -3.00                  | 0.00                  |
| EOD @ Vertical - TOG  |                 |             |                       |              |              |                         |                         |                        |                       |
| 7,539.7               | 0.00            | 0.00        | 6,478.0               | 2,947.7      | 1,919.6      | 3,517.7                 | 3.00                    | -3.00                  | 0.00                  |
| 7,600.0               | 0.00            | 0.00        | 6,538.3               | 2,947.7      | 1,919.6      | 3,517.7                 | 0.00                    | 0.00                   | 0.00                  |
| 7,700.0               | 0.00            | 0.00        | 6,638.3               | 2,947.7      | 1,919.6      | 3,517.7                 | 0.00                    | 0.00                   | 0.00                  |
| 7,800.0               | 0.00            | 0.00        | 6,738.3               | 2,947.7      | 1,919.6      | 3,517.7                 | 0.00                    | 0.00                   | 0.00                  |
| 7,900.0               | 0.00            | 0.00        | 6,838.3               | 2,947.7      | 1,919.6      | 3,517.7                 | 0.00                    | 0.00                   | 0.00                  |
| 8,000.0               | 0.00            | 0.00        | 6,938.3               | 2,947.7      | 1,919.6      | 3,517.7                 | 0.00                    | 0.00                   | 0.00                  |
| 8,100.0               | 0.00            | 0.00        | 7,038.3               | 2,947.7      | 1,919.6      | 3,517.7                 | 0.00                    | 0.00                   | 0.00                  |
| 8,200.0               | 0.00            | 0.00        | 7,138.3               | 2,947.7      | 1,919.6      | 3,517.7                 | 0.00                    | 0.00                   | 0.00                  |
| 8,300.0               | 0.00            | 0.00        | 7,238.3               | 2,947.7      | 1,919.6      | 3,517.7                 | 0.00                    | 0.00                   | 0.00                  |
| 8,400.0               | 0.00            | 0.00        | 7,338.3               | 2,947.7      | 1,919.6      | 3,517.7                 | 0.00                    | 0.00                   | 0.00                  |
| 8,500.0               | 0.00            | 0.00        | 7,438.3               | 2,947.7      | 1,919.6      | 3,517.7                 | 0.00                    | 0.00                   | 0.00                  |
| 8,600.0               | 0.00            | 0.00        | 7,538.3               | 2,947.7      | 1,919.6      | 3,517.7                 | 0.00                    | 0.00                   | 0.00                  |
| Cameo                 |                 |             |                       |              |              |                         |                         |                        |                       |
| 8,674.7               | 0.00            | 0.00        | 7,613.0               | 2,947.7      | 1,919.6      | 3,517.7                 | 0.00                    | 0.00                   | 0.00                  |
| 8,700.0               | 0.00            | 0.00        | 7,638.3               | 2,947.7      | 1,919.6      | 3,517.7                 | 0.00                    | 0.00                   | 0.00                  |
| 8,800.0               | 0.00            | 0.00        | 7,738.3               | 2,947.7      | 1,919.6      | 3,517.7                 | 0.00                    | 0.00                   | 0.00                  |
| 8,900.0               | 0.00            | 0.00        | 7,838.3               | 2,947.7      | 1,919.6      | 3,517.7                 | 0.00                    | 0.00                   | 0.00                  |
| 9,000.0               | 0.00            | 0.00        | 7,938.3               | 2,947.7      | 1,919.6      | 3,517.7                 | 0.00                    | 0.00                   | 0.00                  |



## Well Planning Report



|           |                                 |                              |                                      |
|-----------|---------------------------------|------------------------------|--------------------------------------|
| Database: | EDM 5000 1 Single User Db       | Local Co-ordinate Reference: | Well Hayward SCU Federal 0992-19-19W |
| Company:  | Laramie Energy, LLC             | TVD Reference:               | well @ 8038.0usft (H&P 522)          |
| Project:  | Mesa County, CO                 | MD Reference:                | well @ 8038.0usft (H&P 522)          |
| Site:     | Hayward 0993 25-09 Pad          | North Reference:             | True                                 |
| Well:     | Hayward SCU Federal 0992-19-19W | Survey Calculation Method:   | Minimum Curvature                    |
| Wellbore: | B-5                             |                              |                                      |
| Design:   | Design #1                       |                              |                                      |

