

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

**APPLICATIONS OF CIMAREX ENERGY CO.  
FOR A HORIZONTAL SPACING UNIT  
AND COMPULSORY POOLING,  
LEA COUNTY, NEW MEXICO**

**CASE NOS. 23448-23455**

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

**CASE NOS. 23594-23601**

**APPLICATIONS OF READ & STEVENS, INC.  
FOR COMPULSORY POOLING,  
LEA COUNTY, NEW MEXICO.**

**CASE NOS. 23508-23523**

**NOTICE OF EXHIBIT I, J & K**

Read & Stevens, Inc. and Permian Resources Operating, LLC, applicant in the above-referenced cases, gives notice that it is filing the attached rebuttal exhibits for acceptance into the record.

**Exhibit I, J and K** are rebuttal exhibits.

Respectfully submitted,

HOLLAND & HART LLP



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Michael H. Feldewert  
Adam G. Rankin  
Julia Broggi  
Paula M. Vance  
Post Office Box 2208  
Santa Fe, New Mexico 87504-2208  
(505) 988-4421  
(505) 983-6043 Facsimile  
mfeldewert@hollandhart.com  
agrarkin@hollandhart.com  
jbroggi@hollandhart.com  
pmvance@hollandhart.com

**ATTORNEYS FOR READ & STEVENS, INC. &  
PERMIAN RESOURCES OPERATING, LLC**

**CERTIFICATE OF SERVICE**

I hereby certify that on August 8, 2023, I served a copy of the foregoing document to the following counsel of record via Electronic Mail:

Darin C. Savage  
Andrew D. Schill  
William E. Zimsky  
214 McKenzie Street  
Santa Fe, New Mexico 87501  
darin@abadieschill.com  
andrew@abadieschill.com  
bill@abadieschill.com

***Attorneys for Cimarex Energy Co.***

Blake C. Jones  
1780 Hughes Landing Blvd., Suite 750  
The Woodlands, TX 77380  
blake.jones@steptoe-johnson.com

***Attorney for Northern Oil and Gas, Inc.***

Sealy Cavin, Jr.  
Scott S. Morgan  
Brandon D. Hajny  
P. O. Box 1216  
Albuquerque, NM 87103  
(505) 243-5400  
scavin@cilawnm.com  
smorgan@cilawnm.com  
bhajny@cilawnm.com

***Attorneys for Sandstone Properties, LLC***



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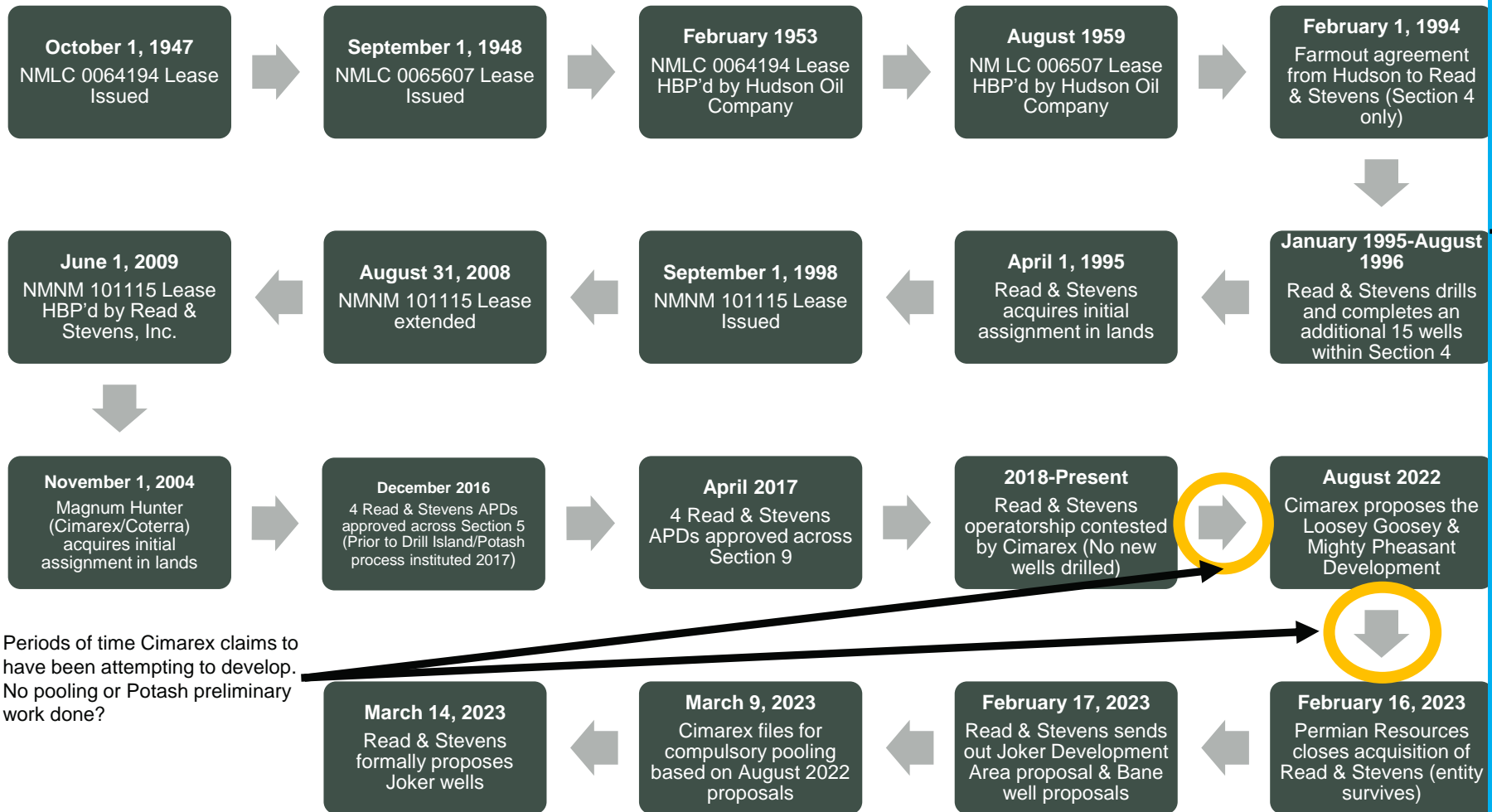
Adam G. Rankin

