

ABOVE THIS LINE FOR DIVISION USE ONLY

**NEW MEXICO OIL CONSERVATION DIVISION**  
 - Engineering Bureau -  
 1220 South St. Francis Drive, Santa Fe, NM 87505



**ADMINISTRATIVE APPLICATION CHECKLIST**

THIS CHECKLIST IS MANDATORY FOR ALL ADMINISTRATIVE APPLICATIONS FOR EXCEPTIONS TO DIVISION RULES AND REGULATIONS WHICH REQUIRE PROCESSING AT THE DIVISION LEVEL IN SANTA FE

**Application Acronyms:**

- [NSL-Non-Standard Location] [NSP-Non-Standard Proration Unit] [SD-Simultaneous Dedication]
- [DHC-Downhole Commingling] [CTB-Lease Commingling] [PLC-Pool/Lease Commingling]
- [PC-Pool Commingling] [OLS - Off-Lease Storage] [OLM-Off-Lease Measurement]
- [WFX-Waterflood Expansion] [PMX-Pressure Maintenance Expansion]
- [SWD-Salt Water Disposal] [IPI-Injection Pressure Increase]
- [EOR-Qualified Enhanced Oil Recovery Certification] [PPR-Positive Production Response]

DHC-3871-A

- [1] **TYPE OF APPLICATION** - Check Those Which Apply for [A]
- [A] Location - Spacing Unit - Simultaneous Dedication  
 NSL  NSP  SD
- Check One Only for [B] or [C]
- [B] Commingling - Storage - Measurement  
 DHC  CTB  PLC  PC  OLS  OLM
- [C] Injection - Disposal - Pressure Increase - Enhanced Oil Recovery  
 WFX  PMX  SWD  IPI  EOR  PPR
- [D] Other: Specify \_\_\_\_\_

Black Magic 6 Com #1 - 30015-34280  
 Cimarex Energy Co. of Colorado - 162683

Pool:  
 97566 - Walnut Canyon; Upper Penn (Gas)  
 84407 - Sage Draw; Wolfcamp (Gas)

- [2] **NOTIFICATION REQUIRED TO:** - Check Those Which Apply, or **Does Not Apply**
- [A]  Working, Royalty or Overriding Royalty Interest Owners
- [B]  Offset Operators, Leaseholders or Surface Owner
- [C]  Application is One Which Requires Published Legal Notice
- [D]  Notification and/or Concurrent Approval by BLM or SLO  
U.S. Bureau of Land Management - Commissioner of Public Lands, State Land Office
- [E]  For all of the above, Proof of Notification or Publication is Attached, and/or,
- [F]  Waivers are Attached

[3] **SUBMIT ACCURATE AND COMPLETE INFORMATION REQUIRED TO PROCESS THE TYPE OF APPLICATION INDICATED ABOVE.**

[4] **CERTIFICATION:** I hereby certify that the information submitted with this application for administrative approval is accurate and complete to the best of my knowledge. I also understand that no action will be taken on this application until the required information and notifications are submitted to the Division.

Note: Statement must be completed by an individual with managerial and/or supervisory capacity.

Terri Stathem  
 Print or Type Name

Signature

Regulatory Manager  
 Title

1-9-2017  
 Date

Tstathem@Cimarex.com  
 e-mail Address

Cimarex Energy Co.

202 S. Cheyenne Ave.

Suite 1000

Tulsa, Oklahoma 74103-4346

PHONE: 918.585.1100

FAX: 918.585.1133



Michael McMillian  
Oil Conservation Division  
New Mexico Department of Energy,  
Minerals and Natural Resources  
1220 South Saint Francis Drive  
Santa Fe, New Mexico 87505

Re: Black Magic 6 Com 1  
API 30-015-34280  
Section 6, Township 25 South, Range 26 East, N.M.P.M.  
Eddy County, New Mexico.

Dear Mr. McMillian:

The Black Magic 6 Com 1 well is located in the NE/4 of Sec. 6, 25S, 26E, Eddy County NM.

Cimarex is the operator of the E/2 of Sec. 6, 25S, 26E, Eddy County, NM as to all depths from the surface of the Earth down to the base of the Morrow formation. Ownership in the Black Magic 6 Com 1 are identical within these depths.

Sincerely,

A handwritten signature in cursive script that reads "Caitlin Pierce". The signature is written in black ink and is positioned above the printed name.

Caitlin Pierce

Production Landman

[cpierce@cimarex.com](mailto:cpierce@cimarex.com)

Direct: 432-571-7862

District I  
1625 N. French Drive, Hobbs, NM 88240

State of New Mexico  
Energy, Minerals and Natural Resources Department

Form C-107A  
Revised June 10, 2003

District II  
1301 W. Grand Avenue, Artesia, NM 88210

**Oil Conservation Division**  
1220 South St. Francis Dr.  
Santa Fe, New Mexico 87505

APPLICATION TYPE  
 Single Well  
 Establish Pre-Approved Pools  
EXISTING WELLBORE  
 Yes  No

District III  
1000 Rio Brazos Road, Aztec, NM 87410

District IV  
1220 S. St. Francis Dr., Santa Fe, NM 87505

**APPLICATION FOR DOWNHOLE COMMINGLING**

Cimarex Energy Co. of Colorado Operator 600 N. Marienfeld St., Ste. 600; Midland, TX 79701 Address

Black Magic 6 Com Lease 001 Well No. A-6-25S-26E Unit Letter-Section-Township-Range Eddy County

OGRID No. Property Code API No. 30-015-34280 Lease Type:  Federal  State  Fee

DATA ELEMENT	UPPER ZONE	LOWER ZONE
Pool Name	Sage Draw; Wolfcamp (Gas)	Walnut Canyon; Upper Penn (Gas)
Pool Code	84407	97566
Top and Bottom of Pay Section (Perforated or Open-Hole Interval)	8,322' - 9,860'	9,860'-10,214'
Method of Production (Flowing or Artificial Lift)	Flowing	Flowing
Bottomhole Pressure (Note: Pressure data will not be required if the bottom perforation in the lower zone is within 150% of the depth of the top perforation in the upper zone)	Within 150% of top perf	Within 150% of top perf
Oil Gravity or Gas BTU (Degree API or Gas BTU)	Oil: 51.8° API Gas: 1225.8 BTU dry / 1204.6 BTU wet @ 14.73 psi	Oil: 53.5° API Gas: 1142.4 BTU dry / 1122.6 BTU wet @ 14.73 psi
Producing, Shut-In or New Zone	New Zone	New Zone
Date and Oil/Gas/Water Rates of Last Production. (Note: For new zones with no production history, applicant shall be required to attach production estimates and supporting data.)	Date: N/A Rates: 61 BOPD, 1,529 MCFPD, 386 BWPD	Date: N/A Rates: 39 BOPD, 978 MCFPD, 247 BWPD
Fixed Allocation Percentage (Note: If allocation is based upon something other than current or past production, supporting data or explanation will be required.)	Oil 61 Gas 61	Oil 39 Gas 39

**ADDITIONAL DATA**

Are all working, royalty and overriding royalty interests identical in all commingled zones? Yes  No   
If not, have all working, royalty and overriding royalty interest owners been notified by certified mail? Yes  No

Are all produced fluids from all commingled zones compatible with each other? Yes  No

Will commingling decrease the value of production? Yes  No

If this well is on, or communitized with, state or federal lands, has either the Commissioner of Public Lands or the United States Bureau of Land Management been notified in writing of this application? Yes  No

NMOCD Reference Case No. applicable to this well: DHC-3390

- Attachments:
- C-102 for each zone to be commingled showing its spacing unit and acreage dedication.
  - Production curve for each zone for at least one year. (If not available, attach explanation.)
  - For zones with no production history, estimated production rates and supporting data.
  - Data to support allocation method or formula.
  - Notification list of working, royalty and overriding royalty interests for uncommon interest cases.
  - Any additional statements, data or documents required to support commingling.

