

Schlumberger

# Final Surveys - Cimarex Dos Equis 13 Federal Com #9H MWD 0ft-15788ft (Surcon Corrected) Survey Geodetic Report (Def Survey)

CIMAREX

Report Date: April 30, 2019 - 01:14 PM  
 Client: Cimarex  
 Field: NM Lea County (NAD 83)  
 Structure / Slot: Cimarex Dos Equis 13 Federal Com #9H / Cimarex Dos Equis 13 Federal Com #9H  
 Well: Cimarex Dos Equis 13 Federal Com #9H  
 Borehole: Original Borehole  
 UWI / APB: Unknown / Unknown  
 Survey Name: Final Surveys - Cimarex Dos Equis 13 Federal Com #9H MWD 0ft-15788ft (Surcon Corrected)  
 Survey Date: April 09, 2019  
 Tort / AHD / DDI / ERD Ratio: 193.085 \* / 5608.960 ft / 6.189 / 0.507  
 Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Feet  
 Location Lat / Long: N 32° 13' 27.30138", W 103° 37' 56.99238"  
 Location Grid N/E Y/X: N 446022.910 NUS, E 758060.050 NUS  
 CRS Grid Convergence Angle: 0.3737 \*  
 Grid Scale Factor: 0.99996288  
 Version / Patch: 2.10.760.0

Survey / DLS Computation: Minimum Curvature / Lubinski  
 Vertical Section Azimuth: 179.870 \* (Grid North)  
 Vertical Section Origin: 0.000 ft, 0.000 ft  
 TVD Reference Datum: RKB  
 TVD Reference Elevation: 3848.200 ft above MSL  
 Seabed / Ground Elevation: 3822.200 ft above MSL  
 Magnetic Declination: 6.896 \*  
 Total Gravity Field Strength: 988.4331mg (9.80865 Based)  
 Gravity Model: GARM  
 Total Magnetic Field Strength: 47917.062 nT  
 Magnetic Dip Angle: 59.891 \*  
 Declination Date: April 22, 2019  
 Magnetic Declination Model: HDGM 2019  
 North Reference: Grid North  
 Grid Convergence Used: 0.3737 \*  
 Total Corr Mag North-Grid North: 6.3221 \*  
 Local Coord Referenced To: Structure Reference Point