# EXHIBIT I

## REBUTTAL EX



### Brief Historical Timeline



Slide pertains to ALL cases



# Cimarex Brief Rebuttal

## EXHIBIT I

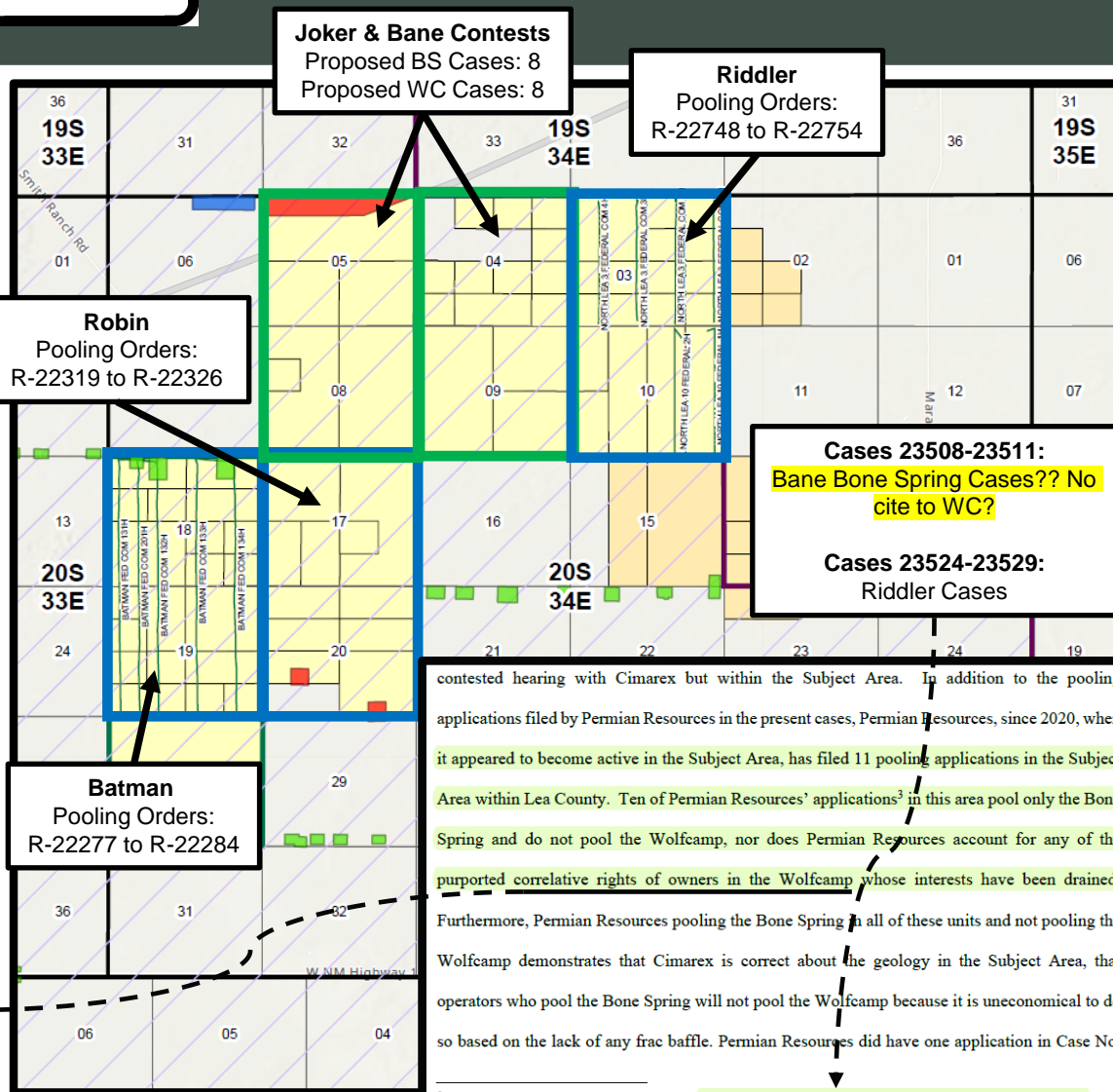
## Read & Stevens Rebuttal Ex I

### • Response to Incorrect Cimarex Statements:

- WHEREAS, Cimarex cites ten (10) Permian Bone Spring Cases and one (1) Wolfcamp case since 2020 (Factually Incorrect?)
- Batman: (Orders R-22277 to R-22284)
  - 4 Bone Spring Cases
  - 4 Wolfcamp Cases
- Robin: (Orders R-22319 to R-22326)
  - 4 Bone Spring Cases
  - 4 Wolfcamp Cases
- Riddler (Orders R-22748 to R-22754)
  - 4 Bone Spring Cases being overlapping spacing units pooling 1<sup>st</sup> & 2<sup>nd</sup> Bone Spring
  - 2 Bone Spring Cases pooling 3<sup>rd</sup> Bone Spring
  - 1 Wolfcamp Case to be co-developed with the above 3<sup>rd</sup> Bone pooled wells

### • Depth Severance Notes on existing Permian Bone Spring/Wolfcamp Orders: (Moot Point Regardless)

- Batman: One depth severance in NE of Section 19 whereas only owner impacted is Permian, owning 16 more acres in the WC
- Robin: No depth severances
- Riddler: No depth severances



\*Page 6 of Cimarex Brief dated July 26, 2023

Unclear why Cimarex chose to list the Bane Bone Spring cases as part of some sort of incorrect argument

Slide pertains to ALL cases



# Joker & Bane – Contractual vs. Leasehold Interest Summary

Joker = 1280.20 Gross Acres, Bane = 1282.20 Gross Acres

>>>

1280.20 + 1282.20 = 2562.40 Gross Total as shown below

Leasehold vs. Contractual Basis - Does it Change Correlative Rights Issues? (No)									
Owner	Joker & Bane - Leasehold Interest				Joker & Bane - Contractual Interest				Status
	Bone Spring	Wolfcamp	Delta	Formation Favor?	Bone Spring	Wolfcamp	Delta	Formation Favor?	
MRC Permian*	14.40	43.23	-28.82	Wolfcamp	14.40	43.23	-28.82	Wolfcamp	Neutral
HOG Partnership LP*	142.30	166.30	-24.00	Wolfcamp	136.76	158.91	-22.15	Wolfcamp	Neutral
Northern Oil & Gas*	9.94	29.84	-19.89	Wolfcamp	9.94	29.84	-19.89	Wolfcamp	PR Plan Support
Javelina Partners*	200.95	182.95	18.00	Bone Spring	191.12	174.51	16.62	Bone Spring	Cimarex Support
Zorro Partners, Ltd.*	133.40	133.40	0.00	N/A	129.64	129.64	0.00	N/A	Cimarex Support
Delmar Hudson Trust*	85.91	85.91	0.00	N/A	84.97	84.97	0.00	N/A	Term Assigned to Cimarex
First Century	133.55	180.34	-46.79	Wolfcamp	123.98	170.78	-46.79	Wolfcamp	PR Owned
Read & Stevens	607.51	672.79	-65.28	Wolfcamp	590.22	655.50	-65.28	Wolfcamp	PR Owned
CBR Oil Prop*	5.34	16.01	-10.67	Wolfcamp	5.34	16.01	-10.67	Wolfcamp	PR Support
Ard Oil*	69.58	69.58	0.00	N/A	66.76	66.76	0.00	N/A	PR Support
Josephine Hudson Trust*	25.74	25.74	0.00	N/A	24.80	24.80	0.00	N/A	Neutral
Magnum Hunter*	513.07	287.00	226.07	Bone Spring	541.45	315.38	226.07	Bone Spring	Cimarex Owned
CLM Production Co*	0.00	1.60	-1.60	Wolfcamp	0.00	1.60	-1.60	Wolfcamp	PR Support
Highland (Texas) Energy*	4.80	1.60	3.20	Bone Spring	4.80	1.60	3.20	Bone Spring	Neutral
Diamond Star Prod.*	1.60	1.60	0.00	N/A	1.60	1.60	0.00	N/A	PR Support
Carolyn Beall*	1.60	1.60	0.00	N/A	1.60	1.60	0.00	N/A	PR Support
Tierra Encantada*	1.60	1.60	0.00	N/A	1.60	1.60	0.00	N/A	PR Support
David Luna*	1.60	1.60	0.00	N/A	1.60	1.60	0.00	N/A	Neutral
Warren Associates*	0.00	1.60	-1.60	Wolfcamp	0.00	1.60	-1.60	Wolfcamp	PR Support
Cimarex Energy*	147.23	181.23	-34.00	Wolfcamp	148.73	182.73	-34.00	Wolfcamp	Cimarex Owned
Moore & Shelton*	61.32	61.32	0.00	N/A	58.00	58.00	0.00	N/A	Cimarex Support
Lindys Living Trust*	139.15	139.15	0.00	N/A	133.52	133.52	0.00	N/A	Term Assigned to Jav/Zorro
Challenger Crude*	51.36	51.36	0.00	N/A	51.36	51.36	0.00	N/A	Neutral
Avalon Energy Corp	10.00	0.00	10.00	Bone Spring	10.00	0.00	10.00	Bone Spring	PR Owned
Marks Oil*	10.46	20.06	-9.60	Wolfcamp	10.46	20.06	-9.60	Wolfcamp	Neutral
Prime Rock*	30.00	0.00	30.00	Bone Spring	30.00	0.00	30.00	Bone Spring	Neutral
Wilbanks Reserve*	55.56	106.56	-51.00	Wolfcamp	55.56	106.56	-51.00	Wolfcamp	Neutral
Bucholz (Union Hill)*	16.00	16.00	0.00	N/A	41.35	41.35	0.00	N/A	Neutral
Chase Oil Co*	33.43	33.43	0.00	N/A	33.43	33.43	0.00	N/A	PR Support
Foran Oil Co	49.00	49.00	0.00	N/A	53.85	53.85	0.00	N/A	Neutral
William A. Hudson II	6.00	0.00	6.00	Bone Spring	5.54	0.00	5.54	Bone Spring	Assigned to Zorro
<b>Totals:</b>	2562.40	2562.40		0.00	2562.40	2562.40			

	Total Bone Spring Net Acres	Bone Spring WI% (Full 4 Sections)	Total Wolfcamp Net Acres	Wolfcamp WI% (Full 4 Sections)
<b>Total PR Owned:</b>	<b>751.06</b>	29.31%	<b>853.13</b>	33.29%
<b>PR Supporters:</b>	124.69	4.87%	158.45	6.18%
<b>Total PR Support:</b>	875.74	34.18%	1011.59	39.48%
<b>Total Cimarex Owned:</b>	<b>746.21</b>	29.12%	<b>554.14</b>	21.63%
<b>Cimarex Supporters:</b>	540.83	21.11%	516.83	20.17%
<b>Total Cimarex Support:</b>	1287.03	50.23%	1070.97	41.80%

\*All ownership information obtained from 2023 title opinions and reports  
 \*Please note ownership differences between Bone Spring and Wolfcamp formations

\*Cimarex Ownership & Supporting Parties ownership heavily weighted towards Bone Spring formation (exposing the clear incentive/motivation to intentionally drain Wolfcamp with no account for owners as Cimarex's stated & filed plans have shown

Slide pertains to ALL cases



**EXHIBIT**  
**I**



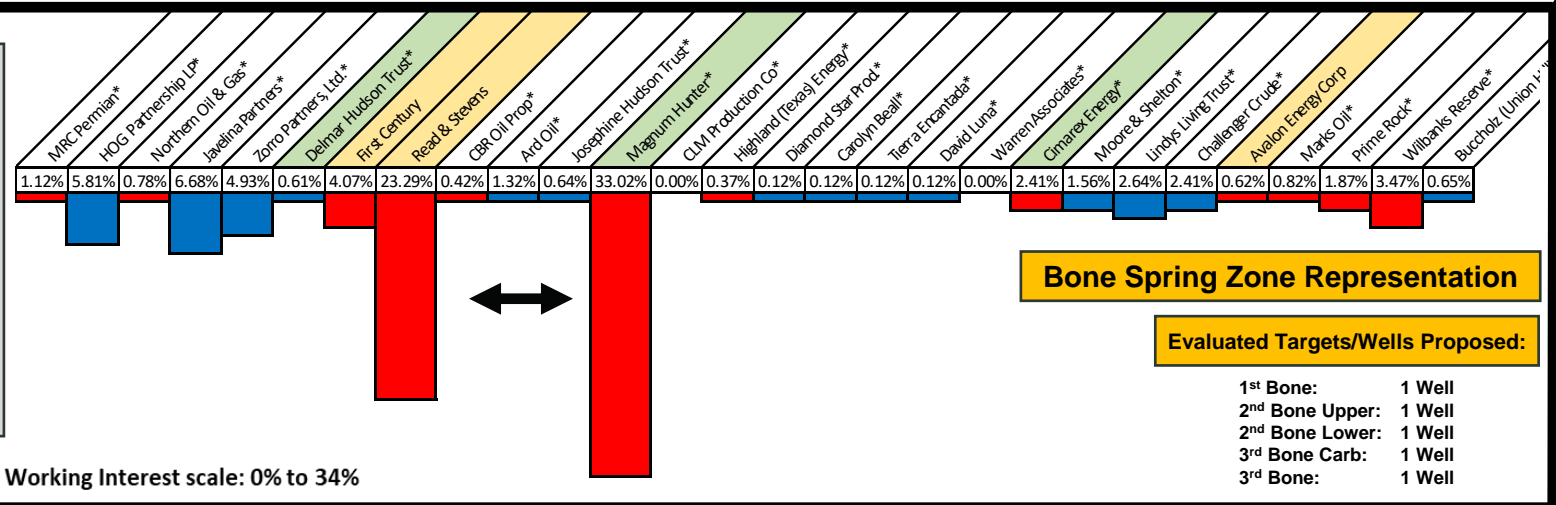
# Joker – W2W2 Equivalent – Cases 23516 & 23520

