

**STATE OF NEW MEXICO  
DEPARTMENT OF ENERGY, MINERALS AND NATURAL RESOURCES  
OIL CONSERVATION DIVISION**

**APPLICATION OF CIMAREX  
ENERGY CO. FOR COMPULSORY  
POOLING, LEA COUNTY,  
NEW MEXICO**

CASE NO. 21146

**APPLICATION OF CIMAREX  
ENERGY CO. FOR COMPULSORY  
POOLING, LEA COUNTY,  
NEW MEXICO**

CASE NO. 21147

**Examiner Docket: April 16, 2020**

**CIMAREX'S EXHIBITS**

**West Grama Ridge 7-6 Federal Com 1H  
West Grama Ridge 7 Federal Com 2H**



Earl E. DeBrine, Jr.  
Lance D. Hough



500 Fourth Street NW, Suite 1000  
P. O. Box 2168 / Albuquerque, NM 87103  
Telephone 505.848.1800  
[edebrine@modrall.com](mailto:edebrine@modrall.com)  
[ldh@modrall.com](mailto:ldh@modrall.com)

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West Grama Ridge 7 Federal Com 2H**

Exhibit A      Compulsory Pooling Application Checklist

Exhibit B      Affidavit of Riley Morris  
                  B-1      Well Proposal Letter  
                  B-2      Excerpt from Proposed JOA  
                  B-3      Communication Timeline

Case No. 21146

                  B-4-46      Application  
                  B-5-46      C102  
                  B-6-46      Lease Tract Map with WIs and ORRIs  
                  B-7-46      Authorization for Expenditure

Case No. 21147

                  B-4-47      Application  
                  B-5-47      C102  
                  B-6-47      Lease Tract Map with WIs and ORRIs  
                  B-7-47      Authorization for Expenditure

Exhibit C      Affidavit of Lucas Haas  
                  C-1      Locator and a Structure Map  
                  C-2      Gross Thickness Isopach Map  
                  C-3      Winetrack/Lateral Trajectory Diagram

Earl E. DeBrine, Jr.  
Lance D. Hough



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- C-4 Structural Cross Section
- C-5 Wellbore Diagram for each Proposed Well

Exhibit D Affidavit of Lance D. Hough

- D-1 Hearing Notice
- D-2 Certified Mail Log / Notice March 12, 2020  
Certified Mail Log / Report April 13, 2020
- D-3 Affidavit of Publication

Earl E. DeBrine, Jr.  
Lance D. Hough



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# COMPULSORY POOLING APPLICATION CHECKLIST (pdf)

## ALL INFORMATION IN THE APPLICATION MUST BE SUPPORTED BY SIGNED AFFIDAVITS

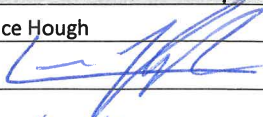
<b>Case: 21146</b>	<b>APPLICANT'S RESPONSE</b>
<b>Date</b>	<b>April 16, 2020</b>
Applicant	Cimarex Energy Co.
Designated Operator & OGRID (affiliation if applicable)	Cimarex Energy Co. (OGRID 215099)
Applicant's Counsel:	Modrall Sperling
Case Title:	APPLICATION OF CIMAREX ENERGY CO. FOR COMPULSORY POOLING, LEA COUNTY, NEW MEXICO, CASE NO. 21146
Entries of Appearance/Intervenors:	None
Well Family	West Grama Ridge
<b>Formation/Pool</b>	
Formation Name(s) or Vertical Extent:	Bone Spring Formation
Primary Product (Oil or Gas):	Oil
Pooling this vertical extent:	Bone Spring Formation
Pool Name and Pool Code:	Grama Ridge; Bone Springs, West Pool (Pool Code 28432)
Well Location Setback Rules:	Latest Statewide Horizontal Rules Apply
Spacing Unit Size:	320 Acres
<b>Spacing Unit</b>	
Type (Horizontal/Vertical)	Horizontal
Size (Acres)	320 Acres
Building Blocks:	Quarter-Quarter Sections
Orientation:	South to North
Description: TRS/County	W/2 E/2 of Sections 6 and 7, Township 22 South, Range 34 East, NMPM, Lea County, New Mexico
Standard Horizontal Well Spacing Unit (Y/N), If No, describe	Yes
<b>Other Situations</b>	
Depth Severance: Y/N. If yes, description	No
Proximity Tracts: If yes, description	No
Proximity Defining Well: if yes, description	N/A
Applicant's Ownership in Each Tract	Exhibit B.6-46
<b>Well(s)</b>	
Name & API (if assigned), surface and bottom hole location, footages, completion target, orientation, completion status (standard or non-standard)	See Exhibit B.4-46 and Exhibit B.5-46
Well #1	West Grama Ridge 7-6 Federal Com 1H, API No. (Pending) SHL: 469' from the South line and 1379' from the East line of Section 7, Township 22 South, Range 34 East, NMPM, Lea County, New Mexico. BHL: 100' from the South line and 1980' from the East line of Section 6, Township 22 South, Range 34 East, NMPM, Lea County, New Mexico.  Completion Target: Bone Spring at approx 11,080 feet TVD. Well Orientation: South to North Completion Location expected to be: Standard
Horizontal Well First and Last Take Points	Exhibit B.5-46
Completion Target (Formation, TVD and MD)	Exhibit B.4-46; Exhibit B.5-46; Exhibit C.3, Exhibit C.4
<b>AFE Capex and Operating Costs</b>	
Drilling Supervision/Month \$	7,000
Production Supervision/Month \$	700
Justification for Supervision Costs	B.7-46 for AFEs

**EXHIBIT**

**A**

tabbles




Requested Risk Charge	200%; see Exhibit B
<b>Notice of Hearing</b>	
Proposed Notice of Hearing	Exhibit D.1
Proof of Mailed Notice of Hearing (20 days before hearing)	Exhibit D.2
Proof of Published Notice of Hearing (10 days before hearing)	Exhibit D.3
<b>Ownership Determination</b>	
Land Ownership Schematic of the Spacing Unit	Exhibit B; Exhibit B.6-46
Tract List (including lease numbers and owners)	Exhibit B.6-46
Pooled Parties (including ownership type)	Exhibit B.6-46
Unlocatable Parties to be Pooled	Exhibit B.6-46; Exhibit D.2
Ownership Depth Severance (including percentage above & below)	None
<b>Joinder</b>	
Sample Copy of Proposal Letter	Exhibit B.1
List of Interest Owners (ie Exhibit A of JOA)	Exhibit B.6-46, Exhibit D.2
Chronology of Contact with Non-Joined Working Interests	Exhibit B.3
Overhead Rates In Proposal Letter	Exhibit B.2
Cost Estimate to Drill and Complete	Exhibit B.7-46 for AFEs
Cost Estimate to Equip Well	Exhibit B.7-46 for AFEs
Cost Estimate for Production Facilities	Exhibit B.7-46 for AFEs
<b>Geology</b>	
Summary (including special considerations)	Exhibit C.
Spacing Unit Schematic	Exhibits C.1, C.2, and C.3
Gunbarrel/Lateral Trajectory Schematic	Exhibit C.3
Well Orientation (with rationale)	Exhibit C
Target Formation	Exhibits C.1 through C.4
HSU Cross Section	Exhibit C.4
Depth Severance Discussion	Exhibit B
<b>Forms, Figures and Tables</b>	
C-102	Exhibit B.5-46
Tracts	Exhibit B.6-46
Summary of Interests, Unit Recapitulation (Tracts)	Exhibit B.6-46
General Location Map (including basin)	Exhibit C.1
Well Bore Location Map	Exhibits B.5-46, C.1 through C.5
Structure Contour Map - Subsea Depth	Exhibit C.1
Cross Section Location Map (including wells)	Exhibit C.1
Cross Section (including Landing Zone)	Exhibit C.4
<b>Additional Information</b>	
<b>CERTIFICATION: I hereby certify that the information provided in this checklist is complete and accurate.</b>	
Printed Name (Attorney or Party Representative):	Lance Hough
Signed Name (Attorney or Party Representative):	
Date:	4/14/20

## COMPULSORY POOLING APPLICATION CHECKLIST (pdf)

### ALL INFORMATION IN THE APPLICATION MUST BE SUPPORTED BY SIGNED AFFIDAVITS

<b>Case: 21147</b>	<b>APPLICANT'S RESPONSE</b>
<b>Date</b>	<b>April 16, 2020</b>
Applicant	Cimarex Energy Co.
Designated Operator & OGRID (affiliation if applicable)	Cimarex Energy Co. (OGRID 215099)
Applicant's Counsel:	Modrall Sperling
Case Title:	APPLICATION OF CIMAREX ENERGY CO. FOR COMPULSORY POOLING, LEA COUNTY, NEW MEXICO, CASE NO. 21147
Entries of Appearance/Intervenors:	None
Well Family	West Grama Ridge
<b>Formation/Pool</b>	
Formation Name(s) or Vertical Extent:	Bone Spring Formation
Primary Product (Oil or Gas):	Oil
Pooling this vertical extent:	Bone Spring Formation
Pool Name and Pool Code:	Grama Ridge; Bone Springs, West Pool (Pool Code 28432)
Well Location Setback Rules:	Latest Statewide Horizontal Rules Apply
Spacing Unit Size:	160 Acres
<b>Spacing Unit</b>	
Type (Horizontal/Vertical)	Horizontal
Size (Acres)	320 Acres
Building Blocks:	Quarter-Quarter Sections
Orientation:	South to North
Description: TRS/County	E/2 E/2 of Section 7, Township 22 South, Range 34 East, NMPPM, Lea County, New Mexico
Standard Horizontal Well Spacing Unit (Y/N), If No, describe	Yes
<b>Other Situations</b>	
Depth Severance: Y/N. If yes, description	No
Proximity Tracts: If yes, description	No
Proximity Defining Well: if yes, description	N/A
Applicant's Ownership in Each Tract	Exhibit B.6-47
<b>Well(s)</b>	
Name & API (if assigned), surface and bottom hole location, footages, completion target, orientation, completion status (standard or non-standard)	See Exhibit B.4-47 and Exhibit B.5-47
Well #1	West Grama Ridge 7 Federal Com 2H, API No. (Pending) SHL: 469' from the South line and 1359' from the East line of Section 7, Township 22 South, Range 34 East, NMPPM, Lea County, New Mexico. BHL: 100' from the North line and 660' from the East line of Section 7, Township 22 South, Range 34 East, NMPPM, Lea County, New Mexico.  Completion Target: Bone Spring at approx 10,560 feet TVD. Well Orientation: South to North Completion Location expected to be: Standard
Horizontal Well First and Last Take Points	Exhibit B.5-47
Completion Target (Formation, TVD and MD)	Exhibit B.4-47; Exhibit B.5-47; Exhibit C.3, Exhibit C.4
<b>AFE Capex and Operating Costs</b>	
Drilling Supervision/Month \$	7,000
Production Supervision/Month \$	700
Justification for Supervision Costs	Exhibit B.7-47 for AFEs

Requested Risk Charge	200%; see Exhibit B
<b>Notice of Hearing</b>	
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Unlocatable Parties to be Pooled	Exhibit B.6-47; Exhibit D.2
Ownership Depth Severance (including percentage above & below)	None
<b>Joinder</b>	
Sample Copy of Proposal Letter	Exhibit B.1
List of Interest Owners (ie Exhibit A of JOA)	Exhibit B.6-47, Exhibit D.2
Chronology of Contact with Non-Joined Working Interests	Exhibit B.3
Overhead Rates In Proposal Letter	Exhibit B.2
Cost Estimate to Drill and Complete	Exhibit B.7-47 for AFEs
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Tracts	Exhibit B.6-47
Summary of Interests, Unit Recapitulation (Tracts)	Exhibit B.6-47
General Location Map (including basin)	Exhibit C.1
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Structure Contour Map - Subsea Depth	Exhibit C.1
Cross Section Location Map (including wells)	Exhibit C.1
Cross Section (including Landing Zone)	Exhibit C.4
<b>Additional Information</b>	
<b>CERTIFICATION: I hereby certify that the information provided in this checklist is complete and accurate.</b>	
Printed Name (Attorney or Party Representative):	Lance Hough
Signed Name (Attorney or Party Representative):	
Date:	4/14/20



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**CASE NO. 21146**

**APPLICATION OF CIMAREX  
ENERGY CO. FOR COMPULSORY  
POOLING, LEA COUNTY,  
NEW MEXICO**

**CASE NO. 21147**

**AFFIDAVIT OF RILEY MORRIS**

STATE OF TEXAS                     )  
  ) ss.  
COUNTY OF MIDLAND            )

Riley Morris, being duly sworn, deposes and states:

1. I am a landman for Cimarex Energy Co. ("Cimarex"), over the age of 18 and have personal knowledge of the matters stated herein. I have previously been qualified to testify by the New Mexico Oil Conservation Division as an expert in petroleum land matters and my credentials were accepted and made part of the record in those proceedings.

2. I am familiar with the applications filed by Cimarex in the above-referenced cases and the land matters involved. Pursuant to NMAC 19.15.4.12.A(1), the following information is submitted in support of the above referenced compulsory pooling applications filed by Cimarex.

3. These two cases involve requests for orders from the Division for compulsory pooling of interest owners who have refused to voluntarily pool their interests for the proposed Bone Spring horizontal spacing units described below, and in the wells to be drilled in the horizontal spacing units.



4. Prior to filing its applications, Cimarex made a good faith effort to obtain voluntary joinder of the working interest owners in the proposed well. Cimarex identified all of the working interest, unleased mineral interests, and overriding royalty interest owners from a title opinion. To locate interest owners, Cimarex conducted a diligent search of the public records in the county where the wells will be located, and conducted phone directory and computer searches to locate contact information for parties entitled to notification. I mailed all working interest owners well proposals and an Authorization for Expenditure, and a form of Operating Agreement upon request.

5. No opposition is expected. Prior to filing its applications, Cimarex contacted the interest owners being pooled regarding the proposed wells; the pooled working interest owners have failed or refused to voluntarily commit their interests in the wells. Cimarex provided all of the working interest owners, any unleased mineral owners, and overriding royalty owners with notice of these applications, and none have entered an appearance in opposition to Cimarex's applications.

6. Below is a description of the facts supporting each of the compulsory pooling applications in the above-referenced cases. For ease of reference, the Exhibits referred to and attached to my affidavit correspond with the last two numerals in the Case number with the exception of the following 3 exhibits that are common for both cases.

- a. **Exhibit B.1**, which is a sample well proposal letter sent to each of the working interest owners seeking their voluntary participation in the four proposed wells;
- b. **Exhibit B.2**, which is an excerpt of the proposed joint operating agreements, included with the well proposal letter sent to each of the working interest owners, that provides overhead and administrative rates of \$7,000/month during drilling and \$700/month while producing; and
- c. **Exhibit B.3**, which is a summary of communications with the non-joined working interest, with respect to all four proposed wells and corresponding applications.



7. Case No. 21146

- a. In its Application, Cimarex seeks an order from the Division: (1) to the extent necessary, approving the creation of a 320-acre, more or less, Bone Spring horizontal spacing unit; and, (2) pooling all uncommitted mineral interests within a Bone Spring horizontal spacing unit underlying the W/2 E/2 of Sections 6 and 7, Township 22 South, Range 34 East, NMPM, Lea County, New Mexico. This spacing unit will be dedicated to the **West Grama Ridge 7-6 Federal Com 1H** well, to be horizontally drilled. The Application is attached hereto as **Exhibit B.4-46**.
- b. Attached as **Exhibit B.5-46** is the C-102 for the proposed well. The well will develop the Grama Ridge; Bone Springs, West Pool (Pool Code 28432). The producing interval for the well will be orthodox and comply with the Division's set back requirements, as the first and last take points will be no closer than 100' from the proposed unit boundary and the completed lateral will be no closer than 330' from the proposed unit boundary.
- c. Attached as **Exhibit B.6-46** is a lease tract map outlining the tracts in the unit to be pooled; a list of the working interest and overriding royalty interest owners, and their respective percentage of interests, and which interests are being pooled.
- d. Attached as **Exhibit B.7-46** is the Authorization for Expenditure for the proposed well. The estimated cost of the **West Grama Ridge 7-6 Federal Com 1H** well, set forth therein is \$11,216,240. This estimated cost is fair and reasonable, and is comparable to the costs of other wells of similar depth, length and completion method being drilled in this area of New Mexico.

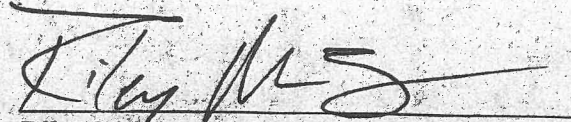
8. Case No. 21147

- a. In its Application, Cimarex seeks an order from the Division: (1) to the extent necessary, approving the creation of a 160-acre, more or less, Bone Spring horizontal spacing unit; and, (2) pooling all uncommitted mineral interests within a Bone Spring horizontal spacing unit underlying the E/2 E/2 of Section 7, Township 22 South, Range 34 East, NMPM, Lea County, New Mexico. This spacing unit will be dedicated to the **West Grama Ridge 7 Federal Com 2H** well, to be horizontally drilled. The Application is attached hereto as **Exhibit B.4-47**.
- b. Attached as **Exhibit B.5-47** is the C-102 for the proposed well. The well will develop the Grama Ridge; Bone Springs, West Pool (Pool Code 28432). The producing interval for the well will be orthodox and comply with the Division's set back requirements, as the first and last take points will be no closer than 100' from the proposed unit boundary and the completed lateral will be no closer than 330' from the proposed unit boundary.

- c. Attached as **Exhibit B.6-47** is a lease tract map outlining the tract in the unit to be pooled; a list of the working interest and overriding royalty interest owners, and their respective percentage of interests, and which interests are being pooled.
- d. Attached as **Exhibit B.7-47** is the Authorization for Expenditure for the proposed well. The estimated cost of the **West Grama Ridge 7-6 Federal Com 1H** well, set forth therein is \$7,722,350. This estimated cost is fair and reasonable, and is comparable to the costs of other wells of similar depth, length and completion method being drilled in this area of New Mexico.
9. There are no depth severances within the two proposed Bone Spring spacing units.
10. Cimarex requests overhead and administrative rates of \$7,000/month during drilling and \$700/month while producing. These rates are fair and comparable to the rates charged by other operators for wells of this type in this area of Southeastern, New Mexico and consistent with the rates awarded by the Division in recent compulsory pooling orders. Cimarex requests that these rates be adjusted periodically as provided in the COPAS Accounting Procedure.
11. Cimarex requests the maximum cost plus 200% risk charge be assessed against non-consenting pooled working interest owners.
12. Cimarex requests that it be designated operator of the wells.
13. Cimarex requests that it be allowed a period of one (1) year between when the wells are drilled and when the first well is completed under the order.
14. The parties Cimarex is seeking to pool were notified of this hearing.
15. Cimarex requests that overriding royalty interest owners be pooled.
16. Based upon my knowledge of the land matters involved in these cases, education and training, it is my expert opinion that the granting of Cimarex's applications in these cases is in the interests of conservation and the prevention of waste.
17. The attachments to my Affidavit were prepared by me or compiled from company business records.



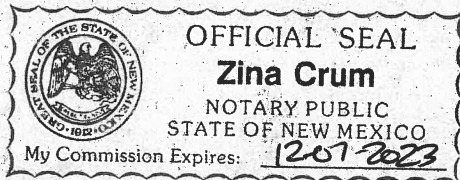
18. Pursuant to Rule 1-011 NMRA, I declare and affirm under penalty of perjury under the laws of the State of New Mexico that the foregoing statements are true and correct to the best of my knowledge and belief.

  
Riley Morris

SUBSCRIBED AND SWORN to before me this 14<sup>th</sup> day of April 2020 by Riley Morris.

  
Notary Public  
My commission expires: 12-07-2023

SEAL





Cimarex Energy Co.  
600 N. Marienfeld St.  
Suite 600  
Midland, TX 79701  
Main: 432.571.7800



January 22, 2020

Upland Corporation  
2401 E. 2<sup>nd</sup> Ave., Suite 300  
Denver, CO 80206

**Re:        Proposal to Drill  
             West Grama Ridge 7-6 Fed Com 1H & West Grama Ridge 7 Fed Com 2H  
             Sections 6 & 7, Township 22 South, Range 34 East  
             Lea County, NM**

Dear Working Interest Owner,

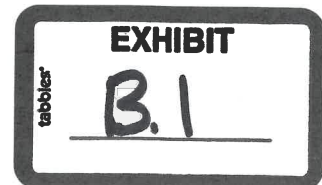
Cimarex Energy Co. hereby proposes to drill the West Grama Ridge 7-6 Fed Com 1H & West Grama Ridge 7 Fed Com 2H wells at a legal location in Section 7, Township 22 South, Range 34 East, NMPM, Lea Co., New Mexico.

**West Grama Ridge 7-6 Fed Com 1H** - The intended surface hole location for the well is 490' FSL and 1379' FEL of Section 7, Township 22 South, Range 34 East, and the intended bottom hole location is 100' FNL and 1980' FEL of Section 6, Township 22 South, Range 34 East. The well is proposed to be drilled vertically to the Bone Spring formation and laterally in a northerly direction within the formation to the referenced bottom hole location. Total measured depth of the well is proposed to be approximately 15,750' feet from surface to terminus.

**West Grama Ridge 7 Fed Com 2H** - The intended surface hole location for the well is 490' FSL and 1359' FEL of Section 7, Township 22 South, Range 34 East, and the intended bottom hole location is 100' FNL and 660' FEL of Section 7, Township 22 South, Range 34 East. The well is proposed to be drilled vertically to the Bone Spring formation and laterally in a northerly direction within the formation to the referenced bottom hole location. Total measured depth of the well is proposed to be approximately 15,750' feet from surface to terminus.

It should be understood that compliance with topography or cultural or environmental concerns, among others, might require modification of Cimarex's intended procedure. Cimarex will advise you of any such modifications.

Enclosed, in duplicate, is (i) our detailed AFE reflecting estimated costs associated with this proposal. If you intend to participate, please approve and return one (1) original of the enclosed AFE, along with the contact information to receive your well data, to the undersigned within thirty (30) days of receipt of this proposal. If you elect to purchase your own well control insurance, you must provide a certificate of such insurance to Cimarex prior to commencement of drilling operations otherwise, you will be covered by insurance procured by Cimarex and will be responsible for your share of the cost.



