

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENTFORM APPROVED  
OMB NO 1004-0135  
Expires: July 31, 2010**SUNDRY NOTICES AND REPORTS ON WELLS**  
*Do not use this form for proposals to drill or to re-enter an abandoned well. Use form 3160-3 (APD) for such proposals.***SUBMIT IN TRIPLICATE - Other instructions on reverse side.**

|                                                                                                                                  |  |                                                                |  |
|----------------------------------------------------------------------------------------------------------------------------------|--|----------------------------------------------------------------|--|
| 1. Type of Well<br><input checked="" type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other |  | 5. Lease Serial No<br>NMNM84729                                |  |
| 2. Name of Operator<br>CIMAREX ENERGY COMPANY OF CO                                                                              |  | 6. If Indian, Allottee or Tribe Name                           |  |
| 3a. Address<br>600 NORTH MARIENFELD STREET, SUITE 600<br>MIDLAND, TX 79701                                                       |  | 7. If Unit or CA/Agreement, Name and/or No.                    |  |
| 3b. Phone No. (include area code)<br>Ph: 432-620-1936                                                                            |  | 8. Well Name and No.<br>CUERVO FEDERAL 20H                     |  |
| 4. Location of Well (Footage, Sec., T., R., M., or Survey Description)<br>Sec 14 T23S R32E NENE 330FNL 375FEL                    |  | 9. API Well No<br>30-025-40559-00-X1                           |  |
|                                                                                                                                  |  | 10. Field and Pool, or Exploratory<br>DIAMONDTAIL Bone Spring- |  |
|                                                                                                                                  |  | 11. County or Parish, and State<br>LEA COUNTY, NM              |  |

## 12. CHECK APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

| TYPE OF SUBMISSION                                   | TYPE OF ACTION                                |                                           |                                                    |                                           |
|------------------------------------------------------|-----------------------------------------------|-------------------------------------------|----------------------------------------------------|-------------------------------------------|
| <input checked="" type="checkbox"/> Notice of Intent | <input type="checkbox"/> Acidize              | <input type="checkbox"/> Deepen           | <input type="checkbox"/> Production (Start/Resume) | <input type="checkbox"/> Water Shut-Off   |
| <input type="checkbox"/> Subsequent Report           | <input type="checkbox"/> Alter Casing         | <input type="checkbox"/> Fracture Treat   | <input type="checkbox"/> Reclamation               | <input type="checkbox"/> Well Integrity   |
| <input type="checkbox"/> Final Abandonment Notice    | <input type="checkbox"/> Casing Repair        | <input type="checkbox"/> New Construction | <input type="checkbox"/> Recomplete                | <input checked="" type="checkbox"/> Other |
|                                                      | <input type="checkbox"/> Change Plans         | <input type="checkbox"/> Plug and Abandon | <input type="checkbox"/> Temporarily Abandon       | Change to Original APD                    |
|                                                      | <input type="checkbox"/> Convert to Injection | <input type="checkbox"/> Plug Back        | <input type="checkbox"/> Water Disposal            |                                           |

13. Describe Proposed or Completed Operation (clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recompleat horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports shall be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompleat in a new interval, a Form 3160-4 shall be filed once testing has been completed. Final Abandonment Notices shall be filed only after all requirements, including reclamation, have been completed, and the operator has determined that the site is ready for final inspection.)

Cimarex Energy Co. respectfully request approval to set whipstock @ 10450' TVD. Our directional plan will change as reflected on the attached prelim plan. This change is due to OH logs and a KO change is necessary to properly complete the well in the desired pool.

No other aspects of the permit will change.

|                                                                                                                                                                                                                     |                          |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| 14. I hereby certify that the foregoing is true and correct                                                                                                                                                         |                          |
| Electronic Submission #148253 verified by the BLM Well Information System<br>For CIMAREX ENERGY COMPANY OF CO, sent to the Hobbs<br>Committed to AFMSS for processing by WESLEY INGRAM on 08/30/2012 (12WWWI0039SE) |                          |
| Name (Printed/Typed) TERRI STATHEM                                                                                                                                                                                  | Title REGULATORY ANALYST |
| Signature (Electronic Submission)                                                                                                                                                                                   | Date 08/30/2012          |

## THIS SPACE FOR FEDERAL OR STATE OFFICE USE

|                                                                                                                                                                                                                                                           |                          |                 |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|-----------------|
| Approved By WESLEY INGRAM                                                                                                                                                                                                                                 | Title PETROLEUM ENGINEER | Date 08/30/2012 |
| Conditions of approval, if any, are attached. Approval of this notice does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon. |                          | Office Hobbs    |

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

\*\* BLM REVISED \*\* BLM REVISED \*\* BLM REVISED \*\* BLM REVISED \*\* BLM REVISED \*\*

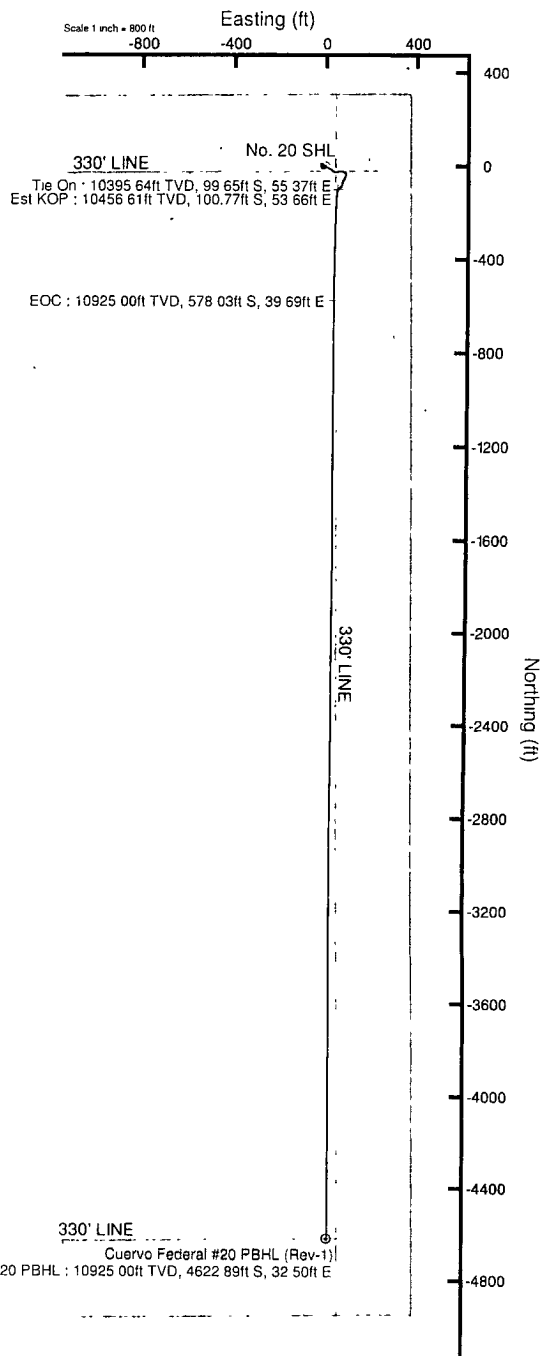
SEP 05 2012



# Cimarex Energy Co. of Colorado

Location: Lea County, NM  
Field: (Cuervo) Sec 14, T23S, R32E  
Facility: Cuervo Fed No 20