## Bone Spring & Wolfcamp Formations (Sections 5 & 8)

**Joker – W2W2 of Sections 5 & 8 (320.01 Gross Acres) – CONTRACTUAL DOI**

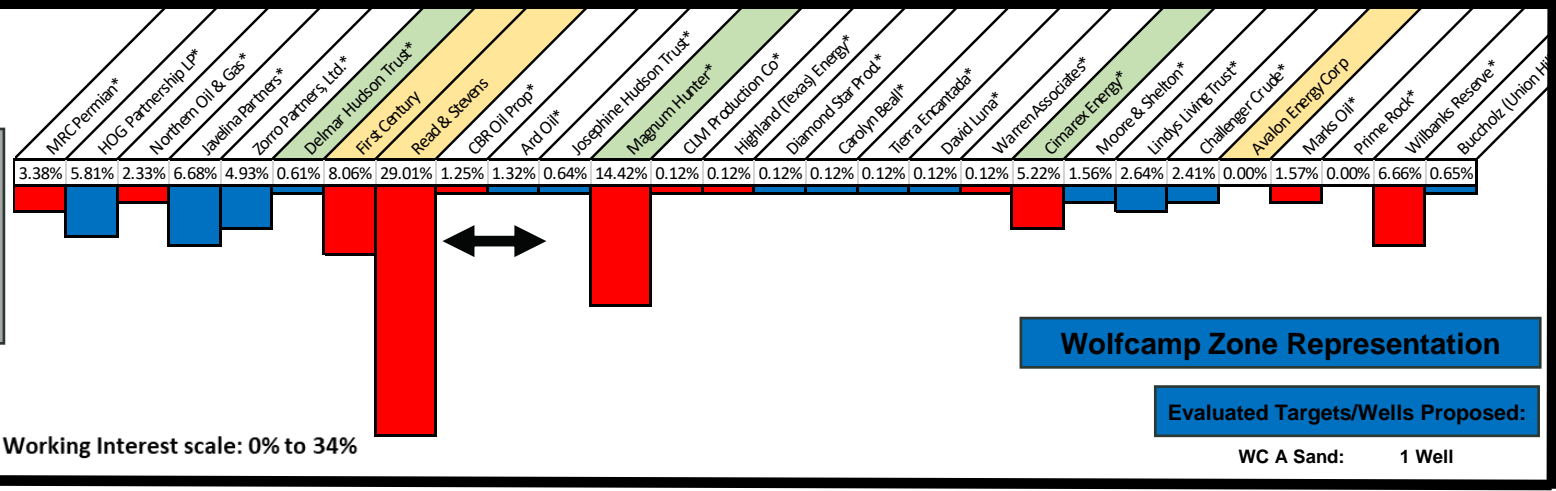
**POOLED INTERVAL**

Pool: Teas; Bone Spring, East [96637]



**POOLED INTERVAL**

Pool: Tonto; Wolfcamp [59500]



Slide pertains to cases 23516 & 23520

\*All ownership information obtained from 2023 title opinions and reports  
 \*\*Please note ownership differences between Bone Spring and Wolfcamp formations

\*Contractual Rights

RED BARS = DIFFERING OWNERSHIP BETWEEN BS & WC  
 BLUE BARS = SAME OWNERSHIP BETWEEN BS & WC



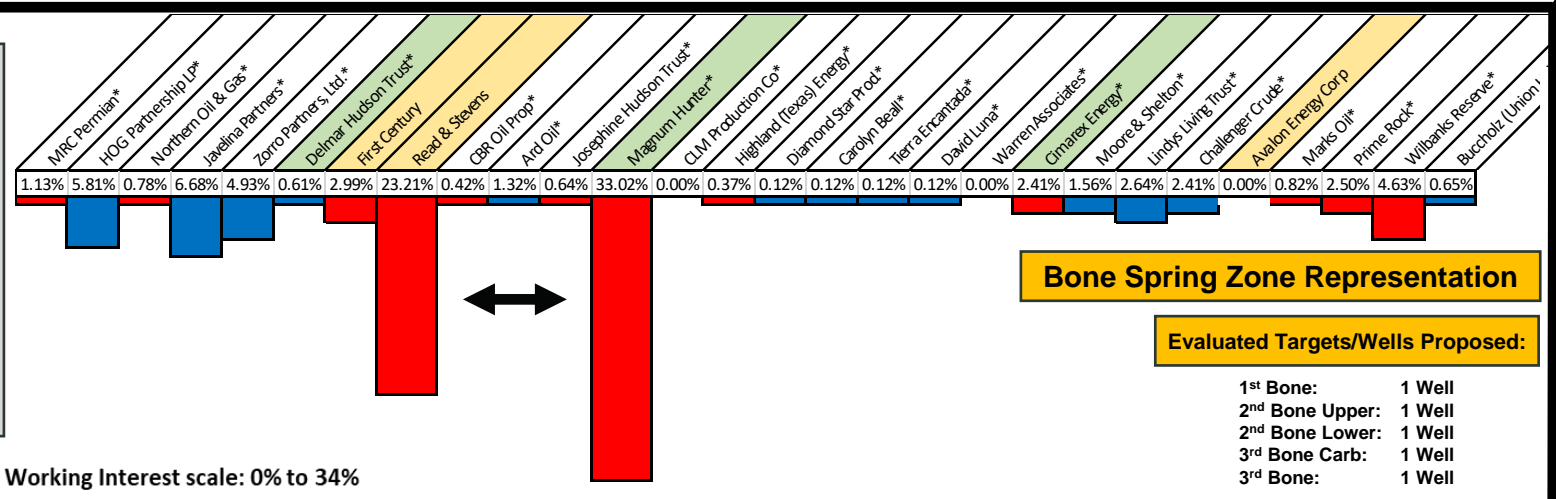
# Joker – E2W2 Equivalent – Cases 23517 & 23521 Bone Spring & Wolfcamp Formations (Sections 5 & 8)



## Joker – E2W2 of Sections 5 & 8 (320.04 Gross Acres) – CONTRACTUAL DOI

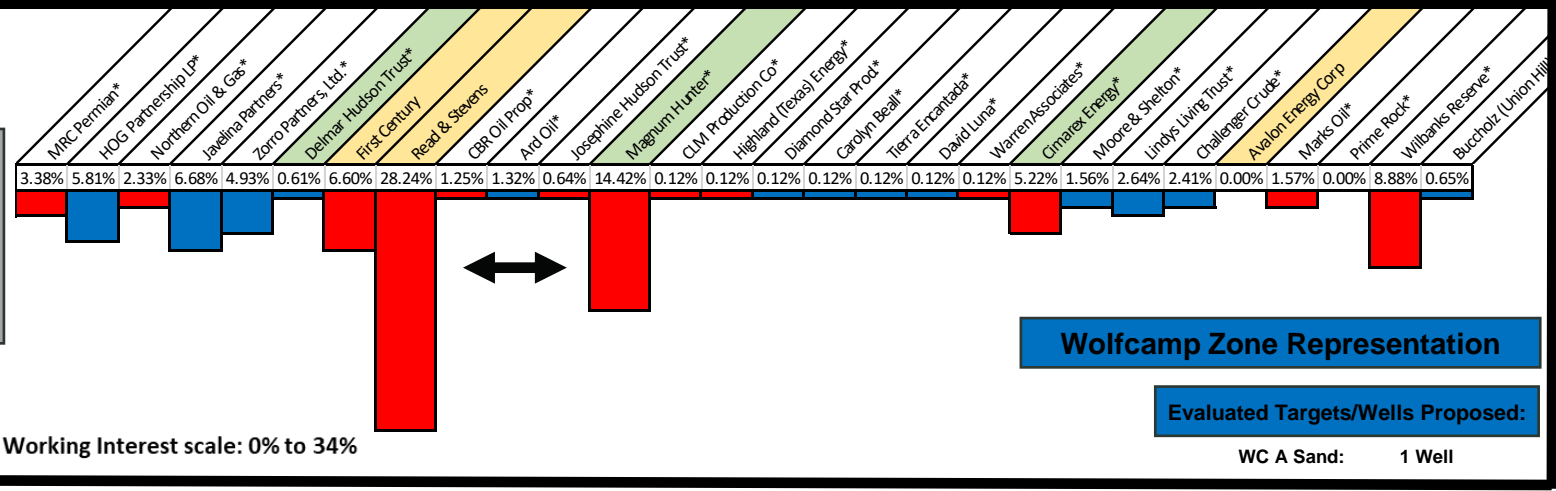
POOLED INTERVAL

Pool: Teas; Bone Spring, East [96637]



POOLED INTERVAL

Pool: Tonto; Wolfcamp [59500]



\*All ownership information obtained from 2023 title opinions and reports  
\*Please note ownership differences between Bone Spring and Wolfcamp formations