Cimarex hereby rescinds its proposal to drill the West Grama Ridge 7-6 Fed Com 2H, by letter dated 1/14/2020.

Please call the undersigned with any questions or comments.

Respectfully,

Cody Elliott  
432.571.7806

A handwritten signature in blue ink, appearing to be 'CE' with a stylized flourish.

**ELECTION TO PARTICIPATE  
West Grama Ridge 7-6 Fed Com 1H**

\_\_\_\_\_ Upland Corporation elects **TO** participate in the proposed West Grama Ridge 7-6 Fed Com 1H well.

\_\_\_\_\_ Upland Corporation elects **NOT** to participate in the proposed West Grama Ridge 7-6 Fed Com 1H well.

Dated this \_\_\_\_\_ day of \_\_\_\_\_, 2020.

Signature: \_\_\_\_\_

Title: \_\_\_\_\_

If your election above is **TO** participate in the proposed West Grama Ridge 7-6 Fed Com 1H well, then:

\_\_\_\_\_ Upland Corporation elects **TO** be covered by well control insurance procured by Cimarex Energy Co.

\_\_\_\_\_ Upland Corporation elects **NOT** to be covered by well control insurance procured by Cimarex Energy Co. and agrees to provide Cimarex Energy Co. with a certificate of insurance prior to commencement of drilling operations or be deemed to have elected to be covered by well control insurance procured by Cimarex Energy Co.

**ELECTION TO PARTICIPATE  
West Grama Ridge 7 Fed Com 2H**

\_\_\_\_\_ Upland Corporation elects **TO** participate in the proposed West Grama Ridge 7 Fed Com 2H well.

\_\_\_\_\_ Upland Corporation elects **NOT** to participate in the proposed West Grama Ridge 7 Fed Com 2H well.

Dated this \_\_\_\_\_ day of \_\_\_\_\_, 2020.

Signature: \_\_\_\_\_

Title: \_\_\_\_\_

If your election above is TO participate in the proposed West Grama Ridge 7 Fed Com 2H well, then:

\_\_\_\_\_ Upland Corporation elects **TO** be covered by well control insurance procured by Cimarex Energy Co.

\_\_\_\_\_ Upland Corporation elects **NOT** to be covered by well control insurance procured by Cimarex Energy Co. and agrees to provide Cimarex Energy Co. with a certificate of insurance prior to commencement of drilling operations or be deemed to have elected to be covered by well control insurance procured by Cimarex Energy Co.

## EXCERPT FROM PROPOSED JOINT OPERATING AGREEMENT

### B. OVERHEAD—FIXED RATE BASIS

- (1) The Operator shall charge the Joint Account at the following rates per well per month:

Drilling Well Rate per month \$ 7,000.00 (prorated for less than a full month)

Producing Well Rate per month \$ 700.00

- (2) Application of Overhead—Drilling Well Rate shall be as follows:

- (a) Charges for onshore drilling wells shall begin on the spud date and terminate on the date the drilling and/or completion equipment used on the well is released, whichever occurs later. Charges for offshore and inland waters drilling wells shall begin on the date the drilling or completion equipment arrives on location and terminate on the date the drilling or completion equipment moves off location, or is released, whichever occurs first. No charge shall be made during suspension of drilling and/or completion operations for fifteen (15) or more consecutive calendar days.

EXHIBIT

B.2

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## **SUMMARY OF COMMUNICATIONS**

Advanced Energy Partners, Inc. has elected and executed the JOA covering the E/2 of Sections 7 and 6. Their interest does not need to be force pooled.

3/9/2020-4/10/2020 – Multiple calls and 28 emails to discuss path forward on development of these wells along with the offsetting wells that Centennial operates (Crunch Berry 7 Fed Com 601H and 602H). During the later part of our conversations, Taylor Thoreson, Centennial Landman, mentioned that they had acquired Upland Corporation's interest in all of Section 7. Taylor indicated that they had no plans to protest our applications in these cases.



**STATE OF NEW MEXICO  
DEPARTMENT OF ENERGY, MINERALS AND NATURAL RESOURCES  
OIL CONSERVATION DIVISION**

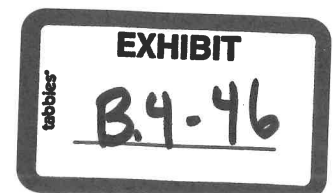
**APPLICATION OF CIMAREX  
ENERGY CO. FOR COMPULSORY  
POOLING, LEA COUNTY,  
NEW MEXICO**

CASE NO. \_\_\_\_\_

**APPLICATION**

Cimarex Energy Co. ("Cimarex"), OGRID Number 215099, through its undersigned attorneys, hereby makes an application to the Oil Conservation Division pursuant to the provisions of NMSA (1978), Section 70-2-17, for an order pooling all uncommitted mineral interests within a Bone Spring horizontal spacing unit underlying the W/2 E/2 of Sections 6 and 7, Township 22 South, Range 34 East, NMPM, Lea County, New Mexico. In support of this application, Cimarex states as follows:

1. Cimarex is an interest owner in the subject lands and has a right to drill a well thereon.
2. Cimarex seeks to dedicate the W/2 E/2 of Sections 6 and 7, Township 22 South, Range 34 East, NMPM, Lea County, New Mexico to form a 320-acre, more or less, spacing unit.
3. Cimarex plans to drill the **West Grama Ridge 7-6 Federal Com 1H** well to a depth sufficient to test the Bone Spring formation. This well is a horizontal well with a surface location in the NW/4 NE/4 (Unit B) of Section 6, Township 22 South, Range 34 East, NMPM, Lea County, and an intended bottom hole location in the SW/4 SE/4 (Unit O) of Section 7, Township 22 South, Range 34 East, NMPM, Lea County.
4. This well is proposed to be drilled vertically to a depth of approximately 10,750' to the Bone spring formation and laterally in a northerly direction within the formation to the referenced bottom hole location.



5. This well will be located within the Grama Ridge; Bone Springs, West Pool (Pool Code 28432) and will comply with the Division's statewide setback requirements.

6. Cimarex sought, but has been unable to obtain, a voluntary agreement from all interest owners in the Bone Spring formation underlying the proposed spacing unit to participate in the drilling of the well or to otherwise commit their interests to the well.

7. The creation of a horizontal spacing unit and the pooling of all interests in the Bone Spring formation underlying the proposed unit will prevent the drilling of unnecessary wells, prevent waste and protect correlative rights.

WHEREFORE, Cimarex requests that this case is set for hearing before an Examiner of the Oil Conservation Division on April 2, 2020, and after notice and hearing as required by law, the Division enter its order:

A. Creating an approximately 320-acre horizontal spacing unit in the Bone Spring formation comprised of W/2 E/2 of Sections 6 and 7, Township 22 South, Range 34 East, NMPM, Lea County, New Mexico;

B. Pooling all mineral interests in the Bone Spring formation underlying a horizontal spacing unit within the W/2 E/2 of Sections 6 and 7, Township 22 South, Range 34 East, NMPM, Lea County, New Mexico;

C. Designating Cimarex as operator of this unit and the well to be drilled thereon;

D. Authorizing Cimarex to recover its costs of drilling, equipping and completing the well;

E. Approving actual operating charges and costs charged for supervision, together with a provision adjusting the rates pursuant to the COPAS accounting procedure;



F. Setting a 200% charge for the risk involved in drilling and completing the well in the event a working interest owner elects not to participate in the well.

Respectfully submitted,

MODRALL, SPERLING, ROEHL, HARRIS  
& SISK, P.A.

By: 

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Lance D. Hough  
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Albuquerque, New Mexico 87103-2168  
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*Attorneys for Applicant*

W3688715.DOCX

District I  
1625 N. French Dr., Hobbs, NM 88240  
Phone: (575) 393-6161 Fax: (575) 393-0720  
District II  
811 S. First St., Artesia, NM 88210  
Phone: (575) 748-1283 Fax: (575) 748-9720  
District III  
1000 Rio Brazos Road, Aztec, NM 87410  
Phone: (505) 334-6178 Fax: (505) 334-6170  
District IV  
1220 S. St. Francis Dr., Santa Fe, NM 87505  
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico  
Energy, Minerals & Natural Resources Department  
OIL CONSERVATION DIVISION  
1220 South St. Francis Dr.  
Santa Fe, NM 87505

Form C-102  
Revised August 1, 2011  
Submit one copy to appropriate  
District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

<sup>1</sup> API Number 30-025-	<sup>2</sup> Pool Code 28432	<sup>3</sup> Pool Name Grama Ridge; Bone Springs, West
<sup>4</sup> Property Code 215099	<sup>5</sup> Property Name WEST GRAMA RIDGE 7-6 FEDERAL COM	<sup>6</sup> Well Number 111
<sup>7</sup> OCHID No. 215099	<sup>8</sup> Operator Name CIMAREX ENERGY CO.	<sup>9</sup> Elevation 3516.3'

"Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
O	7	22S	34E		469	SOUTH	1379	EAST	LEA

"Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
2	6	22S	34E		100	NORTH	1980	EAST	LEA
<sup>10</sup> Dedicated Acres 320		<sup>11</sup> Joint or Infill		<sup>12</sup> Consolidation Code		<sup>13</sup> Order No.			

No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.

**NAD 83 (SURFACE HOLE LOCATION)**  
LATITUDE = 32°24'00.93" (32.400257°)  
LONGITUDE = 103°30'18.21" (103.505058°)  
**NAD 27 (SURFACE HOLE LOCATION)**  
LATITUDE = 32°24'00.48" (32.400133°)  
LONGITUDE = 103°30'16.47" (103.504575°)  
STATE PLANE NAD 83 (N.M. EAST)  
N: 510335.05' E: 796975.17'  
STATE PLANE NAD 27 (N.M. EAST)  
N: 510274.35' E: 755792.52'

**NAD 83 (L.P./FTP)**  
LATITUDE = 32°24'00.92" (32.400255°)  
LONGITUDE = 103°30'25.22" (103.507005°)  
**NAD 27 (L.P./FTP)**  
LATITUDE = 32°24'00.47" (32.400131°)  
LONGITUDE = 103°30'23.48" (103.506522°)  
STATE PLANE NAD 83 (N.M. EAST)  
N: 510329.64' E: 796374.35'  
STATE PLANE NAD 27 (N.M. EAST)  
N: 510268.95' E: 755191.70'

**NAD 83 (LTP/BHLL)**  
LATITUDE = 32°25'39.88" (32.427743°)  
LONGITUDE = 103°30'25.00" (103.506943°)  
**NAD 27 (LTP/BHLL)**  
LATITUDE = 32°25'39.43" (32.427620°)  
LONGITUDE = 103°30'23.26" (103.506460°)  
STATE PLANE NAD 83 (N.M. EAST)  
N: 520330.25' E: 796315.89'  
STATE PLANE NAD 27 (N.M. EAST)  
N: 520269.25' E: 755133.40'

Re-Established by  
Single Proportion Method

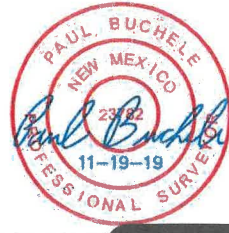
● = SURFACE HOLE LOCATION  
◇ = LANDING POINT  
○ = BOTTOM HOLE LOCATION/  
LAST TAKE POINT  
▲ = SECTION CORNER LOCATED  
△ = SECTION CORNER  
RE-ESTABLISHED.  
(Not Set on Ground.)

SCALE  
DRAWN BY: K.A. 11-19-19

**"OPERATOR  
CERTIFICATION**  
I hereby certify that the information contained  
herein is true and complete to the best of my  
knowledge and belief, and that this  
organization either owns a working interest or  
unleased mineral interest in the land including  
the proposed bottom hole location or has a  
right to drill this well at this location pursuant  
to a contract with an owner of such a mineral  
or working interest, or to a voluntary pooling  
agreement or a compulsory pooling order  
herebefore entered by the division.

Signature: *Amithy Crawford* Date: 12/12/19  
Printed Name: Amithy Crawford  
a.crawford@cimarex.com  
E-mail Address:

**"SURVEYOR  
CERTIFICATION**  
I hereby certify that the well location shown  
on this plat was plotted from field notes of  
actual surveys made by me or under my  
supervision, and that the same is true and  
correct to the best of my belief.

November 13, 2019  
Date of Survey  
Signature and Seal of Professional Surveyor:  


Certificate Number:

**LINE TABLE**

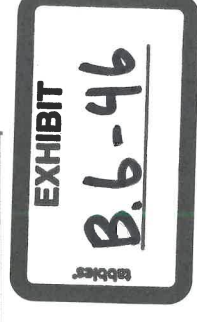
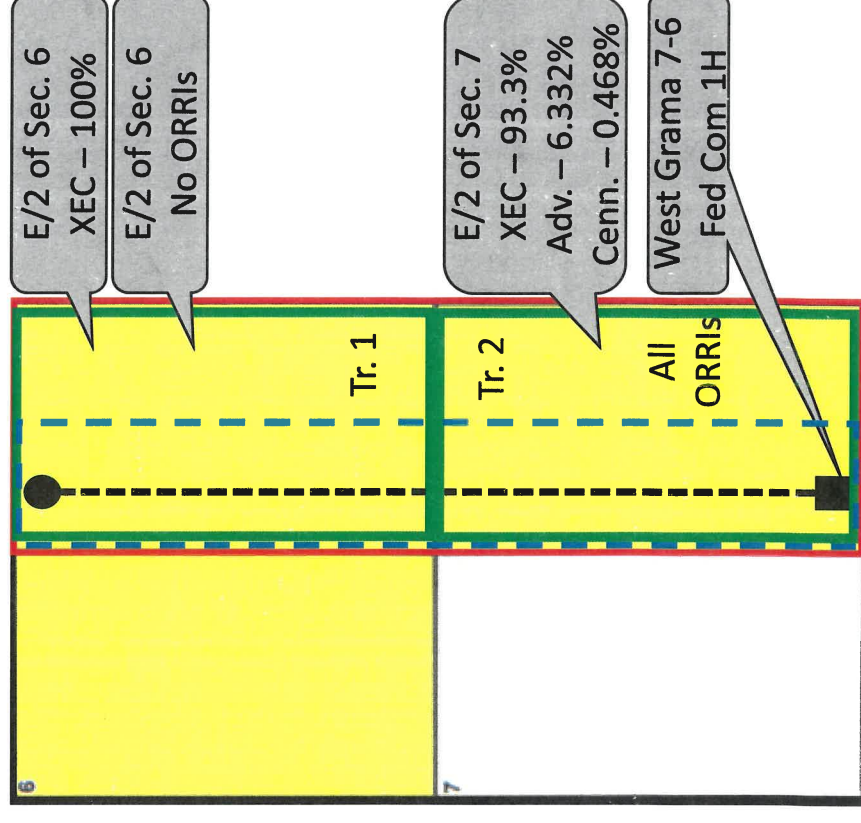
LINE	DIRECTION	LENGTH
L1	S89°43'31"W	600.94'

**NOTE:**  
• Distances referenced on plat to section lines are perpendicular.  
• Basis of Bearing is a Transverse Mercator Projection with a Central Meridian of W103°53'00"

**EXHIBIT**  
**B.5-46**

# West Grama 7-6 Fed Com 1H Working Interest Breakdown

- Proposed JOA Covers E/2 of Sections 7 and 6 (**Red Outline**) as to all depths, excluding existing wells
  - WI Ownership – Contractual Basis
    - Across the E/2 of Sections 7 and 6:
      - XEC: XEC: 96.6%
      - Advanced Energy Partners: 3.166%
        - Has signed JOA
      - Centennial: 0.234%
        - To Be Pooled**
        - Previously owned by Upland Corp.
- ORRI Owners
  - Across W/2 E/2 of Sections 7 and 6:
    - Schneider, Corey & Josey, Inc.
    - Stephen W. Schneider, Jr.
    - Madison M. Hinkle
    - Rolla R. Hinkle, III
    - Mustang Oil & Gas, LLC
    - EOG Resources, Inc.
    - Centennial Resource Production, LLC
    - Cayuga Royalties, LLC
    - Rheiner Holdings, LLC
    - Monticello Minerals, LLC
      - All ORRI to be Pooled**
- Proration Unit – 320 acres
  - W/2 E/2 of Sections 7 and 6 (**Blue Outline**)





## Authorization For Expenditure Drilling

AFE # 26720021

Company Entity

Date Prepared  
1/22/2020

Exploration Region <b>Permian Basin</b>	Well Name <b>WEST GRAMA RIDGE 7-6 FEDERAL 1H New Mexico Bone Spring Pros (Lea)</b>	Prospect	Property Number <b>301471-489.01</b>	AFE <b>26720021</b>
County, State <b>Lea, NM</b>	Location <b>E2 Sec 6 &amp; 7-T22S-R34E, Lea County, NM</b>		Estimated Spud <b>8/4/2020</b>	Estimated Completion
<b>X New Supplement Revision</b>	Formation	Well Type <b>DEV</b>	Ttl Measured Depth <b>20,750</b>	Ttl Vertical Depth <b>10,750</b>

Purpose **Drill and complete well**

Description

Drilling Drill and complete a horizontal test. Drill to 1650 set surface casing. Drill to 5100' set intermediate casing. Drill to 10273' (KOP). Drill curve at 12"/100' initial build rate to +/- 90 degrees and 10750' TVD and drill a +/- 9510' long lateral in the 2nd Bone Spring Run and cement production Casing. Stage frac in 48 stages. Drill out plugs. Run production packer, tubing and GLVs.

<b>Intangible</b>	Dry Hole	After Casing Point	Completed Well Cost
Drilling Costs	<b>\$2,947,860</b>		<b>\$2,947,860</b>
Completion Costs		<b>\$6,454,380</b>	<b>\$6,454,380</b>
<b>Total Intangible Cost</b>	<b>\$2,947,860</b>	<b>\$6,454,380</b>	<b>\$9,402,240</b>
<b>Tangible</b>	Dry Hole	After Casing Point	Completed Well Cost
Well Equipment	<b>\$229,000</b>	<b>\$637,000</b>	<b>\$866,000</b>
Lease Equipment		<b>\$948,000</b>	<b>\$948,000</b>
<b>Total Tangible Cost</b>	<b>\$229,000</b>	<b>\$1,585,000</b>	<b>\$1,814,000</b>
<b>Total Well Cost</b>	<b>\$3,176,860</b>	<b>\$8,039,380</b>	<b>\$11,216,240</b>

Comments On Well Costs

1. All tubulars, well or lease equipment is priced by COPAS and CEPS guidelines using the Historic Price Multiplier.

## Well Control Insurance

Unless otherwise indicated below, you, as a non-operating working interest owner, agree to be covered by Operator's well control insurance procured by Operator so long as Operator conducts operations hereunder and to pay your prorated share of the premiums therefore. If you elect to purchase your own well control insurance, you must provide a certificate of such insurance acceptable to Operator, as to form and limits, at the time this AFE is returned, if available, but in no event later than commencement of drilling operations. You agree that failure to provide the certificate of insurance, as provided herein, will result in your being covered by insurance procured by Operator.

**I elect to purchase my own well control insurance policy.**

## Marketing Election

Cimarex sells its gas under arm's-length contracts with third party purchasers. Such contracts may include fees. In addition, penalties may be incurred for insufficient volumes delivered over time. Should you choose to market your share of gas with Cimarex, you will be subject to all of the terms of such contracts. Upon written request to Cimarex's Marketing Department, we will share with you the terms and conditions pursuant to which gas will be sold. Failure to make an election below shall be deemed an election to market your gas with Cimarex under the terms and conditions set forth above.

**I elect to take my gas in kind.****I elect to market my gas with Cimarex pursuant to the terms and conditions of its contract.**

## Comments on AFE

The above costs are estimates only and anticipate trouble free operations without any foreseeable change in plans. The actual costs may exceed the estimated costs without affecting the authorization for expenditure herein granted. By approval of this AFE, the working interest owner agrees to pay its proportionate share of actual legal, curative, regulatory and well costs under term of the joint operating agreement, regulatory order or other applicable agreement covering this well.

## Nonoperator Approval

Company	Approved By (Print Name)	Approved By (Signature)	Date
---------	--------------------------	-------------------------	------

NOTICE TO NONOPERATOR: Costs shown on this form are estimates only. By executing this AFE, the consenting party agrees to pay its proportionate share of actual costs incurred. Overhead will be charged in accordance with the Joint Operating Agreement.