HOBBS OCD

JUL 23 2019

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| Comments                     | MD<br>(ft) | Incl<br>(°) | Azim Grid<br>(°) | TVD<br>(ft) | VSEC<br>(ft) | NS<br>(ft) | EW<br>(ft) | DLS<br>(ft/100ft) | Northing<br>(ftUS) | Easting<br>(ftUS) | Latitude<br>(N S ° ' ") | Longitude<br>(E W ° ' ") | Closure Azimuth<br>(°) | Closure<br>(ft) |
|------------------------------|------------|-------------|------------------|-------------|--------------|------------|------------|-------------------|--------------------|-------------------|-------------------------|--------------------------|------------------------|-----------------|
| SHL [240° FNL,<br>1350° FNL] | 0.00       | 0.00        | 0.00             | 0.00        | 0.00         | 0.00       | 0.00       | N/A               | 446022.91          | 758060.05         | N 32 13 27.30           | W 103 37 56.99           | 0.00                   | 0.00            |
|                              | 204.00     | 0.13        | 128.38           | 204.00      | 0.14         | -0.14      | 0.18       | 0.06              | 446022.77          | 758060.23         | N 32 13 27.30           | W 103 37 56.99           | 128.38                 | 0.23            |
|                              | 300.00     | 0.24        | 132.87           | 300.00      | 0.66         | -0.66      | 0.57       | 0.12              | 446022.53          | 758060.40         | N 32 13 27.30           | W 103 37 56.99           | 138.96                 | 0.51            |
|                              | 391.00     | 0.25        | 131.17           | 391.00      | 0.88         | -0.87      | 0.91       | 0.09              | 446022.25          | 758060.82         | N 32 13 27.29           | W 103 37 56.99           | 139.24                 | 0.87            |
|                              | 481.00     | 0.35        | 131.17           | 481.00      | 0.88         | -0.87      | 0.91       | 0.12              | 446021.94          | 758060.96         | N 32 13 27.29           | W 103 37 56.98           | 138.68                 | 1.33            |
|                              | 572.00     | 0.22        | 139.74           | 572.00      | 1.29         | -1.29      | 1.24       | 0.15              | 446021.82          | 758061.29         | N 32 13 27.29           | W 103 37 56.98           | 136.12                 | 1.78            |
|                              | 663.00     | 0.25        | 140.09           | 663.00      | 1.58         | -1.57      | 1.48       | 0.03              | 446021.34          | 758061.53         | N 32 13 27.29           | W 103 37 56.98           | 138.78                 | 2.16            |
|                              | 753.00     | 0.28        | 75.25            | 752.99      | 1.88         | -1.87      | 1.80       | 0.30              | 446021.24          | 758061.85         | N 32 13 27.28           | W 103 37 56.97           | 132.85                 | 2.48            |
|                              | 844.00     | 0.17        | 155.36           | 843.99      | 1.75         | -1.74      | 2.06       | 0.31              | 446021.17          | 758062.11         | N 32 13 27.28           | W 103 37 56.97           | 130.24                 | 2.69            |
|                              | 938.00     | 0.15        | 46.65            | 937.99      | 1.80         | -1.78      | 2.20       | 0.28              | 446021.13          | 758062.25         | N 32 13 27.28           | W 103 37 56.97           | 128.97                 | 2.83            |
|                              | 1032.00    | 0.11        | 60.48            | 1031.99     | 1.87         | -1.85      | 2.37       | 0.05              | 446021.26          | 758062.42         | N 32 13 27.28           | W 103 37 56.98           | 124.89                 | 2.89            |
|                              | 1128.00    | 0.32        | 100.82           | 1127.99     | 1.87         | -1.86      | 2.72       | 0.28              | 446021.25          | 758062.77         | N 32 13 27.28           | W 103 37 56.96           | 121.42                 | 3.18            |
|                              | 1223.00    | 0.48        | 54.66            | 1222.99     | 1.50         | -1.48      | 3.30       | 0.38              | 446021.43          | 758063.35         | N 32 13 27.29           | W 103 37 56.95           | 114.13                 | 3.62            |
|                              | 1317.00    | 0.44        | 66.67            | 1316.99     | 1.13         | -1.11      | 3.95       | 0.11              | 446021.80          | 758064.00         | N 32 13 27.29           | W 103 37 56.95           | 105.65                 | 4.11            |
|                              | 1412.00    | 0.66        | 52.62            | 1411.98     | 0.68         | -0.63      | 4.72       | 0.27              | 446022.28          | 758064.77         | N 32 13 27.29           | W 103 37 56.94           | 97.61                  | 4.77            |