\*Contractual Rights

RED BARS = DIFFERING OWNERSHIP BETWEEN BS & WC  
BLUE BARS = SAME OWNERSHIP BETWEEN BS & WC

Slide pertains to cases 23517 & 23521



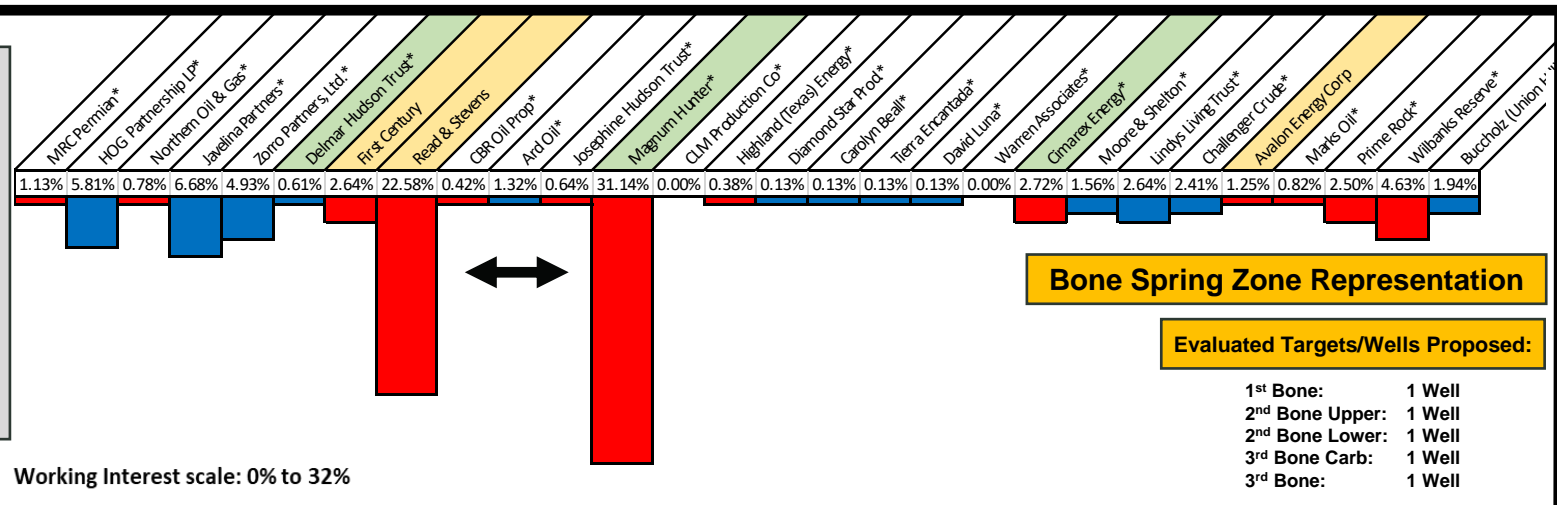
# Joker – W2E2 Equivalent – Cases 23518 & 23522

## Bone Spring & Wolfcamp Formations (Sections 5 & 8)

**Joker – W2E2 of Sections 5 & 8 (320.06 Gross Acres) – CONTRACTUAL DOI**

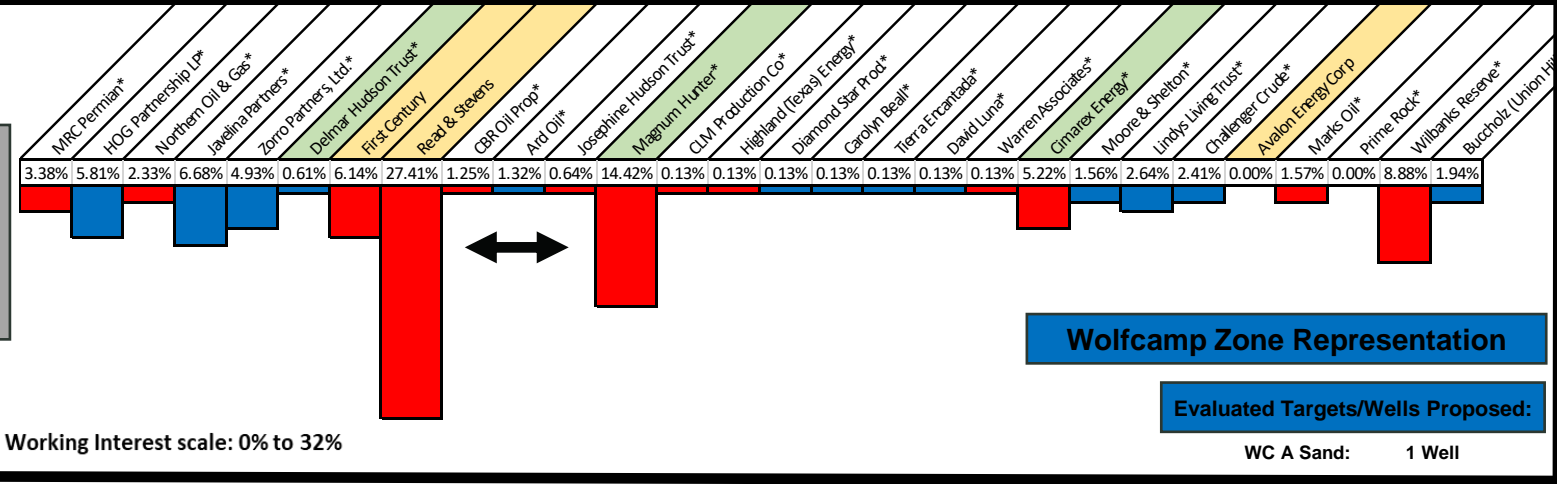
**POOLED INTERVAL**

Pool: Teas; Bone Spring, East [96637]



**POOLED INTERVAL**

Pool: Tonto; Wolfcamp [59500]



\*All ownership information obtained from 2023 title opinions and reports  
 \*Please note ownership differences between Bone Spring and Wolfcamp formations

\*Contractual Rights  
**RED BARS = DIFFERING OWNERSHIP BETWEEN BS & WC**  
**BLUE BARS = SAME OWNERSHIP BETWEEN BS & WC**



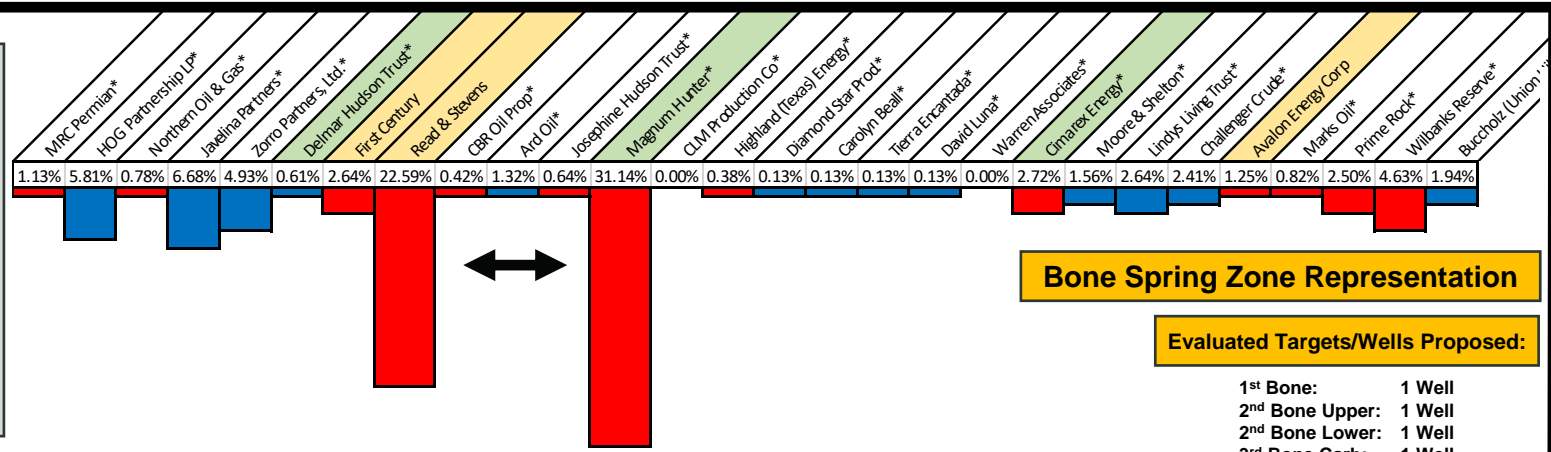
# Joker – E2E2 Equivalent – Cases 23519 & 23523

## Bone Spring & Wolfcamp Formations (Sections 5 & 8)

### Joker – E2E2 of Sections 5 & 8 (320.09 Gross Acres) – CONTRACTUAL DOI

**POOLED INTERVAL**

Pool: Teas; Bone Spring, East [96637]