## Planned 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) |
|--------------------------------------|-----------------|-------------|-----------------------|--------------|--------------|-------------------------|-------------------------|------------------------|-----------------------|
| 9,100.0                              | 0.00            | 0.00        | 8,038.3               | 2,947.7      | 1,919.6      | 3,517.7                 | 0.00                    | 0.00                   | 0.00                  |
| 9,200.0                              | 0.00            | 0.00        | 8,138.3               | 2,947.7      | 1,919.6      | 3,517.7                 | 0.00                    | 0.00                   | 0.00                  |
| <b>Base Cameo Coal</b>               |                 |             |                       |              |              |                         |                         |                        |                       |
| 9,299.7                              | 0.00            | 0.00        | 8,238.0               | 2,947.7      | 1,919.6      | 3,517.7                 | 0.00                    | 0.00                   | 0.00                  |
| 9,300.0                              | 0.00            | 0.00        | 8,238.3               | 2,947.7      | 1,919.6      | 3,517.7                 | 0.00                    | 0.00                   | 0.00                  |
| <b>Rollins</b>                       |                 |             |                       |              |              |                         |                         |                        |                       |
| 9,349.7                              | 0.00            | 0.00        | 8,288.0               | 2,947.7      | 1,919.6      | 3,517.7                 | 0.00                    | 0.00                   | 0.00                  |
| 9,400.0                              | 0.00            | 0.00        | 8,338.3               | 2,947.7      | 1,919.6      | 3,517.7                 | 0.00                    | 0.00                   | 0.00                  |
| 9,500.0                              | 0.00            | 0.00        | 8,438.3               | 2,947.7      | 1,919.6      | 3,517.7                 | 0.00                    | 0.00                   | 0.00                  |
| <b>TD @ 9599.7' MD / 8538.0' TVD</b> |                 |             |                       |              |              |                         |                         |                        |                       |
| 9,599.7                              | 0.00            | 0.00        | 8,538.0               | 2,947.7      | 1,919.6      | 3,517.7                 | 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                   |               |              |            |              |              |                 |                |           |             |
| PBHL - Hayward SCU F      | 0.00          | 0.00         | 8,538.0    | 2,947.7      | 1,919.6      | 1,524,622.98    | 2,374,505.50   | 39.252940 | -107.709080 |
| - plan hits target center |               |              |            |              |              |                 |                |           |             |
| - Circle (radius 40.0)    |               |              |            |              |              |                 |                |           |             |

## Casing Points

| Measured Depth (usft) | Vertical Depth (usft) | Name   | Casing Diameter (") | Hole Diameter (") |
|-----------------------|-----------------------|--------|---------------------|-------------------|
| 1,530.0               | 1,465.2               | 8 5/8" | 8-5/8               | 11                |

## Formations

| Measured Depth (usft) | Vertical Depth (usft) | Name            | Lithology | Dip (°) | Dip Direction (°) |
|-----------------------|-----------------------|-----------------|-----------|---------|-------------------|
| 3,783.1               | 3,288.0               | G' Sand         |           |         |                   |
| 6,194.5               | 5,238.0               | Ohio Creek      |           |         |                   |
| 6,403.9               | 5,408.0               | Williams Fork   |           |         |                   |
| 7,539.7               | 6,478.0               | TOG             |           |         |                   |
| 8,674.7               | 7,613.0               | Cameo           |           |         |                   |
| 9,299.7               | 8,238.0               | Base Cameo Coal |           |         |                   |
| 9,349.7               | 8,288.0               | Rollins         |           |         |                   |



# Well Planning Report



|           |                                 |                              |                                      |
|-----------|---------------------------------|------------------------------|--------------------------------------|
| Database: | EDM 5000.1 Single User Db       | Local Co-ordinate Reference: | Well Hayward SCU Federal 0992-19-19W |
| Company:  | Laramie Energy, LLC             | TVD Reference:               | well @ 8038 0usft (H&P 522)          |
| Project:  | Mesa County, CO                 | MD Reference:                | well @ 8038 0usft (H&P 522)          |
| Site:     | Hayward 0993 25-09 Pad          | North Reference:             | True                                 |
| Well:     | Hayward SCU Federal 0992-19-19W | Survey Calculation Method:   | Minimum Curvature                    |
| Wellbore: | B-5                             |                              |                                      |
| Design:   | Design #1                       |                              |                                      |

## Plan Annotations

| Measured<br>Depth<br>(usft) | Vertical<br>Depth<br>(usft) | Local Coordinates |                 | Comment                       |
|-----------------------------|-----------------------------|-------------------|-----------------|-------------------------------|
|                             |                             | +N/-S<br>(usft)   | +E/-W<br>(usft) |                               |
| 400.0                       | 400.0                       | 0.0               | 0.0             | KOP/ (Build 3"/100')          |
| 1,601.1                     | 1,523.5                     | 306.2             | 199.4           | EOB @ 36.03° Inc / 33.07° Azm |
| 6,338.5                     | 5,354.5                     | 2,641.5           | 1,720.2         | Drop @ 3"/100'                |
| 7,539.7                     | 6,478.0                     | 2,947.7           | 1,919.6         | EOD @ Vertical                |
| 9,599.7                     | 8,538.0                     | 2,947.7           | 1,919.6         | TD @ 9599.7' MD / 8538.0' TVD |