**PRE-APPROVED POOLS**

If application is to establish Pre-Approved Pools, the following additional information will be required:

- List of other orders approving downhole commingling within the proposed Pre-Approved Pools
- List of all operators within the proposed Pre-Approved Pools
- Proof that all operators within the proposed Pre-Approved Pools were provided notice of this application.
- Bottomhole pressure data.

I hereby certify that the information above is true and complete to the best of my knowledge and belief.

SIGNATURE Amithy Crawford TITLE Regulatory Analyst DATE 11-29-16

TYPE OR PRINT NAME Amithy Crawford TELEPHONE NO. 432-620-1909

E-MAIL ADDRESS acrawford@cimarex.com

State of New Mexico

Energy, Minerals and Natural Resources Department

State

DISTRICT I

1625 N FRENCH DR HOBBS, NM 88240

DISTRICT II

1301 W GRAND AVENUE, ARTESIA, NM 88210

DISTRICT III

1000 Rio Brazos Ed., Aztec, NM 87410

OIL CONSERVATION DIVISION  
1220 SOUTH ST. FRANCIS DR.  
Santa Fe, New Mexico 87505

Form C-102

Revised JUNE 10, 2003

Submit to Appropriate District Office

State Lease - 4 Copies

Fee Lease - 3 Copies

DISTRICT IV

1220 S. ST. FRANCIS DR., SANTA FE, NM 87505

WELL LOCATION AND ACREAGE DEDICATION PLAT

AMENDED REPORT

API Number 30-015-34280	Pool Code 97566	Pool Name Walnut Canyon; Upper Penn (Gas)
Property Code 35027	Property Name BLACK MAGIC 6 COM	Well Number 1
OGRID No. 162683	Operator Name CIMAREX ENERGY CO. OF COLORADO	Elevation 3387'

Surface Location

Ul or lot No	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
A	6	25-S	26-E		1250	NORTH	1250	EAST	EDDY

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

Dedicated Acres 319.4	Joint or Infill Y	Consolidation Code P	Order No.
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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

LOT 4	LOT 3	LOT 2	LOT 1	<p><b>OPERATOR CERTIFICATION</b></p> <p>I hereby certify the the information contained herein is true and complete to the best of my knowledge and belief</p> <p><i>Amithy Crawford</i> Signature</p> <p>Amithy Crawford Printed Name</p> <p>Regulatory Analyst Title</p> <p>11/29/2016 Date</p> <hr/> <p><b>SURVEYOR CERTIFICATION</b></p> <p>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.</p> <p>SEPTEMBER 19, 2005 Date Surveyed</p> <p>LA</p> <p>Signature &amp; Seal Professional Surveyor</p> <p><i>Gary Edson</i> GARY EDSON NEW MEXICO REGISTERED PROFESSIONAL SURVEYOR 05.11.1440</p> <p>Certificate No. GARY EDSON 12841</p>
LOT 5	<p>Black Magic 6 Com #1</p> <p>3392.1</p> <p>3385.5'</p> <p>600'</p> <p>1250'</p> <p>600'</p> <p>3388.7'</p> <p>3382.8'</p> <p>GEODETIC COORDINATES NAD 27 NME</p> <p>Y=422978.0 N X=501853.1 E</p> <p>LAT.=32°09'46.38" N LONG =104°19'38.44" W</p>			
LOT 6				
LOT 7	<p>Black Magic 6 Com #2 (TA)</p> <p>1980'</p> <p>660'</p>			

State of New Mexico

Energy, Minerals and Natural Resources Department

DISTRICT I  
1625 N FRENCH DR HOBBS NM 88240

DISTRICT II  
1301 W GRAND AVENUE, ARTESHA NM 88210

DISTRICT III  
1000 Rio Brazos Rd., Aztec. NM 87410

DISTRICT IV  
1220 S. ST. FRANCIS DR., SANTA FE, NM 87505

OIL CONSERVATION DIVISION  
1220 SOUTH ST. FRANCIS DR.  
Santa Fe, New Mexico 87505

Form C-102  
Revised JUNE 10, 2003  
Submit to Appropriate District Office  
State Lease - 4 Copies  
Fee Lease - 3 Copies

WELL LOCATION AND ACREAGE DEDICATION PLAT

AMENDED REPORT

API Number 30-015-34280	Pool Code 84407	Pool Name Sage Draw; Wolfcamp (Gas)
Property Code 35027	Property Name BLACK MAGIC 6 COM	Well Number 1
OGRID No. 162683	Operator Name CIMAREX ENERGY CO. OF COLORADO	Elevation 3387'

Surface Location

UI or lot No	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
A	6	25-S	26-E		1250	NORTH	1250	EAST	EDDY

Bottom Hole Location If Different From Surface

UI or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County

Dedicated Acres 319.4	Joint or Infill N	Consolidation Code P	Order No.
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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

LOT 4	LOT 3	LOT 2	LOT 1
LOT 5	GEODETIC COORDINATES NAD 27 NME  Y=422978.0 N X=501853.1 E  LAT.=32°09'46.38" N LONG =104°19'38.44" W		LOT 7
Black Magic 6 Com #1 			

**OPERATOR CERTIFICATION**

I hereby certify the the information contained heretin is true and complets to the best of my knowledge and belief

*Amithy Crawford*  
Signature

Amithy Crawford  
Printed Name

Regulatory Analyst  
Title

11/29/2016  
Date

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**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.

SEPTEMBER 19, 2005  
Date Surveyed

LA

Signature & Seal  
Professional Surveyor  
*Gary K. Edson*  
GARY K. EDSON  
NEW MEXICO  
REGISTERED PROFESSIONAL SURVEYOR  
05.11.1440

Certificate No. GARY EDSON 12641



## Objective

Cimarex is seeking approval from the U.S. Bureau of Land Management (BLM) of its proposed *commingling permit* application and the *allocation factors* for the Cisco Canyon and Wolfcamp formations in the recompletion of the **Black Magic 6 Com #1** well (API: 30-015-43280).

The proposed “allocation factors” have been estimated following BLM’s approved allocation methodology in the *2016 Downhole Commingling Field Study “Cisco Canyon and Wolfcamp (Ciscamp) Commingled Allocation Assessment in White City, Eddy County, NM” (NMP0220)*, approved by BLM on July 6, 2016 (**Appendix A**). Based on this approach and the assessment of subsurface data, the recommended initial allocation factors are **61%** for the Wolfcamp and **39%** for the Cisco Canyon.

The support evidence for this application includes petrophysical assessment and recoverable reserves estimation for each proposed formation (Table 1) and a log section (**Appendix B**).

## Proposed Recompletion

Cimarex plans to recomplete the **Black Magic 6 Com #1** well to the Cisco Canyon and the Wolfcamp formations. This well is located within the BLM approved White City Ciscamp Field Study Area (see Exhibit 6A of the above referenced Field Study) and is currently completed in the Atoka and Morrow formations. The well has produced 547 MMCF of gas and has remaining gas reserves of approximately 106 MMCF (see **Appendix C**). The company plans to temporarily abandon the Atoka and Morrow zones under a cast-iron bridge plug with cement on top, and will consider returning this zone to production and commingle with the new proposed Ciscamp formations in the future once these zones reach an equivalent reservoir pressure. In such case, the production allocations factors will be revised and re-submitted for approval following the approved Field Study methodology for “Handling of Existing Rate Contribution from Proven Developed Producing (PDP) Zone(s)”, using Eq.1.1 and Eq. 1.2; and along with the required BLM and NMOCD documentation.

The proposed Ciscamp recompletion will be performed with a *multi-stage frac job*. The plan is to commingle Wolfcamp and Cisco Canyon streams downhole immediately after completion to allow faster flowback recovery and more efficient artificial lift. The synergy between both streams has shown to significantly improve liquid unloading in analog wells by maintaining higher and more stable critical gas velocities for a longer period. This in turn minimizes formation damage and increases reserves recovery by extending the life of the well.