**Bone Spring Zone Representation**

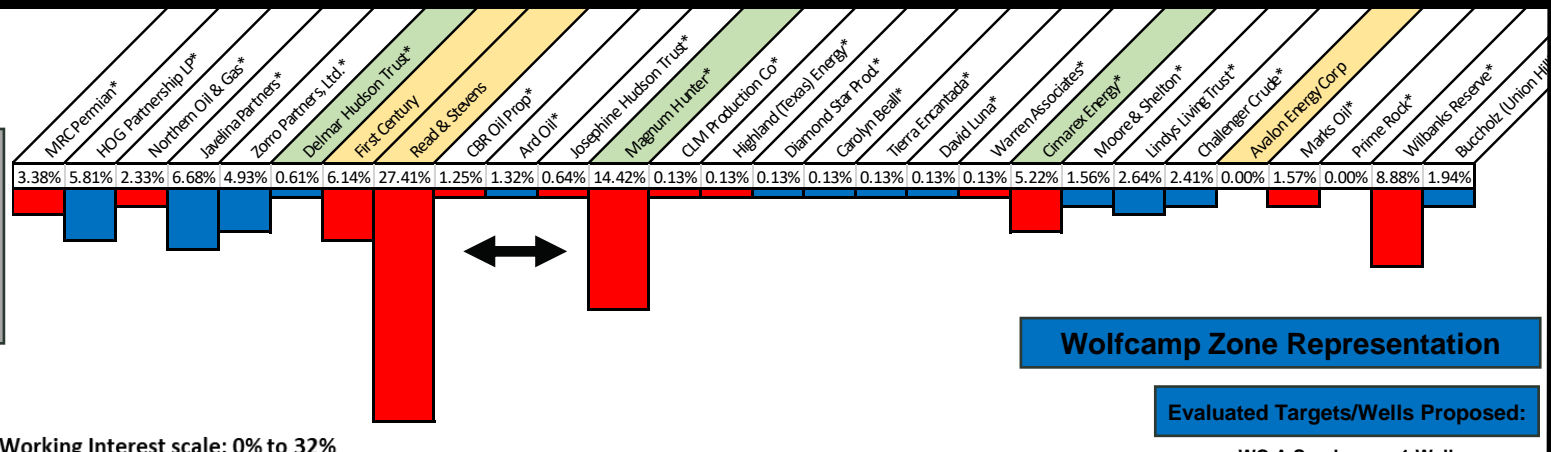
**Evaluated Targets/Wells Proposed:**

- 1<sup>st</sup> Bone: 1 Well
- 2<sup>nd</sup> Bone Upper: 1 Well
- 2<sup>nd</sup> Bone Lower: 1 Well
- 3<sup>rd</sup> Bone Carb: 1 Well
- 3<sup>rd</sup> Bone: 1 Well

Working Interest scale: 0% to 32%

**POOLED INTERVAL**

Pool: Tonto; Wolfcamp [59500]



**Wolfcamp Zone Representation**

**Evaluated Targets/Wells Proposed:**

- WC A Sand: 1 Well

Working Interest scale: 0% to 32%

\*All ownership information obtained from 2023 title opinions and reports  
 \*Please note ownership differences between Bone Spring and Wolfcamp formations

\*Contractual Rights  
**RED BARS = DIFFERING OWNERSHIP BETWEEN BS & WC**  
**BLUE BARS = SAME OWNERSHIP BETWEEN BS & WC**

Slide pertains to cases 23519 & 23523



# Bane – W2W2 Equivalent – Cases 23508 & 23512

## Bone Spring & Wolfcamp Formations (Sections 4 & 9)

**I**

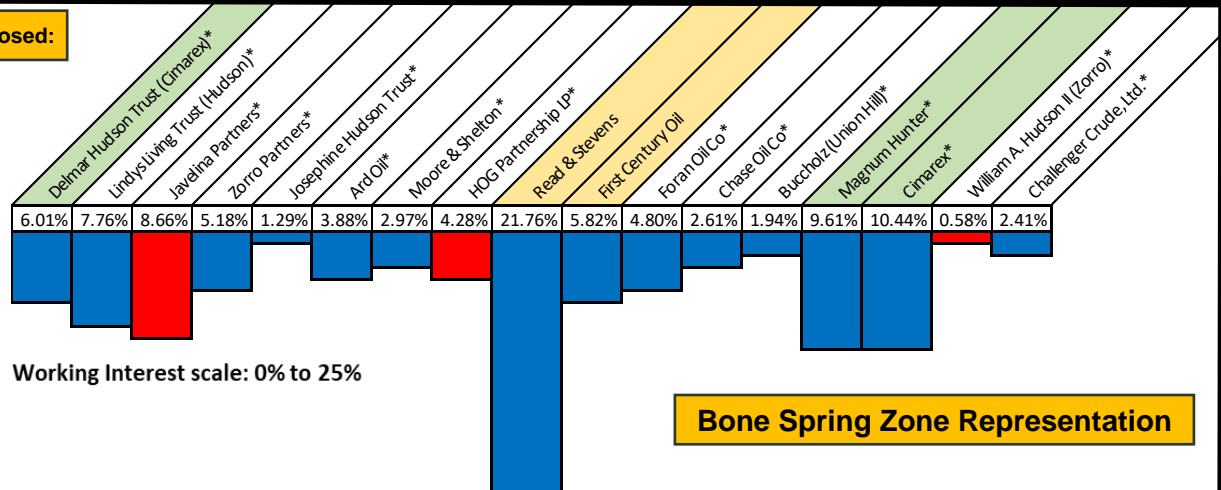
**Bane – W2W2 of Sections 4 & 9 (320.21 Gross Acres) – CONTRACTUAL DOI**

**POOLED INTERVAL**

Pool: Teas; Bone Spring, East [96637]

**Evaluated Targets/Wells Proposed:**

- 1<sup>st</sup> Bone: 1 Well
- 2<sup>nd</sup> Bone Upper: 1 Well
- 2<sup>nd</sup> Bone Lower: 1 Well
- 3<sup>rd</sup> Bone Carb: 1 Well
- 3<sup>rd</sup> Bone Sand: 1 Well



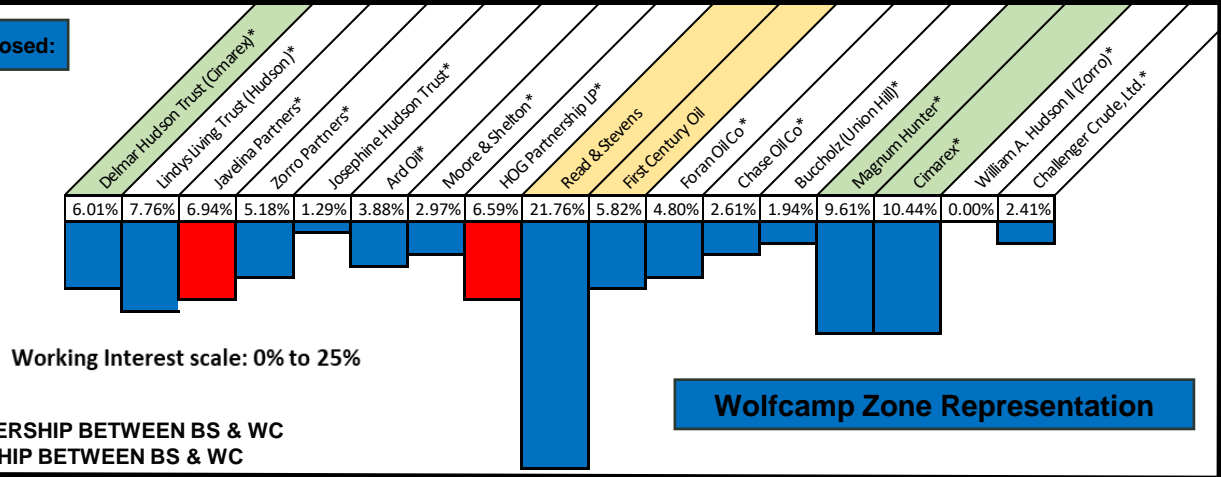
**Bone Spring Zone Representation**

**POOLED INTERVAL**

Pool: Tonto; Wolfcamp [59500]

**Evaluated Targets/Wells Proposed:**

- WC A Sand: 1 Well



**Wolfcamp Zone Representation**

RED BARS = DIFFERING OWNERSHIP BETWEEN BS & WC  
 BLUE BARS = SAME OWNERSHIP BETWEEN BS & WC

\*All ownership information obtained from 2023 title opinions and reports  
 \*Please note ownership differences between Bone Spring and Wolfcamp formations

\*Contractual Rights  
 \*Asterisk denotes pooled party

Slide pertains to cases 23508 & 23512

**EXHIBIT I**



# Bane – E2W2 Equivalent – Cases 23509 & 23513

## Bone Spring & Wolfcamp Formations (Sections 4 & 9)

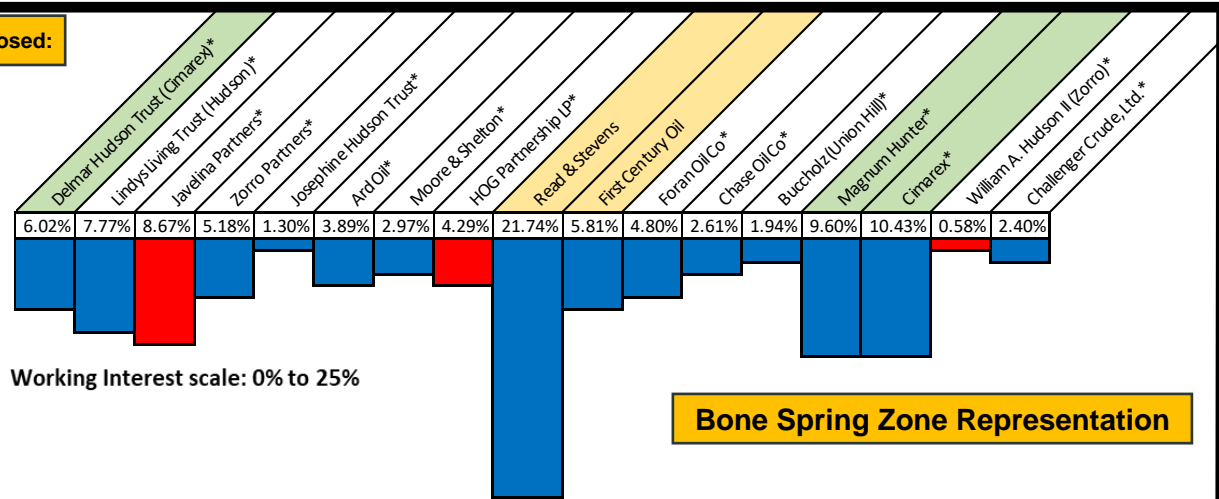
**Bane – E2W2 of Sections 4 & 9 (320.44 Gross Acres) – CONTRACTUAL DOI**

