



**SUMMIT**  
SLICKLINE INC.

Company: Civitas  
Lease/Well: Cattell 1-10  
State/County: Boulder County, CO  
API: 0501306115

Survey Type: Gyro  
North Reference: True  
Rig Name: Production  
RKB: 0'

Date: 2/8/2023  
Job Number: 14198  
Survey Engineer: Shon Lane  
Instrument Number: GP1-1021

## SUMMIT OILFIELD SERVICES

### CATTELL 1-10 GYRO SURVEY

*Minimum Curvature Method  
Vertical Section Plane: 0.00  
Vertical Section Reference: WELLHEAD  
Rectangular Coordinates Reference: WELLHEAD*

| Measured Depth | Inclin | Azimuth | True Vertical Depth | Vertical Section | N[+]/S[-] | E[+]/W[-] | Dogleg Severity | Closure Distance | Closure Direction | Comment        |
|----------------|--------|---------|---------------------|------------------|-----------|-----------|-----------------|------------------|-------------------|----------------|
| 0.00           | 0.00   | 0.00    | 0.00                | 0.00             | 0.00      | 0.00      | 0.00/100 ft     | 0.00             | 0.00              | Tie In Station |
| 100.00         | 0.39   | 64.26   | 100.00              | 0.15             | 0.15      | 0.30      | 0.39/100 ft     | 0.34             | 64.26             |                |
| 200.00         | 0.36   | 356.96  | 200.00              | 0.60             | 0.60      | 0.59      | 0.41/100 ft     | 0.84             | 44.33             |                |
| 300.00         | 0.32   | 358.37  | 300.00              | 1.19             | 1.19      | 0.57      | 0.04/100 ft     | 1.32             | 25.39             |                |
| 400.00         | 0.33   | 338.16  | 399.99              | 1.73             | 1.73      | 0.45      | 0.11/100 ft     | 1.79             | 14.60             |                |
| 500.00         | 0.32   | 315.07  | 499.99              | 2.20             | 2.20      | 0.15      | 0.13/100 ft     | 2.20             | 3.81              |                |
| 600.00         | 0.60   | 290.29  | 599.99              | 2.58             | 2.58      | -0.54     | 0.33/100 ft     | 2.63             | 348.14            |                |
| 700.00         | 0.92   | 292.10  | 699.98              | 3.06             | 3.06      | -1.77     | 0.32/100 ft     | 3.54             | 329.92            |                |
| 800.00         | 0.97   | 293.33  | 799.97              | 3.69             | 3.69      | -3.29     | 0.05/100 ft     | 4.95             | 318.33            |                |
| 900.00         | 1.05   | 284.87  | 899.95              | 4.26             | 4.26      | -4.94     | 0.17/100 ft     | 6.53             | 310.77            |                |
| 1000.00        | 1.35   | 282.65  | 999.93              | 4.75             | 4.75      | -6.98     | 0.31/100 ft     | 8.44             | 304.28            |                |
| 1100.00        | 1.51   | 288.33  | 1099.90             | 5.43             | 5.43      | -9.38     | 0.22/100 ft     | 10.84            | 300.06            |                |
| 1200.00        | 1.55   | 289.82  | 1199.86             | 6.30             | 6.30      | -11.91    | 0.06/100 ft     | 13.47            | 297.89            |                |
| 1300.00        | 1.64   | 289.00  | 1299.82             | 7.23             | 7.23      | -14.54    | 0.09/100 ft     | 16.24            | 296.44            |                |
| 1400.00        | 1.73   | 288.07  | 1399.78             | 8.16             | 8.16      | -17.33    | 0.10/100 ft     | 19.15            | 295.23            |                |



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North Reference: True  
Rig Name: Production  
RKB: 0'