A proposed recompletion and workover procedure is included in **Appendix D**.



Production Operations – Carlsbad Region, Permian Basin  
**Black Magic 6 Com #1 - Cisco Canyon and Wolfcamp (Ciscamp)**  
 Proposed Commingling Allocation Factors. Eddy County, NM

**Proposed Initial Production Allocation Factors**

Based on BLM's approved Allocation Methodology and Cimarex's assessment, the "Initial Allocation Factors" for the New Completion Zones in subject well are estimated as follows:

$$\text{Wolfcamp \% Alloc. Factor} = \frac{WC\ RGIP - WC\ Prev.\ Cum\ Gas}{Total\ RGIP}$$

$$\text{Cisco Canyon \% Alloc. Factor} = \frac{CC\ RGIP - CC\ Prev.\ Cum\ Gas}{Total\ RGIP}$$

The Recoverable Gas in Place (RGIP) for subject well is **678 MMCF** from the Wolfcamp and **439 MMCF** from the Cisco Canyon, for a total of **1,117 MMCF of gas** (see Table 1). In this case, the proposed commingling intervals have never produced in this well (no prior cumulative production), therefore Remaining RGIP (RRGIP) is equal to RGIP for both formations.

The resulting proposed allocation factors are calculated as follows:

$$\text{Wolfcamp \% Alloc. Factor} = \frac{678\ MMCF}{1,117\ MMCF} = 61\%$$

$$\text{Cisco Canyon \% Alloc. Factor} = \frac{439\ MMCF}{1,117\ MMCF} = 39\%$$

The RGIP for each zone is estimated using the Hydrocarbon Pore Volume (HCPV) assessment as shown in Table 1. The implemented net pay cut-offs are Average Porosity (PHI) > 6% and Average Sw < 35%. *Total estimated oil reserves are 34 MBO.*

**Table 1: Summary of Reservoir Properties, Estimated Reserves and Resulting Allocation Factors**

BLACK MAGIC 6 COM 1

Proposed RC Zone(s)	Avg. Depth, ft	Est. Reservoir Pressure, psi	Net Pay, h (ft)	Avg. PHI	Avg. Sw	HCPV (1-Sw)*PHI*h	OGIP, MMCF	Est. Recovery Factor	RGIP @ RF, MMCF	Zone Prod. Start Date	Prev. Cum. Gas to Date, MMCF	Remaining RGIP (RRGIP), MMCF	Initial Alloc. Factors, % (based on RRGIP Ratio)
Wolfcamp TOT:	9,198	4,001	136	9.0%	23%	9.3	798	85%	678			678	61%
Cisco Canyon:	10,040	4,367	54	13.4%	20%	5.8	517	85%	439		-	439	39%
<b>Total:</b>			<b>190</b>			<b>15.1</b>	<b>1,315</b>	<b>85%</b>	<b>1,117</b>		<b>-</b>	<b>1,117</b>	<b>100%</b>

In this well, the spacing for both formations is the same (320 acres), as well as, public interests: 100% working interest and 77.125% net revenue interest. Both formations are sweet.

Enclosed with this report are the C-107A, Downhole Commingling Worksheet, current and proposed wellbore diagrams, current gas, oil, and water analyses C-102, 3160-5.



**Appendix A: 2016 Downhole Commingling Field Study for the White City Area**



**United States Department of the Interior**

BUREAU OF LAND MANAGEMENT  
 Pecos District  
 Carlsbad Field Office  
 620 E. Greene  
 Carlsbad, New Mexico 88220-6292  
 www.blm.gov/nm



3180 (P0220)

July 6, 2016

**Reference:**  
 White City Area  
 2016 Downhole Commingling Field Study  
 Eddy County, New Mexico

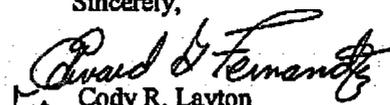
Cimarex Energy Co. of Colorado  
 600 N. Marienfeld Street, Suite 600  
 Midland, TX 79701

Gentlemen:

In reference to your 2016 Downhole Commingling Field Study for the White City Area; it is hereby approved, with the following conditions of approval:

1. All future NOI Sundries submitted to request approval to downhole commingle (DHC) the Lower Penn, Upper Penn and the Wolfcamp formation shall reference this Study and be mentioned in Exhibit 6A. A copy of this study does not need to be attached to the Sundry.
2. All future NOI Sundries submitted to request approval to DHC shall reference NMOCD approval order.
3. All future NOI Sundries submitted to request approval to DHC shall include the BLM's DHC worksheet.
4. All DHC approvals are subject to like approval by NMOCD.
5. The BLM may require an updated evaluation of the field study be done in the future.

Please contact Edward G. Fernandez, Petroleum Engineer at 575-234-2220 if you have any questions.

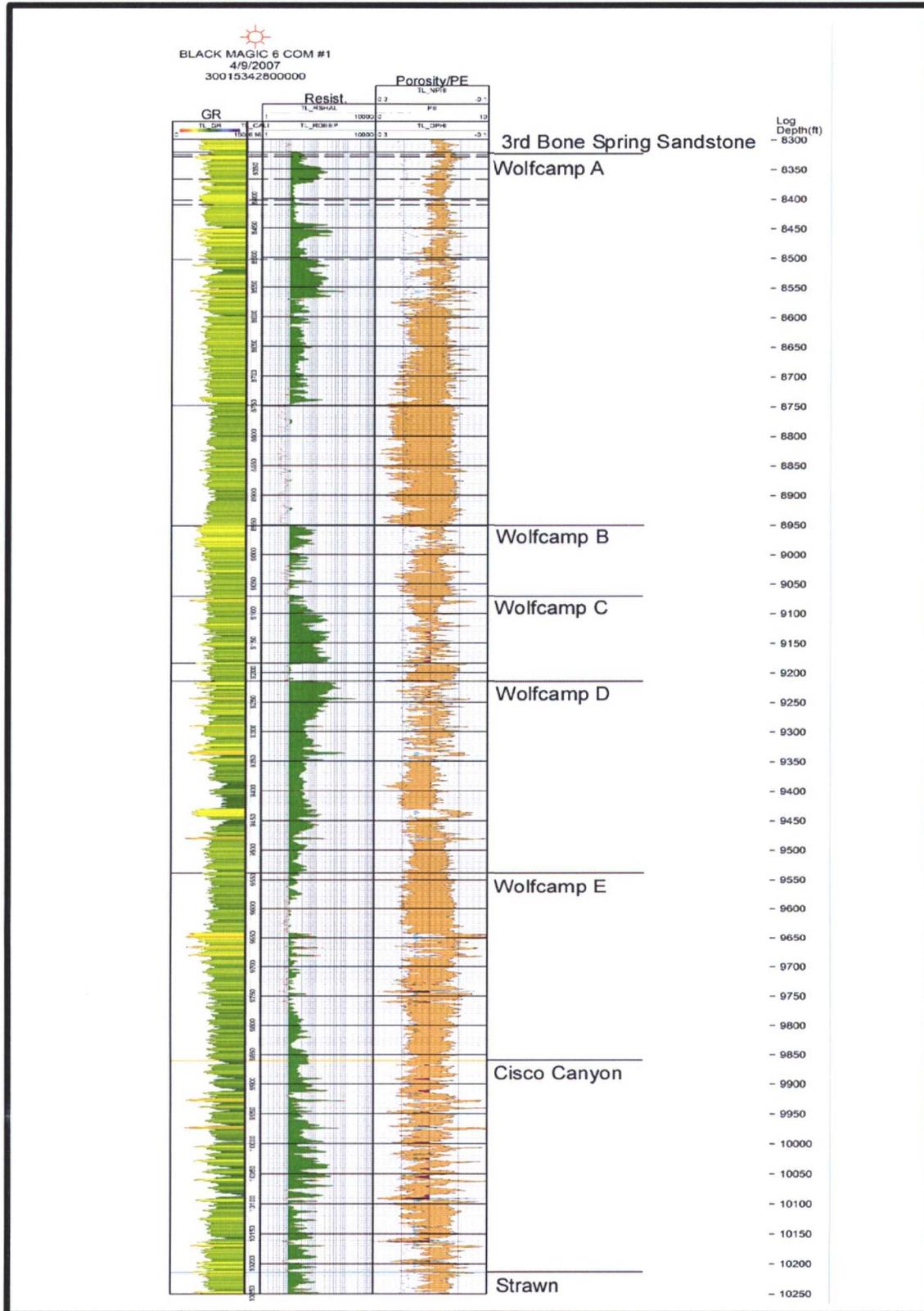
Sincerely,  
  
 for Cody R. Layton  
 Assistant Field Manager,  
 Lands and Minerals

Enclosure  
 cc: NMP0220 (CFO I&E)