**POOLED INTERVAL**

Pool: Teas; Bone Spring, East [96637]

**Evaluated Targets/Wells Proposed:**

- 1<sup>st</sup> Bone: 1 Well
- 2<sup>nd</sup> Bone Upper: 1 Well
- 2<sup>nd</sup> Bone Lower: 1 Well
- 3<sup>rd</sup> Bone Carb: 1 Well
- 3<sup>rd</sup> Bone Sand: 1 Well



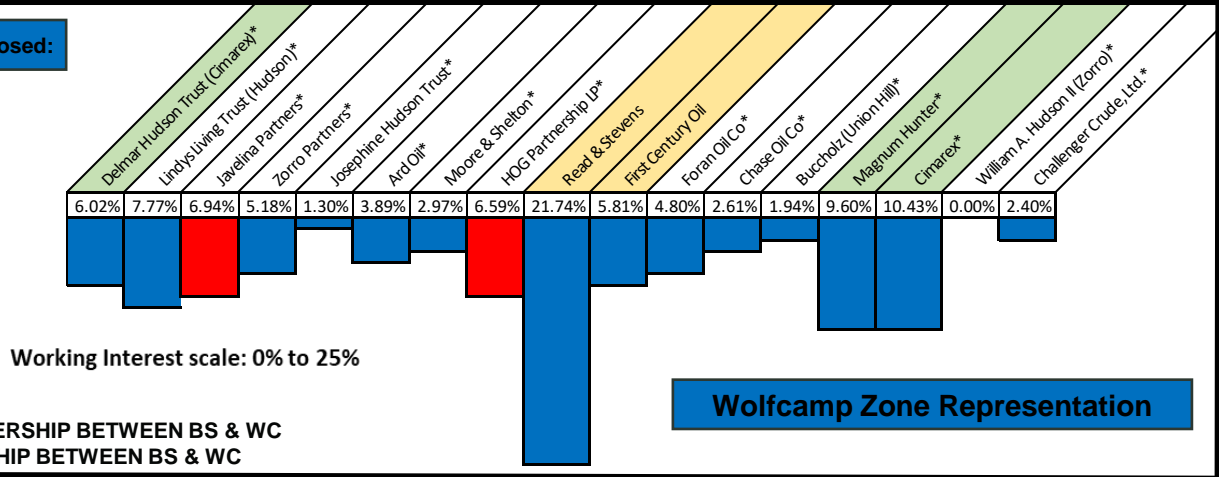
**Bone Spring Zone Representation**

**POOLED INTERVAL**

Pool: Tonto; Wolfcamp [59500]

**Evaluated Targets/Wells Proposed:**

- WC A Sand: 1 Well



**Wolfcamp Zone Representation**

RED BARS = DIFFERING OWNERSHIP BETWEEN BS & WC  
 BLUE BARS = SAME OWNERSHIP BETWEEN BS & WC

Slide pertains to cases 23509 & 23513

\*All ownership information obtained from 2023 title opinions and reports  
 \*Please note ownership differences between Bone Spring and Wolfcamp formations

\*Contractual Rights  
 \*Asterisk denotes pooled party



# Bane – W2E2 Equivalent – Cases 23510 & 23514

## Bone Spring & Wolfcamp Formations (Sections 4 & 9)

### Bane – W2E2 of Sections 4 & 9 (320.66 Gross Acres) – CONTRACTUAL DOI

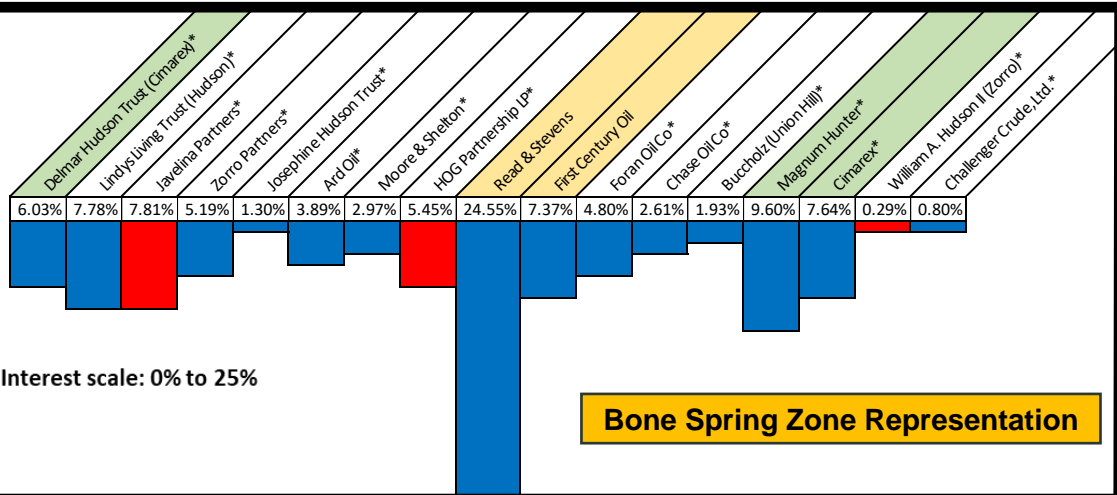
POOLED INTERVAL

Pool: Teas; Bone Spring, East  
[96637]

**Evaluated Targets/Wells Proposed:**

- 1<sup>st</sup> Bone: 1 Well
- 2<sup>nd</sup> Bone Upper: 1 Well
- 2<sup>nd</sup> Bone Lower: 1 Well
- 3<sup>rd</sup> Bone Carb: 1 Well
- 3<sup>rd</sup> Bone Sand: 1 Well

Working Interest scale: 0% to 25%



**Bone Spring Zone Representation**

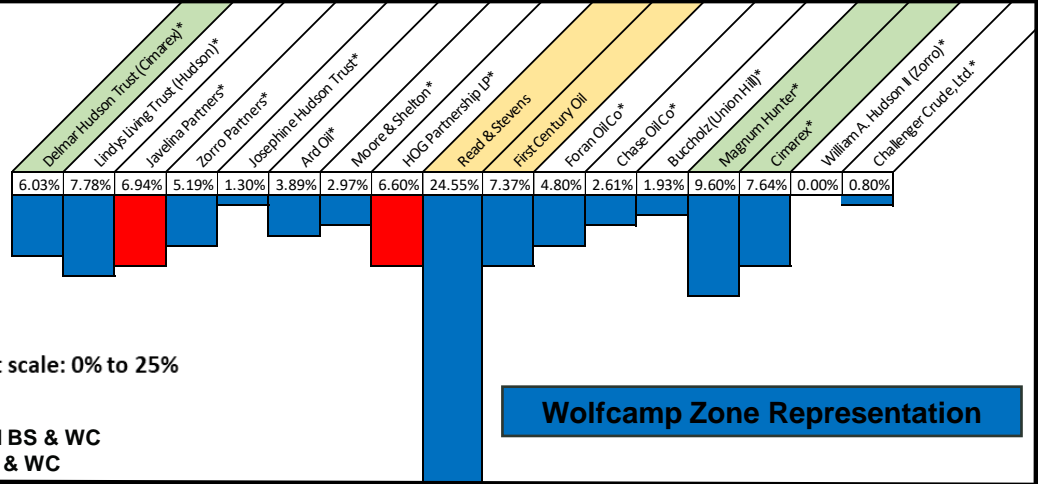
POOLED INTERVAL

Pool: Tonto; Wolfcamp [59500]

**Evaluated Targets/Wells Proposed:**

- WC A Sand: 1 Well

Working Interest scale: 0% to 25%



**Wolfcamp Zone Representation**

RED BARS = DIFFERING OWNERSHIP BETWEEN BS & WC  
BLUE BARS = SAME OWNERSHIP BETWEEN BS & WC

Slide pertains to cases 23510 & 23514

\*All ownership information obtained from 2023 title opinions and reports  
\*Please note ownership differences between Bone Spring and Wolfcamp formations

\*Contractual Rights  
\*Asterisk denotes pooled party



# Bane – E2E2 Equivalent – Cases 23511 & 23515

## Bone Spring & Wolfcamp Formations (Sections 4 & 9)

I

### Bane – E2E2 of Sections 4 & 9 (320.89 Gross Acres) – CONTRACTUAL DOI

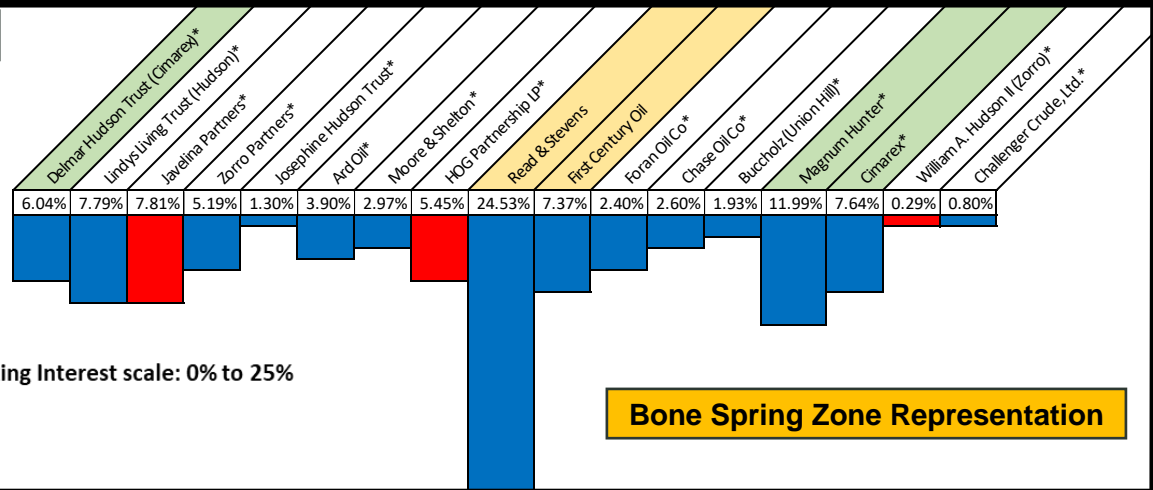
**POOLED INTERVAL**

Pool: Teas; Bone Spring, East  
[96637]