Date: 2/8/2023  
Job Number: 14198  
Survey Engineer: Shon Lane  
Instrument Number: GP1-1021

| Measured Depth | Inclin | Azimuth | True Vertical Depth | Vertical Section | N[+]/S[-] | E[+]/W[-] | Dogleg Severity | Closure Distance | Closure Direction | Comment |
|----------------|--------|---------|---------------------|------------------|-----------|-----------|-----------------|------------------|-------------------|---------|
| 1500.00        | 1.84   | 287.80  | 1499.73             | 9.12             | 9.12      | -20.29    | 0.11/100 ft     | 22.25            | 294.21            |         |
| 1600.00        | 1.91   | 291.18  | 1599.68             | 10.22            | 10.22     | -23.37    | 0.13/100 ft     | 25.51            | 293.61            |         |
| 1700.00        | 1.92   | 305.94  | 1699.62             | 11.80            | 11.80     | -26.28    | 0.49/100 ft     | 28.81            | 294.18            |         |
| 1800.00        | 2.09   | 312.57  | 1799.56             | 14.02            | 14.02     | -28.99    | 0.29/100 ft     | 32.20            | 295.81            |         |
| 1900.00        | 2.02   | 317.69  | 1899.50             | 16.56            | 16.56     | -31.52    | 0.20/100 ft     | 35.60            | 297.72            |         |
| 2000.00        | 2.13   | 330.79  | 1999.43             | 19.48            | 19.48     | -33.61    | 0.49/100 ft     | 38.85            | 300.10            |         |
| 2100.00        | 2.22   | 336.72  | 2099.36             | 22.89            | 22.89     | -35.28    | 0.24/100 ft     | 42.06            | 302.97            |         |
| 2200.00        | 2.74   | 342.10  | 2199.27             | 26.94            | 26.94     | -36.78    | 0.56/100 ft     | 45.59            | 306.22            |         |
| 2300.00        | 2.96   | 344.20  | 2299.14             | 31.70            | 31.70     | -38.22    | 0.25/100 ft     | 49.65            | 309.67            |         |
| 2400.00        | 3.05   | 346.83  | 2399.01             | 36.77            | 36.77     | -39.53    | 0.17/100 ft     | 53.99            | 312.93            |         |
| 2500.00        | 3.11   | 348.62  | 2498.86             | 42.02            | 42.02     | -40.67    | 0.11/100 ft     | 58.48            | 315.94            |         |
| 2600.00        | 3.14   | 349.61  | 2598.71             | 47.37            | 47.37     | -41.70    | 0.06/100 ft     | 63.11            | 318.64            |         |
| 2700.00        | 2.85   | 350.66  | 2698.58             | 52.51            | 52.51     | -42.59    | 0.29/100 ft     | 67.62            | 320.95            |         |
| 2800.00        | 2.42   | 353.35  | 2798.47             | 57.07            | 57.07     | -43.24    | 0.44/100 ft     | 71.60            | 322.85            |         |
| 2900.00        | 2.03   | 359.79  | 2898.39             | 60.94            | 60.94     | -43.49    | 0.47/100 ft     | 74.87            | 324.48            |         |
| 3000.00        | 1.74   | 2.63    | 2998.34             | 64.22            | 64.22     | -43.43    | 0.31/100 ft     | 77.53            | 325.93            |         |
| 3100.00        | 1.22   | 12.25   | 3098.31             | 66.78            | 66.78     | -43.13    | 0.57/100 ft     | 79.50            | 327.14            |         |
| 3200.00        | 1.04   | 16.55   | 3198.29             | 68.69            | 68.69     | -42.65    | 0.20/100 ft     | 80.86            | 328.16            |         |
| 3300.00        | 0.83   | 40.74   | 3298.27             | 70.11            | 70.11     | -41.92    | 0.44/100 ft     | 81.69            | 329.13            |         |
| 3400.00        | 0.49   | 51.81   | 3398.27             | 70.92            | 70.92     | -41.11    | 0.37/100 ft     | 81.98            | 329.90            |         |
| 3500.00        | 0.30   | 35.88   | 3498.27             | 71.40            | 71.40     | -40.62    | 0.21/100 ft     | 82.15            | 330.36            |         |
| 3600.00        | 0.05   | 35.86   | 3598.26             | 71.65            | 71.65     | -40.44    | 0.26/100 ft     | 82.28            | 330.56            |         |
| 3700.00        | 0.19   | 201.02  | 3698.26             | 71.53            | 71.53     | -40.48    | 0.24/100 ft     | 82.19            | 330.50            |         |