Authorization For Expenditure - WEST GRAMA RIDGE 7-6  
FEDERAL 1H

AFE # 26720021

Description	BCP - Drilling		ACP - Drilling		Comp/Stim		Production Equip		Post Completion		Total
	Codes	Amount	Codes	Amount	Codes	Amount	Codes	Amount	Codes	Amount	Cost
Roads & Location	DIDC.100	100,000			STIM.100	5,000	CON.100	85,000	PCOM.100	10,000	200,000
Damages	DIDC.105	10,000					CON.105	500			10,500
Mud/Fluids Disposal	DIDC.255	250,000			STIM.255	62,000			PCOM.255	300,000	612,000
Day Rate	DIDC.115	668,860	DICC.120	110,240							779,100
Misc Preparation	DIDC.120	45,000									45,000
Bits	DIDC.125	100,000	DICC.125	0	STIM.125	0			PCOM.125	0	100,000
Fuel	DIDC.135	110,000	DICC.130	0					PCOM.130	0	110,000
Water for Drilling Rig (Not Frac Water)	DIDC.140	5,000	DICC.135	0	STIM.135	28,000			PCOM.135	0	33,000
Mud & Additives	DIDC.145	275,000									275,000
Surface Rentals	DIDC.150	116,000	DICC.140	0	STIM.140	189,000	CON.140	7,000	PCOM.140	65,400	377,400
Downhole Rentals	DIDC.155	139,000			STIM.145	0			PCOM.145	0	139,000
Automation Labor							CON.150	58,000	PCOM.150	0	58,000
Mud Logging	DIDC.170	30,000									30,000
IPC & EXTERNAL PAINTING							CON.165	16,500			16,500
Cementing & Float Equipment	DIDC.185	105,000	DICC.155	175,000							280,000
Tubular Inspections	DIDC.190	40,000	DICC.160	5,000	STIM.160	2,000			PCOM.160	0	47,000
Casing Crews	DIDC.195	15,000	DICC.165	20,000	STIM.165	0					35,000
Mechanical Labor	DIDC.200	15,000	DICC.170	5,000	STIM.170	0	CON.170	225,500	PCOM.170	90,000	335,500
Trucking/Transportation	DIDC.205	20,000	DICC.175	15,000	STIM.175	7,000	CON.175	27,500	PCOM.175	2,000	71,500
Supervision	DIDC.210	117,000	DICC.180	16,000	STIM.180	74,000	CON.180	22,500	PCOM.180	0	229,500
Trailer House/Camp/Catering	DIDC.280	50,000	DICC.255	6,000	STIM.280	56,000					112,000
Other Misc Expenses	DIDC.220	3,000	DICC.190	0	STIM.190	45,000	CON.190	20,000	PCOM.190	0	68,000
Overhead	DIDC.225	10,000	DICC.195	5,000							15,000
MOS/DEM/OB	DIDC.240	150,000									150,000
Directional Drilling Services	DIDC.245	213,000									213,000
Solids Control	DIDC.260	109,000									109,000
Well Control Equip (Snubbing Services)	DIDC.265	95,000	DICC.240	0	STIM.240	81,000			PCOM.240	0	176,000
Completion Rig					STIM.115	21,000			PCOM.115	0	21,000
Coil Tubing Services					STIM.260	192,000			PCOM.260	0	192,000
Completion Logging/Perforating/Wireline					STIM.200	395,000			PCOM.200	0	395,000
Composite Plugs					STIM.390	96,000			PCOM.390	0	96,000
Stimulation Pumping/Chemicals/Additives/Sand					STIM.210	2,472,000			PCOM.210	0	2,472,000
Stimulation Water/Water Transfer/Water Storage					STIM.395	846,000					846,000
Cimarex Owned Frac/Rental Equipment					STIM.305	42,000			PCOM.305	0	42,000
Legal/Regulatory/Curative	DIDC.300	10,000					CON.300	0			10,000
Well Control Insurance	DIDC.285	7,000									7,000
Major Construction Overhead							CON.305	35,500			35,500
FL/GL - ON PAD LABOR							CON.495	43,000			43,000
FL/GL - Labor							CON.500	26,000			26,000
FL/GL - Supervision							CON.505	27,000			27,000
Survey							CON.515	2,500			2,500
Contingency	DIDC.435	140,000	DICC.220	18,000	STIM.230	231,000	CON.220	141,000	PCOM.220	16,740	546,740
Contingency							CON.221	13,500			13,500
Total Intangible Cost		2,947,860		375,240		4,844,000		751,000		484,140	9,402,240
Surface Casing	DWEB.140	51,000									51,000
Intermediate Casing 1	DWEB.145	158,000									158,000
Production Casing or Liner			DWEA.100	432,000							432,000
Tubing					STIMT.105	65,000			PCOMT.105	0	65,000
Wellhead, Tree, Chokes	DWEB.115	20,000	DWEA.120	20,000	STIMT.120	25,000			PCOMT.120	0	65,000
Packer, Nipples					STIMT.400	15,000			PCOMT.400	0	15,000
SHORT ORDERS							CONT.380	10,000			10,000
PUMPS							CONT.385	17,000			17,000
WALKOVERS							CONT.390	10,000			10,000
Downhole Lift Equipment					STIMT.410	80,000			PCOMT.410	0	80,000
N/C Lease Equipment							CONT.400	205,000			205,000
Tanks, Tanks Steps, Stairs							CONT.405	85,000			85,000
Battery Equipment							CONT.410	244,000			244,000
Secondary Containments							CONT.415	34,500			34,500
Overhead Power Distribution							CONT.420	107,500			107,500
Facility Electrical							CONT.425	62,500			62,500
Telecommunication Equipment							CONT.426	1,500			1,500
Meters and Metering Equipment							CONT.445	19,500			19,500
Facility Line Pipe							CONT.450	30,000			30,000
Lease Automation Materials							CONT.455	86,500			86,500
FL/GL - Materials							CONT.550	15,000			15,000
FL/GL - Line Pipe							CONT.555	20,000			20,000
Total Tangible Cost		229,000		452,000		185,000		948,000		0	1,814,000
Total Estimated Cost		3,176,860		827,240		5,029,000		1,699,000		484,140	11,216,240





Authorization For Expenditure - WEST GRAMA RIDGE 7-6  
FEDERAL 1H

AFE # 26720021

Description	BCP - Drilling		ACP - Drilling		Comp/Stim	
	Codes	Amount	Codes	Amount	Codes	Amount
Roads & Location	DIDC.100	100,000			STIM.100	5,000
Damages	DIDC.105	10,000				
Mud/Fluids Disposal	DIDC.235	250,000			STIM.255	62,000
Day Rate	DIDC.115 23 days at \$26,000/day	668,860	DICC.120 4 days at \$26,000/day	110,240		
Misc Preparation	DIDC.120	45,000				
Bits	DIDC.125	100,000	DICC.125	0	STIM.125	0
Fuel	DIDC.135 1,300 gal/day at \$3.00/gal	110,000	DICC.130	0		
Water for Drilling Rig (Not Frac Water)	DIDC.140	5,000	DICC.135	0	STIM.135	28,000
Mud & Additives	DIDC.145	275,000				
Surface Rentals	DIDC.150 Per Day (BCP)/day	116,000	DICC.140	0	STIM.140	189,000
Downhole Rentals	DIDC.155	139,000			STIM.145	0
Automation Labor						
Mud Logging	DIDC.170 21 days at \$1,200/day	30,000				
JPC & EXTERNAL PAINTING						
Cementing & Float Equipment	DIDC.185	105,000	DICC.155	175,000		
Tubular Inspections	DIDC.190	40,000	DICC.160	5,000	STIM.160	2,000
Casing Crews	DIDC.195	15,000	DICC.165	20,000	STIM.165	0
Mechanical Labor	DIDC.200	15,000	DICC.170	5,000	STIM.170	0
Trucking/Transportation	DIDC.205	20,000	DICC.175	15,000	STIM.175	7,000
Supervision	DIDC.210	117,000	DICC.180	16,000	STIM.180	74,000
Trailer House/Camp/Catering	DIDC.280	50,000	DICC.255	6,000	STIM.280	56,000
Other Misc Expenses	DIDC.220	3,000	DICC.190	0	STIM.190	45,000
Overhead	DIDC.225	10,000	DICC.195	5,000		
MOB/DEMOB	DIDC.240	150,000				
Directional Drilling Services	DIDC.245	213,000				
Solids Control	DIDC.260	109,000				
Well Control Equip (Snubbing Services)	DIDC.265	95,000	DICC.240	0	STIM.240	81,000
Completion Rig					STIM.115	21,000
Coil Tubing Services					STIM.260	192,000
Completion Logging/Perforating/Wireline					STIM.200	395,000
Composite Plugs					STIM.390	96,000
Stimulation					STIM.210	2,472,000
Stimulation Water/Water Transfer/Water					STIM.395	846,000
Cimarex Owned Frac/Rental Equipment					STIM.305	42,000
Legal/Regulatory/Curtative	DIDC.300	10,000				
Well Control Insurance	DIDC.285 \$0.35/ft	7,000				
Major Construction Overhead						
FL/GL - ON PAD LABOR						
FL/GL - Labor						
FL/GL - Supervision						
Survey						
Contingency	DIDC.435 500 % of Drilling Intangibles	140,000	DICC.220	18,000	STIM.220	231,000
Contingency						
Total Intangible Cost		2,947,860		375,240		4,844,000
Surface Casing	DWEB.140 13 3/8" - 1,650ft at \$31.00/ft	51,000				
Intermediate Casing 1	DWEB.145 9 5/8" - 5,100ft at \$31.00/ft	158,000				
Production Casing or Liner			DWEA.100 7x5.5" - 20,537ft at \$21.06/ft	432,000	STIM.T.105 2 7/8" - 9,270ft at \$7.00/ft	65,000
Tubing					STIM.T.120	25,000
Wellhead, Tree, Chokes	DWEB.115	20,000	DWEA.120	20,000	STIM.T.400	15,000
Packer, Nipples						
SHORT ORDERS						
PUMPS						
WALKOVERS						
Downhole Lift Equipment					STIM.T.410	80,000
N/C Lease Equipment						
Tanks, Tanks Steps, Stairs						
Battery Equipment						
Secondary Containments						
Overhead Power Distribution						
Facility Electrical						
Telecommunication Equipment						
Meters and Metering Equipment						
Facility Line Pipe						
Lease Automation Materials						
FL/GL - Materials						
FL/GL - Line Pipe						
Total Tangible Cost		229,000		452,000		185,000
Total Estimated Cost		3,176,860		827,240		5,029,000



Authorization For Expenditure - WEST GRAMA RIDGE 7-6  
FEDERAL 1H

AFE # 26720021

Description	Codes	Production Equip		Post Completion		Total	
		Amount	Codes	Amount	Cost		
Roads & Location	CON.100	85,000	PCOM.100	Road Repairs	10,000	200,000	
Damages	CON.105	500				10,500	
Mud/Fluids Disposal			PCOM.255	Water Disposal (2000 BWPD @ \$2.50/bbl for	300,000	612,000	
Day Rate						779,100	
Misc Preparation						45,000	
Bits			PCOM.125		0	100,000	
Fuel			PCOM.130		0	110,000	
Water for Drilling Rig (Not Frac Water)			PCOM.135		0	33,000	
Mud & Additives						275,000	
Surface Rentals	CON.140	7,000	PCOM.140	Sand Separator (\$450/day), Iron (\$300/day),	65,400	377,400	
Downhole Rentals			PCOM.145		0	139,000	
Automation Labor	CON.150	58,000	PCOM.150		0	58,000	
Mud Logging						30,000	
IPC & EXTERNAL PAINTING	CON.165	16,500				16,500	
Cementing & Float Equipment						280,000	
Tubular Inspections			PCOM.160		0	47,000	
Casing Crews						35,000	
Mechanical Labor	CON.170	225,500	PCOM.170	Flowback Hand \$2,000/day @ 45 days	90,000	335,500	
Trucking/Transportation	CON.175	27,500	PCOM.175	Frack Tank and Sand Separator Delivery	2,000	71,500	
Supervision	CON.180	22,500	PCOM.180		0	229,500	
Trailer House/Camp/Catering						112,000	
Other Misc Expenses	CON.190	20,000	PCOM.190		0	68,000	
Overhead						15,000	
MOB/DEMOB						150,000	
Directional Drilling Services						213,000	
Solids Control						109,000	
Well Control Equip (Snubbing Services)			PCOM.240		0	176,000	
Completion Rig			PCOM.115		0	21,000	
Coil Tubing Services			PCOM.260		0	192,000	
Completion Logging/Perforating/Wireline			PCOM.200		0	395,000	
Composite Plugs			PCOM.390		0	96,000	
Stimulation Pumping/Chemicals/Additives/Sand			PCOM.210		0	2,472,000	
Stimulation Water/Water Transfer/Water						846,000	
Cimarex Owned Frac/Rental Equipment			PCOM.305		0	42,000	
Legal/Regulatory/Curative	CON.300	0				10,000	
Well Control Insurance						7,000	
Major Construction Overhead	CON.305	35,500				35,500	
FL/GL - ON PAD LABOR	CON.495	43,000				43,000	
FL/GL - Labor	CON.500	26,000				26,000	
FL/GL - Supervision	CON.505	27,000				27,000	
Survey	CON.515	2,500				2,500	
Contingency	CON.220	141,000	PCOM.220	10%	16,740	546,740	
Contingency	CON.221	13,500				13,500	
Total Intangible Cost		751,000			484,140	9,402,240	
Surface Casing						51,000	
Intermediate Casing 1						158,000	
Production Casing of Liner						432,000	
Tubing			PCOMT.105		0	65,000	
Wellhead, Tree, Chokes			PCOMT.120		0	65,000	
Packer, Nipples			PCOMT.400		0	15,000	
SHORT ORDERS	CONT.380	10,000				10,000	
PUMPS	CONT.385	17,000				17,000	
WALKOVERS	CONT.390	10,000				10,000	
Downhole Lift Equipment			PCOMT.410		0	80,000	
N/C Lease Equipment	CONT.400	205,000				205,000	
Tanks, Tanks Steps, Stairs	CONT.405	85,000				85,000	
Battery Equipment	CONT.410	244,000				244,000	
Secondary Containments	CONT.415	34,500				34,500	
Overhead Power Distribution	CONT.420	107,500				107,500	
Facility Electrical	CONT.425	62,500				62,500	
Telecommunication Equipment	CONT.426	1,500				1,500	
Meters and Metering Equipment	CONT.445	19,500				19,500	
Facility Line Pipe	CONT.450	30,000				30,000	
Lease Automation Materials	CONT.455	86,500				86,500	
FL/GL - Materials	CONT.550	15,000				15,000	
FL/GL - Line Pipe	CONT.555	20,000				20,000	
Total Tangible Cost		948,000			0	1,814,000	
Total Estimated Cost		1,699,000			484,140	11,216,240	



## Authorization For Expenditure Drilling

AFE # 26720021

Company Entity

Date Prepared  
1/22/2020

Exploration Region	Well Name	Prospect	Property Number	AFE
Permian Basin	WEST GRAMA RIDGE 7-6 FEDERAL 1H New Mexico Bone Spring Pros (Lea)		301471-489.01	26720021
County, State	Location	Estimated Spud	Estimated Completion	
Lea, NM	E2 Sec 6 & 7-T22S-R34E, Lea County, NM	8/4/2020		
<b>X New Supplement Revision</b>	Formation	Well Type	Ttl Measured Depth	Ttl Vertical Depth
		DEV	20,750	10,750

Purpose Drill and complete well

## Description

Drilling Drill and complete a horizontal test. Drill to 1650 set surface casing. Drill to 5100' set intermediate casing. Drill to 10273' (KOP). Drill curve at 12"/100' initial build rate to +/- 90 degrees and 10750' TVD and drill a +/- 9510' long lateral in the 2nd Bone Spring Run and cement production casing. Stage frac in 48 stages. Drill out plugs. Run production packer, tubing and GLVs.

Intangible	Dry Hole	After Casing Point	Completed Well Cost
Drilling Costs	\$2,947,860		\$2,947,860
Completion Costs		\$6,454,380	\$6,454,380
<b>Total Intangible Cost</b>	<b>\$2,947,860</b>	<b>\$6,454,380</b>	<b>\$9,402,240</b>
Tangible	Dry Hole	After Casing Point	Completed Well Cost
Well Equipment	\$229,000	\$637,000	\$866,000
Lease Equipment		\$948,000	\$948,000
<b>Total Tangible Cost</b>	<b>\$229,000</b>	<b>\$1,585,000</b>	<b>\$1,814,000</b>
<b>Total Well Cost</b>	<b>\$3,176,860</b>	<b>\$8,039,380</b>	<b>\$11,216,240</b>

## Comments On Well Costs

- All tubulars, well or lease equipment is priced by COPAS and CEPS guidelines using the Historic Price Multiplier.

## Well Control Insurance

Unless otherwise indicated below, you, as a non-operating working interest owner, agree to be covered by Operator's well control insurance procured by Operator so long as Operator conducts operations hereunder and to pay your prorated share of the premiums therefore. If you elect to purchase your own well control insurance, you must provide a certificate of such insurance acceptable to Operator, as to form and limits, at the time this AFE is returned, if available, but in no event later than commencement of drilling operations. You agree that failure to provide the certificate of insurance, as provided herein, will result in your being covered by insurance procured by Operator.

**I elect to purchase my own well control insurance policy.**

## Marketing Election

Cimarex sells its gas under arm's-length contracts with third party purchasers. Such contracts may include fees. In addition, penalties may be incurred for insufficient volumes delivered over time. Should you choose to market your share of gas with Cimarex, you will be subject to all of the terms of such contracts. Upon written request to Cimarex's Marketing Department, we will share with you the terms and conditions pursuant to which gas will be sold. Failure to make an election below shall be deemed an election to market your gas with Cimarex under the terms and conditions set forth above.

**I elect to take my gas in kind.**

**I elect to market my gas with Cimarex pursuant to the terms and conditions of its contract.**

## Comments on AFE

The above costs are estimates only and anticipate trouble free operations without any foreseeable change in plans. The actual costs may exceed the estimated costs without affecting the authorization for expenditure herein granted. By approval of this AFE, the working interest owner agrees to pay its proportionate share of actual legal, curative, regulatory and well costs under term of the joint operating agreement, regulatory order or other applicable agreement covering this well.

## Nonoperator Approval

Company	Approved By (Print Name)	Approved By (Signature)	Date

NOTICE TO NONOPERATOR: Costs shown on this form are estimates only. By executing this AFE, the consenting party agrees to pay its proportionate share of actual costs incurred. Overhead will be charged in accordance with the Joint Operating Agreement.

1/22/2020





Authorization For Expenditure - WEST GRAMA RIDGE 7-6  
FEDERAL 1H

AFE # 26720021

Description	BCP - Drilling		ACP - Drilling		Comp/Stim		Production Equip		Post Completion		Total	Cost
	Codes	Amount	Codes	Amount	Codes	Amount	Codes	Amount	Codes	Amount		
Roads & Location	DIDC.100	100,000			STIM.100	5,000	CON.100	85,000	PCOM.100	10,000	200,000	
Damages	DIDC.105	10,000					CON.105	500			10,500	
Mud/Fluids Disposal	DIDC.255	250,000			STIM.255	62,000			PCOM.255	300,000	612,000	
Day Rate	DIDC.115	668,860	DICC.120	110,240							779,100	
Misc Preparation	DIDC.120	45,000									45,000	
Bits	DIDC.125	100,000	DICC.125	0	STIM.125	0			PCOM.125	0	100,000	
Fuel	DIDC.135	110,000	DICC.130	0					PCOM.130	0	110,000	
Water for Drilling Rig (Not Frac Water)	DIDC.140	5,000	DICC.135	0	STIM.135	28,000			PCOM.135	0	33,000	
Mud & Additives	DIDC.145	275,000									275,000	
Surface Rentals	DIDC.150	116,000	DICC.140	0	STIM.140	189,000	CON.140	7,000	PCOM.140	65,400	377,400	
Downhole Rentals	DIDC.155	139,000			STIM.145	0			PCOM.145	0	139,000	
Automation Labor							CON.150	58,000	PCOM.150	0	58,000	
Mud Logging	DIDC.170	30,000									30,000	
IPC & EXTERNAL PAINTING							CON.165	16,500			16,500	
Cementing & Float Equipment	DIDC.185	105,000	DICC.155	175,000							280,000	
Tubular Inspections	DIDC.190	40,000	DICC.160	5,000	STIM.160	2,000			PCOM.160	0	47,000	
Casing Crews	DIDC.195	15,000	DICC.165	20,000	STIM.165	0					35,000	
Mechanical Labor	DIDC.200	15,000	DICC.170	5,000	STIM.170	0	CON.170	225,500	PCOM.170	90,000	335,500	
Trucking/Transportation	DIDC.205	20,000	DICC.175	15,000	STIM.175	7,000	CON.175	27,500	PCOM.175	2,000	71,500	
Supervision	DIDC.210	117,000	DICC.180	16,000	STIM.180	74,000	CON.180	22,500	PCOM.180	0	229,500	
Trailer House/Camp/Catering	DIDC.280	50,000	DICC.255	6,000	STIM.280	56,000					112,000	
Other Misc Expenses	DIDC.220	3,000	DICC.190	0	STIM.190	45,000	CON.190	20,000	PCOM.190	0	68,000	
Overhead	DIDC.225	10,000	DICC.195	5,000							15,000	
MOB/DEMOB	DIDC.240	150,000									150,000	
Directional Drilling Services	DIDC.245	213,000									213,000	
Solids Control	DIDC.260	109,000									109,000	
Well Control Equip (Snubbing Services)	DIDC.265	95,000	DICC.240	0	STIM.240	81,000			PCOM.240	0	176,000	
Completion Rig					STIM.115	21,000			PCOM.115	0	21,000	
Coil Tubing Services					STIM.260	192,000			PCOM.260	0	192,000	
Completion Logging/Perforating/Wireline					STIM.200	395,000			PCOM.200	0	395,000	
Composite Plugs					STIM.390	96,000			PCOM.390	0	96,000	
Stimulation Pumping/Chemicals/Additives/Sand					STIM.210	2,472,000			PCOM.210	0	2,472,000	
Stimulation Water/Water Transfer/Water Storage					STIM.395	846,000					846,000	
Cimarex Owned Frac/Rental Equipment					STIM.305	42,000			PCOM.305	0	42,000	
Legal/Regulatory/Curative	DIDC.300	10,000					CON.300	0			10,000	
Well Control Insurance	DIDC.285	7,000									7,000	
Major Construction Overhead							CON.305	35,500			35,500	
FL/GL - ON PAD LABOR							CON.495	43,000			43,000	
FL/GL - Labor							CON.500	26,000			26,000	
FL/GL - Supervision							CON.505	27,000			27,000	
Survey							CON.515	2,500			2,500	
Contingency	DIDC.435	140,000	DICC.230	18,000	STIM.220	231,000	CON.220	141,000	PCOM.220	16,740	546,740	
Contingency							CON.221	13,500			13,500	
<b>Total Intangible Cost</b>		<b>2,947,860</b>		<b>375,240</b>		<b>4,844,000</b>		<b>751,000</b>		<b>484,140</b>	<b>9,402,240</b>	
Surface Casing	DWEB.140	51,000									51,000	
Intermediate Casing 1	DWEB.145	158,000									158,000	
Production Casing or Liner			DWEA.100	432,000							432,000	
Tubing					STIMT.105	65,000			PCOMT.105	0	65,000	
Wellhead, Tree, Chokes	DWEB.115	20,000	DWEA.120	20,000	STIMT.120	25,000			PCOMT.120	0	65,000	
Packer, Nipples					STIMT.400	15,000			PCOMT.400	0	15,000	
SHORT ORDERS							CONT.380	10,000			10,000	
PUMPS							CONT.385	17,000			17,000	
WALKOVERS							CONT.390	10,000			10,000	
Downhole Lift Equipment					STIMT.410	80,000			PCOMT.410	0	80,000	
N/C Lease Equipment							CONT.400	205,000			205,000	
Tanks, Tanks Steps, Stairs							CONT.405	85,000			85,000	
Battery Equipment							CONT.410	244,000			244,000	
Secondary Containments							CONT.415	34,500			34,500	
Overhead Power Distribution							CONT.420	107,500			107,500	
Facility Electrical							CONT.425	62,500			62,500	
Telecommunication Equipment							CONT.426	1,500			1,500	
Meters and Metering Equipment							CONT.445	19,500			19,500	
Facility Line Pipe							CONT.450	30,000			30,000	
Lease Automation Materials							CONT.455	86,500			86,500	
FL/GL - Materials							CONT.550	15,000			15,000	
FL/GL - Line Pipe							CONT.555	20,000			20,000	
<b>Total Tangible Cos</b>		<b>229,000</b>		<b>452,000</b>		<b>185,000</b>		<b>948,000</b>		<b>0</b>	<b>1814,000</b>	
<b>Total Estimated Cost</b>		<b>3,176,860</b>		<b>827,240</b>		<b>5,029,000</b>		<b>1,699,000</b>		<b>484,140</b>	<b>11,216,240</b>	