**Evaluated Targets/Wells Proposed:**

- 1<sup>st</sup> Bone: 1 Well
- 2<sup>nd</sup> Bone Upper: 1 Well
- 2<sup>nd</sup> Bone Lower: 1 Well
- 3<sup>rd</sup> Bone Carb: 1 Well
- 3<sup>rd</sup> Bone Sand: 1 Well

Working Interest scale: 0% to 25%



**Bone Spring Zone Representation**

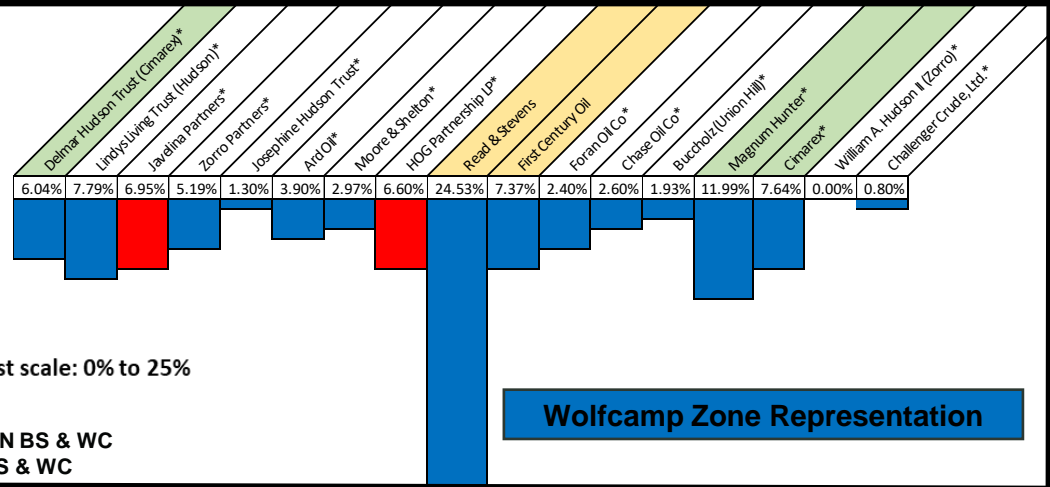
**POOLED INTERVAL**

Pool: Tonto;  
Wolfcamp [59500]

**Evaluated Targets/Wells Proposed:**

- WC A Sand: 1 Well

Working Interest scale: 0% to 25%



**Wolfcamp Zone Representation**

RED BARS = DIFFERING OWNERSHIP BETWEEN BS & WC  
BLUE BARS = SAME OWNERSHIP BETWEEN BS & WC

\*All ownership information obtained from 2023 title opinions and reports  
\*Please note ownership differences between Bone Spring and Wolfcamp formations

\*Contractual Rights  
\*Asterisk denotes pooled party

# CHASE OIL CORPORATION

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Post Office Box 1767  
Artesia, New Mexico 88211-1767  
Office (575) 746-9853  
FAX (575) 748-7374

August 1, 2023

Read & Stevens, Inc.  
c/o Permian Resources LLC  
300 N. Marienfeld Street, Suite 1000  
Midland, Texas 79701

RE: Bane Development  
Township 20 South, Range 34 East  
Sections 4 & 9

To Whom It May Concern:

The purpose of this letter is for Chase Oil Corporation, an impacted working interest owner in the above-referenced development, to adopt and ratify the statements and conclusions in the letter dated July 13, 2023 between Permian Resources LLC & Northern Oil & Gas, Inc. concerning the same.

Sincerely,

**Chase Oil Corporation**



Staci D. Sanders  
Vice President - Land



**From:** Robert Buchholz <robert@bigdallas.net>  
**Sent:** Thursday, August 3, 2023 7:49 AM  
**To:** Travis Macha  
**Subject:** Re: -EXTERNAL- T20S-R34E Union Hill Oil and Gas

**WARNING:** The sender of this email could not be validated and may not match the person in the "From" field.

We have not indicated support for Cimarex. Not sure where that's coming from.

On Thu, Aug 3, 2023 at 8:45 AM Travis Macha <[Travis.Macha@permianres.com](mailto:Travis.Macha@permianres.com)> wrote:

Hey Robert,

Looping back around to this, as you know the PR/Cimarex hearing is set for 8/9. They turned in some more stuff yesterday citing Union Hill as an active supporter of Cimarex's development. As of now our understanding Union Hill is a neutral party here. No hard feelings if you indeed are supporting Cimarex here but wanted to reach out your way and make that clarification.

Obviously we greatly value support here so if there's anything you need from me in the meantime feel free to let me know.

Thanks,



**Travis Macha** | NM Land Lead

O 432.400.1037 | [travis.macha@permianres.com](mailto:travis.macha@permianres.com)

300 N. Marienfeld Street, Suite 1000 | Midland, TX 79701

[permianres.com](http://permianres.com)

Permian Resources is a result of the merger of Centennial Resource Development and Colgate Energy effective September 1, 2022.



March 24, 2023

**VIA U.S. REGULAR MAIL AND  
EMAIL TO: [travis.macha@permianres.com](mailto:travis.macha@permianres.com)**

Mr. Travis Macha  
Senior Landman  
Permian Resources Operating, LLC  
300 N. Marienfeld Street, Suite 1000  
Midland, TX 79701

RE: Bane 4-9 Federal Com – Well Proposals  
Sections 4 & 9, Township 20 South, Range 34 East  
Lea County, New Mexico

Dear Mr. Macha:

On February 22, 2023, Marks Oil, Inc. (“Marks”) received a letter dated February 17, 2023, from Permian Resources Operating, LLC, as operator for Reed & Stevens, Inc. (“Permian”) setting forth the proposal (the “Permian Proposal”) to drill the following twenty-four (24) wells: Bane 4-9 Federal Com 111H, 112H, 113H, 114H, 121H, 122H, 123H, 124H, 125H, 126H, 127H, 128H, 171H, 172H, 173H, 174H, 131H, 132H, 133H, 134H, 201H, 202H, 203H, and 204H (collectively the “Wells”) located in Sections 4 & 9, Township 20 South, Range 34 East, Lea County, New Mexico (collectively the “Lands”).

Marks has also received proposals from Reed & Stevens, Inc. dated September 15, 2022, Cimarex Energy Co. (“Cimarex”) dated August 25, 2022, and MRC Permian Company dated August 30, 2022, all of which propose drilling multiple horizontal wells located on the Lands and targeting the same formations in the Permian Proposal.

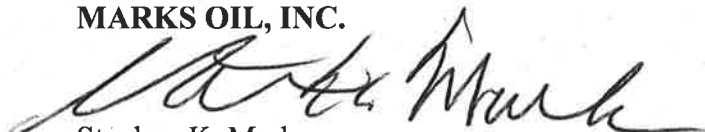
Marks understands that a dispute exists between Permian and Cimarex as to operational rights and privileges associated with both the Lands and applicable Joint Operating Agreements. Regardless of this dispute, Marks will exercise its rights of participation in any operational proposal on the Lands, drilling or otherwise, with a party authorized to conduct such operations by the New Mexico Conservation Division or other appropriate governing body.

Mr. Travis Macha  
Permian Resources Operating, LLC  
March 24, 2023  
Page 2

If you have any questions, please contact me at (303) 861-1974 or by email to [Steve.Marks@MarksOil.net](mailto:Steve.Marks@MarksOil.net).

Sincerely,

**MARKS OIL, INC.**

A handwritten signature in black ink, appearing to read "Steve Marks", written over the printed name.

Stephen K. Marks  
President

Permian Resources-Bane Proposals\_MOI ltr 032423\_SKM

# CHALLENGER CRUDE, LTD

3525 Andrews Highway  
Midland, TX 79703  
(432) 694-3000

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March 20, 2023

Permian Resources Operating LLC  
Attn: Travis Macha  
300 N. Marienfeld Street, Ste 1000  
Midland, TX 79701

RE: Well Proposal – Bane 4-9 Fed Com Lease (24 Wells)  
Section 4 & 9, T20S, R34E  
Lea County, NM

Dear Mr. Macha:

Enclosed please find executed AFEs for the Bane 4-9 Federal Com lease consisting of 24 wells along with Challenger’s well requirements. Challenger Crude Ltd. (“Challenger”) hereby elects to participate in the proposed drilling and completion of said wells. Challenger recognizes that Permian Resources Operating LLC and Coterra Energy Inc (Cimarex Energy Co.) are each pursuing operatorship in the same formation within the same tract of land. Challenger is not interested in picking winners or losers in this matter. Challenger intends to participate in the respective wells proposed regardless of which company succeeds in being named operator. Once operatorship has been finally determined, Challenger will consider execution of an appropriate operating agreement to supersede and replace any existing or legacy operating agreements that may be in effect.

Please keep us informed as to the progress of this project. Feel free to contact me should you have further questions or comments.