CONFIDENTIAL. November 10, 2016  
Production Operations – Carlsbad Region, Permian Basin  
**Black Magic 6 Com #1 - Cisco Canyon and Wolfcamp (Ciscamp)**  
Proposed Commingling Allocation Factors. Eddy County, NM

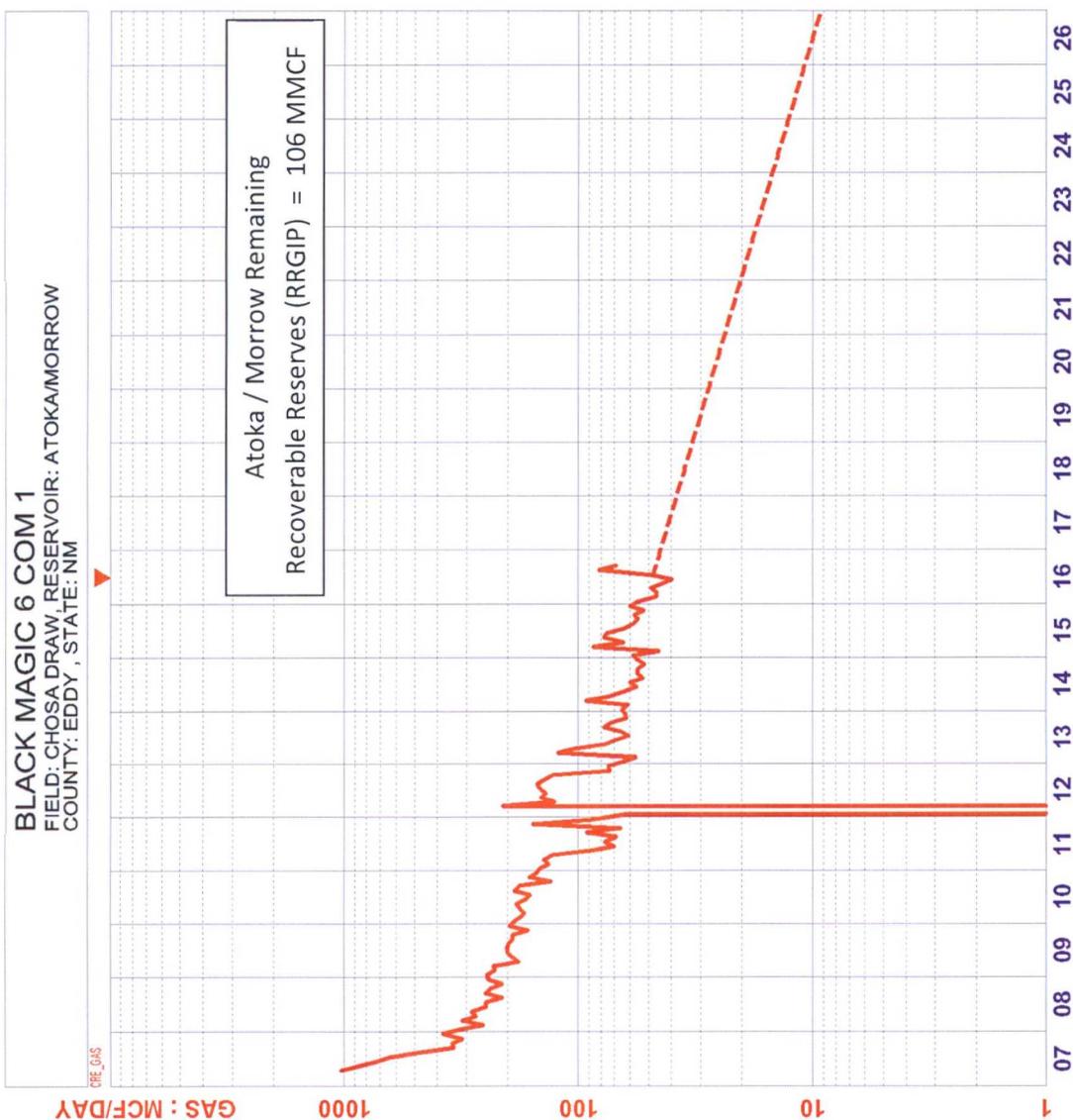
Appendix B: Log section from top of Wolfcamp to top of Strawn – Black Magic 6 Com #1





**Appendix C: Current Completion – Black Magic 6 Com #1**

GAS : MCF/DA	---
Quali=	---
Ref=	---
Yrs=	---
EUR=	---
Qj=	---
b=	---
De=	---
Qab=	---
DEPT	---
WELL	---
NUM	---
EUR	---
YRS	---
Qj	---
b	---
De	---
Qab	---





Production Operations – Carlsbad Region, Permian Basin  
**Black Magic 6 Com #1 - Cisco Canyon and Wolfcamp (Ciscamp)**  
*Proposed Commingling Allocation Factors. Eddy County, NM*

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**Appendix D: Recompletion Procedure – Black Magic 6 Com 1**

**Well Data**

Age of Wellbore    January 2007  
KB                    19' above GL  
TD                    12,075'  
PBSD                11,500'

Casing                13-3/8" 48# H-40 csg @ 330'. Cmt'd w/ 440 sx, 1" to surface w/ 301 sx.  
                          9-5/8" 40# J-55 csg @ 2,230'. Cmt'd w/ 815 sx, cmt circ.  
                          4-1/2" 11.6# P-110 @ 12,075'. Cmt'd w/ 1,130 sx. 1<sup>st</sup> stage Cmt circ. DV Tool @  
                          7,760' cmt'd w/ 905 sx, TOC @ 3,124' by CBL

Tubing                2-3/8" 4.7# L-80 8rd @ 11,130' (342 jts)

Prod. Perfs            Atoka (10,418' – 10,454') & Morrow (11,150' – 11,225')  
Proposed Perf        Wolfcamp (8,322' – 9,860') & Cisco Canyon (9,860' – 10,214')  
Intervals

**Procedure**

*Notify BLM 24 hours prior to start of workover operations.*

1. Test anchors prior to MIRU PU.
2. MIRU PU, rental flare, and choke manifold.
3. Kill well with produced water if available or FW as necessary.
4. ND WH, NU 5K BOP
5. TOO H w/ 2-3/8" 4.7# L-80 tbg. Lay Down Tubing.  
Note: No packer in well
6. ND 5k BOP, NU WH
7. RU Wireline and 5k short lubricator
8. RIH w/ gauge ring/junk basket to +/- 10,383'
9. RIH w/ 4-1/2" CIBP and set at +/- 10,368'
10. RIH w/ bailer and bail 35' of cement on top of CIBP set at +/- 10,368'
11. RDMO Wireline and 5k short lubricator
12. RU pump truck
13. Pressure test 4-1/2" 11.6# P-110 casing to 8,500 psi (Max treating pressure, 80% of 10,690 psi burst) for 30 minutes on a chart with no more than 10% leak off.
14. RD pump truck
15. RU two 10k frac valves and flow cross, RDMO Pulling unit
16. MIRU water transfer with frac tanks to contain water to be pumped from frac pond