Authorization For Expenditure - WEST GRAMA RIDGE 7-6  
FEDERAL 1H

AFE # 26720021

Description	BCP - Drilling			ACP - Drilling			Comp/Stim	
	Codes	Amount	Codes	Amount	Codes	Amount	Codes	Amount
Roads & Location	DIDC.100	100,000			STIM.100			5,000
Damages	DIDC.105	10,000						
Mud/Fluids Disposal	DIDC.255	250,000			STIM.255			62,000
Day Rate	DIDC.115 23 days at \$26,000/day	668,860	DICC.120 4 days at \$26,000/day	110,240				
Misc Preparation	DIDC.120	45,000						
Bits	DIDC.125	100,000	DICC.125	0	STIM.125			0
Fuel	DIDC.135 1,300 gal/day at \$3.00/gal	110,000	DICC.130	0				
Water for Drilling Rig (Not Frac Water)	DIDC.140	5,000	DICC.135	0	STIM.135			28,000
Mud & Additives	DIDC.145	275,000						
Surface Rentals	DIDC.150 Per Day (BCP)/day	116,000	DICC.140	0	STIM.140			189,000
Downhole Rentals	DIDC.155	139,000			STIM.145			0
Automation Labor								
Mud Logging	DIDC.170 21 days at \$1,200/day	30,000						
IPC & EXTERNAL PAINTING								
Cementing & Float Equipment	DIDC.185	105,000	DICC.155	175,000				
Tubular Inspections	DIDC.190	40,000	DICC.160	5,000	STIM.160			2,000
Casing Crews	DIDC.195	15,000	DICC.165	20,000	STIM.165			0
Mechanical Labor	DIDC.200	15,000	DICC.170	5,000	STIM.170			0
Trucking/Transportation	DIDC.205	20,000	DICC.175	15,000	STIM.175			7,000
Supervision	DIDC.210	117,000	DICC.180	16,000	STIM.180			74,000
Trailer House/Camp/Catering	DIDC.280	50,000	DICC.255	6,000	STIM.280			56,000
Other Misc Expenses	DIDC.220	3,000	DICC.190	0	STIM.190			45,000
Overhead	DIDC.225	10,000	DICC.195	5,000				
MOB/DEMIOB	DIDC.240	150,000						
Directional Drilling Services	DIDC.245	213,000						
Solids Control	DIDC.260	109,000						
Well Control Equip (Snubbing Services)	DIDC.265	95,000	DICC.240	0	STIM.240			81,000
Completion Rig					STIM.115			21,000
Coil Tubing Services					STIM.260			192,000
Completion Logging/Perforating/Wireline					STIM.200			395,000
Composite Plugs					STIM.390			96,000
Stimulation					STIM.210			2,472,000
Stimulation Water/Water Transfer/Water					STIM.395			846,000
Cimarex Owned Frac/Rental Equipment					STIM.305			42,000
Legal/Regulatory/Curative	DIDC.300	10,000						
Well Control Insurance	DIDC.285 \$0.35/ft	7,000						
Major Construction Overhead								
FL/GL - ON PAD LABOR								
FL/GL - Labor								
FL/GL - Supervision								
Survey								
Contingency	DIDC.435 500 % of Drilling Intangibles	140,000	DICC.220	18,000	STIM.220			231,000
Contingency								
Total Intangible Cost		2,947,860		375,240				4,844,000
Surface Casing	DWEBC.140 13 3/8" - 1.650ft at \$31.00/ft	51,000						
Intermediate Casing 1	DWEBC.145 9 5/8" - 5,100ft at \$31.00/ft	158,000						
Production Casing or Liner			DWEA.100 7x5.5" - 20.53/ft at \$21.06/ft	432,000	STIM.T.105 2 7/8" - 9,270ft at \$7.00/ft			65,000
Tubing					STIM.T.120			25,000
Wellhead, Tree, Chokes	DWEBC.115	20,000	DWEA.120	20,000	STIM.T.400			15,000
Packer, Nipples								
SHORT ORDERS								
PUMPS								
WALKOVERS								
Downhole Lift Equipment					STIM.T.410			80,000
N/C Lease Equipment								
Tanks, Tanks Steps, Stairs								
Battery Equipment								
Secondary Containments								
Overhead Power Distribution								
Facility Electrical								
Telecommunication Equipment								
Meters and Metering Equipment								
Facility Line Pipe								
Lease Automation Materials								
FL/GL - Materials								
FL/GL - Line Pipe								
Total Tangible Cost		229,000		452,000				185,000
<b>Total Estimated Cost</b>		<b>3,176,860</b>		<b>827,240</b>				<b>5,029,000</b>



Authorization For Expenditure - WEST GRAMA RIDGE 7-6  
FEDERAL 1H

AFE # 26720021

Description	Codes	Production Equip		Post Completion		Total	
		Amount	Codes	Amount	Cost		
Roads & Location	CON.100	85,000	PCOM.100	Road Repairs	10,000	200,000	
Damages	CON.105	500				10,500	
Mud/Fluids Disposal			PCOM.255	Water Disposal (2000 BWPD @ \$2.50/bbl for	300,000	612,000	
Day Rate						779,100	
Misc Preparation						45,000	
Bits			PCOM.125		0	100,000	
Fuel			PCOM.130		0	110,000	
Water for Drilling Rig (Hot Frac Water)			PCOM.135		0	33,000	
Mud & Additives						275,000	
Surface Rentals	CON.140	7,000	PCOM.140	Sand Separator (\$450/day) Iron (\$300/day),	65,400	377,400	
Downhole Rentals			PCOM.145		0	139,000	
Automation Labor	CON.150	58,000	PCOM.150		0	58,000	
Mud Logging						30,000	
IPC & EXTERNAL PAINTING	CON.165	16,500				16,500	
Cementing & Float Equipment						280,000	
Tubular Inspections			PCOM.160		0	47,000	
Casing Crews						35,000	
Mechanical Labor	CON.170	225,500	PCOM.170	Flowback Hand \$2,000/day @ 45 days	90,000	335,500	
Trucking/Transportation	CON.175	27,500	PCOM.175	Frac Tank and Sand Separator Delivery	2,000	71,500	
Supervision	CON.180	22,500	PCOM.180		0	229,500	
Trailer House/Camp/Catering						112,000	
Other Misc Expenses	CON.190	20,000	PCOM.190		0	68,000	
Overhead						15,000	
MDB/DEMOB						150,000	
Directional Drilling Services						213,000	
Solids Control						109,000	
Well Control Equip (Snubbing Services)			PCOM.240		0	176,000	
Completion Rig			PCOM.115		0	21,000	
Coil Tubing Services			PCOM.260		0	192,000	
Completion Logging/Perforating/Wireline			PCOM.200		0	395,000	
Composite Plugs			PCOM.390		0	96,000	
Stimulation Pumping/Chemicals/Additives/Sand			PCOM.210		0	2,472,000	
Stimulation Water/Water Transfer/Water						846,000	
Cimarex Owned Frac/Rental Equipment			PCOM.305		0	42,000	
Legal/Regulatory/Curaive	CON.300	0				10,000	
Well Control Insurance						7,000	
Major Construction Overhead	CON.305	35,500				35,500	
FL/GL - ON PAD LABOR	CON.495	43,000				43,000	
FL/GL - Labor	CON.500	26,000				26,000	
FL/GL - Supervision	CON.505	27,000				27,000	
Survey	CON.515	2,500				2,500	
Contingency	CON.220	141,000	PCOM.220	10%	16,740	546,740	
Contingency	CON.221	13,500				13,500	
Total Intangible Cost		751,000			484,140	9,402,240	
Surface Casing						51,000	
Intermediate Casing 1						158,000	
Production Casing or Liner						432,000	
Tubing			PCOMT.105		0	65,000	
Wellhead, Tree, Chokes			PCOMT.120		0	65,000	
Packer, Nipples			PCOMT.400		0	15,000	
SHORT ORDERS	CONT.380	10,000				10,000	
PUMPS	CONT.385	17,000				17,000	
WALKOVERS	CONT.390	10,000				10,000	
Downhole Lift Equipment			PCOMT.410		0	80,000	
N/C Lease Equipment	CONT.400	205,000				205,000	
Tanks, Tanks Steps, Stairs	CONT.405	85,000				85,000	
Battery Equipment	CONT.410	244,000				244,000	
Secondary Containments	CONT.415	34,500				34,500	
Overhead Power Distribution	CONT.420	107,500				107,500	
Facility Electrical	CONT.425	62,500				62,500	
Telecommunication Equipment	CONT.426	1,500				1,500	
Meters and Metering Equipment	CONT.445	19,500				19,500	
Facility Line Pipe	CONT.450	30,000				30,000	
Lease Automation Materials	CONT.455	86,500				86,500	
FL/GL - Materials	CONT.550	15,000				15,000	
FL/GL - Line Pipe	CONT.555	20,000				20,000	
Total Tangible Cos		948,000			0	1,814,000	
<b>Total Estimated Cost</b>		<b>1,699,000</b>			<b>484,140</b>	<b>11,216,240</b>	

**STATE OF NEW MEXICO  
DEPARTMENT OF ENERGY, MINERALS AND NATURAL RESOURCES  
OIL CONSERVATION DIVISION**

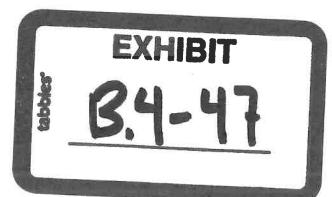
**APPLICATION OF CIMAREX  
ENERGY CO. FOR COMPULSORY  
POOLING, LEA COUNTY,  
NEW MEXICO**

CASE NO. \_\_\_\_\_

**APPLICATION**

Cimarex Energy Co. ("Cimarex"), OGRID Number 215099, through its undersigned attorneys, hereby makes an application to the Oil Conservation Division pursuant to the provisions of NMSA (1978), Section 70-2-17, for an order pooling all uncommitted mineral interests within a Bone Spring horizontal spacing unit underlying the E/2 E/2 of Section 7, Township 22 South, Range 34 East, NMPM, Lea County, New Mexico. In support of this application, Cimarex states as follows:

1. Cimarex is an interest owner in the subject lands and has a right to drill a well thereon.
2. Cimarex seeks to dedicate the E/2 E/2 of Section 7, Township 22 South, Range 34 East, NMPM, Lea County, New Mexico to form a 160-acre, more or less, spacing unit.
3. Cimarex plans to drill the **West Grama Ridge 7 Federal Com 2H** well to a depth sufficient to test the Bone Spring formation. This well is a horizontal well with a surface location in the NE/4 NE/4 (Unit A) of Section 7, Township 22 South, Range 34 East, NMPM, Lea County, and an intended bottom hole location in the SE/4 SE/4 (Unit P) of Section 7, Township 22 South, Range 34 East, NMPM, Lea County.
4. This well is proposed to be drilled vertically to a depth of approximately 10,750' to the Bone spring formation and laterally in a northerly direction within the formation to the referenced bottom hole location.



5. This well will be located within the Grama Ridge; Bone Springs, West Pool (Pool Code 28432) and will comply with the Division's statewide setback requirements.

6. Cimarex sought, but has been unable to obtain, a voluntary agreement from all interest owners in the Bone Spring formation underlying the proposed spacing unit to participate in the drilling of the well or to otherwise commit their interests to the well.

7. The creation of a horizontal spacing unit and the pooling of all interests in the Bone Spring formation underlying the proposed unit will prevent the drilling of unnecessary wells, prevent waste and protect correlative rights.

WHEREFORE, Cimarex requests that this case is set for hearing before an Examiner of the Oil Conservation Division on April 2, 2020, and after notice and hearing as required by law, the Division enter its order:

A. Creating an approximately 160-acre horizontal spacing unit in the Bone Spring formation comprised of E/2 E/2 of Section 7, Township 22 South, Range 34 East, NMPM, Lea County, New Mexico;

B. Pooling all mineral interests in the Bone Spring formation underlying a horizontal spacing unit within the E/2 E/2 of Section 7, Township 22 South, Range 34 East, NMPM, Lea County, New Mexico;

C. Designating Cimarex as operator of this unit and the well to be drilled thereon;

D. Authorizing Cimarex to recover its costs of drilling, equipping and completing the well;

E. Approving actual operating charges and costs charged for supervision, together with a provision adjusting the rates pursuant to the COPAS accounting procedure;

F. Setting a 200% charge for the risk involved in drilling and completing the well in the event a working interest owner elects not to participate in the well.

Respectfully submitted,

MODRALL, SPERLING, ROEHL, HARRIS  
& SISK, P.A.

By: 

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*Attorneys for Applicant*

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District I  
1625 N. French Dr., Hobbs, NM 88240  
Phone: (505) 393-6161 Fax: (505) 393-0720  
District II  
811 S. First St., Artesia, NM 88210  
Phone: (505) 748-1283 Fax: (505) 748-9720  
District III  
1000 Rio Brazos Road, Aztec, NM 87410  
Phone: (505) 334-6178 Fax: (505) 334-6170  
District IV  
1220 S. St. Francis Dr., Santa Fe, NM 87505  
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico  
Energy, Minerals & Natural Resources Department  
OIL CONSERVATION DIVISION  
1220 South St. Francis Dr.  
Santa Fe, NM 87505

Form C-102  
Revised August 1, 2011  
Submit one copy to appropriate  
District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

30-025	<sup>1</sup> API Number	28432	<sup>2</sup> Pool Code	Grama Ridge; Bone Springs, West	<sup>3</sup> Pool Name
	<sup>4</sup> Property Code	WEST GRAMA RIDGE 7 FEDERAL			<sup>6</sup> Well Number 2H
215099	<sup>7</sup> GRID No.	CIMAREX ENERGY CO.			<sup>8</sup> Elevation 3516.5'

"Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
O	7	22S	34E		469	SOUTH	1359	EAST	LEA

"Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
A	7	22S	34E		100	NORTH	660	EAST	LEA

No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.

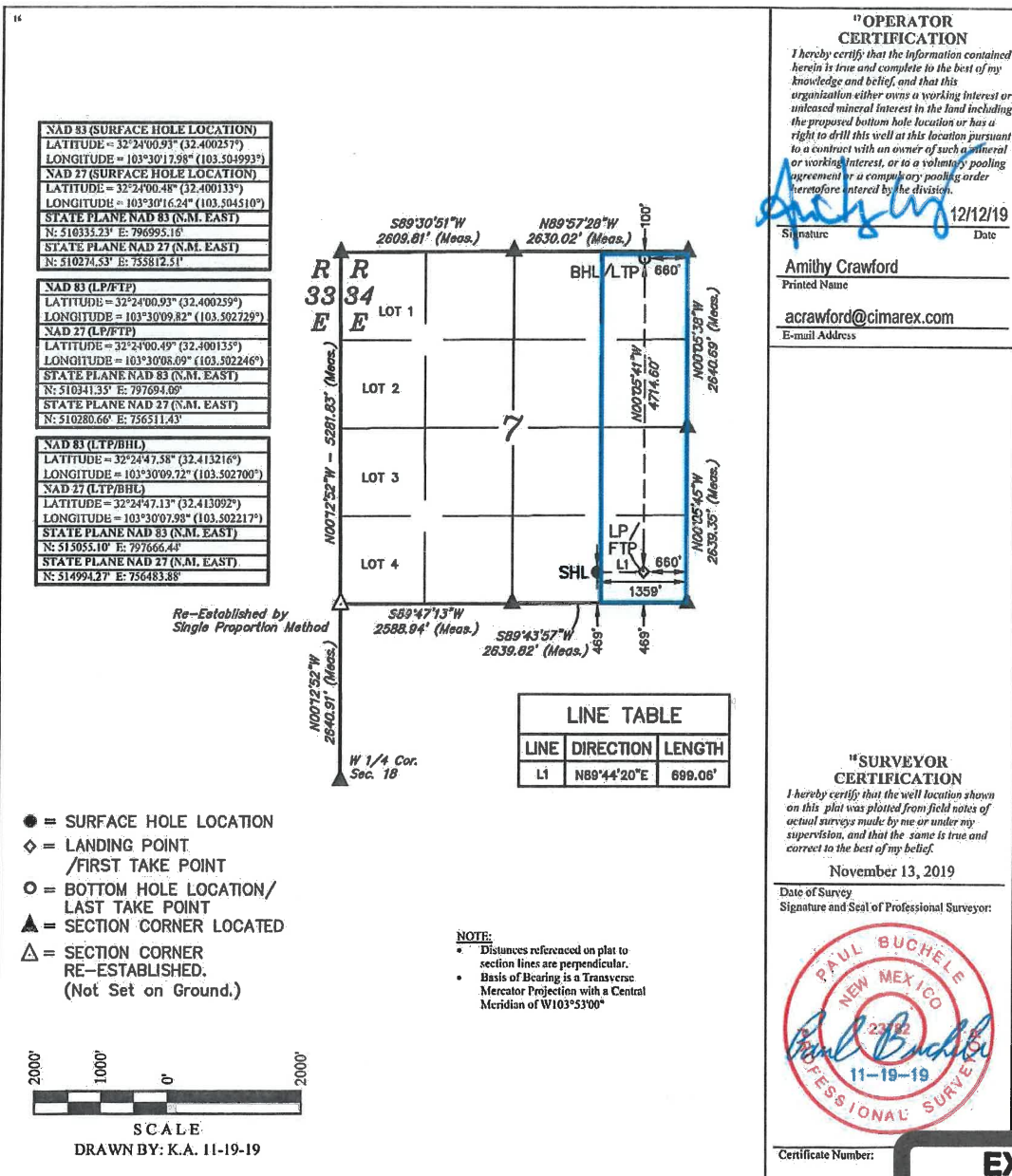
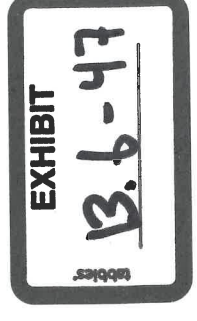
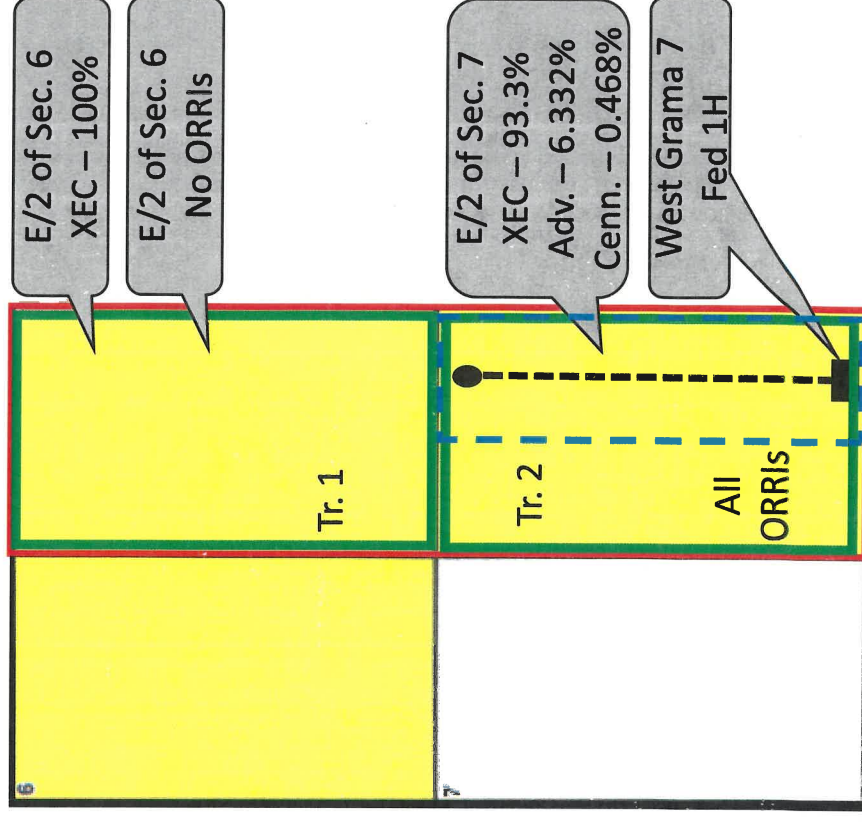


EXHIBIT  
B5-47



# West Grama 7 Fed 2H Working Interest Breakdown

- Proposed JOA Covers E/2 of Sections 7 and 6 (**Red Outline**) as to all depths, excluding existing wells
  - WI Ownership – Contractual Basis
    - Across the E/2 of Sections 7 and 6:
      - XEC: XEC: 96.6%
      - Advanced Energy Partners: 3.166%
        - Has signed JOA
      - Centennial: 0.234%
        - Has not signed JOA**
      - Previously owned by Upland Corp.
  - ORRI Owners
    - Across E/2 E/2 of Section 7:
      - Schneider, Corey & Josey, Inc.
      - Stephen W. Schneider, Jr.
      - Madison M. Hinkle
      - Rolla R. Hinkle, III
      - Mustang Oil & Gas, LLC
      - EOG Resources, Inc.
      - Centennial Resource Production, LLC
      - Cayuga Royalties, LLC
      - Rheiner Holdings, LLC
      - Monticello Minerals, LLC
        - All to be Pooled**
  - Proration Unit – 160 acres
    - E/2 E/2 of Section 7 (**Blue Outline**)







## Authorization For Expenditure Drilling

AFE # 26720031

Company Entity

Date Prepared  
1/22/2020

Exploration Region	Well Name	Prospect	Property Number	AFE
Permian Basin	WEST GRAMA RIDGE 7 FED COM 2H	New Mexico Bone Spring Pros (Lea)	301471-499.01	26720031
County, State	Location		Estimated Spud	Estimated Completion
Lea, NM	Sec 6 & 7-T22S-R34E		8/25/2020	
<input checked="" type="checkbox"/> New Supplement Revision	Formation	Well Type	Ttl Measured Depth	Ttl Vertical Depth
	Bone Spring	DEV	15,750	10,750

Purpose Drill and complete well

## Description

Drilling Drill and complete a horizontal test. Drill to 1650 set surface casing. Drill to 5105' set intermediate casing. Drill to 10273' (KOP). Drill curve at 12°/100' initial build rate to +/- 90 degrees and 10750' TVD and drill a +/- 4450' long lateral in the 2nd Bone SandRun and cement production Casing. Stage frac in 22 stages. Drill out plugs. Run production packer, tubing and GLVs.