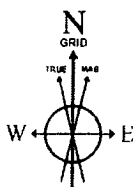
Slot: No. 20 SHL  
Well: No. 20  
Wellbore: No. 20 PWB



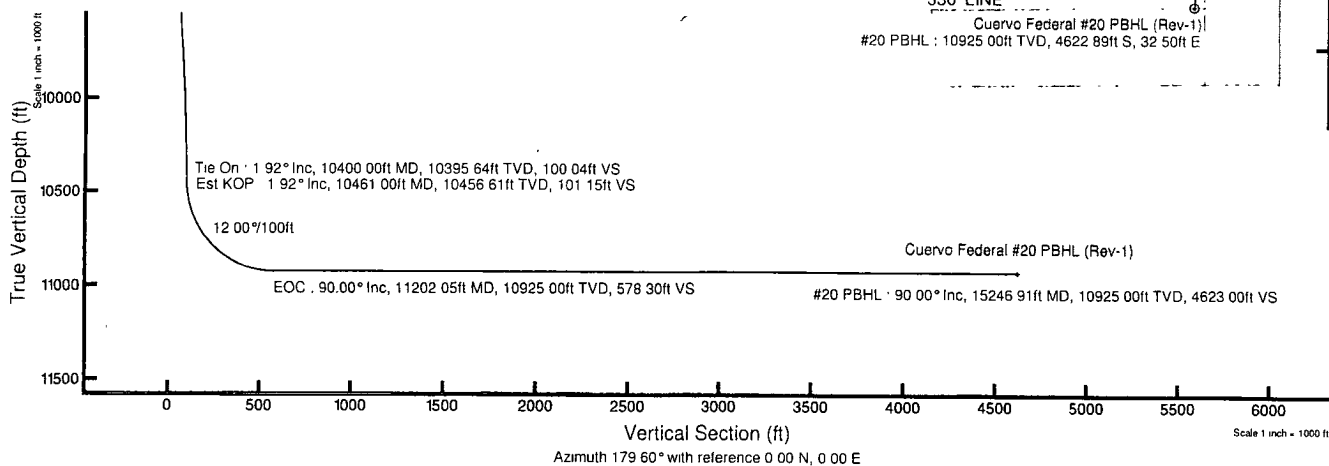
Well Profile Data

| Design Comment | MD (ft)  | Inc (°) | Az (°)  | TVD (ft) | Local N (ft) | Local E (ft) | DLS (°/100ft) | VS (ft) |
|----------------|----------|---------|---------|----------|--------------|--------------|---------------|---------|
| Tie On         | 10400.00 | 1.920   | 236.770 | 10395.64 | -99.65       | 55.37        | 0.00          | 100.04  |
| Est KOP        | 10461.00 | 1.920   | 236.770 | 10456.61 | -100.77      | 53.66        | 0.00          | 101.15  |
| EOC            | 11202.05 | 90.000  | 180.102 | 10925.00 | -578.03      | 39.69        | 12.00         | 578.30  |
| #20 PBHL       | 15246.91 | 90.000  | 180.102 | 10925.00 | -4622.89     | 32.50        | 0.00          | 4623.00 |

|                                                        |                                                                    |
|--------------------------------------------------------|--------------------------------------------------------------------|
| Plot reference wellpath is Rev-B 0                     |                                                                    |
| True vertical depths are referenced to Cactus 115 (RT) | Grid System NAD83 / TM New Mexico SP, Eastern Zone (3001), US feet |
| Measured depths are referenced to Cactus 115 (RT)      | North Reference Grid north                                         |
| Cactus 115 (RT) to Mean Sea Level 3745 feet            | Scale True distance                                                |
| Mean Sea Level to Mud line (At Slot No. 20 SHL) 0 feet | Depths are in feet                                                 |
| Coordinates are in feet referenced to Slot             | Created by harkol on 6/30/2012                                     |



BGGM (1945.0 to 2014.0) Dip 60.19° Field 48559.8 nT  
Magnetic North is 7.58 degrees East of True North (at 8/27/2012)  
Grid North is 0.37 degrees East of True North  
To correct azimuth from True to Grid subtract 0.37 degrees  
To correct azimuth from Magnetic to Grid add 7.21 degrees  
For example if the Magnetic North Azimuth = 90 degs, then the Grid North Azimuth = 90 + 7.21 = 97.21



Rev-B 0



# Planned Wellpath Report

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## REFERENCE WELLPATH IDENTIFICATION

|          |                                |          |            |
|----------|--------------------------------|----------|------------|
| Operator | Cimarex Energy Co. of Colorado | Slot     | No. 20 SHL |
| Area     | Lea County, NM                 | Well     | No. 20     |
| Field    | (Cuervo) Sec 14,T23S,R32E      | Wellbore | No. 20 PWB |
| Facility | Cuervo Fed No.20               |          |            |

## REPORT SETUP INFORMATION

|                     |                                                        |                      |                           |
|---------------------|--------------------------------------------------------|----------------------|---------------------------|
| Projection System   | NAD83 / TM New Mexico SP, Eastern Zone (3001), US feet | Software System      | WellArchitect® 3.0.0      |
| North Reference     | Grid                                                   | User                 | Harrkol                   |
| Scale               | 0.999962                                               | Report Generated     | 8/30/2012 at 4:32:32 PM   |
| Convergence at slot | 0.37° East                                             | Database/Source file | WA Midland/No._20_PWB.xml |

## WELLPATH LOCATION

|                       | Local coordinates |          | Grid coordinates |                 | Geographic coordinates |                 |
|-----------------------|-------------------|----------|------------------|-----------------|------------------------|-----------------|
|                       | North[ft]         | East[ft] | Easting[US ft]   | Northing[US ft] | Latitude               | Longitude       |
| Slot Location         | 0.00              | 0.00     | 756123.60        | 477614.20       | 32°18'40.030"N         | 103°38'17.152"W |
| Facility Reference Pt |                   |          | 756123.60        | 477614.20       | 32°18'40.030"N         | 103°38'17.152"W |
| Field Reference Pt    |                   |          | 751577.10        | 474590.70       | 32°18'10.401"N         | 103°39'10.352"W |

## WELLPATH DATUM

|                          |                   |                                                  |                   |
|--------------------------|-------------------|--------------------------------------------------|-------------------|
| Calculation method       | Minimum curvature | Cactus 115 (RT) to GL                            | 3745.00ft         |
| Horizontal Reference Pt  | Slot              | Cactus 115 (RT) to Mean Sea Level                | 3745.00ft         |
| Vertical Reference Pt    | Cactus 115 (RT)   | Cactus 115 (RT) to Mud Line at Slot (No. 20 SHL) | 3745.00ft         |
| MD Reference Pt          | Cactus 115 (RT)   | Section Origin                                   | N 0.00, E 0.00 ft |
| Field Vertical Reference | Mean Sea Level    | Section Azimuth                                  | 179.60°           |



# Planned Wellpath Report

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|          |                                |          |            |
|----------|--------------------------------|----------|------------|
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| Area     | Lea County, NM                 | Well     | No. 20     |
| Field    | (Cuervo) Sec 14,T23S,R32E      | Wellbore | No. 20 PWB |
| Facility | Cuervo Fed No.20               |          |            |