Production Operations – Carlsbad Region, Permian Basin  
**Black Magic 6 Com #1 - Cisco Canyon and Wolfcamp (Ciscamp)**  
*Proposed Commingling Allocation Factors. Eddy County, NM*

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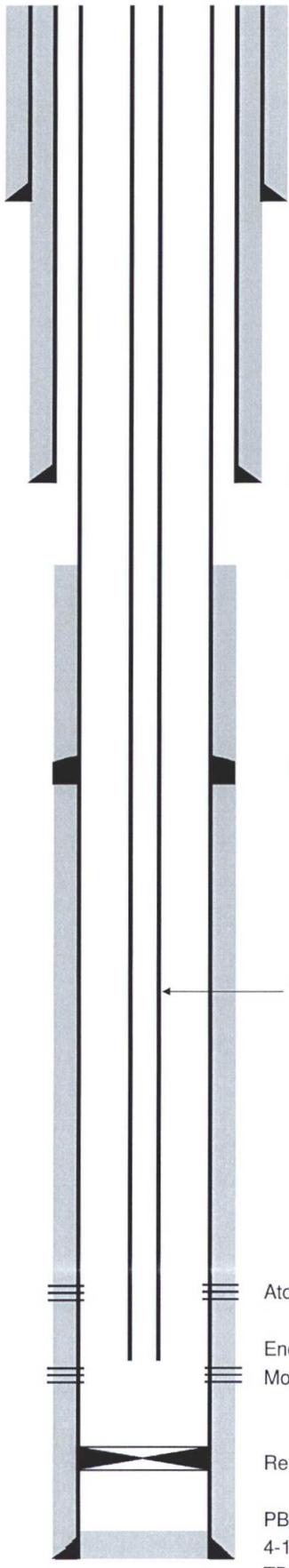
17. Test frac valves and flow cross prior to frac job. Arrange for these items, manlift, forklift, and Pace testers to be on location the day before the frac job to test so that we do not have the frac waiting on a successful test the following day.
18. RU frac valves, flow cross, goat head, and wireline lubricator.
19. RIH w/ gauge ring/junk basket for 4-1/2" 11.6# P-110 csg to +/- 10,229'
20. Perforate stage one Cisco Canyon from 9,860' – 10,214'.
21. RU frac and flowback equipment.
22. Acidize and frac Cisco Canyon perms down casing.
23. Set 10k flow through composite plug 15' uphole of top perforation
24. Test to 8,500 psi
25. Perforate Wolfcamp from 8,322' – 9,860'.
26. Acidize and frac Wolfcamp perms down casing.
27. Set 10k flow through composite plug 15' above top perforation
28. Test to 8,500 psi
29. RD frac
30. MIRU 2" coiled tbg unit.
31. RIH w/ blade mill & downhole motor on 2" CT and drill out sand and composite plugs using freshwater for circulation. Pump sweeps each time a plug is tagged, each time a plug is drilled out, and every 60 bbls pumped.
32. Clean out to PBSD 10,333'
33. POOH w/ blade mill, motor & CT
34. RDMO coiled tbg unit.
35. Flow back well for 24 hours, then SI well overnight.
36. RU wireline and lubricator.
37. RIH w/ GR/JB for 4-1/2" 11.6# P-110 to +/- 8,322'
38. RIH w/ 2-3/8" WEG, 2-3/8" pump out plug pinned for 1,500 – 2,000 psi differential pressure, 10' 2-3/8" 4.7# L-80 tbg sub w/ 1.875" XN profile nipple w/ blanking plug in place, 4-1/2" Arrowset 1X packer and on-off tool stinger w/ 1.875" X profile nipple. Set packer +/- 8,272'. From downhole up:
  - a. 2-3/8" WEG
  - b. 2-3/8" pump out plug pinned for 1,500 – 2,000 psi differential pressure
  - c. 1.875" XN profile nipple
  - d. 10' 2-3/8" 4.7# L-80 tbg sub
  - e. 4-1/2" x 2-3/8" Arrowset 1X packer and on-off tool stinger w/ 1.875" X profile nipple
39. RD WL and lubricator
40. ND goat head and frac valve, NU BOP, MIRU Pulling Unit
41. TIH w/ on/off tool overshot, GLVs, and 2-3/8" 4.7# L-80 tbg.
42. Latch overshot onto on-off tool and space out tubing
43. ND BOP, NU WH
44. RDMO pulling unit
45. RU pump truck and pump out plug. Put well on production.

46. **Run Production Log for allocation purposes after recovering load. Run additional production logs if actual production varies significantly from expected performance. Send copies of these logs to BLM and file for an adjustment of allocation factor if necessary.**



Current WBD  
KB - 19' above GL

Cimarex Energy Co. of Colorado  
Black Magic 6 Com #1  
1250' FNL & 1250' FEL  
Sec. 6, T-25-S, R-26-E, Eddy Co., NM  
S. Gengler 01/06/2010



13 3/8", 48# H-40 csg @ 330'  
cmtd w/ 440 sx, 1" to surface w/ 301 sx

9 5/8", 40# J-55 csg @ 2230'  
cmtd w/ 815 sx, cmt circ

TOC @ 3124' by CBL

DV Tool @ 7760'  
cmtd w/ 905 sx

← 342 jts 2 3/8" 4.7# L-80 Tbg

Atoka perms (10418' - 10454')

End of tbg @ 11130'  
Morrow perms (11150' - 11225')

Remains of CIBP @ 11500'

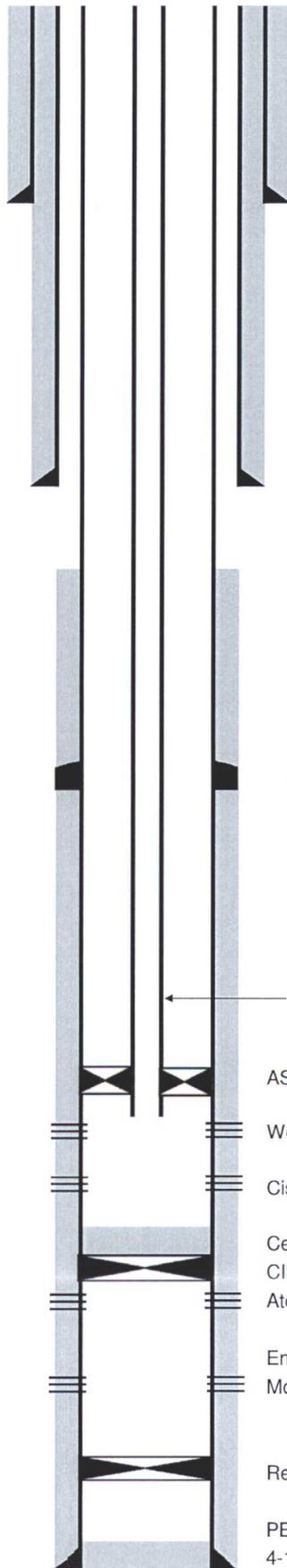
PBTD @ 11814'  
4-1/2" 11.6# P-110 @ 12075' cmtd w/ 1130 sx  
TD @ 12075'



Proposed WBD  
KB - 19' above GL

Cimarex Energy Co. of Colorado

Black Magic 6 Com #1  
1250' FNL & 1250' FEL  
Sec. 6, T-25-S, R-26-E, Eddy Co., NM  
M. Karner 11/11/2016



13 3/8", 48# H-40 csg @ 330'  
cmtd w/ 440 sx, 1" to surface w/ 301 sx

9 5/8", 40# J-55 csg @ 2230'  
cmtd w/ 815 sx, cmt circ

TOC @ 3124' by CBL

DV Tool @ 7760'  
cmtd w/ 905 sx

259 jts 2 3/8" 4.7# L-80 Tbg

AS-1X Packer @ +/- 8,272'