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North Reference: True  
Rig Name: Production  
RKB: 0'

Date: 2/8/2023  
Job Number: 14198  
Survey Engineer: Shon Lane  
Instrument Number: GP1-1021

| Measured Depth | Inclin | Azimuth | True Vertical Depth | Vertical Section | N[+]/S[-] | E[+]/W[-] | Dogleg Severity | Closure Distance | Closure Direction | Comment |
|----------------|--------|---------|---------------------|------------------|-----------|-----------|-----------------|------------------|-------------------|---------|
| 3800.00        | 0.30   | 222.61  | 3798.26             | 71.18            | 71.18     | -40.71    | 0.14/100 ft     | 82.00            | 330.23            |         |
| 3900.00        | 0.36   | 227.81  | 3898.26             | 70.78            | 70.78     | -41.12    | 0.07/100 ft     | 81.86            | 329.84            |         |
| 4000.00        | 0.53   | 251.43  | 3998.26             | 70.42            | 70.42     | -41.80    | 0.24/100 ft     | 81.89            | 329.31            |         |
| 4100.00        | 0.70   | 275.02  | 4098.25             | 70.33            | 70.33     | -42.85    | 0.30/100 ft     | 82.35            | 328.65            |         |
| 4200.00        | 1.07   | 277.18  | 4198.24             | 70.50            | 70.50     | -44.38    | 0.36/100 ft     | 83.30            | 327.81            |         |
| 4300.00        | 1.19   | 285.70  | 4298.22             | 70.89            | 70.89     | -46.30    | 0.21/100 ft     | 84.67            | 326.85            |         |
| 4400.00        | 1.35   | 294.22  | 4398.20             | 71.66            | 71.66     | -48.38    | 0.25/100 ft     | 86.46            | 325.98            |         |
| 4500.00        | 1.51   | 302.74  | 4498.17             | 72.85            | 72.85     | -50.56    | 0.27/100 ft     | 88.68            | 325.24            |         |
| 4600.00        | 1.69   | 311.26  | 4598.13             | 74.54            | 74.54     | -52.78    | 0.30/100 ft     | 91.33            | 324.70            |         |
| 4700.00        | 1.66   | 308.74  | 4698.09             | 76.42            | 76.42     | -55.01    | 0.08/100 ft     | 94.16            | 324.25            |         |
| 4800.00        | 1.63   | 306.27  | 4798.04             | 78.17            | 78.17     | -57.29    | 0.08/100 ft     | 96.91            | 323.76            |         |
| 4900.00        | 1.62   | 306.92  | 4898.00             | 79.86            | 79.86     | -59.57    | 0.02/100 ft     | 99.63            | 323.28            |         |
| 5000.00        | 1.64   | 307.54  | 4997.96             | 81.58            | 81.58     | -61.83    | 0.03/100 ft     | 102.36           | 322.84            |         |
| 5100.00        | 1.64   | 307.67  | 5097.92             | 83.32            | 83.32     | -64.10    | 0.01/100 ft     | 105.12           | 322.43            |         |
| 5200.00        | 1.56   | 311.23  | 5197.88             | 85.09            | 85.09     | -66.25    | 0.13/100 ft     | 107.84           | 322.10            |         |
| 5300.00        | 1.47   | 322.86  | 5297.85             | 87.00            | 87.00     | -68.04    | 0.32/100 ft     | 110.45           | 321.97            |         |
| 5400.00        | 1.14   | 322.08  | 5397.82             | 88.81            | 88.81     | -69.43    | 0.33/100 ft     | 112.72           | 321.98            |         |
| 5500.00        | 1.20   | 318.83  | 5497.80             | 90.38            | 90.38     | -70.73    | 0.09/100 ft     | 114.76           | 321.96            |         |
| 5600.00        | 1.41   | 315.20  | 5597.78             | 92.04            | 92.04     | -72.28    | 0.23/100 ft     | 117.03           | 321.86            |         |
| 5700.00        | 1.38   | 323.72  | 5697.75             | 93.89            | 93.89     | -73.87    | 0.21/100 ft     | 119.46           | 321.81            |         |
| 5800.00        | 1.17   | 314.79  | 5797.72             | 95.58            | 95.58     | -75.31    | 0.29/100 ft     | 121.68           | 321.77            |         |
| 5900.00        | 1.47   | 320.97  | 5897.70             | 97.30            | 97.30     | -76.84    | 0.33/100 ft     | 123.98           | 321.70            |         |
| 6000.00        | 1.21   | 321.59  | 5997.67             | 99.12            | 99.12     | -78.30    | 0.26/100 ft     | 126.31           | 321.69            |         |