## WELLPATH DATA (161 stations)

| MD<br>[ft] | Inclination<br>[°] | Azimuth<br>[°] | TVD<br>[ft] | Vert Sect<br>[ft] | North<br>[ft] | East<br>[ft] | Grid East<br>[US ft] | Grid North<br>[US ft] | Latitude       | Longitude       | DLS<br>[°/100ft] | Comments |
|------------|--------------------|----------------|-------------|-------------------|---------------|--------------|----------------------|-----------------------|----------------|-----------------|------------------|----------|
| 0.00       | 0.000              | 231.970        | 0.00        | 0.00              | 0.00          | 0.00         | 756123.60            | 477614.20             | 32°18'40.030"N | 103°38'17.152"W | 0.00             |          |
| 100.00     | 0.350              | 231.970        | 100.00      | 0.19              | -0.19         | -0.24        | 756123.36            | 477614.01             | 32°18'40.028"N | 103°38'17.155"W | 0.35             |          |
| 200.00     | 0.230              | 265.070        | 200.00      | 0.39              | -0.39         | -0.68        | 756122.92            | 477613.81             | 32°18'40.026"N | 103°38'17.160"W | 0.20             |          |
| 300.00     | 0.180              | 282.640        | 300.00      | 0.37              | -0.38         | -1.03        | 756122.57            | 477613.82             | 32°18'40.026"N | 103°38'17.164"W | 0.08             |          |
| 400.00     | 0.060              | 281.210        | 400.00      | 0.32              | -0.33         | -1.24        | 756122.36            | 477613.87             | 32°18'40.027"N | 103°38'17.166"W | 0.12             |          |
| 500.00     | 0.180              | 204.930        | 500.00      | 0.45              | -0.46         | -1.36        | 756122.24            | 477613.74             | 32°18'40.026"N | 103°38'17.168"W | 0.18             |          |
| 600.00     | 0.280              | 218.690        | 600.00      | 0.79              | -0.80         | -1.58        | 756122.02            | 477613.40             | 32°18'40.022"N | 103°38'17.170"W | 0.11             |          |
| 700.00     | 0.080              | 231.420        | 700.00      | 1.02              | -1.03         | -1.78        | 756121.82            | 477613.17             | 32°18'40.020"N | 103°38'17.173"W | 0.20             |          |
| 800.00     | 0.240              | 190.710        | 800.00      | 1.27              | -1.28         | -1.88        | 756121.72            | 477612.92             | 32°18'40.017"N | 103°38'17.174"W | 0.19             |          |
| 900.00     | 0.370              | 207.690        | 899.99      | 1.76              | -1.77         | -2.07        | 756121.53            | 477612.43             | 32°18'40.013"N | 103°38'17.176"W | 0.16             |          |
| 1000.00    | 0.320              | 221.790        | 999.99      | 2.25              | -2.27         | -2.40        | 756121.20            | 477611.93             | 32°18'40.008"N | 103°38'17.180"W | 0.10             |          |
| 1100.00    | 0.420              | 173.500        | 1099.99     | 2.82              | -2.84         | -2.55        | 756121.05            | 477611.36             | 32°18'40.002"N | 103°38'17.182"W | 0.32             |          |
| 1200.00    | 0.600              | 190.920        | 1199.99     | 3.70              | -3.72         | -2.60        | 756121.00            | 477610.48             | 32°18'39.993"N | 103°38'17.183"W | 0.24             |          |
| 1300.00    | 0.470              | 184.310        | 1299.98     | 4.62              | -4.64         | -2.73        | 756120.87            | 477609.56             | 32°18'39.984"N | 103°38'17.184"W | 0.14             |          |
| 1400.00    | 0.960              | 215.560        | 1399.97     | 5.71              | -5.73         | -3.25        | 756120.35            | 477608.47             | 32°18'39.974"N | 103°38'17.190"W | 0.61             |          |
| 1500.00    | 1.050              | 232.200        | 1499.96     | 6.94              | -6.97         | -4.46        | 756119.14            | 477607.23             | 32°18'39.961"N | 103°38'17.204"W | 0.30             |          |
| 1600.00    | 1.070              | 228.170        | 1599.94     | 8.12              | -8.16         | -5.88        | 756117.72            | 477606.04             | 32°18'39.950"N | 103°38'17.221"W | 0.08             |          |
| 1700.00    | 0.710              | 244.630        | 1699.93     | 9.00              | -9.05         | -7.14        | 756116.46            | 477605.15             | 32°18'39.941"N | 103°38'17.236"W | 0.44             |          |
| 1800.00    | 0.790              | 252.430        | 1799.92     | 9.46              | -9.52         | -8.36        | 756115.25            | 477604.68             | 32°18'39.936"N | 103°38'17.250"W | 0.13             |          |
| 1900.00    | 0.570              | 289.240        | 1899.91     | 9.50              | -9.56         | -9.48        | 756114.12            | 477604.64             | 32°18'39.936"N | 103°38'17.263"W | 0.48             |          |
| 2000.00    | 0.720              | 293.570        | 1999.91     | 9.07              | -9.15         | -10.53       | 756113.07            | 477605.05             | 32°18'39.940"N | 103°38'17.275"W | 0.16             |          |
| 2100.00    | 0.560              | 305.560        | 2099.90     | 8.53              | -8.61         | -11.50       | 756112.10            | 477605.59             | 32°18'39.946"N | 103°38'17.287"W | 0.21             |          |
| 2200.00    | 0.790              | 303.610        | 2199.90     | 7.86              | -7.95         | -12.47       | 756111.13            | 477606.25             | 32°18'39.952"N | 103°38'17.298"W | 0.23             |          |
| 2300.00    | 0.660              | 295.440        | 2299.89     | 7.22              | -7.32         | -13.57       | 756110.03            | 477606.88             | 32°18'39.958"N | 103°38'17.311"W | 0.17             |          |
| 2400.00    | 0.650              | 314.260        | 2399.88     | 6.57              | -6.68         | -14.49       | 756109.11            | 477607.52             | 32°18'39.965"N | 103°38'17.321"W | 0.21             |          |
| 2500.00    | 0.790              | 302.300        | 2499.87     | 5.80              | -5.91         | -15.48       | 756108.12            | 477608.29             | 32°18'39.973"N | 103°38'17.333"W | 0.20             |          |
| 2600.00    | 0.630              | 309.860        | 2599.87     | 5.07              | -5.19         | -16.49       | 756107.11            | 477609.01             | 32°18'39.980"N | 103°38'17.344"W | 0.19             |          |
| 2700.00    | 0.890              | 318.330        | 2699.86     | 4.14              | -4.26         | -17.43       | 756106.18            | 477609.94             | 32°18'39.989"N | 103°38'17.355"W | 0.28             |          |
| 2800.00    | 0.860              | 308.500        | 2799.84     | 3.08              | -3.21         | -18.53       | 756105.07            | 477610.99             | 32°18'39.999"N | 103°38'17.368"W | 0.15             |          |
| 2900.00    | 0.810              | 326.270        | 2899.83     | 2.02              | -2.16         | -19.51       | 756104.09            | 477612.04             | 32°18'40.010"N | 103°38'17.379"W | 0.26             |          |