<b>Intangible</b>	Dry Hole	After Casing Point	Completed Well Cost
Drilling Costs	\$2,318,500		\$2,318,500
Completion Costs		\$3,675,850	\$3,675,850
<b>Total Intangible Cost</b>	<b>\$2,318,500</b>	<b>\$3,675,850</b>	<b>\$5,994,350</b>
<b>Tangible</b>	Dry Hole	After Casing Point	Completed Well Cost
Well Equipment	\$229,000	\$551,000	\$780,000
Lease Equipment		\$948,000	\$948,000
<b>Total Tangible Cost</b>	<b>\$229,000</b>	<b>\$1,499,000</b>	<b>\$1,728,000</b>
<b>Total Well Cost</b>	<b>\$2,547,500</b>	<b>\$5,174,850</b>	<b>\$7,722,350</b>

## Comments On Well Costs

1. All tubulars, well or lease equipment is priced by COPAS and CEPS guidelines using the Historic Price Multiplier.

## Well Control Insurance

Unless otherwise indicated below, you, as a non-operating working interest owner, agree to be covered by Operator's well control insurance procured by Operator so long as Operator conducts operations hereunder and to pay your prorated share of the premiums therefore. If you elect to purchase your own well control insurance, you must provide a certificate of such insurance acceptable to Operator, as to form and limits, at the time this AFE is returned, if available, but in no event later than commencement of drilling operations. You agree that failure to provide the certificate of insurance, as provided herein, will result in your being covered by insurance procured by Operator.

**I elect to purchase my own well control insurance policy.**

## Marketing Election

Cimarex sells its gas under arm's-length contracts with third party purchasers. Such contracts may include fees. In addition, penalties may be incurred for insufficient volumes delivered over time. Should you choose to market your share of gas with Cimarex, you will be subject to all of the terms of such contracts. Upon written request to Cimarex's Marketing Department, we will share with you the terms and conditions pursuant to which gas will be sold. Failure to make an election below shall be deemed an election to market your gas with Cimarex under the terms and conditions set forth above.

**I elect to take my gas in kind.**

**I elect to market my gas with Cimarex pursuant to the terms and conditions of its contract.**

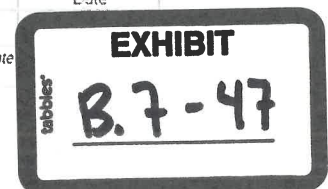
## Comments on AFE

The above costs are estimates only and anticipate trouble free operations without any foreseeable change in plans. The actual costs may exceed the estimated costs without affecting the authorization for expenditure herein granted. By approval of this AFE, the working interest owner agrees to pay its proportionate share of actual legal, curative, regulatory and well costs under term of the joint operating agreement, regulatory order or other applicable agreement covering this well.

## Nonoperator Approval

Company	Approved By (Print Name)	Approved By (Signature)	Date

NOTICE TO NONOPERATOR: Costs shown on this form are estimates only. By executing this AFE, the consenting party agrees to pay its proportionate share of actual costs incurred. Overhead will be charged in accordance with the Joint Operating Agreement.





Authorization For Expenditure - WEST GRAMA RIDGE 7 FED  
COM 2H

AFE # 26720031

Description	BCP - Drilling		ACP - Drilling		Comp/Stim		Production Equip		Post Completion		Total	
	Codes	Amount	Codes	Amount	Codes	Amount	Codes	Amount	Codes	Amount	Cost	
Roads & Location	DIDC.100	100,000			STIM.100	5,000	CON.100	85,000	PCOM.100	10,000		200,000
Damages	DIDC.105	10,000					CON.105	500				10,500
Mud/Fluids Disposal	DIDC.255	215,000			STIM.255	29,000			PCOM.255	150,000		394,000
Day Rate	DIDC.115	503,500	DICC.120	82,680								586,180
Misc Preparation	DIDC.120	45,000										45,000
Bits	DIDC.125	75,000	DICC.125	0	STIM.125	0			PCOM.125	0		75,000
Fuel	DIDC.135	87,000	DICC.130	0					PCOM.130	0		87,000
Water for Drilling Rig (Not Frac Water)	DIDC.140	5,000	DICC.135	0	STIM.135	13,000			PCOM.135	0		18,000
Mud & Additives	DIDC.145	150,000										150,000
Surface Rentals	DIDC.150	92,000	DICC.140	0	STIM.140	114,000	CON.140	7,000	PCOM.140	32,700		245,700
Downhole Rentals	DIDC.155	126,000			STIM.145	0			PCOM.145	0		126,000
Automation Labor							CON.150	58,000	PCOM.150	0		58,000
Mud Logging	DIDC.170	22,000					CON.165	16,500				22,000
IPC & EXTERNAL PAINTING												16,500
Cementing & Float Equipment	DIDC.185	105,000	DICC.155	125,000								230,000
Tubular Inspections	DIDC.190	40,000	DICC.160	5,000	STIM.160	2,000			PCOM.160	0		47,000
Casing Crews	DIDC.195	15,000	DICC.165	20,000	STIM.165	0						35,000
Mechanical Labor	DIDC.200	15,000	DICC.170	5,000	STIM.170	0	CON.170	225,500	PCOM.170	60,000		305,500
Trucking/Transportation	DIDC.205	20,000	DICC.175	15,000	STIM.175	7,000	CON.175	27,500	PCOM.175	2,000		71,500
Supervision	DIDC.210	93,000	DICC.180	12,000	STIM.180	48,000	CON.180	22,500	PCOM.180	0		175,500
Trailer House/Camp/Catering	DIDC.280	39,000	DICC.255	5,000	STIM.280	36,000						80,000
Other Misc Expenses	DIDC.220	3,000	DICC.190	0	STIM.190	32,000	CON.190	20,000	PCOM.190	0		55,000
Overhead	DIDC.225	10,000	DICC.195	5,000								15,000
MOB/DEMOB	DIDC.240	150,000										150,000
Directional Drilling Services	DIDC.245	121,000										121,000
Solids Control	DIDC.260	81,000										81,000
Well Control Equip (Snubbing Services)	DIDC.265	71,000	DICC.240	0	STIM.240	48,000			PCOM.240	0		119,000
Completion Rig					STIM.115	21,000			PCOM.115	0		21,000
Coil Tubing Services					STIM.260	88,000			PCOM.260	0		88,000
Completion Logging/Perforating/Wireline					STIM.200	203,000			PCOM.200	0		203,000
Composite Plugs					STIM.390	44,000			PCOM.390	0		44,000
Stimulation Pumping/Chemicals/Additives/Sand					STIM.210	1,133,000			PCOM.210	0		1,133,000
Stimulation Water/Water Transfer/Water Storage					STIM.395	393,000						393,000
Cimarex Owned Frac/Rental Equipment					STIM.305	42,000			PCOM.305	0		42,000
Legal/Regulatory/Curative	DIDC.300	10,000					CON.300	0				10,000
Well Control Insurance	DIDC.285	5,000										5,000
Major Construction Overhead							CON.305	35,500				35,500
FL/GL - ON PAD LABOR							CON.495	43,000				43,000
FL/GL - Labor							CON.500	26,000				26,000
FL/GL - Supervision							CON.505	27,000				27,000
Survey							CON.515	2,500				2,500
Contingency	DIDC.435	110,000	DICC.220	14,000	STIM.220	113,000	CON.220	141,000	PCOM.220	10,470		388,470
Contingency							CON.221	13,500				13,500
Total Intangible Cost		2,319,500		288,680		2,371,000		751,000		265,170		5,994,350
Surface Casing	DWEB.140	51,000										51,000
Intermediate Casing 1	DWEB.145	158,000										158,000
Production Casing or Liner			DWEA.100	346,000								346,000
Tubing					STIMT.105	65,000			PCOMT.105	0		65,000
Wellhead, Tree, Chokes	DWEB.115	20,000	DWEA.120	20,000	STIMT.120	25,000			PCOMT.120	0		65,000
Packer, Nipples					STIMT.400	15,000			PCOMT.400	0		15,000
SHORT ORDERS							CONT.380	10,000				10,000
PUMPS							CONT.385	17,000				17,000
WALKOVERS							CONT.390	10,000				10,000
Downhole Lift Equipment					STIMT.410	80,000			PCOMT.410	0		80,000
N/C Lease Equipment							CONT.400	205,000				205,000
Tanks, Tanks Steps, Stairs							CONT.405	85,000				85,000
Battery Equipment							CONT.410	244,000				244,000
Secondary Containments							CONT.415	34,500				34,500
Overhead Power Distribution							CONT.420	107,500				107,500
Facility Electrical							CONT.425	62,500				62,500
Telecommunication Equipment							CONT.426	1,500				1,500
Meters and Metering Equipment							CONT.445	19,500				19,500
Facility Line Pipe							CONT.450	30,000				30,000
Lease Automation Materials							CONT.455	86,500				86,500
FL/GL - Materials							CONT.550	15,000				15,000
FL/GL - Line Pipe							CONT.555	20,000				20,000
Total Tangible Cost		229,000		366,000		185,000		948,000		0		1,728,000
Total Estimated Cost		2,547,500		654,680		2,556,000		1,699,000		265,170		7,722,350



Authorization For Expenditure - WEST GRAMA RIDGE 7 FED  
COM 2H

AFE # 26720031

Description	BCP - Drilling			ACP - Drilling			Comp/Stim	
	Codes	Amount		Codes	Amount	Codes	Amount	
Roads & Location	DIDC.100	100,000				STIM.100		5,000
Damages	DIDC.105	10,000						
Mud/Fluids Disposal	DIDC.255	215,000				STIM.255		29,000
Day Rate	DIDC.115 17 days at \$26,000/day	503,500		DICC.120 3 days at \$26,000/day	82,680			
Misc Preparation	DIDC.120	45,000						
Bits	DIDC.125	75,000		DICC.125	0	STIM.125		0
Fuel	DIDC.135 1,300 gal/day at \$3.00/gal	87,000		DICC.130	0			
Water for Drilling Rig (Not Frac Water)	DIDC.140	5,000		DICC.135	0	STIM.135		13,000
Mud & Additives	DIDC.145	150,000						
Surface Rentals	DIDC.150 Per Day (BCP)/day	92,000		DICC.140	0	STIM.140		114,000
Downhole Rentals	DIDC.155	126,000				STIM.145		0
Automation Labor								
Mud Logging	DIDC.170 14 days at \$1,200/day	22,000						
IPC & EXTERNAL PAINTING								
Cementing & Float Equipment	DIDC.185	105,000		DICC.155	125,000			
Tubular Inspections	DIDC.190	40,000		DICC.160	5,000	STIM.160		2,000
Casing Crews	DIDC.195	15,000		DICC.165	20,000	STIM.165		0
Mechanical Labor	DIDC.200	15,000		DICC.170	5,000	STIM.170		0
Trucking/Transportation	DIDC.205	20,000		DICC.175	15,000	STIM.175		7,000
Supervision	DIDC.210	93,000		DICC.180	12,000	STIM.180		48,000
Trailer House/Camp/Catering	DIDC.280	39,000		DICC.255	5,000	STIM.280		36,000
Other Misc Expenses	DIDC.220	3,000		DICC.190	0	STIM.190		32,000
Overhead	DIDC.225	10,000		DICC.195	5,000			
MOB/DEMOB	DIDC.240	150,000						
Directional Drilling Services	DIDC.245	121,000						
Solids Control	DIDC.260	81,000						
Well Control Equip (Snubbing Services)	DIDC.265	71,000		DICC.240	0	STIM.240		48,000
Completion Rig						STIM.115		21,000
Coil Tubing Services						STIM.260		88,000
Completion Logging/Perforating/Wireline						STIM.200		203,000
Composite Plugs						STIM.390		44,000
Stimulation						STIM.210		1,133,000
Stimulation Water/Water Transfer/Water						STIM.395		393,000
Cimarex Owned Frac/Rental Equipment						STIM.305		42,000
Legal/Regulatory/Curtative	DIDC.300	10,000						
Well Control Insurance	DIDC.285 \$0.35/ft	5,000						
Major Construction Overhead								
FL/GL - ON PAD LABOR								
FL/GL - Labor								
FL/GL - Supervision								
Survey								
Contingency	DIDC.435 500 % of Drilling Intangibles	110,000		DICC.220	14,000	STIM.220		113,000
Contingency								
Total Intangible Cost		2,318,500			288,680			2,371,000
Surface Casing	DWEB.140 13 3/8" - 1,650ft at \$31.00/ft	51,000						
Intermediate Casing 1	DWEB.145 9 5/8" - 5,105ft at \$31.00/ft	158,000						
Production Casing or Liner				DWEA.100 7x5.5" - 15,477ft at \$22.38/ft	346,000	STIM.105 2 7/8" - 9,270ft at \$7.00/ft		65,000
Tubing						STIM.120		25,000
Wellhead, Tree, Chokes	DWEB.115	20,000		DWEA.120	20,000	STIM.400		15,000
Packer, Nipples								
SHORT ORDERS								
PUMPS								
WALKOVERS								
Downhole Lift Equipment						STIM.410		80,000
N/C Lease Equipment								
Tanks, Tanks Steps, Stairs								
Battery Equipment								
Secondary Containments								
Overhead Power Distribution								
Facility Electrical								
Telecommunication Equipment								
Meters and Metering Equipment								
Facility Line Pipe								
Lease Automation Materials								
FL/GL - Materials								
FL/GL - Line Pipe								
Total Tangible Cost		229,000			366,000			185,000
Total Estimated Cost		2,547,500			654,680			2,556,000



Authorization For Expenditure - WEST GRAMA RIDGE 7 FED  
COM 2H

AFE # 26720031

Description	Codes	Production Equip		Post Completion		Total	
		Amount	Codes	Amount	Cost	Amount	Cost
Roads & Location	CON.100	85,000	PCOM.100	Road Repairs	10,000	200,000	
Damages	CON.105	500				10,500	
Mud/Fluids Disposal			PCOM.255	Water Disposal (2000 BWPD @ \$2.50/bbl) for	150,000	394,000	
Day Rate						586,180	
Misc Preparation						45,000	
Bits			PCOM.125		0	75,000	
Fuel			PCOM.130		0	87,000	
Water for Drilling Rig (Hot Frac Water)			PCOM.135		0	18,000	
Mud & Additives						150,000	
Surface Rentals	CON.140	7,000	PCOM.140	Sand Separator (\$450/day) Iron (\$300/day)	32,700	245,700	
Downhole Rentals			PCOM.145		0	126,000	
Automation Labor	CON.150	58,000	PCOM.150		0	58,000	
Mud Logging						22,000	
IPC & EXTERNAL PAINTING	CON.165	16,500				16,500	
Cementing & Float Equipment						230,000	
Tubular Inspections			PCOM.160		0	47,000	
Casing Crews						35,000	
Mechanical Labor	CON.170	225,500	PCOM.170	Flowback Hand \$2,000/day @ 30 days	60,000	305,500	
Trucking/Transportation	CON.175	27,500	PCOM.175	Frack Tank and Sand Separator Delivery	2,000	71,500	
Supervision	CON.180	22,500	PCOM.180		0	175,500	
Trailer House/Camp/Catering						80,000	
Other Misc Expenses	CON.190	20,000	PCOM.190		0	55,000	
Overhead						15,000	
MOB/DEMOB						150,000	
Directional Drilling Services						121,000	
Solids Control						81,000	
Well Control Equip (Snubbing Services)			PCOM.240		0	119,000	
Completion Rig			PCOM.115		0	21,000	
Coil Tubing Services			PCOM.260		0	88,000	
Completion Logging/Perforating/Wireline			PCOM.200		0	203,000	
Composite Plugs			PCOM.390		0	44,000	
Stimulation Pumping/Chemicals/Additives/Sand			PCOM.210		0	1,133,000	
Stimulation Water/Water Transfer/Water						393,000	
Cimarex Owned Frac/Rental Equipment			PCOM.305		0	42,000	
Legal/Regulatory/Curative	CON.300	0				10,000	
Well Control Insurance						5,000	
Major Construction Overhead	CON.305	35,500				35,500	
FL/GL - ON PAD LABOR	CON.495	43,000				43,000	
FL/GL - Labor	CON.500	26,000				26,000	
FL/GL - Supervision	CON.505	27,000				27,000	
Survey	CON.515	2,500				2,500	
Contingency	CON.220	141,000	PCOM.220	10%	10,470	388,470	
Contingency	CON.221	13,500				13,500	
Total Intangible Cost		751,000			265,170	5,994,350	
Surface Casing						51,000	
Intermediate Casing 1						158,000	
Production Casing or Liner						346,000	
Tubing			PCOMT.105		0	65,000	
Wellhead, Tree, Chokes			PCOMT.120		0	65,000	
Packer, Nipples			PCOMT.400		0	15,000	
SHORT ORDERS	CONT.380	10,000				10,000	
PUMPS	CONT.385	17,000				17,000	
WALKOVERS	CONT.390	10,000				10,000	
Downhole Lift Equipment			PCOMT.110		0	80,000	
N/C Lease Equipment	CONT.400	205,000				205,000	
Tanks, Tanks Steps, Stairs	CONT.405	85,000				85,000	
Battery Equipment	CONT.410	244,000				244,000	
Secondary Containments	CONT.415	34,500				34,500	
Overhead Power Distribution	CONT.420	107,500				107,500	
Facility Electrical	CONT.425	62,500				62,500	
Telecommunication Equipment	CONT.426	1,500				1,500	
Meters and Metering Equipment	CONT.445	19,500				19,500	
Facility Line Pipe	CONT.450	30,000				30,000	
Lease Automation Materials	CONT.455	86,500				86,500	
FL/GL - Materials	CONT.550	15,000				15,000	
FL/GL - Line Pipe	CONT.555	20,000				20,000	
Total Tangible Cost		948,000			0	1,728,000	
Total Estimated Cost		1,699,000			265,170	7,722,350	



## Authorization For Expenditure Drilling

AFE # 26720031

Company Entity

Date Prepared  
1/22/2020

Exploration Region <b>Permian Basin</b>	Well Name <b>WEST GRAMA RIDGE 7 FED COM 2H</b>	Prospect <b>New Mexico Bone Spring Pros (Lea)</b>	Property Number <b>301471-499.01</b>	AFE <b>26720031</b>
County, State <b>Lea, NM</b>	Location <b>Sec 6 &amp; 7-T22S-R34E</b>		Estimated Spud <b>8/25/2020</b>	Estimated Completion
<b>X New</b>	Formation <b>Bone Spring</b>	Well Type <b>DEV</b>	Ttl Measured Depth <b>15,750</b>	Ttl Vertical Depth <b>10,750</b>
<b>Supplement</b>				
<b>Revision</b>				

Purpose **Drill and complete well**

## Description

Drilling: Drill and complete a horizontal test. Drill to 1650' set surface casing. Drill to 5105' set intermediate casing. Drill to 10273' (KOP). Drill curve at 12°/100' initial build rate to +/- 90 degrees and 10750' TVD and drill a +/- 4450' long lateral in the 2nd Bone SandRun and cement production Casing. Stage frac in 22 stages. Drill out plugs. Run production packer, tubing and GLVs.

Intangible	Dry Hole	After Casing Point	Completed Well Cost
Drilling Costs	\$2,318,500		\$2,318,500
Completion Costs		\$3,675,850	\$3,675,850
<b>Total Intangible Cost</b>	<b>\$2,318,500</b>	<b>\$3,675,850</b>	<b>\$5,994,350</b>
<b>Tangible</b>	<b>Dry Hole</b>	<b>After Casing Point</b>	<b>Completed Well Cost</b>
Well Equipment	\$229,000	\$551,000	\$780,000
Lease Equipment		\$948,000	\$948,000
<b>Total Tangible Cost</b>	<b>\$229,000</b>	<b>\$1,499,000</b>	<b>\$1,728,000</b>
<b>Total Well Cost</b>	<b>\$2,547,500</b>	<b>\$5,174,850</b>	<b>\$7,722,350</b>

## Comments On Well Costs

1. All tubulars, well or lease equipment is priced by COPAS and CEPS guidelines using the Historic Price Multiplier.

## Well Control Insurance

Unless otherwise indicated below, you, as a non-operating working interest owner, agree to be covered by Operator's well control insurance procured by Operator so long as Operator conducts operations hereunder and to pay your prorated share of the premiums therefore. If you elect to purchase your own well control insurance, you must provide a certificate of such insurance acceptable to Operator, as to form and limits, at the time this AFE is returned, if available, but in no event later than commencement of drilling operations. You agree that failure to provide the certificate of insurance, as provided herein, will result in your being covered by insurance procured by Operator.

**I elect to purchase my own well control insurance policy.**

## Marketing Election

Cimarex sells its gas under arm's-length contracts with third party purchasers. Such contracts may include fees. In addition, penalties may be incurred for insufficient volumes delivered over time. Should you choose to market your share of gas with Cimarex, you will be subject to all of the terms of such contracts. Upon written request to Cimarex's Marketing Department, we will share with you the terms and conditions pursuant to which gas will be sold. Failure to make an election below shall be deemed an election to market your gas with Cimarex under the terms and conditions set forth above.