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Instrument Number: GP1-1021

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|----------------|--------|---------|---------------------|------------------|-----------|-----------|-----------------|------------------|-------------------|---------|
| 6100.00        | 1.45   | 324.96  | 6097.64             | 100.98           | 100.98    | -79.68    | 0.25/100 ft     | 128.63           | 321.72            |         |
| 6200.00        | 1.17   | 329.37  | 6197.61             | 102.89           | 102.89    | -80.92    | 0.30/100 ft     | 130.90           | 321.81            |         |
| 6300.00        | 1.34   | 330.82  | 6297.59             | 104.78           | 104.78    | -82.01    | 0.18/100 ft     | 133.06           | 321.95            |         |
| 6400.00        | 1.07   | 320.40  | 6397.57             | 106.53           | 106.53    | -83.18    | 0.34/100 ft     | 135.15           | 322.02            |         |
| 6500.00        | 0.97   | 348.33  | 6497.55             | 108.08           | 108.08    | -83.95    | 0.50/100 ft     | 136.85           | 322.16            |         |
| 6600.00        | 1.14   | 334.76  | 6597.54             | 109.80           | 109.80    | -84.54    | 0.31/100 ft     | 138.58           | 322.41            |         |
| 6700.00        | 0.86   | 340.34  | 6697.52             | 111.41           | 111.41    | -85.22    | 0.30/100 ft     | 140.27           | 322.59            |         |
| 6800.00        | 0.95   | 341.98  | 6797.51             | 112.90           | 112.90    | -85.73    | 0.09/100 ft     | 141.76           | 322.79            |         |
| 6900.00        | 1.17   | 340.85  | 6897.49             | 114.65           | 114.65    | -86.32    | 0.23/100 ft     | 143.51           | 323.03            |         |
| 7000.00        | 1.10   | 330.20  | 6997.47             | 116.45           | 116.45    | -87.13    | 0.22/100 ft     | 145.44           | 323.20            |         |
| 7100.00        | 1.04   | 328.09  | 7097.45             | 118.06           | 118.06    | -88.09    | 0.07/100 ft     | 147.30           | 323.27            |         |
| 7200.00        | 0.91   | 324.74  | 7197.44             | 119.48           | 119.48    | -89.03    | 0.15/100 ft     | 149.00           | 323.31            |         |
| 7300.00        | 0.94   | 322.61  | 7297.43             | 120.78           | 120.78    | -89.99    | 0.05/100 ft     | 150.62           | 323.31            |         |
| 7400.00        | 1.00   | 327.84  | 7397.41             | 122.18           | 122.18    | -90.95    | 0.11/100 ft     | 152.31           | 323.34            |         |
| 7500.00        | 1.19   | 347.61  | 7497.39             | 123.93           | 123.93    | -91.64    | 0.42/100 ft     | 154.13           | 323.52            |         |
| 7600.00        | 1.76   | 345.07  | 7597.36             | 126.42           | 126.42    | -92.26    | 0.58/100 ft     | 156.51           | 323.88            |         |