# Planned Wellpath Report

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## REFERENCE WELLPATH IDENTIFICATION

|          |                                |          |            |
|----------|--------------------------------|----------|------------|
| Operator | Cimarex Energy Co. of Colorado | Slot     | No. 20 SHL |
| Area     | Lea County, NM                 | Well     | No. 20     |
| Field    | (Cuervo) Sec 14,T23S,R32E      | Wellbore | No. 20 PWB |
| Facility | Cuervo Fed No.20               |          |            |

## WELLPATH DATA (161 stations) † = interpolated/extrapolated station

| MD<br>[ft] | Inclination<br>[°] | Azimuth<br>[°] | TVD<br>[ft] | Vert Sect<br>[ft] | North<br>[ft] | East<br>[ft] | Grid East<br>[US ft] | Grid North<br>[US ft] | Latitude       | Longitude       | DLS<br>[°/100ft] | Comments       |
|------------|--------------------|----------------|-------------|-------------------|---------------|--------------|----------------------|-----------------------|----------------|-----------------|------------------|----------------|
| 3000.00    | 0.900              | 319.430        | 2999.82     | 0.83              | -0.97         | -20.41       | 756103.19            | 477613.23             | 32°18'40.022"N | 103°38'17.390"W | 0.14             |                |
| 3100.00    | 0.740              | 334.940        | 3099.81     | -0.36             | 0.21          | -21.20       | 756102.40            | 477614.41             | 32°18'40.033"N | 103°38'17.399"W | 0.27             |                |
| 3200.00    | 0.870              | 347.350        | 3199.80     | -1.69             | 1.54          | -21.64       | 756101.96            | 477615.74             | 32°18'40.047"N | 103°38'17.404"W | 0.22             |                |
| 3300.00    | 0.660              | 1.990          | 3299.79     | -3.01             | 2.85          | -21.78       | 756101.82            | 477617.05             | 32°18'40.060"N | 103°38'17.406"W | 0.29             |                |
| 3400.00    | 0.960              | 8.880          | 3399.78     | -4.41             | 4.26          | -21.63       | 756101.97            | 477618.46             | 32°18'40.074"N | 103°38'17.404"W | 0.31             |                |
| 3500.00    | 0.930              | 359.500        | 3499.77     | -6.05             | 5.89          | -21.51       | 756102.09            | 477620.09             | 32°18'40.090"N | 103°38'17.402"W | 0.16             |                |
| 3600.00    | 0.790              | 10.490         | 3599.76     | -7.53             | 7.38          | -21.39       | 756102.21            | 477621.58             | 32°18'40.104"N | 103°38'17.401"W | 0.22             |                |
| 3700.00    | 0.720              | 13.700         | 3699.75     | -8.82             | 8.67          | -21.12       | 756102.48            | 477622.87             | 32°18'40.117"N | 103°38'17.397"W | 0.08             |                |
| 3800.00    | 0.270              | 359.900        | 3799.75     | -9.67             | 9.52          | -20.97       | 756102.63            | 477623.72             | 32°18'40.126"N | 103°38'17.396"W | 0.46             |                |
| 3900.00    | 0.220              | 47.430         | 3899.75     | -10.03            | 9.88          | -20.83       | 756102.77            | 477624.08             | 32°18'40.129"N | 103°38'17.394"W | 0.20             |                |
| 4000.00    | 0.280              | 342.500        | 3999.75     | -10.39            | 10.25         | -20.76       | 756102.84            | 477624.45             | 32°18'40.133"N | 103°38'17.393"W | 0.27             |                |
| 4100.00    | 1.500              | 120.590        | 4099.73     | -9.95             | 9.81          | -19.71       | 756103.89            | 477624.01             | 32°18'40.128"N | 103°38'17.381"W | 1.72             |                |
| 4200.00    | 3.750              | 119.770        | 4199.62     | -7.63             | 7.52          | -15.74       | 756107.86            | 477621.72             | 32°18'40.105"N | 103°38'17.335"W | 2.25             |                |
| 4300.00    | 4.050              | 119.350        | 4299.39     | -4.24             | 4.17          | -9.83        | 756113.78            | 477618.37             | 32°18'40.072"N | 103°38'17.266"W | 0.30             |                |
| 4400.00    | 3.570              | 123.420        | 4399.17     | -0.75             | 0.72          | -4.15        | 756119.45            | 477614.92             | 32°18'40.037"N | 103°38'17.200"W | 0.55             |                |
| 4500.00    | 4.530              | 121.220        | 4498.92     | 3.05              | -3.04         | 1.83         | 756125.43            | 477611.16             | 32°18'40.000"N | 103°38'17.131"W | 0.97             |                |
| 4600.00    | 4.880              | 122.390        | 4598.58     | 7.43              | -7.36         | 8.80         | 756132.40            | 477606.84             | 32°18'39.957"N | 103°38'17.050"W | 0.36             |                |
| 4700.00    | 4.790              | 119.190        | 4698.23     | 11.79             | -11.68        | 16.03        | 756139.63            | 477602.52             | 32°18'39.913"N | 103°38'16.966"W | 0.28             |                |
| 4800.00    | 3.320              | 119.930        | 4797.97     | 15.32             | -15.16        | 22.19        | 756145.79            | 477599.04             | 32°18'39.879"N | 103°38'16.895"W | 1.47             |                |
| 4900.00    | 2.420              | 122.700        | 4897.85     | 17.93             | -17.74        | 26.47        | 756150.07            | 477596.46             | 32°18'39.853"N | 103°38'16.845"W | 0.91             |                |
| 5000.00    | 1.750              | 124.600        | 4997.78     | 19.96             | -19.75        | 29.51        | 756153.11            | 477594.45             | 32°18'39.833"N | 103°38'16.810"W | 0.67             |                |
| 5020.23†   | 1.748              | 124.866        | 5018.00     | 20.31             | -20.10        | 30.02        | 756153.61            | 477594.10             | 32°18'39.829"N | 103°38'16.804"W | 0.04             | Delaware Sands |
| 5100.00    | 1.740              | 125.920        | 5097.73     | 21.73             | -21.51        | 31.99        | 756155.59            | 477592.69             | 32°18'39.815"N | 103°38'16.781"W | 0.04             |                |
| 5200.00    | 1.510              | 119.270        | 5197.69     | 23.29             | -23.05        | 34.37        | 756157.97            | 477591.16             | 32°18'39.800"N | 103°38'16.753"W | 0.30             |                |
| 5300.00    | 1.370              | 120.770        | 5297.66     | 24.56             | -24.30        | 36.55        | 756160.15            | 477589.90             | 32°18'39.787"N | 103°38'16.728"W | 0.14             |                |
| 5400.00    | 1.460              | 105.050        | 5397.63     | 25.52             | -25.24        | 38.81        | 756162.41            | 477588.96             | 32°18'39.778"N | 103°38'16.702"W | 0.40             |                |
| 5500.00    | 1.360              | 91.070         | 5497.60     | 25.89             | -25.60        | 41.22        | 756164.82            | 477588.60             | 32°18'39.774"N | 103°38'16.674"W | 0.36             |                |
| 5600.00    | 1.670              | 83.470         | 5597.57     | 25.76             | -25.45        | 43.86        | 756167.46            | 477588.75             | 32°18'39.775"N | 103°38'16.643"W | 0.37             |                |
| 5700.00    | 1.500              | 80.230         | 5697.53     | 25.39             | -25.06        | 46.60        | 756170.19            | 477589.14             | 32°18'39.779"N | 103°38'16.611"W | 0.19             |                |
| 5800.00    | 1.620              | 85.190         | 5797.49     | 25.07             | -24.72        | 49.29        | 756172.89            | 477589.48             | 32°18'39.782"N | 103°38'16.579"W | 0.18             |                |