Wolfcamp Perfs (8,322' - 9,860')

Cisco Canyon Perfs (9,860' - 10,214')

Cement plug from 10,333' - 10,368'

CIBP set at +/- 10,368'

Atoka perfs (10,418' - 10,454')

End of tbg @ 11130'

Morrow perfs (11,150' - 11,225')

Remains of CIBP @ 11500'

PBTD @ 11814'

4-1/2" 11.6# P-110 @ 12075' cmtd w/ 1130 sx  
TD @ 12075'



# LABORATORY SERVICES

Natural Gas Analysis

www.permianls.com

575.397.3713 2609 W Marland Hobbs NM 88240

For:	Cimarex Energy	Sample:	Sta: # 309588185
	Attention: Mark Cummings	Identification:	Wigeon 23 Fed Com 1
	600 N. Marienfeld, Suite 600	Company:	Cimarex Energy
	Midland, Texas 79701	Lease:	
		Plant:	

Sample Data:	Date Sampled	7/30/2013 12:25 PM	
	Analysis Date	7/31/2013	
	Pressure-PSIA	900	Sampled by: Taylor Ridings
	Sample Temp F	107	Analysis by: Vicki McDaniel
	Atmos Temp F	85	

H2S in 0.3 PPM

### Component Analysis

		Mol Percent	GPM
Hydrogen Sulfide	H2S		
Nitrogen	N2	0.677	
Carbon Dioxide	CO2	0.123	
Methane	C1	82.764	
Ethane	C2	9.506	2.536
Propane	C3	3.772	1.037
I-Butane	IC4	0.640	0.209
N-Butane	NC4	1.185	0.373
I-Pentane	IC5	0.335	0.122
N-Pentane	NC5	0.374	0.135
Hexanes Plus	C6+	0.624	0.270
		100.000	4.681

REAL BTU/CU.FT:		Specific Gravity	
At 14.65 DRY	1219.2	Calculated	0.6973
At 14.65 WET	1197.9		
At 14.696 DRY	1223.0		
At 14.696 WET	1202.1	Molecular Weight	20.1966
At 14.73 DRY	1225.8		
At 14.73 Wet	1204.6		

North Permian Basin Region  
P.O. Box 740  
Sundown, TX 79372-0740  
(806) 229-8121

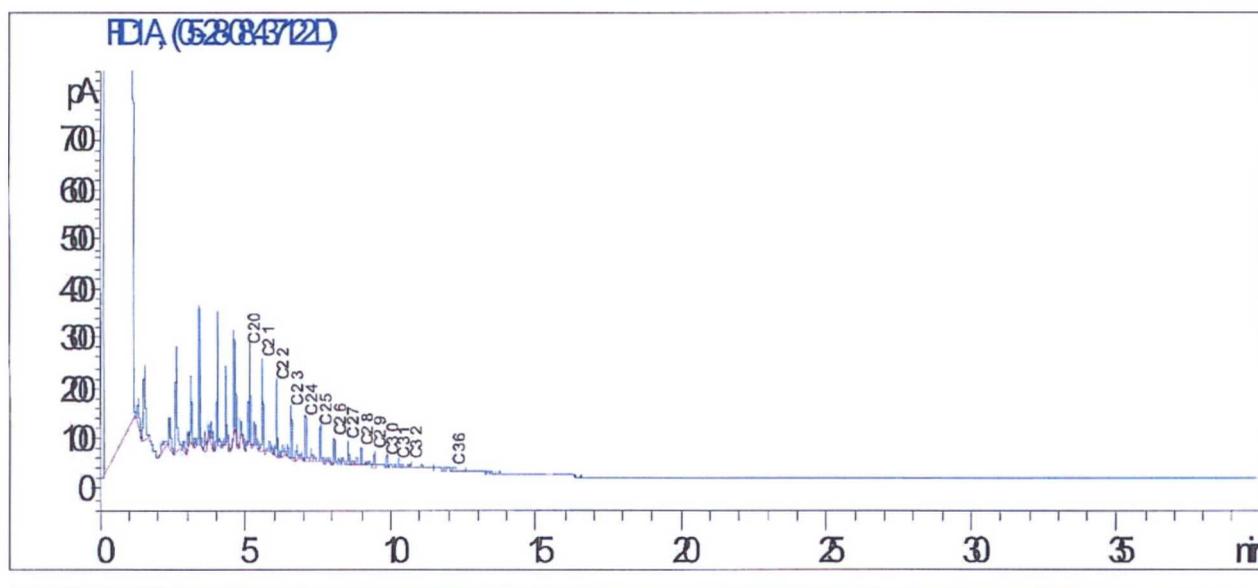
Lab Team Leader - Sheila Hernandez  
(432) 495-7240

## OIL ANALYSIS

Company:	CIMAREX ENERGY	Sales RDT:	44212
Region:	PERMIAN BASIN	Account Manager:	WAYNE PETERSON (575) 910-9389
Area:	CARLSBAD, NM	Analysis ID #:	3208
Lease/Platform:	WIGEON '23' FEDERAL	Sample #:	437122
Entity (or well #):	1	Analyst:	SHEILA HERNANDEZ
Formation:	WOLFCAMP	Analysis Date:	5/30/08
Sample Point:	FRAC TANK 234	Analysis Cost:	\$100.00
Sample Date:	5/13/08		

Cloud Point:	<68 °F
Weight Percent Paraffin (by GC)*:	1.49%
Weight Percent Asphaltenes:	0.03%
Weight Percent Oily Constituents:	98.41%
Weight Percent Inorganic Solids:	0.07%

\*Weight percent paraffin and peak carbon number includes only n-alkanes (straight chain hydrocarbons) greater than or equal to C20H42.



North Permian Basin Region  
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Sundown, TX 79372-0740  
(806) 229-8121  
Lab Team Leader - Sheila Hernandez  
(432) 495-7240

## Water Analysis Report by Baker Petrolite

Company:	CIMAREX ENERGY	Sales RDT:	44212
Region:	PERMIAN BASIN	Account Manager:	WAYNE PETERSON (505) 910-9389
Area:	CARLSBAD, NM	Sample #:	43887
Lease/Platform:	WIGEON UNIT	Analysis ID #:	82014
Entity (or well #):	23 FEDERAL 1	Analysis Cost:	\$80.00
Formation:	UNKNOWN		
Sample Point:	SEPARATOR		