|                              | 1506.00    | 0.59        | 63.18            | 1505.98     | 0.12         | -0.08      | 5.59       | 0.14              | 446022.83          | 758065.63         | N 32 13 27.30           | W 103 37 56.93           | 90.86                  | 5.59            |
|                              | 1600.00    | 0.34        | 71.40            | 1599.97     | -0.19        | 0.22       | 6.28       | 0.27              | 446023.13          | 758066.33         | N 32 13 27.30           | W 103 37 56.92           | 87.96                  | 6.29            |
|                              | 1695.00    | 0.44        | 68.54            | 1694.97     | -0.42        | 0.48       | 6.88       | 0.11              | 446023.37          | 758066.93         | N 32 13 27.31           | W 103 37 56.91           | 88.19                  | 6.90            |
|                              | 1789.00    | 0.77        | 70.32            | 1788.97     | -0.77        | 0.81       | 7.81       | 0.35              | 446023.72          | 758067.88         | N 32 13 27.31           | W 103 37 56.90           | 84.04                  | 7.85            |
|                              | 1883.00    | 0.54        | 55.15            | 1882.96     | -1.23        | 1.28       | 8.77       | 0.30              | 446024.19          | 758068.82         | N 32 13 27.31           | W 103 37 56.89           | 81.69                  | 8.88            |
|                              | 1978.00    | 1.00        | 63.93            | 1977.95     | -1.84        | 1.90       | 9.88       | 0.50              | 446024.81          | 758069.93         | N 32 13 27.32           | W 103 37 56.88           | 79.11                  | 10.06           |
|                              | 2072.00    | 1.07        | 59.67            | 2071.94     | -2.84        | 2.70       | 11.37      | 0.11              | 446025.81          | 758071.42         | N 32 13 27.33           | W 103 37 56.88           | 76.82                  | 11.89           |
|                              | 2168.00    | 0.52        | 43.68            | 2165.93     | -3.38        | 3.46       | 12.43      | 0.63              | 446026.37          | 758072.48         | N 32 13 27.33           | W 103 37 56.85           | 74.46                  | 12.80           |
|                              | 2261.00    | 0.15        | 309.53           | 2260.93     | -3.77        | 3.85       | 12.63      | 0.58              | 446026.78          | 758072.68         | N 32 13 27.34           | W 103 37 56.85           | 73.06                  | 13.20           |
|                              | 2355.00    | 0.34        | 26.49            | 2354.93     | -4.10        | 4.17       | 12.68      | 0.36              | 446027.08          | 758072.71         | N 32 13 27.34           | W 103 37 56.84           | 71.74                  | 13.33           |
|                              | 2450.00    | 0.15        | 318.39           | 2449.92     | -4.44        | 4.52       | 12.70      | 0.34              | 446027.43          | 758072.75         | N 32 13 27.35           | W 103 37 56.84           | 70.42                  | 13.48           |
|                              | 2544.00    | 0.28        | 148.98           | 2543.92     | -4.34        | 4.41       | 12.73      | 0.45              | 446027.32          | 758072.78         | N 32 13 27.34           | W 103 37 56.84           | 70.90                  | 13.47           |
|                              | 2638.00    | 0.12        | 37.30            | 2637.92     | -4.22        | 4.29       | 12.91      | 0.38              | 446027.20          | 758072.96         | N 32 13 27.34           | W 103 37 56.84           | 71.81                  | 13.60           |
|                              | 2733.00    | 0.17        | 198.10           | 2732.92     | -4.16        | 4.24       | 12.93      | 0.30              | 446027.15          | 758073.97         | N 32 13 27.34           | W 103 37 56.84           | 71.85                  | 13.60           |
|                              | 2827.00    | 0.38        | 182.24           | 2826.92     | -3.72        | 3.79       | 12.87      | 0.24              | 446026.70          | 758073.92         | N 32 13 27.34           | W 103 37 56.84           | 73.58                  | 13.42           |
|                              | 2921.00    | 0.58        | 180.95           | 2920.92     | -2.97        | 3.05       | 13.01      | 0.26              | 446025.96          | 758073.06         | N 32 13 27.33           | W 103 37 56.84           | 76.82                  | 13.36           |