# Planned Wellpath Report

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## REFERENCE WELLPATH IDENTIFICATION

|          |                                |          |            |
|----------|--------------------------------|----------|------------|
| Operator | Cimarex Energy Co. of Colorado | Slot     | No. 20 SHL |
| Area     | Lea County, NM                 | Well     | No. 20     |
| Field    | (Cuervo) Sec 14,T23S,R32E      | Wellbore | No. 20 PWB |
| Facility | Cuervo Fed No.20               |          |            |

## WELLPATH DATA (161 stations) † = interpolated/extrapolated station

| MD<br>[ft] | Inclination<br>[°] | Azimuth<br>[°] | TVD<br>[ft] | Vert Sect<br>[ft] | North<br>[ft] | East<br>[ft] | Grid East<br>[US ft] | Grid North<br>[US ft] | Latitude       | Longitude       | DLS<br>[°/100ft] | Comments    |
|------------|--------------------|----------------|-------------|-------------------|---------------|--------------|----------------------|-----------------------|----------------|-----------------|------------------|-------------|
| 5900.00    | 1.340              | 77.600         | 5897.46     | 24.72             | -24.35        | 51.84        | 756175.44            | 477589.85             | 32°18'39.786"N | 103°38'16.550"W | 0.34             |             |
| 6000.00    | 1.140              | 82.610         | 5997.44     | 24.35             | -23.98        | 53.97        | 756177.57            | 477590.23             | 32°18'39.789"N | 103°38'16.525"W | 0.23             |             |
| 6100.00    | 1.160              | 83.680         | 6097.42     | 24.13             | -23.74        | 55.97        | 756179.56            | 477590.46             | 32°18'39.792"N | 103°38'16.502"W | 0.03             |             |
| 6200.00    | 0.950              | 72.840         | 6197.40     | 23.79             | -23.38        | 57.76        | 756181.36            | 477590.82             | 32°18'39.795"N | 103°38'16.481"W | 0.29             |             |
| 6300.00    | 1.050              | 85.010         | 6297.38     | 23.47             | -23.06        | 59.47        | 756183.07            | 477591.14             | 32°18'39.798"N | 103°38'16.461"W | 0.23             |             |
| 6400.00    | 1.050              | 76.750         | 6397.37     | 23.20             | -22.77        | 61.27        | 756184.87            | 477591.43             | 32°18'39.801"N | 103°38'16.440"W | 0.15             |             |
| 6500.00    | 0.790              | 86.290         | 6497.35     | 22.95             | -22.51        | 62.85        | 756186.45            | 477591.69             | 32°18'39.803"N | 103°38'16.421"W | 0.30             |             |
| 6600.00    | 1.020              | 82.130         | 6597.34     | 22.80             | -22.35        | 64.42        | 756188.02            | 477591.86             | 32°18'39.805"N | 103°38'16.403"W | 0.24             |             |
| 6700.00    | 0.800              | 76.420         | 6697.33     | 22.52             | -22.06        | 65.98        | 756189.58            | 477592.14             | 32°18'39.808"N | 103°38'16.385"W | 0.24             |             |
| 6800.00    | 0.830              | 88.250         | 6797.32     | 22.35             | -21.87        | 67.39        | 756190.98            | 477592.33             | 32°18'39.809"N | 103°38'16.368"W | 0.17             |             |
| 6900.00    | 1.160              | 100.110        | 6897.30     | 22.51             | -22.03        | 69.11        | 756192.70            | 477592.17             | 32°18'39.808"N | 103°38'16.348"W | 0.39             |             |
| 7000.00    | 1.000              | 97.050         | 6997.29     | 22.81             | -22.31        | 70.97        | 756194.57            | 477591.89             | 32°18'39.805"N | 103°38'16.327"W | 0.17             |             |
| 7100.00    | 1.090              | 112.700        | 7097.27     | 23.30             | -22.79        | 72.71        | 756196.31            | 477591.41             | 32°18'39.800"N | 103°38'16.306"W | 0.30             |             |
| 7200.00    | 1.090              | 107.140        | 7197.25     | 23.96             | -23.44        | 74.50        | 756198.10            | 477590.77             | 32°18'39.793"N | 103°38'16.286"W | 0.11             |             |
| 7300.00    | 0.990              | 117.530        | 7297.23     | 24.65             | -24.11        | 76.17        | 756199.77            | 477590.09             | 32°18'39.787"N | 103°38'16.266"W | 0.21             |             |
| 7400.00    | 1.190              | 118.190        | 7397.22     | 25.55             | -25.00        | 77.85        | 756201.45            | 477589.20             | 32°18'39.778"N | 103°38'16.247"W | 0.20             |             |
| 7500.00    | 1.040              | 115.890        | 7497.20     | 26.45             | -25.89        | 79.59        | 756203.18            | 477588.31             | 32°18'39.769"N | 103°38'16.227"W | 0.16             |             |
| 7600.00    | 1.420              | 130.870        | 7597.17     | 27.67             | -27.10        | 81.34        | 756204.94            | 477587.10             | 32°18'39.757"N | 103°38'16.206"W | 0.49             |             |
| 7700.00    | 1.450              | 125.170        | 7697.14     | 29.22             | -28.64        | 83.31        | 756206.91            | 477585.56             | 32°18'39.741"N | 103°38'16.183"W | 0.15             |             |
| 7800.00    | 1.140              | 133.060        | 7797.12     | 30.64             | -30.05        | 85.07        | 756208.67            | 477584.16             | 32°18'39.727"N | 103°38'16.163"W | 0.36             |             |
| 7900.00    | 1.240              | 144.670        | 7897.10     | 32.21             | -31.61        | 86.42        | 756210.02            | 477582.59             | 32°18'39.712"N | 103°38'16.147"W | 0.26             |             |
| 8000.00    | 0.980              | 149.920        | 7997.08     | 33.84             | -33.23        | 87.48        | 756211.08            | 477580.97             | 32°18'39.696"N | 103°38'16.135"W | 0.28             |             |
| 8100.00    | 0.690              | 167.350        | 8097.07     | 35.18             | -34.56        | 88.04        | 756211.64            | 477579.64             | 32°18'39.682"N | 103°38'16.129"W | 0.38             |             |
| 8200.00    | 0.750              | 173.290        | 8197.06     | 36.42             | -35.80        | 88.25        | 756211.84            | 477578.41             | 32°18'39.670"N | 103°38'16.126"W | 0.10             |             |
| 8300.00    | 0.660              | 185.230        | 8297.05     | 37.64             | -37.02        | 88.27        | 756211.87            | 477577.18             | 32°18'39.658"N | 103°38'16.126"W | 0.17             |             |
| 8400.00    | 1.000              | 197.890        | 8397.04     | 39.04             | -38.42        | 87.95        | 756211.55            | 477575.78             | 32°18'39.644"N | 103°38'16.130"W | 0.38             |             |
| 8500.00    | 1.020              | 191.960        | 8497.03     | 40.74             | -40.12        | 87.50        | 756211.09            | 477574.08             | 32°18'39.627"N | 103°38'16.135"W | 0.11             |             |
| 8600.00    | 1.100              | 206.320        | 8597.01     | 42.47             | -41.86        | 86.89        | 756210.48            | 477572.35             | 32°18'39.610"N | 103°38'16.143"W | 0.28             |             |
| 8700.00    | 1.580              | 201.370        | 8696.98     | 44.60             | -44.00        | 85.96        | 756209.56            | 477570.20             | 32°18'39.589"N | 103°38'16.154"W | 0.49             |             |
| 8791.06†   | 1.780              | 202.189        | 8788.00     | 47.07             | -46.48        | 84.97        | 756208.57            | 477567.72             | 32°18'39.565"N | 103°38'16.165"W | 0.22             | Bone Spring |