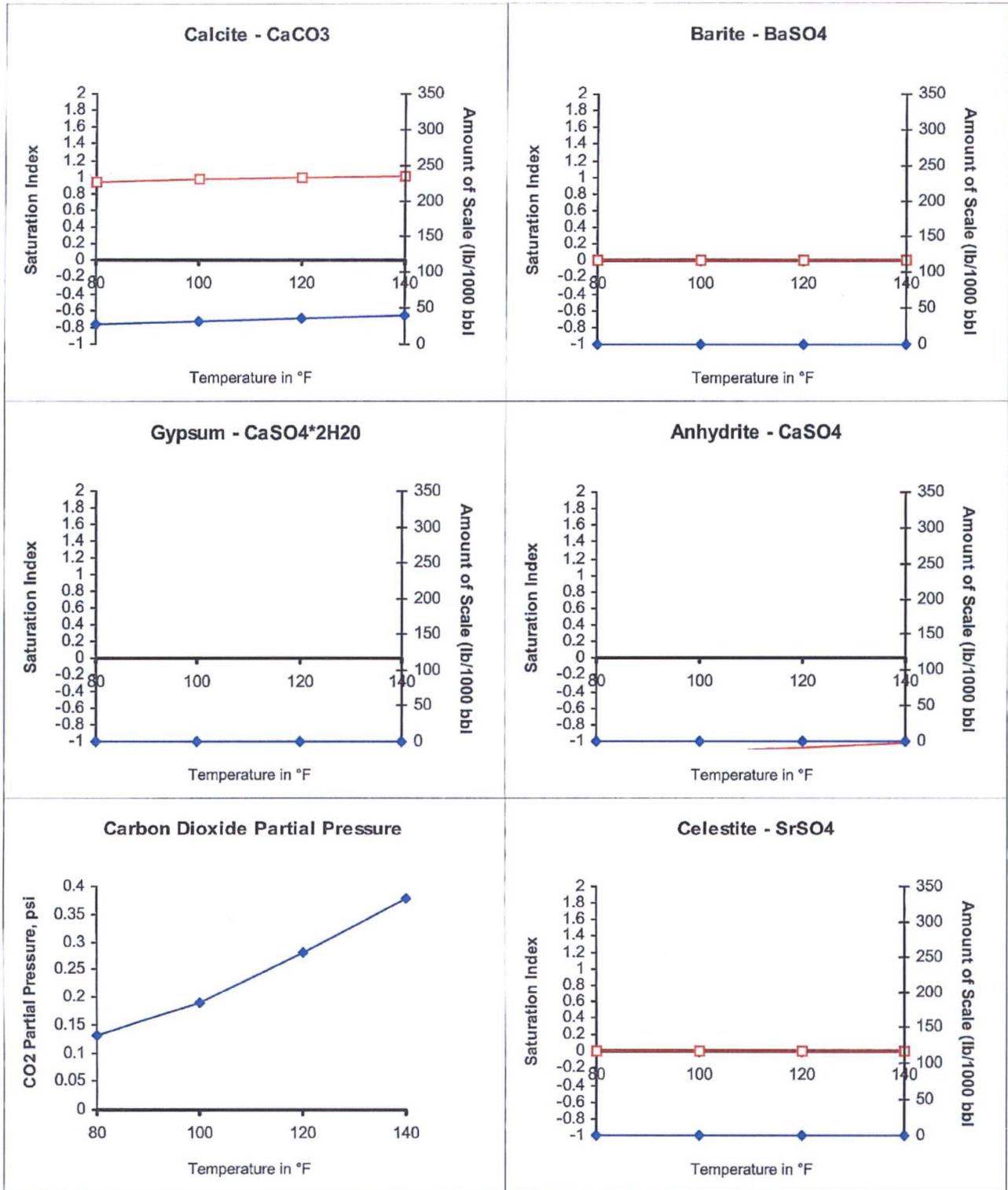
Summary	Analysis of Sample 43887 @ 75°F			
	Anions	mg/l	meq/l	Cations
Sampling Date: 05/14/08	Chloride:	55040.0	1552.48	Sodium: 32207.4 1400.94
Analysis Date: 05/15/08	Bicarbonate:	329.4	5.4	Magnesium: 268.0 22.05
Analyst: WAYNE PETERSON	Carbonate:	0.0	0.0	Calcium: 2780.0 138.72
TDS (mg/l or g/m3): 90873.3	Sulfate:	225.0	4.68	Strontium:
Density (g/cm3, tonne/m3): 1.062	Phosphate:			Barium:
Anion/Cation Ratio: 1	Borate:			Iron: 23.5 0.85
	Silicate:			Potassium:
Carbon Dioxide: 150 PPM	Hydrogen Sulfide:		0 PPM	Aluminum:
Oxygen:	pH at time of sampling:		7.31	Chromium:
Comments:	pH at time of analysis:			Copper:
TEST RAN IN THE FIELD	pH used in Calculation:		7.31	Lead:
				Manganese:
				Nickel:

Conditions		Values Calculated at the Given Conditions - Amounts of Scale in lb/1000 bbl										
Temp	Gauge Press.	Calcite CaCO <sub>3</sub>		Gypsum CaSO <sub>4</sub> ·2H <sub>2</sub> O		Anhydrite CaSO <sub>4</sub>		Celestite SrSO <sub>4</sub>		Barite BaSO <sub>4</sub>		CO <sub>2</sub> Press.
		Index	Amount	Index	Amount	Index	Amount	Index	Amount	Index	Amount	
°F	psi											psi
80	0	0.94	27.24	-1.11	0.00	-1.14	0.00	0.00	0.00	0.00	0.00	0.13
100	0	0.97	31.09	-1.16	0.00	-1.12	0.00	0.00	0.00	0.00	0.00	0.19
120	0	0.99	35.26	-1.20	0.00	-1.08	0.00	0.00	0.00	0.00	0.00	0.28
140	0	1.02	39.74	-1.23	0.00	-1.02	0.00	0.00	0.00	0.00	0.00	0.38

- Note 1: When assessing the severity of the scale problem, both the saturation index (SI) and amount of scale must be considered.
- Note 2: Precipitation of each scale is considered separately. Total scale will be less than the sum of the amounts of the five scales.
- Note 3: The reported CO<sub>2</sub> pressure is actually the calculated CO<sub>2</sub> fugacity. It is usually nearly the same as the CO<sub>2</sub> partial pressure.

## Scale Predictions from Baker Petrolite

Analysis of Sample 43887 @ 75 °F for CIMAREX ENERGY, 05/15/08





# LABORATORY SERVICES

Natural Gas Analysis

www.permianls.com

575.397.3713 2609 W Marland Hobbs NM 88240

For: Cimarex Energy  
Attention: Mark Cummings  
600 N. Marienfeld, Suite 600  
Midland, Texas 79701

Sample: Sta. # 309588438  
Identification: Taos Fed. #3 Sales  
Company: Cimarex Energy  
Lease:  
Plant:

Sample Data: Date Sampled 7/2/2014 10:30 AM  
Analysis Date 7/9/2014  
Pressure-PSIA 83  
Sample Temp F 76.4  
Atmos Temp F 76  
Sampled by: K. Hooten  
Analysis by: Vicki McDaniel

H2S =

### Component Analysis:

		Mol Percent	GPM
Hydrogen Sulfide	H2S		
Nitrogen	N2	0.618	
Carbon Dioxide	CO2	0.172	
Methane	C1	88.390	
Ethane	C2	7.080	1.889
Propane	C3	1.966	0.540
i-Butane	IC4	0.355	0.116
n-Butane	NC4	0.569	0.179
i-Pentane	IC5	0.198	0.072
n-Pentane	NC5	0.213	0.077
Hexanes Plus	C6+	0.439	0.190
		100.000	3.063

REAL BTU/CU.FT.		Specific Gravity	
At 14.65 DRY	1136.2	Calculated	0.6445
At 14.65 WET	1116.4		
At 14.696 DRY	1139.7		
At 14.696 WET	1120.3	Molecular Weight	18.6673
At 14.73 DRY	1142.4		
At 14.73 Wet	1122.6		