|                              | 3016.00    | 0.74        | 151.56           | 3015.91     | -1.99        | 2.07       | 13.45      | 0.22              | 446024.98          | 758073.50         | N 32 13 27.32           | W 103 37 56.84           | 81.26                  | 13.61           |
|                              | 3110.00    | 0.41        | 158.46           | 3109.91     | -1.14        | 1.22       | 13.88      | 0.36              | 446024.13          | 758073.91         | N 32 13 27.31           | W 103 37 56.83           | 84.96                  | 13.92           |
|                              | 3204.00    | 0.90        | 154.57           | 3203.90     | -0.16        | 0.24       | 14.30      | 0.52              | 446023.15          | 758074.35         | N 32 13 27.30           | W 103 37 56.83           | 89.03                  | 14.31           |
|                              | 3298.00    | 0.90        | 172.78           | 3298.89     | 1.26         | -1.17      | 14.72      | 0.30              | 446021.74          | 758074.77         | N 32 13 27.29           | W 103 37 56.82           | 94.55                  | 14.78           |
|                              | 3393.00    | 1.05        | 184.93           | 3392.88     | 2.85         | -2.78      | 14.74      | 0.27              | 446020.15          | 758074.79         | N 32 13 27.27           | W 103 37 56.82           | 100.62                 | 14.99           |
|                              | 3487.00    | 1.49        | 198.23           | 3486.85     | 4.88         | -4.78      | 14.28      | 0.58              | 446018.13          | 758074.33         | N 32 13 27.25           | W 103 37 56.83           | 106.51                 | 15.08           |
|                              | 3582.00    | 1.12        | 168.91           | 3581.83     | 8.95         | -8.87      | 13.75      | 0.45              | 446019.04          | 758073.80         | N 32 13 27.23           | W 103 37 56.83           | 116.55                 | 15.37           |
|                              | 3676.00    | 0.94        | 221.35           | 3675.82     | 8.43         | -8.36      | 13.10      | 0.64              | 446014.55          | 758073.15         | N 32 13 27.22           | W 103 37 56.84           | 122.54                 | 15.54           |
|                              | 3770.00    | 0.91        | 211.15           | 3769.80     | 9.65         | -9.58      | 12.20      | 0.18              | 446013.33          | 758072.25         | N 32 13 27.21           | W 103 37 56.85           | 128.12                 | 15.51           |
|                              | 3864.00    | 1.00        | 194.19           | 3863.79     | 11.08        | -11.01     | 11.62      | 0.31              | 446011.90          | 758071.67         | N 32 13 27.19           | W 103 37 56.86           | 133.46                 | 16.00           |
|                              | 3958.00    | 0.81        | 193.29           | 3957.78     | 12.52        | -12.45     | 11.26      | 0.20              | 446010.46          | 758071.31         | N 32 13 27.18           | W 103 37 56.86           | 137.87                 | 16.79           |
|                              | 4053.00    | 0.11        | 275.25           | 4052.78     | 13.16        | -13.10     | 11.02      | 0.84              | 446009.81          | 758071.07         | N 32 13 27.17           | W 103 37 56.87           | 139.93                 | 17.11           |
|                              | 4147.00    | 0.32        | 24.09            | 4146.77     | 12.91        | -12.85     | 11.03      | 0.39              | 446010.06          | 758071.08         | N 32 13 27.17           | W 103 37 56.86           | 139.34                 | 16.94           |
|                              | 4241.00    | 0.41        | 125.59           | 4240.77     | 12.87        | -12.80     | 11.42      | 0.60              | 446010.11          | 758071.46         | N 32 13 27.17           | W 103 37 56.86           | 138.28                 | 17.15           |
|                              | 4336.00    | 1.20        | 108.65           | 4335.78     | 13.39        | -13.32     | 12.63      | 0.88              | 446009.59          | 758072.68         | N 32 13 27.17           | W 103 37 56.85           | 136.52                 | 18.38           |
|                              | 4430.00    | 1.25        | 111.39           | 4429.74     | 14.09        | -14.01     | 14.52      | 0.08              | 446008.90          | 758074.57         | N 32 13 27.16           | W 103 37 56.82           | 133.97                 | 20.16           |
|                              | 4524.00    | 1.28        | 138.28           | 4523.72     | 15.25        | -15.15     | 16.16      | 0.62              | 446007.78          | 758078.21         | N 32 13 27.15           | W 103 37 56.81           | 133.16                 | 22.18           |