**I elect to take my gas in kind.**

**I elect to market my gas with Cimarex pursuant to the terms and conditions of its contract.**

## Comments on AFE

The above costs are estimates only and anticipate trouble free operations without any foreseeable change in plans. The actual costs may exceed the estimated costs without affecting the authorization for expenditure herein granted. By approval of this AFE, the working interest owner agrees to pay its proportionate share of actual legal, curative, regulatory and well costs under term of the joint operating agreement, regulatory order or other applicable agreement covering this well.

## Nonoperator Approval

Company	Approved By (Print Name)	Approved By (Signature)	Date

NOTICE TO NONOPERATOR: Costs shown on this form are estimates only. By executing this AFE, the consenting party agrees to pay its proportionate share of actual costs incurred. Overhead will be charged in accordance with the Joint Operating Agreement.

1/22/2020





Authorization For Expenditure - WEST GRAMA RIDGE 7 FED  
COM 2H

AFE # 26720031

Description	BCP - Drilling		ACP - Drilling		Comp/Stim		Production Equip		Post Completion		Total
	Codes	Amount	Codes	Amount	Codes	Amount	Codes	Amount	Codes	Amount	
Roads & Location	DIDC.100	100,000			STIM.100	5,000	CON.100	85,000	PCOM.100	10,000	200,000
Damages	DIDC.105	10,000					CON.105	500			10,500
Mud/Fluids Disposal	DIDC.255	215,000			STIM.255	29,000			PCOM.255	150,000	394,000
Day Rate	DIDC.115	503,500	DICC.120	82,680							586,180
Misc Preparation	DIDC.120	45,000									45,000
Bits	DIDC.125	75,000	DICC.125	0	STIM.125	0			PCOM.125	0	75,000
Fuel	DIDC.135	87,000	DICC.130	0					PCOM.130	0	87,000
Water for Drilling Rig (Not Frac Water)	DIDC.140	5,000	DICC.135	0	STIM.135	13,000			PCOM.135	0	18,000
Mud & Additives	DIDC.145	150,000									150,000
Surface Rentals	DIDC.150	92,000	DICC.140	0	STIM.140	114,000	CON.140	7,000	PCOM.140	32,700	245,700
Downhole Rentals	DIDC.155	126,000			STIM.145	0			PCOM.145	0	126,000
Automation Labor							CON.150	58,000	PCOM.150	0	58,000
Mud Logging	DIDC.170	22,000									22,000
IPC & EXTERNAL PAINTING							CON.165	16,500			16,500
Cementing & Float Equipment	DIDC.185	105,000	DICC.155	125,000							230,000
Tubular Inspections	DIDC.190	40,000	DICC.160	5,000	STIM.160	2,000			PCOM.160	0	47,000
Casing Crews	DIDC.195	15,000	DICC.165	20,000	STIM.165	0					35,000
Mechanical Labor	DIDC.200	15,000	DICC.170	5,000	STIM.170	0	CON.170	225,500	PCOM.170	60,000	305,500
Trucking/Transportation	DIDC.205	20,000	DICC.175	15,000	STIM.175	7,000	CON.175	27,500	PCOM.175	2,000	71,500
Supervision	DIDC.210	93,000	DICC.180	12,000	STIM.180	48,000	CON.180	22,500	PCOM.180	0	175,500
Trailer House/Camp/Catering	DIDC.280	39,000	DICC.255	5,000	STIM.280	36,000					80,000
Other Misc Expenses	DIDC.220	3,000	DICC.190	0	STIM.190	32,000	CON.190	20,000	PCOM.190	0	55,000
Overhead	DIDC.225	10,000	DICC.195	5,000							15,000
MOB/DEH/IOB	DIDC.240	150,000									150,000
Directional Drilling Services	DIDC.245	121,000									121,000
Solids Control	DIDC.260	81,000									81,000
Well Control Equip (Snubbing Services)	DIDC.265	71,000	DICC.240	0	STIM.240	48,000			PCOM.240	0	119,000
Completion Rig					STIM.115	21,000			PCOM.115	0	21,000
Coil Tubing Services					STIM.260	88,000			PCOM.260	0	88,000
Completion Logging/Perforating/Wireline					STIM.200	203,000			PCOM.200	0	203,000
Composite Plugs					STIM.390	44,000			PCOM.390	0	44,000
Stimulation Pumping/Chemicals/Additives/Sand					STIM.210	1,133,000			PCOM.210	0	1,133,000
Stimulation Water/Water Transfer/Water Storage					STIM.395	393,000					393,000
Cimarex Owned Frac/Rental Equipment					STIM.305	42,000			PCOM.305	0	42,000
Legal/Regulatory/Curative	DIDC.300	10,000					CON.300	0			10,000
Well Control Insurance	DIDC.295	5,000									5,000
Major Construction Overhead							CON.305	35,500			35,500
FL/GL - ON PAD LABOR							CON.495	43,000			43,000
FL/GL - Labor							CON.500	26,000			26,000
FL/GL - Supervision							CON.505	27,000			27,000
Survey							CON.515	2,500			2,500
Contingency	DIDC.435	110,000	DICC.220	14,000	STIM.220	113,000	CON.220	141,000	PCOM.220	10,470	388,470
Contingency							CON.221	13,500			13,500
Total Intangible Cost		2,318,500		288,680		2,371,000		751,000		265,170	5,994,350
Surface Casing	DWEB.140	51,000									51,000
Intermediate Casing 1	DWEB.145	158,000									158,000
Production Casing or Liner			DWEA.100	346,000							346,000
Tubing					STIMT.105	65,000			PCOMT.105	0	65,000
Wellhead, Tree, Chokes	DWEB.115	20,000	DWEA.120	20,000	STIMT.120	25,000			PCOMT.120	0	65,000
Packer, Nipples					STIMT.400	15,000			PCOMT.400	0	15,000
SHORT ORDERS							CONT.380	10,000			10,000
PUMPS							CONT.385	17,000			17,000
WALKOVERS							CONT.390	10,000			10,000
Downhole Lift Equipment					STIMT.410	80,000			PCOMT.410	0	80,000
N/C Lease Equipment							CONT.400	205,000			205,000
Tanks, Tanks Steps, Stairs							CONT.405	85,000			85,000
Battery Equipment							CONT.410	244,000			244,000
Secondary Containments							CONT.415	34,500			34,500
Overhead Power Distribution							CONT.420	107,500			107,500
Facility Electrical							CONT.425	62,500			62,500
Telecommunication Equipment							CONT.426	1,500			1,500
Meters and Metering Equipment							CONT.445	19,500			19,500
Facility Line Pipe							CONT.450	30,000			30,000
Lease Automation Materials							CONT.455	86,500			86,500
FL/GL - Materials							CONT.550	15,000			15,000
FL/GL - Line Pipe							CONT.555	20,000			20,000
Total Tangible Cost		229,000		366,000		185,000		948,000		0	1,728,000
Total Estimated Cost		2,547,500		654,680		2,556,000		1,699,000		265,170	7,722,350



Authorization For Expenditure - WEST GRAMA RIDGE 7 FED  
COM 2H

AFE # 26720031

	BCP - Drilling		ACP - Drilling		Comp/Stim	
Description	Codes	Amount	Codes	Amount	Codes	Amount
Roads & Location	DIDC.100	100,000			STIM.100	5,000
Damages	DIDC.105	10,000				
Mud/Fluids Disposal	DIDC.255	215,000			STIM.255	29,000
Day Rate	DIDC.115	17 days at \$26,000/day	DICC.120	3 days at \$26,000/day		
Misc Preparation	DIDC.120	45,000				
Bits	DIDC.125	75,000	DICC.125		STIM.125	0
Fuel	DIDC.135	1,300 gal/day at \$3.00/gal	DICC.130			
Water for Drilling Rig (Not Frac Water)	DIDC.140	5,000	DICC.135		STIM.135	13,000
Mud & Additives	DIDC.145	150,000				
Surface Rentals	DIDC.150	Per Day (BCP)/day	DICC.140		STIM.140	114,000
Downhole Rentals	DIDC.155	126,000			STIM.145	0
Automation Labor						
Mud Logging	DIDC.170	14 days at \$1,200/day				
IPC & EXTERNAL PAINTING						
Cementing & Float Equipment	DIDC.185	105,000	DICC.155	125,000		
Tubular Inspections	DIDC.190	40,000	DICC.160	5,000	STIM.160	2,000
Casing Crews	DIDC.195	15,000	DICC.165	20,000	STIM.165	0
Mechanical Labor	DIDC.200	15,000	DICC.170	5,000	STIM.170	0
Trucking/Transportation	DIDC.205	20,000	DICC.175	15,000	STIM.175	7,000
Supervision	DIDC.210	93,000	DICC.180	12,000	STIM.180	48,000
Trailer House/Camp/Catering	DIDC.280	39,000	DICC.255	5,000	STIM.280	36,000
Other Misc Expenses	DIDC.220	3,000	DICC.190	0	STIM.190	32,000
Overhead	DIDC.225	10,000	DICC.195	5,000		
MOB/DEM.MOB	DIDC.240	150,000				
Directional Drilling Services	DIDC.245	121,000				
Solids Control	DIDC.260	81,000				
Well Control Equip (Snubbing Services)	DIDC.265	71,000	DICC.240	0	STIM.240	48,000
Completion Rig					STIM.115	21,000
Coil Tubing Services					STIM.260	88,000
Completion Logging/Perforating/Wireline					STIM.200	203,000
Composite Plugs					STIM.390	44,000
Stimulation					STIM.210	1,133,000
Stimulation Water/Water Transfer/Water					STIM.395	393,000
Cimarex Owned Frac/Rental Equipment					STIM.305	42,000
Legal/Regulatory/Curative	DIDC.300	10,000				
Well Control Insurance	DIDC.285	\$0.35/ft				
Major Construction Overhead						
FL/GL - ON PAD LABOR						
FL/GL - Labor						
FL/GL - Supervision						
Survey						
Contingency	DIDC.435	500 % of Drilling Intangibles	DICC.220	14,000	STIM.220	113,000
Contingency						
Total Intangible Cost		2,318,500		288,680		2,371,000
Surface Casing	DWEB.140	13 3/8" - 1,650ft at \$31.00/ft				
Intermediate Casing 1	DWEB.145	9 5/8" - 5,103ft at \$31.00/ft				
Production Casing or Liner			DWEA.100	7x5.5" - 15,477ft at \$22.38/ft		
Tubing					STIMT.105	2 7/8" - 9,270ft at \$7.00/ft
Wellhead, Tree, Chokes	DWEB.115	20,000	DWEA.120	20,000	STIMT.120	25,000
Packer, Nipples					STIMT.400	15,000
SHORT ORDERS						
PUMPS						
WALKOVERS						
Downhole Lift Equipment					STIMT.410	80,000
N/C Lease Equipment						
Tanks, Tanks Steps, Stairs						
Battery Equipment						
Secondary Containments						
Overhead Power Distribution						
Facility Electrical						
Telecommunication Equipment						
Meters and Metering Equipment						
Facility Line Pipe						
Lease Automation Materials						
FL/GL - Materials						
FL/GL - Line Pipe						
Total Tangible Cost		229,000		366,000		185,000
Total Estimated Cost		2,547,500		654,680		2,556,000



Authorization For Expenditure - WEST GRAMA RIDGE 7 FED  
COM 2H

AFE # 26720031

Description	Codes	Production Equip		Post Completion		Total	
		Amount	Codes	Amount	Cost	Amount	Cost
Roads & Location	CON.100	85,000	PCOM.100	Road Repairs		10,000	200,000
Damages	CON.105	500					10,500
Mud/Fluids Disposal			PCOM.255	Water Disposal (2000 BWP @ \$2.50/bbl) for		150,000	394,000
Day Rate							586,180
Misc Preparation							45,000
Bits			PCOM.125			0	75,000
Fuel			PCOM.130			0	87,000
Water for Drilling Rig (Not Frac Water)			PCOM.135			0	18,000
Mud & Additives							150,000
Surface Rentals	CON.140	7,000	PCOM.140	Sand Separator (\$450/day), Iron (\$300/day),		32,700	245,700
Downhole Rentals			PCOM.145			0	126,000
Automation Labor	CON.150	58,000	PCOM.150			0	58,000
Mud Logging							22,000
IPC & EXTERNAL PAINTING	CON.165	16,500					16,500
Cementing & Float Equipment							230,000
Tubular Inspections			PCOM.160			0	47,000
Casing Crews							35,000
Mechanical Labor	CON.170	225,500	PCOM.170	Flowback Hand \$3,000/day @ 30 days		60,000	305,500
Trucking/Transportation	CON.175	27,500	PCOM.175	Frack Tank and Sand Separator Delivery		2,000	71,500
Supervision	CON.180	22,500	PCOM.180			0	175,500
Trailer House/Camp/Catering							80,000
Other Misc Expenses	CON.190	20,000	PCOM.190			0	55,000
Overhead							15,000
MOB/DEMOB							150,000
Directional Drilling Services							121,000
Solids Control							81,000
Well Control Equip (Snubbing Services)			PCOM.240			0	119,000
Completion Rig			PCOM.115			0	21,000
Coil Tubing Services			PCOM.260			0	88,000
Completion Logging/Perforating/Wireline			PCOM.200			0	203,000
Composite Plugs			PCOM.390			0	44,000
Stimulation Pumping/Chemicals/Additives/Sand			PCOM.210			0	1,133,000
Stimulation Water/Water Transfer/Water							393,000
Cimarex Owned Frac/Rental Equipment			PCOM.305			0	42,000
Legal/Regulatory/Curative	CON.300	0					10,000
Well Control Insurance							5,000
Major Construction Overhead	CON.305	35,500					35,500
FL/GL - ON PAD LABOR	CON.495	43,000					43,000
FL/GL - Labor	CON.500	26,000					26,000
FL/GL - Supervision	CON.505	27,000					27,000
Survey	CON.515	2,500					2,500
Contingency	CON.220	141,000	PCOM.220	10%		10,470	388,470
Contingency	CON.221	13,500					13,500
Total Intangible Cost		751,000				265,170	5,994,350
Surface Casing							51,000
Intermediate Casing 1							158,000
Production Casing or Liner							346,000
Tubing			PCOMT.105			0	65,000
Wellhead, Tree, Chokes			PCOMT.120			0	65,000
Packer, Nipples			PCOMT.400			0	15,000
SHORT ORDERS	CONT.380	10,000					10,000
PUMPS	CONT.385	17,000					17,000
WALKOVERS	CONT.390	10,000					10,000
Downhole Lift Equipment			PCOMT.410			0	80,000
N/C Lease Equipment	CONT.400	205,000					205,000
Tanks, Tanks Steps, Stairs	CONT.405	85,000					85,000
Battery Equipment	CONT.410	244,000					244,000
Secondary Containments	CONT.415	34,500					34,500
Overhead Power Distribution	CONT.420	107,500					107,500
Facility Electrical	CONT.425	62,500					62,500
Telecommunication Equipment	CONT.426	1,500					1,500
Meters and Metering Equipment	CONT.445	19,500					19,500
Facility Line Pipe	CONT.450	30,000					30,000
Lease Automation Materials	CONT.455	86,500					86,500
FL/GL - Materials	CONT.550	15,000					15,000
FL/GL - Line Pipe	CONT.555	20,000					20,000
Total Tangible Cost		948,000				0	1,728,000
Total Estimated Cost		1,699,000				265,170	7,722,350



**STATE OF NEW MEXICO  
DEPARTMENT OF ENERGY, MINERALS AND NATURAL RESOURCES  
OIL CONSERVATION DIVISION**

**APPLICATION OF CIMAREX  
ENERGY CO. FOR COMPULSORY  
POOLING, LEA COUNTY,  
NEW MEXICO**

**CASE NO. 21146**

**APPLICATION OF CIMAREX  
ENERGY CO. FOR COMPULSORY  
POOLING, LEA COUNTY,  
NEW MEXICO**

**CASE NO. 21147**

**AFFIDAVIT OF LUCAS HAAS**

STATE OF TEXAS                     )  
  ) ss.  
COUNTY OF MIDLAND            )

Lucas Haas, being duly sworn, deposes and states:

1. I am over the age of 18, I am a geologist for Cimarex Energy Co. ("Cimarex"), and have personal knowledge of the matters stated herein.
2. I have not previously testified before the Oil Conservation Division ("Division").
3. I attended the State University of New York at Binghamton where I received a Bachelor of Science degree in Geology. I graduated in the spring of 2015. I attended the University of Colorado Boulder where I received a Master of Science degree in Geology. I graduated in the fall of 2018.
4. I have worked as a geologist since January 2019. My work for Cimarex includes the Permian Basin in New Mexico and I have been involved in the study and evaluation of the Bone Spring formation in the area of Lea County encompassing Cimarex's **West Grama Ridge 7-6 Federal Com 1H and West Grama Ridge 7 Federal Com 2H wells** (*hereinafter* "Proposed



Wells"). My resume summarizing my educational and work experience is attached immediately to this affidavit.

5. I conducted a geological study of the area that encompasses the horizontal spacing units that are the subject of Cimarex's applications in these two cases and am familiar with the geological matters involved in these cases.

6. As part of my study, I have prepared the following geological exhibits with respect to the horizontal spacing units that are attached hereto:

- a. **Exhibit C.1** contains both a Locator and a Structure Map. On the left, the Delaware Basin regional map identifies the location of the West Grama Ridge project area within the Delaware Basin for the Bone Spring horizontal spacing units that are the subject of these applications. On the right, the Structure Map of the base of the 2<sup>nd</sup> Bone Spring Sandstone formation identifies the Proposed Wells with black dotted lines and the well names, and the cross-section running from A-A' with the cross-section well names and a blue line in proximity to the Proposed Wells. The Structure Map shows that the structure dips to the northwest. It also identifies the sections in which the Proposed Wells and cross-section wells are located, and the proposed Bone Spring units that are the subject of these applications.
- b. **Exhibit C.2** is a Gross Thickness Isopach Map. It shows that the gross thickness of the 2<sup>nd</sup> Bone Spring Sand interval ranges from 520 ft to 540 ft and is relatively uniform across the proposed Bone Spring Unit. It also identifies the location of the Proposed Wells.
- c. **Exhibit C.3** is a Winerack/Lateral Trajectory Diagram. This diagram identifies the West Grama Ridge development plan, which includes the Proposed Wells

identified in bright green that are located within the Bone Spring horizontal spacing unit that is the subject of this application.

- d. **Exhibit C.4** is a Structural Cross Section showing the 2<sup>nd</sup> Bone Spring Sandstone formation in the area. The well logs on the cross-section give a representative sample of the Bone Spring formation in the area. The target zone for the wells is the 2<sup>nd</sup> Bone Spring Sand formation, and that zone is consistent across the unit. The planned well-path for both of the Proposed Wells is indicated by a single purple line and well numbers. The planned depth is the same for both Proposed Wells.
- e. **Exhibit C.5** includes two Wellbore Diagrams for each Proposed Well, individually.

7. Based upon my study as illustrated in these exhibits, knowledge of the geology in this area, and education and training, it is my expert opinion that:

- a. The horizontal spacing units are justified from a geologic standpoint.
- b. There are no structural impediments or faulting that will interfere with horizontal development.
- c. Each quarter-quarter section in the unit will contribute more or less equally to production.

8. The preferred well orientation in this area is either N-S or E-W. This is due to the fact that regional max horizontal stress orientation in this area is approximately N55E. *See Snee & Zoback, 2018.*

9. The producing interval for each of these Proposed Wells will be orthodox and will comply with the Division's set back requirements.

10. Pursuant to Rule 1-011 NMRA, I declare and affirm under penalty of perjury under the laws of the State of New Mexico that the foregoing statements are true and correct to the best of my knowledge and belief.

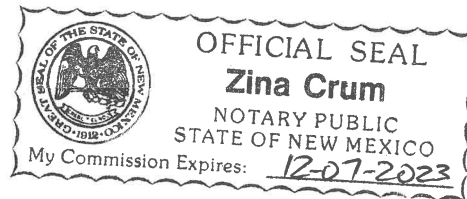
  
\_\_\_\_\_  
Lucas Haas

4/13/20

SUBSCRIBED AND SWORN to before me this 13<sup>th</sup> day of April 2020 by Lucas Haas..