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## REFERENCE WELLPATH IDENTIFICATION

|          |                                |          |            |
|----------|--------------------------------|----------|------------|
| Operator | Cimarex Energy Co. of Colorado | Slot     | No. 20 SHL |
| Area     | Lea County, NM                 | Well     | No. 20     |
| Field    | (Cuervo) Sec 14,T23S,R32E      | Wellbore | No. 20 PWB |
| Facility | Cuervo Fed No.20               |          |            |

## WELLPATH DATA (161 stations) † = interpolated/extrapolated station

| MD<br>[ft] | Inclination<br>[°] | Azimuth<br>[°] | TVD<br>[ft] | Vert Sect<br>[ft] | North<br>[ft] | East<br>[ft] | Grid East<br>[US ft] | Grid North<br>[US ft] | Latitude       | Longitude       | DLS<br>[°/100ft] | Comments                |
|------------|--------------------|----------------|-------------|-------------------|---------------|--------------|----------------------|-----------------------|----------------|-----------------|------------------|-------------------------|
| 8800.00    | 1.800              | 202.260        | 8796.94     | 47.33             | -46.74        | 84.86        | 756208.46            | 477567.46             | 32°18'39.562"N | 103°38'16.167"W | 0.22             |                         |
| 8900.00    | 1.910              | 206.200        | 8896.88     | 50.27             | -49.69        | 83.53        | 756207.13            | 477564.52             | 32°18'39.533"N | 103°38'16.182"W | 0.17             |                         |
| 9000.00    | 1.710              | 196.320        | 8996.84     | 53.19             | -52.61        | 82.38        | 756205.97            | 477561.59             | 32°18'39.504"N | 103°38'16.196"W | 0.37             |                         |
| 9100.00    | 1.450              | 202.580        | 9096.80     | 55.78             | -55.21        | 81.47        | 756205.07            | 477558.99             | 32°18'39.478"N | 103°38'16.207"W | 0.31             |                         |
| 9200.00    | 1.520              | 216.460        | 9196.76     | 58.01             | -57.45        | 80.20        | 756203.80            | 477556.75             | 32°18'39.456"N | 103°38'16.222"W | 0.37             |                         |
| 9300.00    | 1.810              | 219.940        | 9296.72     | 60.28             | -59.73        | 78.40        | 756201.99            | 477554.48             | 32°18'39.434"N | 103°38'16.243"W | 0.31             |                         |
| 9400.00    | 1.870              | 199.620        | 9396.67     | 63.01             | -62.47        | 76.83        | 756200.43            | 477551.73             | 32°18'39.407"N | 103°38'16.261"W | 0.65             |                         |
| 9451.35†   | 1.690              | 200.382        | 9448.00     | 64.51             | -63.97        | 76.29        | 756199.89            | 477550.23             | 32°18'39.392"N | 103°38'16.268"W | 0.35             | Upper Bone Spring Shale |
| 9500.00    | 1.520              | 201.270        | 9496.63     | 65.78             | -65.25        | 75.81        | 756199.40            | 477548.96             | 32°18'39.380"N | 103°38'16.274"W | 0.35             |                         |
| 9600.00    | 2.490              | 192.360        | 9596.56     | 69.13             | -68.60        | 74.86        | 756198.46            | 477545.60             | 32°18'39.346"N | 103°38'16.285"W | 1.02             |                         |
| 9700.00    | 3.480              | 189.580        | 9696.43     | 74.24             | -73.72        | 73.89        | 756197.49            | 477540.48             | 32°18'39.296"N | 103°38'16.297"W | 1.00             |                         |
| 9800.00    | 3.000              | 200.450        | 9796.27     | 79.67             | -79.16        | 72.47        | 756196.07            | 477535.04             | 32°18'39.242"N | 103°38'16.314"W | 0.78             |                         |
| 9900.00    | 3.000              | 209.570        | 9896.13     | 84.38             | -83.89        | 70.26        | 756193.86            | 477530.31             | 32°18'39.195"N | 103°38'16.340"W | 0.48             |                         |
| 9951.94†   | 2.986              | 214.097        | 9948.00     | 86.68             | -86.19        | 68.84        | 756192.43            | 477528.01             | 32°18'39.173"N | 103°38'16.356"W | 0.46             | 1st Bone Spring Shale   |
| 10000.00   | 2.990              | 218.300        | 9996.00     | 88.69             | -88.21        | 67.36        | 756190.95            | 477525.99             | 32°18'39.153"N | 103°38'16.374"W | 0.46             |                         |
| 10100.00   | 2.650              | 221.320        | 10095.88    | 92.45             | -92.00        | 64.21        | 756187.81            | 477522.21             | 32°18'39.116"N | 103°38'16.411"W | 0.37             |                         |
| 10200.00   | 2.300              | 229.270        | 10195.78    | 95.47             | -95.04        | 61.17        | 756184.76            | 477519.16             | 32°18'39.086"N | 103°38'16.446"W | 0.49             |                         |
| 10300.00   | 2.140              | 230.310        | 10295.71    | 97.95             | -97.54        | 58.21        | 756181.81            | 477516.66             | 32°18'39.061"N | 103°38'16.481"W | 0.16             |                         |
| 10400.00   | 1.920              | 236.770        | 10395.64    | 100.04            | -99.65        | 55.37        | 756178.97            | 477514.55             | 32°18'39.040"N | 103°38'16.514"W | 0.00             | Tie On                  |
| 10461.00   | 1.920              | 236.770        | 10456.61    | 101.15            | -100.77       | 53.66        | 756177.26            | 477513.43             | 32°18'39.029"N | 103°38'16.534"W | 0.00             | Est KOP                 |
| 10500.00†  | 5.955              | 195.677        | 10495.52    | 103.45            | -103.08       | 52.57        | 756176.17            | 477511.12             | 32°18'39.007"N | 103°38'16.547"W | 12.00            |                         |
| 10600.00†  | 17.809             | 185.104        | 10593.21    | 123.73            | -123.38       | 49.80        | 756173.39            | 477490.82             | 32°18'38.806"N | 103°38'16.581"W | 12.00            |                         |
| 10626.29†  | 20.952             | 184.297        | 10618.00    | 132.42            | -132.07       | 49.09        | 756172.68            | 477482.13             | 32°18'38.720"N | 103°38'16.590"W | 12.00            | 2nd Bone Spring Shale   |
| 10700.00†  | 29.780             | 182.907        | 10684.54    | 163.89            | -163.56       | 47.17        | 756170.76            | 477450.64             | 32°18'38.409"N | 103°38'16.615"W | 12.00            |                         |
| 10800.00†  | 41.769             | 181.899        | 10765.53    | 222.18            | -221.87       | 44.79        | 756168.39            | 477392.34             | 32°18'37.832"N | 103°38'16.647"W | 12.00            |                         |
| 10900.00†  | 53.763             | 181.278        | 10832.62    | 296.04            | -295.74       | 42.78        | 756166.38            | 477318.47             | 32°18'37.101"N | 103°38'16.676"W | 12.00            |                         |
| 11000.00†  | 65.759             | 180.825        | 10882.89    | 382.24            | -381.96       | 41.22        | 756164.82            | 477232.25             | 32°18'36.248"N | 103°38'16.701"W | 12.00            |                         |
| 11100.00†  | 77.756             | 180.450        | 10914.14    | 477.03            | -476.76       | 40.18        | 756163.78            | 477137.46             | 32°18'35.310"N | 103°38'16.720"W | 12.00            |                         |
| 11200.00†  | 89.754             | 180.109        | 10925.00    | 576.25            | -575.98       | 39.70        | 756163.30            | 477038.24             | 32°18'34.328"N | 103°38'16.733"W | 12.00            |                         |
| 11202.05   | 90.000             | 180.102        | 10925.00    | 578.30            | -578.03       | 39.69        | 756163.29            | 477036.19             | 32°18'34.308"N | 103°38'16.733"W | 12.00            | EOC                     |