|                              | 4618.00    | 1.15        | 135.17           | 4617.70     | 16.70        | -16.60     | 17.52      | 0.14              | 446006.32          | 758077.57         | N 32 13 27.14           | W 103 37 56.79           | 133.45                 | 24.13           |
|                              | 4713.00    | 1.25        | 122.06           | 4712.68     | 17.93        | -17.82     | 19.07      | 0.31              | 446005.09          | 758079.12         | N 32 13 27.12           | W 103 37 56.77           | 133.07                 | 26.10           |
|                              | 4807.00    | 1.05        | 145.31           | 4806.68     | 19.19        | -19.07     | 20.43      | 0.53              | 446003.84          | 758080.47         | N 32 13 27.11           | W 103 37 56.78           | 133.04                 | 27.95           |
|                              | 4892.00    | 0.65        | 139.56           | 4891.66     | 19.44        | -19.32     | 20.61      | 1.94              | 446003.59          | 758080.68         | N 32 13 27.11           | W 103 37 56.75           | 133.15                 | 28.25           |
|                              | 4986.00    | 0.95        | 150.29           | 4985.84     | 21.27        | -21.14     | 21.84      | 0.21              | 446001.77          | 758081.89         | N 32 13 27.09           | W 103 37 56.74           | 134.07                 | 30.40           |
|                              | 5080.00    | 1.65        | 98.29            | 5079.82     | 22.15        | -22.02     | 23.57      | 1.38              | 446000.80          | 758083.62         | N 32 13 27.08           | W 103 37 56.72           | 133.05                 | 32.25           |
|                              | 5174.00    | 3.14        | 88.33            | 5173.54     | 22.29        | -22.14     | 27.48      | 1.64              | 446000.78          | 758083.53         | N 32 13 27.08           | W 103 37 56.67           | 128.85                 | 35.29           |
|                              | 5269.00    | 4.44        | 89.85            | 5268.33     | 22.24        | -22.05     | 33.76      | 1.37              | 446000.88          | 758083.81         | N 32 13 27.08           | W 103 37 56.60           | 123.15                 | 40.32           |
|                              | 5363.00    | 5.79        | 85.12            | 5361.85     | 21.88        | -21.64     | 42.12      | 1.50              | 446001.27          | 758102.17         | N 32 13 27.08           | W 103 37 56.50           | 117.19                 | 47.35           |
|                              | 5457.00    | 7.00        | 80.38            | 5455.36     | 20.58        | -20.28     | 52.49      | 1.40              | 446002.63          | 758112.54         | N 32 13 27.10           | W 103 37 56.38           | 111.12                 | 56.27           |
|                              | 5551.00    | 8.10        | 78.77            | 5548.55     | 18.18        | -17.80     | 64.59      | 1.27              | 446005.11          | 758124.84         | N 32 13 27.12           | W 103 37 56.24           | 105.41                 | 67.00           |
|                              | 5645.00    | 9.00        | 85.71            | 5641.51     | 18.19        | -15.74     | 78.37      | 1.70              | 446007.17          | 758138.41         | N 32 13 27.14           | W 103 37 56.08           | 101.38                 | 79.93           |
|                              | 5740.00    | 10.80       | 84.41            | 5735.12     | 14.87        | -14.33     | 94.48      | 1.70              | 446008.58          | 758154.52         | N 32 13 27.15           | W 103 37 55.89           | 98.83                  | 95.58           |
|                              | 5834.00    | 11.01       | 84.21            | 5827.45     | 13.23        | -12.58     | 112.01     | 0.44              | 446010.33          | 758172.06         | N 32 13 27.17           | W 103 37 55.69           | 96.41                  | 112.71          |
|                              | 5928.00    | 10.65       | 82.67            | 5919.78     | 11.32        | -10.57     | 129.58     | 0.49              | 446012.34          | 758188.60         | N 32 13 27.19           | W 103 37 55.49           | 94.66                  | 125.98          |
|                              | 6023.00    | 10.58       | 82.81            | 6013.15     | 9.20         | -8.36      | 146.91     | 0.08              | 446014.55          | 758206.96         | N 32 13 27.21           | W 103 37 55.28           | 92.26                  | 147.15          |
|                              | 6117.00    | 10.14       | 81.82            | 6105.62     | 7.04         | -6.10      | 163.67     | 0.50              | 446016.81          | 758223.71         | N 32 13 27.23           | W 103 37 55.09           |                        |                 |

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