  
\_\_\_\_\_  
Notary Public

My commission expires: 12-07-2023



# LUCAS HAAS

Tel: (914) 255-6744 | Email: lucas.j.haas@gmail.com

## EDUCATION

---

### UNIVERSITY OF COLORADO

Master of Science, Geology (Advisor: Dr. Paul Weimer)

Boulder, CO

December 2018

- Thesis: *Sequence stratigraphy of Upper Jurassic to Miocene sections, deepwater Morondava Basin, offshore Madagascar*
  - Interpretation of seismic and well data to build a stratigraphic model and identify prospects off the coast of Madagascar
- Society of Exploration Geophysicists (SEG) chapter president (*August 2016 – December 2018*)
- Graduate teaching assistant for introductory geology, sedimentology/stratigraphy, and upper-level field courses

### STATE UNIVERSITY OF NEW YORK AT BINGHAMTON

Bachelor of Science, Geology

Binghamton, NY

May 2015

## PROFESSIONAL EXPERIENCE

---

### CIMAREX ENERGY CO. *U.S. exploration and production company*

Geologist, Delaware Basin

Midland, TX

January 2019 – Current

- Responsible for well planning and operations in southern Lea County, NM acreage; planned and executed multi-well developments by effectively coordinating with landmen, regulatory specialists, and engineers
- Maximized acreage value by comparing well productivity to geological trends to optimize landing zones and well spacing
- Generated pre-drill geological prognoses; managed 3<sup>rd</sup> party mudlogging services; communicated drill plan revisions to geosteering team; reported post-drill operational and cost reports to management
- Evaluated acreage trade deals between Cimarex and other top Delaware Basin operators; assessed geological and economic potential of federal land sales and OBO (*operated-by-others*) well proposals
- Assessed offset competitor activity with reservoir engineering team; applied key learnings to future Cimarex developments
- Appraised new exploration ideas across the Permian Basin (Central Basin Platform, Eastern Midland Basin, Northwest Shelf) alongside senior geoscientists; determined new play feasibility and presented findings to exploration management

#### Geology Intern

May 2018 – August 2018

- Integrated core, petrophysical, and production data to generate drilling recommendations in Eddy County, New Mexico
- Selected porosity cut-offs based on core fluid saturations; created geologic maps of the 2<sup>nd</sup> Bone Spring Sand using Petra
- Evaluated production data from existing wells; identified correlation between geology and well productivity of the 2<sup>nd</sup> Bone Spring sand; presented well proposals and development scenarios to executive management

### PLATTE RIVER ASSOCIATES, INC. *Basin modeling software company*

Software Quality Assurance Intern

Boulder, CO

May 2017 – September 2017

- Constructed geological models using the full-physics modeling software *BasinMod* to debug software updates and improve user-interface/user-experience (UI/UX); coordinated with software engineers to implement patches
- Modeled maturity of the Minnelusa shale source rock in the Powder River Basin to identify initial and peak generation times; quantified volumes of hydrocarbons generated and expelled from the Minnelusa

### OMV *Austrian energy company*

Intern, Exploration and Production Group

Vienna, Austria

Summer 2014 & 2015

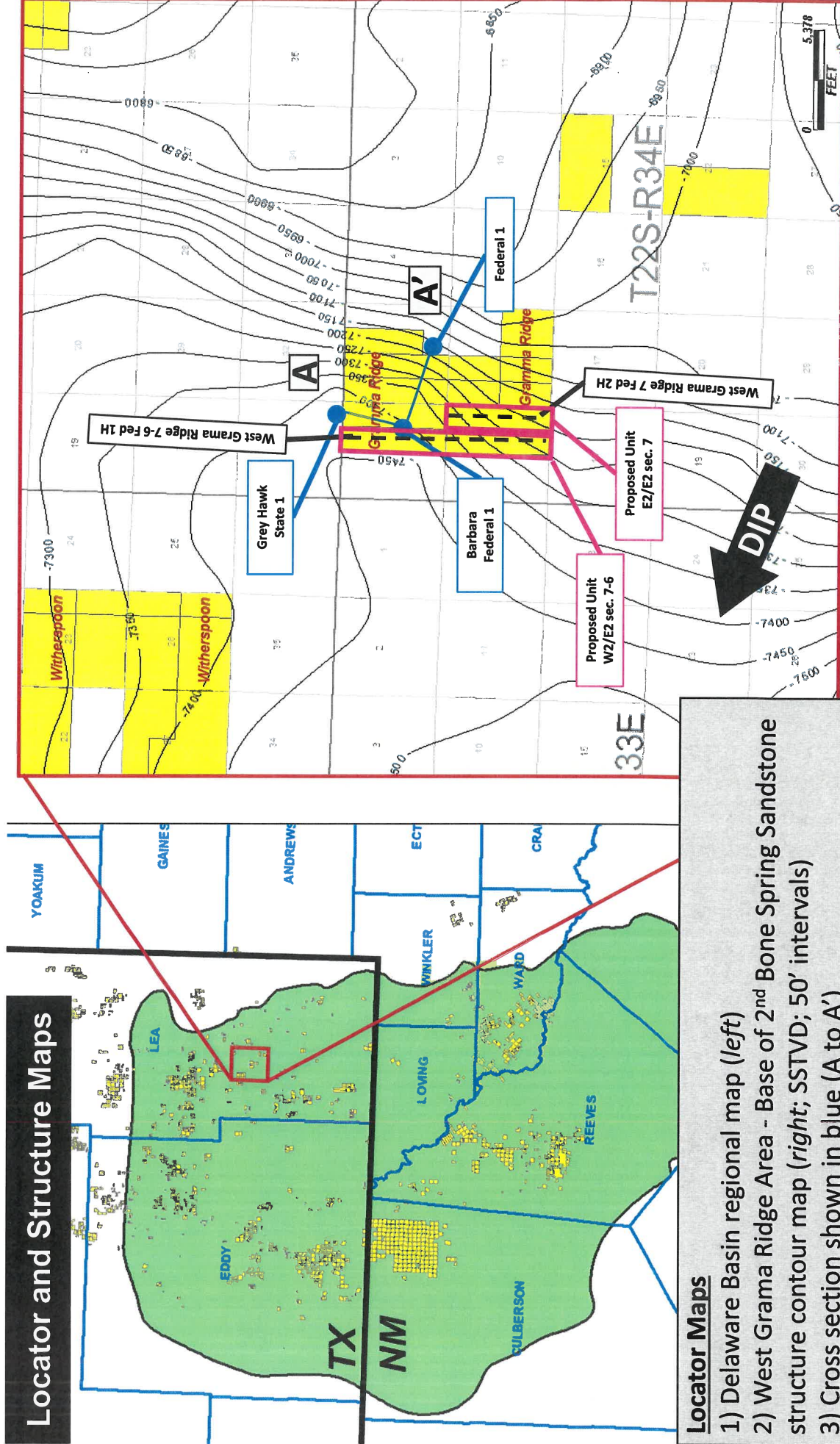
- Digitized raster logs from the Black Sea (offshore Bulgaria, 2014) and Adriatic Sea (offshore Croatia, 2015); updated LAS files in Eastern Europe exploration database
- Analyzed well logs to identify and pick formation tops; tied tops to 3-D seismic data and mapped reflections; generated seismic structure and isochron maps of pertinent formations to provide regional geologic context

## ADDITIONAL INFORMATION

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- Foreign languages: German (*fluent*)
- Industry software proficiencies: Petra, Kingdom, StarSteer, Spotfire, BasinMod
- Military service in the Austrian Armed Forces, honorably discharged as Private First Class (*July 2010 – January 2011*)
- Citizenships: United States, Austria, Ireland
- Nautilus courses: Unconventional Resource Engineering; Geomechanics





## Locator and Structure Maps

### Locator Maps

- 1) Delaware Basin regional map (left)
- 2) West Grama Ridge Area - Base of 2<sup>nd</sup> Bone Spring Sandstone structure contour map (right; SSTVD; 50' intervals)
- 3) Cross section shown in blue (A to A')

EXHIBIT

C.1

Exhibits

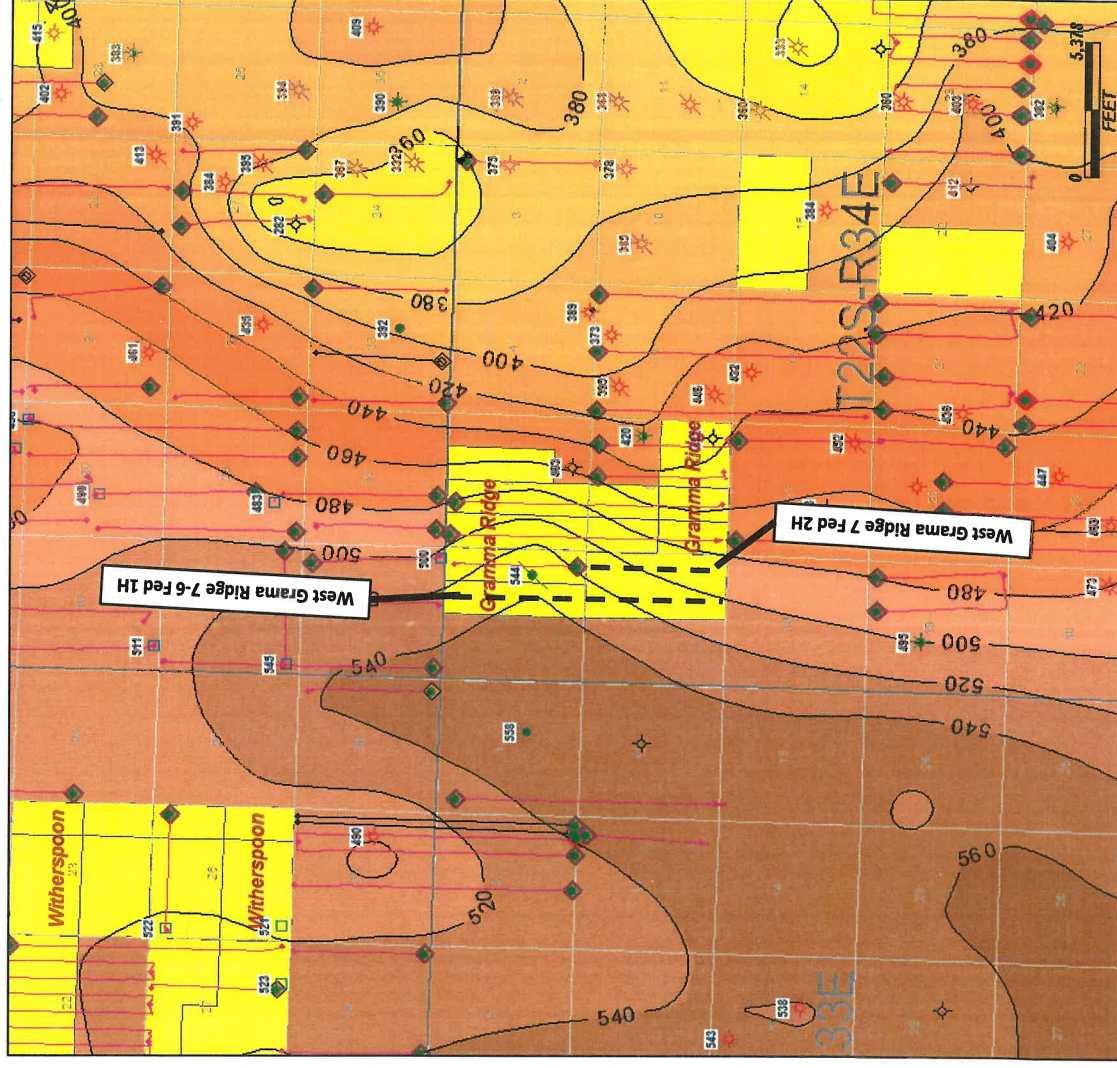
# 2nd Sand Gross Thickness

Upper 2nd BSPG Sand producers

Lower 2nd BSPG Sand producers

## 2nd BSPG Sand Gross Thickness values

2nd Bone Spring Sand – Gross Thickness Isopach  
(20' contour interval)





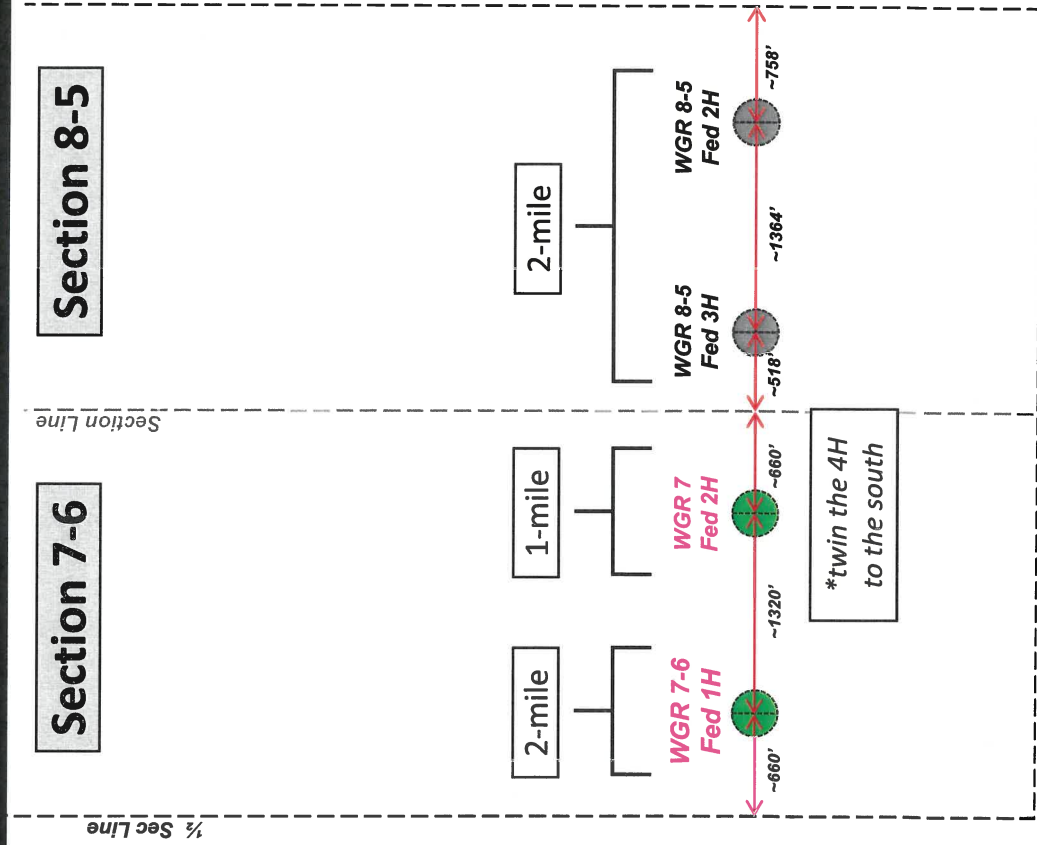
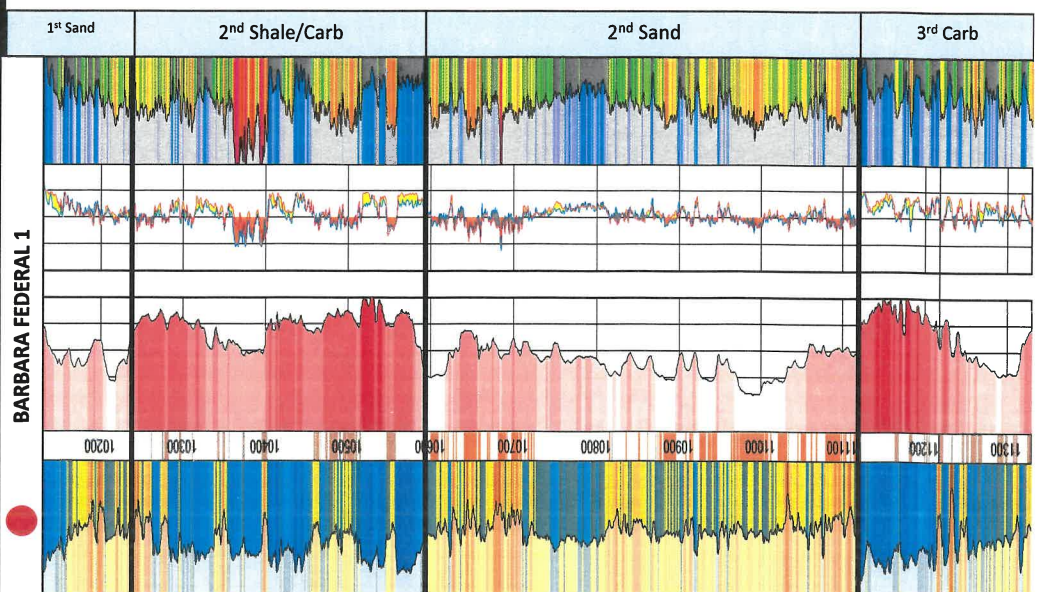
# XEC West Grama Ridge Winerack

GR

RES

DPHI  
NPHI

DPHI  
(15-0%)



1/2 Sec Line

Section 8-5

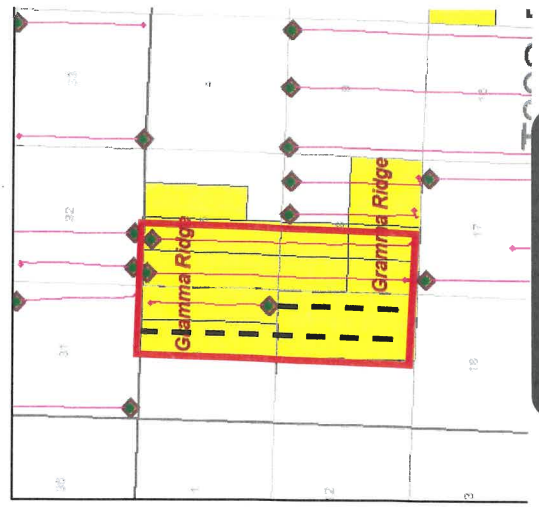
Section 7-6

1/2 Sec Line

planned

drilled

2nd BSPG - lower



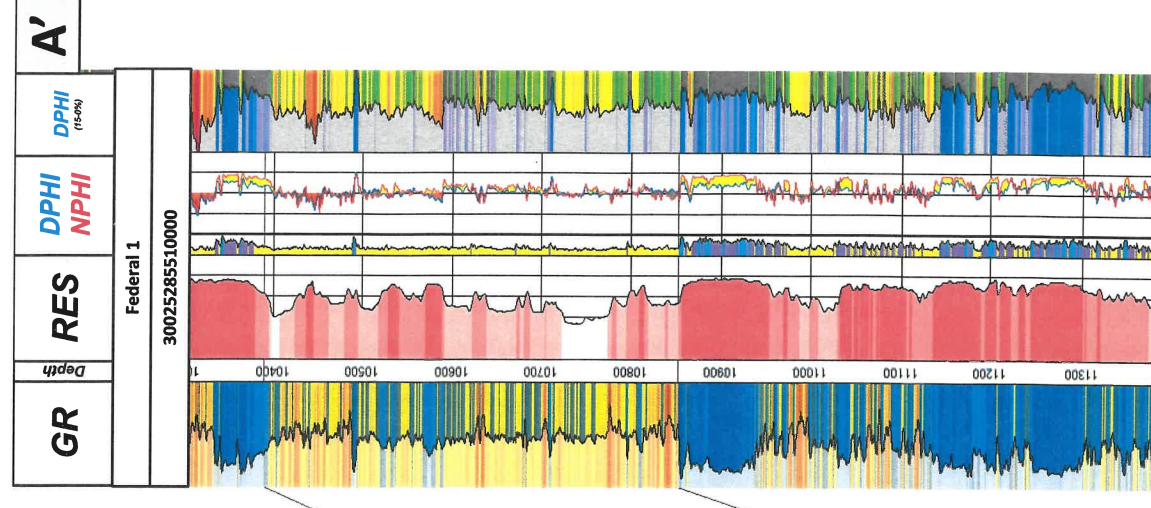
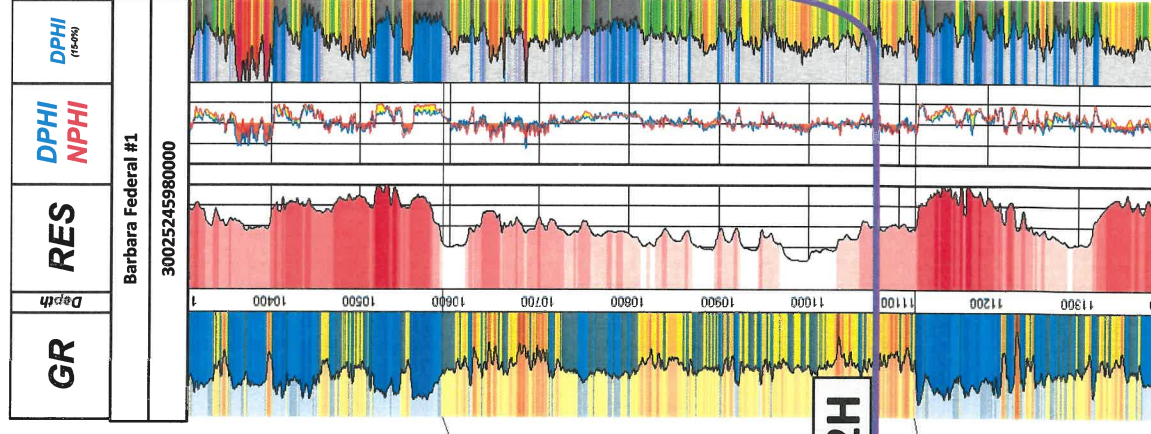
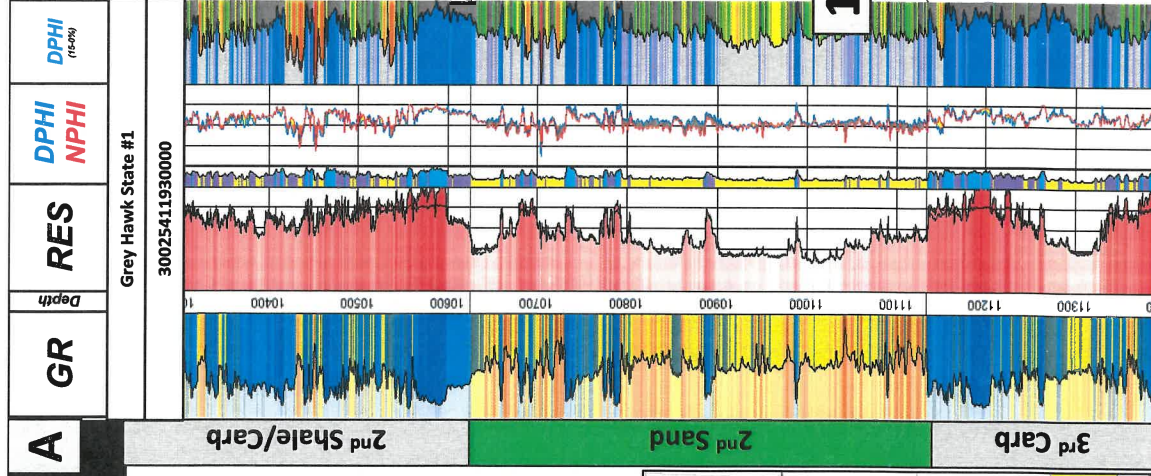
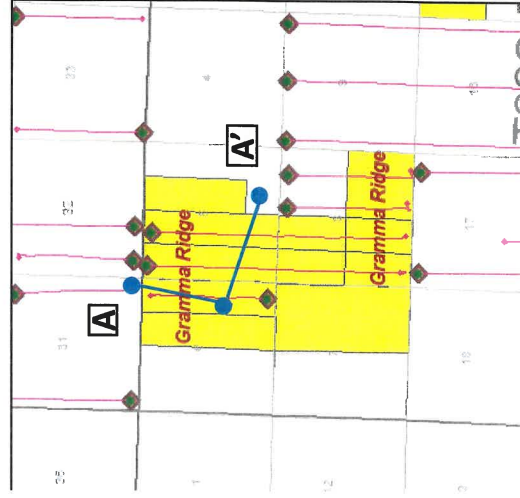
EXHIBIT