North Permian Basin Region  
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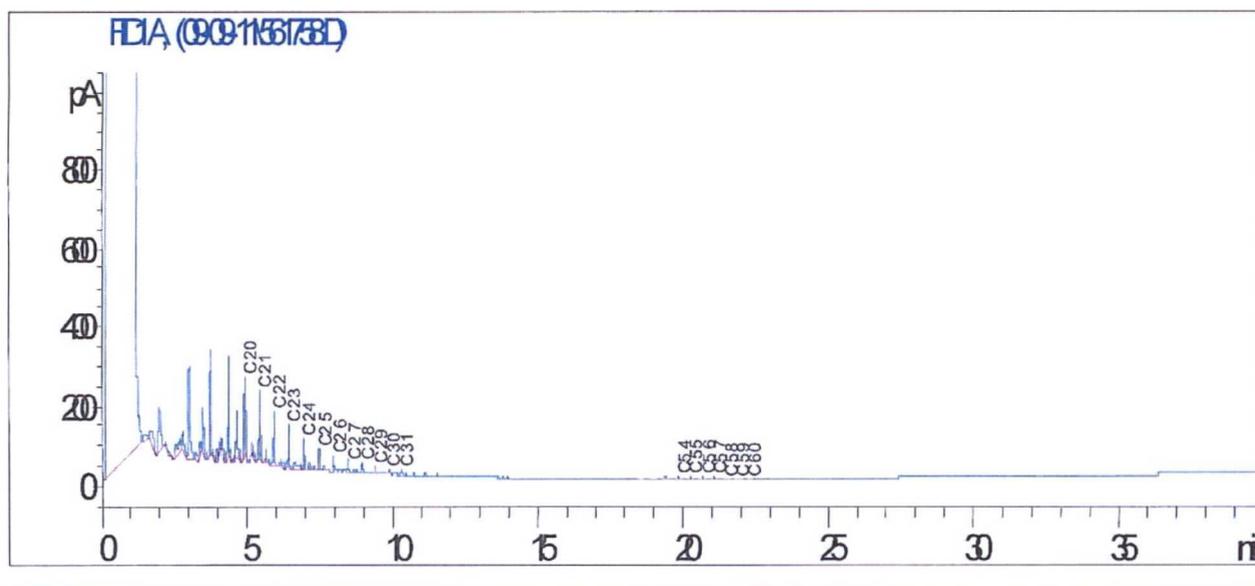
Lab Team Leader - Sheila Hernandez  
(432) 495-7240

## OIL ANALYSIS

Company:	CIMAREX ENERGY	Sales RDT:	33521
Region:	PERMIAN BASIN	Account Manager:	STEVE HOLLINGER (575) 910-9393
Area:	LOCO HILLS, NM	Analysis ID #:	5419
Lease/Platform:	TAOS FEDERAL LEASE	Sample #:	561758
Entity (or well #):	3	Analyst:	SHEILA HERNANDEZ
Formation:	UNKNOWN	Analysis Date:	09/13/11
Sample Point:	TANK	Analysis Cost:	\$125.00
Sample Date:	08/24/11		

Cloud Point:	89 ° F
Weight Percent Paraffin (by GC)*:	1.03%
Weight Percent Asphaltenes:	0.01%
Weight Percent Oily Constituents:	98.93%
Weight Percent Inorganic Solids:	0.03%

\*Weight percent paraffin and peak carbon number includes only n-alkanes (straight chain hydrocarbons) greater than or equal to C20H42.



North Permian Basin Region  
P.O. Box 740  
Sundown, TX 79372-0740  
(806) 229-8121  
Lab Team Leader - Sheila Hernandez  
(432) 495-7240

## Water Analysis Report by Baker Petrolite

Company:	CIMAREX ENERGY	Sales/RDT:	33521
Region:	PERMIAN BASIN	Account Manager:	STEVE HOLLINGER (575) 910-9393
Area:	CARLSBAD, NM	Sample #:	535681
Lease/Platform:	TAOS FEDERAL LEASE	Analysis ID #:	113272
Entity (or well #):	3	Analysis Cost:	\$90.00
Formation:	UNKNOWN		
Sample Point:	SEPARATOR		

Summary		Analysis of Sample 535681 @ 75 F					
		Anions		Cations			
		mg/l	meq/l	mg/l	meq/l		
Sampling Date:	09/28/11	Chloride:	52535.0	1481.82	Sodium:	28338.7	1232.66
Analysis Date:	10/13/11	Bicarbonate:	146.0	2.39	Magnesium:	417.0	34.3
Analyst:	SANDRA GOMEZ	Carbonate:	0.0	0.0	Calcium:	3573.0	178.29
TDS (mg/l or g/m3):	86836.7	Sulfate:	83.0	1.73	Strontium:	1472.0	33.6
Density (g/cm3; tonne/m3):	1.063	Phosphate:			Barium:	22.0	0.32
Anion/Cation Ratio:	1	Borate:			Iron:	34.0	1.23
Carbon Dioxide:	150 PPM	Silicate:			Potassium:	215.0	5.5
Oxygen:		Hydrogen Sulfide:		0 PPM	Aluminum:		
Comments:		pH at time of sampling:		6	Chromium:		
RESISTIVITY: 0.083 OHM-M @ 75F		pH at time of analysis:			Copper:		
		pH used in Calculation:		6	Lead:		
					Manganese:	1.000	0.04
					Nickel:		

Conditions		Values Calculated at the Given Conditions - Amounts of Scale in lb/1000 bbl										
Temp	Gauge Press.	Calcite CaCO <sub>3</sub>		Gypsum CaSO <sub>4</sub> ·2H <sub>2</sub> O		Anhydrite CaSO <sub>4</sub>		Celestite SrSO <sub>4</sub>		Barite BaSO <sub>4</sub>		CO <sub>2</sub> Press.
		Index	Amount	Index	Amount	Index	Amount	Index	Amount	Index	Amount	
80	0	-0.61	0.00	-1.46	0.00	-1.49	0.00	-0.05	0.00	1.22	11.59	1.14
100	0	-0.51	0.00	-1.51	0.00	-1.47	0.00	-0.07	0.00	1.04	10.94	1.44
120	0	-0.40	0.00	-1.54	0.00	-1.43	0.00	-0.07	0.00	0.89	10.30	1.76
140	0	-0.28	0.00	-1.57	0.00	-1.36	0.00	-0.06	0.00	0.75	9.66	2.07

- Note 1: When assessing the severity of the scale problem, both the saturation index (SI) and amount of scale must be considered.
- Note 2: Precipitation of each scale is considered separately. Total scale will be less than the sum of the amounts of the five scales.
- Note 3: The reported CO<sub>2</sub> pressure is actually the calculated CO<sub>2</sub> fugacity. It is usually nearly the same as the CO<sub>2</sub> partial pressure.



# NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

**BILL RICHARDSON**

Governor

**Joa nita Prukop**

Cabinet Secretary

**Mark E. Fesmire, P.E.**

Director

Oil Conservation Division

Administrative Order DHC-3871

Cimarex Energy Company of Colorado  
5215 N. O'Connor Blvd, Suite 1500  
Irving, TX 75039

Attention: Zeno Farris

Black Magic 6 Com Well No. 1  
API No. 30-015-34280  
Unit A, Section 6, Township 25 South, Range 26 East, NMPM,  
Eddy County, New Mexico  
Undesignated Chosa Draw-Morrow Gas (74900) and  
Undesignated Sage Draw-Atoka Gas (97334) Pools

Dear Mr. Farris:

Reference is made to your recent application for an exception to Rule 303.A. of the Division Rules and Regulations to permit the above-described well to commingle production from the subject pools in the wellbore.

It appearing that the subject well and pools qualify for approval for such exception pursuant to the provisions of Rule 303.C., and that reservoir damage or waste will not result from such downhole commingling, and correlative rights will not be violated thereby, you are hereby authorized to commingle the production as described above and any Division Order which authorized the dual completion or otherwise required separation of the zones is hereby placed in abeyance.

In accordance with Division 303C.(1)(f), the production attributed to any commingled pool within the well shall not exceed the allowable applicable to that pool.

Assignment of allowable to the well and allocation of production from the well shall be done after testing of all intervals to be commingled. **The applicant shall submit the allocation percentages to the Division within 60 days following completion of this well or workover.**

**REMARKS:** The operator shall notify the Artesia District Office of the Division upon implementation of commingling operations.

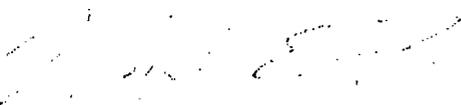
Administrative Order DHC-3871  
Cmrex Energy Company of Colorado  
April 12, 2007  
Page 2 of 2

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Pursuant to Rule 303C(2), the commingling authority granted herein may be rescinded by the Division Director if conservation is not being best served by such commingling.

Approved at Santa Fe, New Mexico on April 12, 2007.

STATE OF NEW MEXICO  
OIL CONSERVATION DIVISION



MARK E. FESMIRE, P.E.  
Director

cc: Oil Conservation Division – Artesia