# Planned Wellpath Report

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## REFERENCE WELLPATH IDENTIFICATION

|          |                                |          |            |
|----------|--------------------------------|----------|------------|
| Operator | Cimarex Energy Co. of Colorado | Slot     | No. 20 SHL |
| Area     | Lea County, NM                 | Well     | No. 20     |
| Field    | (Cuervo) Sec 14,T23S,R32E      | Wellbore | No. 20 PWB |
| Facility | Cuervo Fed No.20               |          |            |

## WELLPATH DATA (161 stations) † = interpolated/extrapolated station

| MD<br>[ft] | Inclination<br>[°] | Azimuth<br>[°] | TVD<br>[ft] | Vert Sect<br>[ft] | North<br>[ft] | East<br>[ft] | Grid East<br>[US ft] | Grid North<br>[US ft] | Latitude       | Longitude       | DLS<br>[°/100ft] | Comments |
|------------|--------------------|----------------|-------------|-------------------|---------------|--------------|----------------------|-----------------------|----------------|-----------------|------------------|----------|
| 11300.00†  | 90.000             | 180.102        | 10925.00    | 676.24            | -675.98       | 39.52        | 756163.12            | 476938.25             | 32°18'33.339"N | 103°38'16.743"W | 0.00             |          |
| 11400.00†  | 90.000             | 180.102        | 10925.00    | 776.24            | -775.98       | 39.34        | 756162.94            | 476838.25             | 32°18'32.349"N | 103°38'16.752"W | 0.00             |          |
| 11500.00†  | 90.000             | 180.102        | 10925.00    | 876.24            | -875.98       | 39.16        | 756162.76            | 476738.25             | 32°18'31.360"N | 103°38'16.762"W | 0.00             |          |
| 11600.00†  | 90.000             | 180.102        | 10925.00    | 976.23            | -975.98       | 38.98        | 756162.58            | 476638.26             | 32°18'30.370"N | 103°38'16.771"W | 0.00             |          |
| 11700.00†  | 90.000             | 180.102        | 10925.00    | 1076.23           | -1075.98      | 38.81        | 756162.41            | 476538.26             | 32°18'29.381"N | 103°38'16.781"W | 0.00             |          |
| 11800.00†  | 90.000             | 180.102        | 10925.00    | 1176.22           | -1175.98      | 38.63        | 756162.23            | 476438.27             | 32°18'28.391"N | 103°38'16.791"W | 0.00             |          |
| 11900.00†  | 90.000             | 180.102        | 10925.00    | 1276.22           | -1275.98      | 38.45        | 756162.05            | 476338.27             | 32°18'27.402"N | 103°38'16.800"W | 0.00             |          |
| 12000.00†  | 90.000             | 180.102        | 10925.00    | 1376.22           | -1375.98      | 38.27        | 756161.87            | 476238.27             | 32°18'26.413"N | 103°38'16.810"W | 0.00             |          |
| 12100.00†  | 90.000             | 180.102        | 10925.00    | 1476.21           | -1475.98      | 38.09        | 756161.69            | 476138.28             | 32°18'25.423"N | 103°38'16.820"W | 0.00             |          |
| 12200.00†  | 90.000             | 180.102        | 10925.00    | 1576.21           | -1575.98      | 37.92        | 756161.52            | 476038.28             | 32°18'24.434"N | 103°38'16.829"W | 0.00             |          |
| 12300.00†  | 90.000             | 180.102        | 10925.00    | 1676.20           | -1675.98      | 37.74        | 756161.34            | 475938.29             | 32°18'23.444"N | 103°38'16.839"W | 0.00             |          |
| 12400.00†  | 90.000             | 180.102        | 10925.00    | 1776.20           | -1775.98      | 37.56        | 756161.16            | 475838.29             | 32°18'22.455"N | 103°38'16.849"W | 0.00             |          |
| 12500.00†  | 90.000             | 180.102        | 10925.00    | 1876.20           | -1875.98      | 37.38        | 756160.98            | 475738.30             | 32°18'21.465"N | 103°38'16.858"W | 0.00             |          |
| 12600.00†  | 90.000             | 180.102        | 10925.00    | 1976.19           | -1975.98      | 37.21        | 756160.80            | 475638.30             | 32°18'20.476"N | 103°38'16.868"W | 0.00             |          |
| 12700.00†  | 90.000             | 180.102        | 10925.00    | 2076.19           | -2075.98      | 37.03        | 756160.63            | 475538.30             | 32°18'19.486"N | 103°38'16.877"W | 0.00             |          |
| 12800.00†  | 90.000             | 180.102        | 10925.00    | 2176.18           | -2175.98      | 36.85        | 756160.45            | 475438.31             | 32°18'18.497"N | 103°38'16.887"W | 0.00             |          |
| 12900.00†  | 90.000             | 180.102        | 10925.00    | 2276.18           | -2275.98      | 36.67        | 756160.27            | 475338.31             | 32°18'17.507"N | 103°38'16.897"W | 0.00             |          |
| 13000.00†  | 90.000             | 180.102        | 10925.00    | 2376.18           | -2375.98      | 36.49        | 756160.09            | 475238.32             | 32°18'16.518"N | 103°38'16.906"W | 0.00             |          |
| 13100.00†  | 90.000             | 180.102        | 10925.00    | 2476.17           | -2475.98      | 36.32        | 756159.91            | 475138.32             | 32°18'15.528"N | 103°38'16.916"W | 0.00             |          |
| 13200.00†  | 90.000             | 180.102        | 10925.00    | 2576.17           | -2575.98      | 36.14        | 756159.74            | 475038.32             | 32°18'14.539"N | 103°38'16.926"W | 0.00             |          |
| 13300.00†  | 90.000             | 180.102        | 10925.00    | 2676.17           | -2675.98      | 35.96        | 756159.56            | 474938.33             | 32°18'13.549"N | 103°38'16.935"W | 0.00             |          |
| 13400.00†  | 90.000             | 180.102        | 10925.00    | 2776.16           | -2775.98      | 35.78        | 756159.38            | 474838.33             | 32°18'12.560"N | 103°38'16.945"W | 0.00             |          |
| 13500.00†  | 90.000             | 180.102        | 10925.00    | 2876.16           | -2875.98      | 35.60        | 756159.20            | 474738.34             | 32°18'11.571"N | 103°38'16.954"W | 0.00             |          |
| 13600.00†  | 90.000             | 180.102        | 10925.00    | 2976.15           | -2975.98      | 35.43        | 756159.02            | 474638.34             | 32°18'10.581"N | 103°38'16.964"W | 0.00             |          |
| 13700.00†  | 90.000             | 180.102        | 10925.00    | 3076.15           | -3075.98      | 35.25        | 756158.85            | 474538.35             | 32°18'09.592"N | 103°38'16.974"W | 0.00             |          |
| 13800.00†  | 90.000             | 180.102        | 10925.00    | 3176.15           | -3175.98      | 35.07        | 756158.67            | 474438.35             | 32°18'08.602"N | 103°38'16.983"W | 0.00             |          |
| 13900.00†  | 90.000             | 180.102        | 10925.00    | 3276.14           | -3275.98      | 34.89        | 756158.49            | 474338.35             | 32°18'07.613"N | 103°38'16.993"W | 0.00             |          |
| 14000.00†  | 90.000             | 180.102        | 10925.00    | 3376.14           | -3375.98      | 34.71        | 756158.31            | 474238.36             | 32°18'06.623"N | 103°38'17.003"W | 0.00             |          |
| 14100.00†  | 90.000             | 180.102        | 10925.00    | 3476.13           | -3475.98      | 34.54        | 756158.14            | 474138.36             | 32°18'05.634"N | 103°38'17.012"W | 0.00             |          |
| 14200.00†  | 90.000             | 180.102        | 10925.00    | 3576.13           | -3575.98      | 34.36        | 756157.96            | 474038.37             | 32°18'04.644"N | 103°38'17.022"W | 0.00             |          |