C.3

tabbles

# Cross Section

- Proposed well paths shown in **purple**
- Structural cross section (i.e. not hung on a stratigraphic marker)



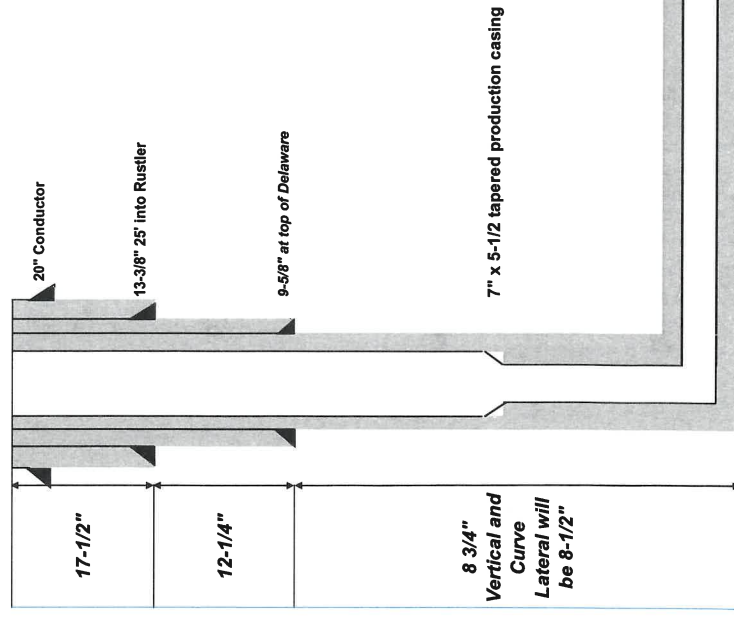
EXHIBIT

C.4

Tables

# Wellbore Diagram

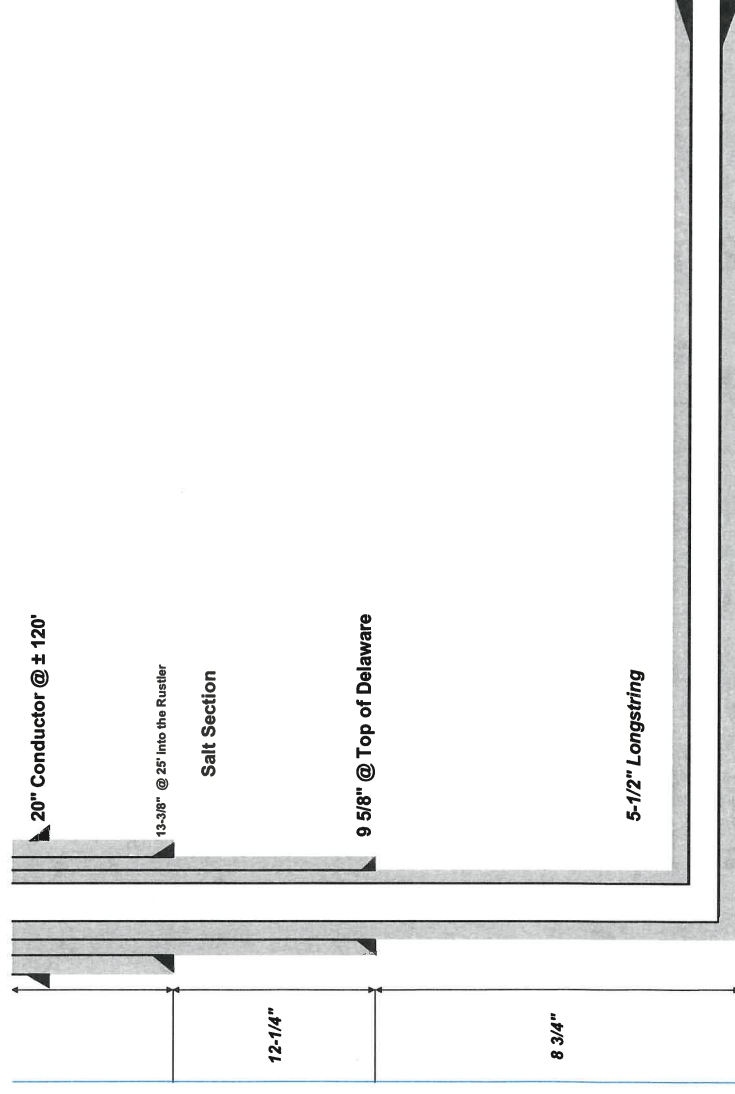
## West Grama 7-6 Fed 1H





# Wellbore Diagram

## West Grama Ridge 7 Fed 2H



STATE OF NEW MEXICO  
DEPARTMENT OF ENERGY, MINERALS AND NATURAL RESOURCES  
OIL CONSERVATION DIVISION

APPLICATION OF CIMAREX  
ENERGY CO. FOR COMPULSORY  
POOLING, LEA COUNTY,  
NEW MEXICO

CASE NO. 21146

APPLICATION OF CIMAREX  
ENERGY CO. FOR COMPULSORY  
POOLING, LEA COUNTY,  
NEW MEXICO

CASE NO. 21147

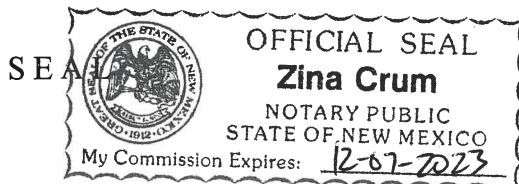
**AFFIDAVIT OF LANCE D. HOUGH**

STATE OF NEW MEXICO            )  
  )ss.  
COUNTY OF BERNALILLO        )

Lance D. Hough, attorney in fact and authorized representative of Cimarex Energy Co. ("Cimarex"), the Applicant herein, being first duly sworn, upon oath, states that the above-referenced Applications were provided under notice of hearing to parties entitled to notice; and that the following are attached hereto: a sample of said notice of hearing as **Exhibit D.1**, a mailing list for notice of hearing and proof of mailed notice of hearing as **Exhibit D.2**, and proof of published notice of hearing as **Exhibit D.3**. As noted in the Affidavit of Riley Morris, Cimarex has conducted a good faith, diligent effort to find the names and correct addresses for the interest owners entitled to receive notice of the application filed herein.

  
\_\_\_\_\_  
Lance D. Hough

SUBSCRIBED AND SWORN to before me this 14<sup>th</sup> day of April 2020 by Lance D. Hough.



  
\_\_\_\_\_  
Notary Public

My commission expires: 12-07-2023

**EXHIBIT**

**D**



March 12, 2020

Lance D. Hough  
Tel: 505.848.1826  
Fax: 505.848.9710  
Lance.Hough@modrall.com

**VIA CERTIFIED MAIL - RETURN RECEIPT REQUESTED**

TO: AFFECTED PARTIES

This letter is to advise you that Cimarex Energy Co. has filed the enclosed applications with the New Mexico Oil Conservation Division:

**Case No. 21146: Application of Cimarex Energy Co. for compulsory pooling, Lea County, New Mexico.** Applicant seeks an order from the Division: (1) to the extent necessary, approving the creation of a 320-acre, more or less, Bone Spring horizontal spacing unit; and, (2) pooling all uncommitted mineral interests within a Bone Spring horizontal spacing unit underlying the W/2 E/2 of Sections 6 and 7, Township 22 South, Range 34 East, NMPM, Lea County, New Mexico. This spacing unit will be dedicated to the **West Grama Ridge 7-6 Federal Com 1H** well, to be horizontally drilled. The producing area for this well will be orthodox. Also to be considered will be the cost of drilling and completing said well, the allocation of these costs as well as the actual operating costs and charges for supervision, designation of Cimarex as operator of the well, and a 200% charge for risk involved in drilling said well. Said area is located approximately 20 miles west of Eunice, New Mexico.

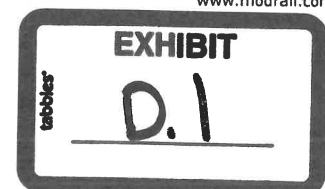
**Case No. 21147: Application of Cimarex Energy Co. for compulsory pooling, Lea County, New Mexico.** Applicant seeks an order from the Division: (1) to the extent necessary, approving the creation of a 160-acre, more or less, Bone Spring horizontal spacing unit; and, (2) pooling all uncommitted mineral interests within a Bone Spring horizontal spacing unit underlying the E/2 E/2 of Section 7, Township 22 South, Range 34 East, NMPM, Lea County, New Mexico. This spacing unit will be dedicated to the **West Grama Ridge 7 Federal Com 2H** well, to be horizontally drilled. The producing area for this well will be orthodox. Also to be considered will be the cost of drilling and completing said well, the allocation of these costs as well as the actual operating costs and charges for supervision, designation of Cimarex as operator of the well, and a 200% charge for risk involved in drilling said well. Said area is located approximately 20 miles west of Eunice, New Mexico.

Modrall Sperling  
Roehl Harris & Sisk P.A.

500 Fourth Street NW  
Suite 1000  
Albuquerque,  
New Mexico 87102

PO Box 2168  
Albuquerque,  
New Mexico 87103-2168

Tel: 505.848.1800  
www.modrall.com



AFFECTED PARTIES

Cimarex / West Grama Ridge 7-6 Federal Com 1H and 2H

March 12, 2020

Page 2

These applications have been set for hearing before a Division Examiner at **8:15 a.m. on April 2, 2020**. The hearing will be held in Room 311 in the New Mexico State Capitol Building located at 490 Old Santa Fe Trail, Santa Fe, New Mexico 87501. As a party who may be affected by these applications, we are notifying you of your right to appear at the hearing and participate in these cases, including the right to present evidence either in support of or in opposition to the applications. Failure to appear at the hearing may preclude you from any involvement in these cases at a later date.

You are further notified that if you desire to appear in these cases, then you are requested to file a Pre-Hearing Statement with the Division at least four business days in advance of a scheduled hearing before the Division or the Commission, but in no event later than 5:00 p.m. mountain time, on the Thursday preceding the scheduled hearing date, with a copy delivered to the undersigned.

Sincerely,



Lance D. Hough  
*Attorney for Applicant*

EED/ldh/w3708165.DOCX

Enclosures: as stated

Zina Crum  
Modrall Sperling  
500 4th Street NW  
Suite 1000  
Albuquerque NM 87102

PS Form 3877

Type of Mailing: CERTIFIED MAIL  
03/12/2020

Firm Mailing Book ID: 186547

Line	USPS Article Number	Name, Street, City, State, Zip	Postage	Service Fee	RR Fee	Rest.Del.Fee	Reference Contents
1	9314 8699 0430 0069 8385 01	Advance Energy Partners Hat Mesa, LLC 11490 Westheimer Road, Ste 950 Houston TX 77077	\$1.40	\$3.55	\$1.70	\$0.00	82762.0198 West Notice
2	9314 8699 0430 0069 8385 18	Cayuga Royalties, LLC P. O. Box 540711 Houston TX 77254	\$1.40	\$3.55	\$1.70	\$0.00	82762.0198 West Notice
3	9314 8699 0430 0069 8385 25	Centennial Resource Production, LLC 1001 17th Street, Suite 1800 Denver CO 80202	\$1.40	\$3.55	\$1.70	\$0.00	82762.0198 West Notice
4	9314 8699 0430 0069 8385 32	Cimarex Energy Co. 600 N. Maricamp Street, Suite 600 Midland, TX 79701	\$1.40	\$3.55	\$1.70	\$0.00	82762.0198 West Notice
5	9314 8699 0430 0069 8385 49	EOG Resources, Inc. 5509 Champion Drive Midland TX 79706	\$1.40	\$3.55	\$1.70	\$0.00	82762.0198 West Notice
6	9314 8699 0430 0069 8385 56	Madison M. Hinkle P. O. Box 2292 Roswell NM 88202	\$1.40	\$3.55	\$1.70	\$0.00	82762.0198 West Notice
7	9314 8699 0430 0069 8385 63	Monticello Minerals LLC 5528 Vickery Blvd. Dallas TX 75206	\$1.40	\$3.55	\$1.70	\$0.00	82762.0198 West Notice
8	9314 8699 0430 0069 8385 70	Mustang Oil & Gas, LLC P. O. Box 412 Roswell NM 88202	\$1.40	\$3.55	\$1.70	\$0.00	82762.0198 West Notice
9	9314 8699 0430 0069 8385 87	Rheiner Holdings, LLC P. O. Box 980552 Houston TX 77098	\$1.40	\$3.55	\$1.70	\$0.00	82762.0198 West Notice
10	9314 8699 0430 0069 8385 94	Rolla R. Hinkle III P. O. Box 2292 Roswell NM 88202	\$1.40	\$3.55	\$1.70	\$0.00	82762.0198 West Notice
11	9314 8699 0430 0069 8386 00	Schneider, Corey & Josey, Inc. 2001 Bryan Twr., Suite 925 Dallas TX 75201	\$1.40	\$3.55	\$1.70	\$0.00	82762.0198 West Notice
12	9314 8699 0430 0069 8386 17	Stephen W. Schneider, Jr. P. O. Box 4399 Tyler TX 75712	\$1.40	\$3.55	\$1.70	\$0.00	82762.0198 West Notice
13	9314 8699 0430 0069 8386 24	Upland Corporation P. O. Box 582 Midland TX 79702	\$1.40	\$3.55	\$1.70	\$0.00	82762.0198 West Notice
14	9314 8699 0430 0069 8386 31	Wells Fargo Bank, N.A., Trte of John H. Burton and Mary C. Burton P. O. Box 1959 Midland TX 79702	\$1.40	\$3.55	\$1.70	\$0.00	82762.0198 West Notice

Totals: \$19.60 \$49.70 \$23.80 \$0.00  
Grand Total: \$93.10

EXHIBIT

D.2

List Number of Pieces Received at Post Office 14  
List Number of Pieces Received at Post Office 14

Postmaster:  
Name of receiving employee

Dated:

Transaction Report Details - CertifiedPro.net  
Firm Mail Book ID= 186547  
Generated: 4/13/2020 7:57:59 AM

USPS Article Number	Date Created	Name 1	Name 2	Address1	City	State	Zip	Mailing Status	Service Options	Mail Delivery Date
9314869904300069838631	2020-03-12 8:15 AM	Wells Fargo Bank, N.A., Trste of	John H. Burton and Mary C. Burton	P. O. Box 1959	Midland	TX	79702	Lost	Return Receipt - Electronic, Certified Mail	
9314869904300069838624	2020-03-12 8:15 AM	Upland Corporation		P. O. Box 382	Midland	TX	79702	Undelivered - To Be Returned	Return Receipt - Electronic, Certified Mail	
9314869904300069838617	2020-03-12 8:15 AM	Stephen W. Schneider, Jr.		P. O. Box 4399	Tyler	TX	75712	Undelivered - To Be Returned	Return Receipt - Electronic, Certified Mail	
9314869904300069838600	2020-03-12 8:15 AM	Schneider, Corey & Josey, Inc.		2001 Bryan Twn., Suite 925	Dallas	TX	75201	Undelivered - To Be Returned	Return Receipt - Electronic, Certified Mail	
9314869904300069838594	2020-03-12 8:15 AM	Rolla R. Hinkle III		P. O. Box 2292	Roswell	NM	88202	Delivered	Return Receipt - Electronic, Certified Mail	03-16-2020
9314869904300069838587	2020-03-12 8:15 AM	Rheiner Holdings, LLC		P. O. Box 380552	Houston	TX	77098	Delivered	Return Receipt - Electronic, Certified Mail	03-18-2020
9314869904300069838570	2020-03-12 8:15 AM	Mustang Oil & Gas, LLC		P. O. Box 412	Roswell	NM	88202	Delivered	Return Receipt - Electronic, Certified Mail	03-17-2020
9314869904300069838563	2020-03-12 8:15 AM	Monticello Minerals LLC		5528 Vickery Blvd.	Dallas	TX	75206	To be Returned	Return Receipt - Electronic, Certified Mail	
9314869904300069838556	2020-03-12 8:15 AM	Maddison M. Hinkle		P. O. Box 2292	Roswell	NM	88202	Delivered	Return Receipt - Electronic, Certified Mail	03-16-2020
9314869904300069838549	2020-03-12 8:15 AM	EOG Resources, Inc.		5509 Champion Drive	Midland	TX	79706	Lost	Return Receipt - Electronic, Certified Mail	
9314869904300069838532	2020-03-12 8:15 AM	Cimarex Energy Co.		600 N. Marientfeld Street, Suite 600	Midland,	TX	79701	Delivered	Return Receipt - Electronic, Certified Mail	03-16-2020
9314869904300069838525	2020-03-12 8:15 AM	Centennial Resource Production, LLC		1001 17th Street, Suite 1800	Denver	CO	80202	Delivered	Return Receipt - Electronic, Certified Mail	03-16-2020
9314869904300069838518	2020-03-12 8:15 AM	Cayuga Royalties, LLC		P. O. Box 540711	Houston	TX	77254	To be Returned	Return Receipt - Electronic, Certified Mail	
9314869904300069838501	2020-03-12 8:15 AM	Advance Energy Partners Hat Mesa, LLC		11490 Westheimer Road, Ste 950	Houston	TX	77077	Delivered	Return Receipt - Electronic, Certified Mail	03-16-2020



# Affidavit of Publication

STATE OF NEW MEXICO  
COUNTY OF LEA

I, Daniel Russell, Publisher of the Hobbs News-Sun, a newspaper published at Hobbs, New Mexico, solemnly swear that the clipping attached hereto was published in the regular and entire issue of said newspaper, and not a supplement thereof for a period of 1 issue(s).

Beginning with the issue dated  
March 17, 2020  
and ending with the issue dated  
March 17, 2020.



Publisher

Sworn and subscribed to before me this  
17th day of March 2020.

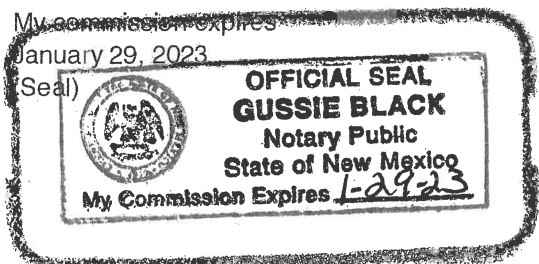


Business Manager

My commission expires

January 29, 2023

(Seal)



This newspaper is duly qualified to publish legal notices or advertisements within the meaning of Section 3, Chapter 167, Laws of 1937 and payment of fees for said

LEGAL

LEGAL

LEGAL

## LEGAL NOTICE MARCH 17, 2020

**CASE NO. 21146:** Notice to all affected parties, as well as their heirs and devisees, of **Schneider, Corey & Josey, Inc.; Stephen W. Schneider, Jr.; Madison M. Hinkle; Rolla R. Hinkle III; Mustang Oil & Gas, LLC; EOG Resources, Inc.; Centennial Resource Production, LLC; Cayuga Royalties, LLC; Rheiner Holdings, LLC; Monticello Minerals LLC; Wells Fargo Bank, N.A., Trustee of The John H. Burton and Mary C. Burton Revocable Trust; Advance Energy Partners Hat Mesa, LLC; Centennial Resource Production, LLC; and Upland Corporation of Cimarex Energy Co.'s Application for compulsory pooling, Lea County, New Mexico.** The State of New Mexico through its Oil Conservation Division, hereby gives notice that the Division will conduct a public hearing at 8:15 a.m. on **April 2, 2020** to consider this application. The hearing will be held in Room 311 in the New Mexico State Capitol Building located at 490 Old Santa Fe Trail, Santa Fe, New Mexico 87501. Applicant seeks an order from the Division: (1) to the extent necessary, approving the creation of a 320-acre, more or less, Bone Spring horizontal spacing unit; and, (2) pooling all uncommitted mineral interests within a Bone Spring horizontal spacing unit underlying the W/2 E/2 of Sections 6 and 7, Township 22 South, Range 34 East, NMPM, Lea County, New Mexico. This spacing unit will be dedicated to the **West Grama Ridge 7-6 Federal Com 1H** well, to be horizontally drilled. The producing area for this well will be orthodox. Also to be considered will be the cost of drilling and completing said well, the allocation of these costs as well as the actual operating costs and charges for supervision, designation of Cimarex as operator of the well, and a 200% charge for risk involved in drilling said well. Said area is located approximately 20 miles west of Eunice, New Mexico.

**CASE NO. 21147:** Notice to all affected parties, as well as their heirs and devisees, of **Schneider, Corey & Josey, Inc.; Stephen W. Schneider, Jr.; Madison M. Hinkle; Rolla R. Hinkle III; Mustang Oil & Gas, LLC; EOG Resources, Inc.; Centennial Resource Production, LLC; Cayuga Royalties, LLC; Rheiner Holdings, LLC; Monticello Minerals LLC; Wells Fargo Bank, N.A., Trustee of The John H. Burton and Mary C. Burton Revocable Trust; Advance Energy Partners Hat Mesa, LLC; Centennial Resource Production, LLC; and Upland Corporation of Cimarex Energy Co.'s Application for compulsory pooling, Lea County, New Mexico.** The State of New Mexico through its Oil Conservation Division, hereby gives notice that the Division will conduct a public hearing at 8:15 a.m. on April 2, 2020 to consider this application. The hearing will be held in Room 311 in the New Mexico State Capitol Building located at 490 Old Santa Fe Trail, Santa Fe, New Mexico 87501. Applicant seeks an order from the Division: (1) to the extent necessary, approving the creation of a 160-acre, more or less, Bone Spring horizontal spacing unit; and, (2) pooling all uncommitted mineral interests within a Bone Spring horizontal spacing unit underlying the E/2 E/2 of Section 7, Township 22 South, Range 34 East, NMPM, Lea County, New Mexico. This spacing unit will be dedicated to the **West Grama Ridge 7 Federal Com 2H** well, to be horizontally drilled. The producing area for this well will be orthodox. Also to be considered will be the cost of drilling and completing said well, the allocation of these costs as well as the actual operating costs and charges for supervision, designation of Cimarex as operator of the well, and a 200% charge for risk involved in drilling said well. Said area is located approximately 20 miles west of Eunice, New Mexico.

#35315

01104570

00240740

DOLORES SERNA  
MODRALL, SPERLING, ROEHL, HARRIS &  
P. O. BOX 2168  
ALBUQUERQUE, NM 87103-2168

EXHIBIT

D.3

tabular