# Planned Wellpath Report

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## REFERENCE WELLPATH IDENTIFICATION

|          |                                |          |            |
|----------|--------------------------------|----------|------------|
| Operator | Cimarex Energy Co. of Colorado | Slot     | No. 20 SHL |
| Area     | Lea County, NM                 | Well     | No. 20     |
| Field    | (Cuervo) Sec 14,T23S,R32E      | Wellbore | No. 20 PWB |
| Facility | Cuervo Fed No.20               |          |            |

## WELLPATH DATA (161 stations) = interpolated/extrapolated station

| MD<br>[ft] | Inclination<br>[°] | Azimuth<br>[°] | TVD<br>[ft] | Vert Sect<br>[ft] | North<br>[ft] | East<br>[ft] | Grid East<br>[US ft] | Grid North<br>[US ft] | Latitude       | Longitude       | DLS<br>[°/100ft] | Comments |
|------------|--------------------|----------------|-------------|-------------------|---------------|--------------|----------------------|-----------------------|----------------|-----------------|------------------|----------|
| 14300.00+  | 90.000             | 180.102        | 10925.00    | 3676.13           | -3675.98      | 34.18        | 756157.78            | 473938.37             | 32°18'03.655"N | 103°38'17.031"W | 0.00             |          |
| 14400.00+  | 90.000             | 180.102        | 10925.00    | 3776.12           | -3775.98      | 34.00        | 756157.60            | 473838.37             | 32°18'02.665"N | 103°38'17.041"W | 0.00             |          |
| 14500.00+  | 90.000             | 180.102        | 10925.00    | 3876.12           | -3875.98      | 33.83        | 756157.42            | 473738.38             | 32°18'01.676"N | 103°38'17.051"W | 0.00             |          |
| 14600.00+  | 90.000             | 180.102        | 10925.00    | 3976.12           | -3975.98      | 33.65        | 756157.25            | 473638.38             | 32°18'00.686"N | 103°38'17.060"W | 0.00             |          |
| 14700.00+  | 90.000             | 180.102        | 10925.00    | 4076.11           | -4075.98      | 33.47        | 756157.07            | 473538.39             | 32°17'59.697"N | 103°38'17.070"W | 0.00             |          |
| 14800.00+  | 90.000             | 180.102        | 10925.00    | 4176.11           | -4175.98      | 33.29        | 756156.89            | 473438.39             | 32°17'58.707"N | 103°38'17.080"W | 0.00             |          |
| 14900.00+  | 90.000             | 180.102        | 10925.00    | 4276.10           | -4275.98      | 33.11        | 756156.71            | 473338.40             | 32°17'57.718"N | 103°38'17.089"W | 0.00             |          |
| 15000.00+  | 90.000             | 180.102        | 10925.00    | 4376.10           | -4375.98      | 32.94        | 756156.53            | 473238.40             | 32°17'56.728"N | 103°38'17.099"W | 0.00             |          |
| 15100.00+  | 90.000             | 180.102        | 10925.00    | 4476.10           | -4475.98      | 32.76        | 756156.36            | 473138.40             | 32°17'55.739"N | 103°38'17.108"W | 0.00             |          |
| 15200.00+  | 90.000             | 180.102        | 10925.00    | 4576.09           | -4575.98      | 32.58        | 756156.18            | 473038.41             | 32°17'54.750"N | 103°38'17.118"W | 0.00             |          |
| 15246.91   | 90.000             | 180.102        | 10925.00    | 4623.00           | -4622.89      | 32.50        | 756156.10            | 472991.50             | 32°17'54.285"N | 103°38'17.123"W | 0.00             | #20 PBHL |

## TARGETS

| Name                                  | MD<br>[ft] | TVD<br>[ft] | North<br>[ft] | East<br>[ft] | Grid East<br>[US ft] | Grid North<br>[US ft] | Latitude       | Longitude       | Shape |
|---------------------------------------|------------|-------------|---------------|--------------|----------------------|-----------------------|----------------|-----------------|-------|
| 1) Cuervo Federal #20 PBHL<br>(Rev-1) | 15246.91   | 10925.00    | -4622.89      | 32.50        | 756156.10            | 472991.50             | 32°17'54.285"N | 103°38'17.123"W | point |
| No.20 PBHL                            |            | 11053.00    | -4622.89      | 32.50        | 756156.10            | 472991.50             | 32°17'54.285"N | 103°38'17.123"W | point |

## SURVEY PROGRAM - Ref Wellbore: No. 20 PWB Ref Wellpath: Rev-B.0

| Start MD<br>[ft] | End MD<br>[ft] | Positional Uncertainty Model           | Log Name/Comment | Wellbore   |
|------------------|----------------|----------------------------------------|------------------|------------|
| 3745.00          | 10400.00       | Generic gyro - northseeking (Standard) |                  | No. 20 AWB |
| 10400.00         | 15246.91       | NaviTrak (Standard)                    |                  | No. 20 PWB |