Thank you,



Kymberly Holman, CPLTA, CPL  
Landman

**CHALLENGER CRUDE LTD.  
WELL REQUIREMENT SHEET**

- I. Prior to commencement of drilling:
- A. One copy of all required governmental notices and regulatory forms
- B. One copy of the Operator's well prognosis and drilling and completion program  
Directed to: Challenger Crude Ltd.  
3525 Andrews Highway  
Midland, Texas 79703  
Attn: OBO File
- Reports to: [reports@henryresources.com](mailto:reports@henryresources.com)
- II. During the drilling, testing, completion and workover operations:
- A. **Daily Reports:**  
Daily reports by email to ([reports@henryresources.com](mailto:reports@henryresources.com)) of all operations from spud through completion.  
Reports will include present total depth, status, sample descriptions (if applicable), DST or testing details, rate of penetration, pertinent mud properties and other engineering data.
- B. **Logs and formation Tests:**  
Operator shall notify as early as possible when coring, testing, logging, and other such operations are anticipated so that Non-Operator may have a representative present. Log information should be e mailed to Patrick Cohorn ([PCohorn@HenryResources.com](mailto:PCohorn@HenryResources.com)) as soon as possible following the job, but no later than 48 hours after completion of the logging job.
- C. **Mudlogs:**  
If Mudlogs are run, Daily Mudlog and morning reports should be emailed to Patrick Cohorn ([PCohorn@HenryResources.com](mailto:PCohorn@HenryResources.com)) no later than 9:00 AM.
- D. **Well Logs:**  
Cased Hole Compensated Neutron-GR (Base of surface casing to TD)  
**Minimum Requirement:**  
Electric Logs- if run  
CNL-FDC w/GR and caliper – if run  
BHC Sonic w/GR and caliper – if run  
Any other logs  
**Final Log copies required should be delivered to:**  
Challenger Crude Ltd.  
3525 Andrews Highway  
Midland, Texas  
Attn: Patrick Cohorn  
**Number of Copies to Office:**
- |   |  |
|---|--|
| 4 | Electric Logs (Final Prints)                   |
| 1 | Digital Log LAS file with Final Log Tif images |
| 2 | Mud Logs (Final)                               |
| 1 | Drill Stem Test charts and results – if run    |
| 2 | Analyses (Core, Water, Fluid, Etc.) if run     |
| 1 | Abandonment Report                             |
| 1 | Completion Report                              |
- III. Production Information as reported to the state should be emailed to Laurie Richards ([RWilson@HenryResources.com](mailto:RWilson@HenryResources.com))

**PARTIES TO BE NOTIFIED IN ADVANCE OF DRILLSTEM TESTING, CORING, LOGGING OR ABANDONMENT OF WELL:**

Forrest Collier  
Office: 432-694-3000  
Fax: 432-694-2999  
[FCollier@HenryResources.com](mailto:FCollier@HenryResources.com)

Patrick Cohorn  
Office: 432-694-3000  
Fax: 432-694-2999  
[PCohorn@HenryResources.com](mailto:PCohorn@HenryResources.com)

# CHALLENGER CRUDE, LTD

3525 Andrews Highway  
Midland, TX 79703  
(432) 694-3000

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April 4, 2023

Permian Resources Operating LLC  
Attn: Travis Macha  
300 N. Marienfeld Street, Ste 1000  
Midland, TX 79701

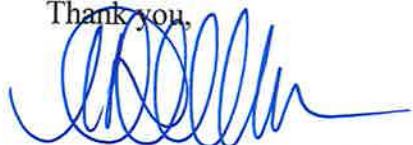
RE: Well Proposal – Joker 5-8 Fed Com Lease (24 Wells)  
Section 5 & 8, T20S, R34E  
Lea County, NM

Dear Mr. Macha:

Enclosed please find executed AFEs for the Joker 5-8 Federal Com lease consisting of 24 wells along with Challenger's well requirements. Challenger Crude Ltd. ("Challenger") hereby elects to participate in the proposed drilling and completion of said wells. Challenger recognizes that Permian Resources Operating LLC and Coterra Energy Inc (Cimarex Energy Co.) are each pursuing operatorship in the same formation within the same tract of land. Challenger is not interested in picking winners or losers in this matter. Challenger intends to participate in the respective wells proposed regardless of which company succeeds in being named operator. Once operatorship has been finally determined, Challenger will consider execution of an appropriate operating agreement to supersede and replace any existing or legacy operating agreements that may be in effect.

Please keep us informed as to the progress of this project. Feel free to contact me should you have further questions or comments.

Thank you,



Kymerly Holman, CPLTA, CPL  
Landman

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- I. Prior to commencement of drilling:
  - A. One copy of all required governmental notices and regulatory forms
  - B. One copy of the Operator's well prognosis and drilling and completion program  
 Directed to: Challenger Crude Ltd.  
 3525 Andrews Highway  
 Midland, Texas 79703  
 Attn: OBO File  
  
 Reports to: [reports@henryresources.com](mailto:reports@henryresources.com)
- II. During the drilling, testing, completion and workover operations:
  - A. **Daily Reports:**  
 Daily reports by email to ([reports@henryresources.com](mailto:reports@henryresources.com)) of all operations from spud through completion.  
 Reports will include present total depth, status, sample descriptions (if applicable), DST or testing details, rate of penetration, pertinent mud properties and other engineering data.
  - B. **Logs and formation Tests:**  
 Operator shall notify as early as possible when coring, testing, logging, and other such operations are anticipated so that Non-Operator may have a representative present. Log information should be e mailed to Patrick Cohorn ([PCohorn@HenryResources.com](mailto:PCohorn@HenryResources.com)) as soon as possible following the job, but no later than 48 hours after completion of the logging job.
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  - D. **Well Logs:**  
 Cased Hole Compensated Neutron-GR (Base of surface casing to TD)  
**Minimum Requirement:**  
 Electric Logs- if run  
 CNL-FDC w/GR and caliper – if run  
 BHC Sonic w/GR and caliper – if run  
 Any other logs  
**Final Log copies required should be delivered to:**  
 Challenger Crude Ltd.  
 3525 Andrews Highway  
 Midland, Texas  
 Attn: Patrick Cohorn  
**Number of Copies to Office:**
    - 4 Electric Logs (Final Prints)
    - 1 Digital Log LAS file with Final Log Tif images
    - 2 Mud Logs (Final)
    - 1 Drill Stem Test charts and results – if run
    - 2 Analyses (Core, Water, Fluid, Etc.) if run
    - 1 Abandonment Report
    - 1 Completion Report
- III. Production Information as reported to the state should be emailed to Laurie Richards ([RWilson@HenryResources.com](mailto:RWilson@HenryResources.com))

**PARTIES TO BE NOTIFIED IN ADVANCE OF DRILLSTEM TESTING, CORING, LOGGING OR ABANDONMENT OF WELL:**

Forrest Collier	Patrick Cohorn
Office: 432-694-3000	Office: 432-694-3000
Fax: 432-694-2999	Fax: 432-694-2999
<a href="mailto:FCollier@HenryResources.com">FCollier@HenryResources.com</a>	<a href="mailto:PCohorn@HenryResources.com">PCohorn@HenryResources.com</a>

J:Well Requirements/Challenger Revised 08-22-2017



# Challenger Crude, Ltd.

3525 Andrews Hwy.  
Midland, Texas 79703  
432-693-3000

August 7, 2023

Darin C. Savage  
Attorney for Cimarex Energy Co.

[darin@abadieschill.com](mailto:darin@abadieschill.com)

Michael H. Feldewert  
Attorney for Read & Stevens, Inc.

[mfeldewert@hollandhart.com](mailto:mfeldewert@hollandhart.com)

Re: Application of Cimarex Energy Co., NMOCD Case Numbers 23594 through 23601  
Application of Cimarex Energy Co., NMOCD Case Numbers 23448 through 23455  
Application of Read & Stevens, Inc., NMOCD Case Numbers 23508 through 23523

Gentlemen:

In September of 2022, Cimarex Energy Co. (“Cimarex”) presented to Challenger Crude, Ltd. (“Challenger”) a proposal to drill and complete certain wells within Sections 5 & 8, T-20-S, R-34-E, NMPM, Lea County, New Mexico. On September 28, 2022, Challenger elected to participate in the Cimarex proposed development plan by signing and returning a proposed operating agreement. Subsequent to Challenger’s election to participate, Read & Stevens, Inc. through its designated operator, Permian Resources Operating, LLC (collectively referred to herein as “Read & Stevens”), approached Challenger with a competing plan of development. The competing plans of development by Cimarex and Read & Stevens are currently being contested in the above referenced Applications for Compulsory Pooling filed in the identified NMOCD Case Numbers.

Challenger wishes to express to the applicants and the NMOCD that Challenger prefers to remain neutral insofar as resolution of the competing applications is concerned. Challenger is committed to participating in development of the subject lands pursuant to whichever plan is determined by the NMOCD to prevail and will execute such agreements as may be necessary or appropriate, including without limitation voluntary Communitization Agreements and a mutually acceptable operating agreement. For the avoidance of doubt, Challenger is not by this letter repudiating the Cimarex operating agreement previously executed by Challenger on September 28<sup>th</sup> and will abide by the terms of such operating agreement should the NMOCD determine that the Cimarex plan of development prevails.

Should there be any questions, please feel free to contact the undersigned at [mcurry@henryresources.com](mailto:mcurry@henryresources.com) or direct line 432.681.7237.

Very truly yours,

**CHALLENGER CRUDE, LTD.**

By,   
Michel E. Curry  
VP Land/Sr. Counsel





# E. G. L. Resources, Inc.

August 3, 2023

Permian Resources  
300 N. Marienfeld Street, Suite 1000  
Midland, TX 79701

RE: **NMOCD Case # 23508-23523**  
Joker Development

To Whom It May Concern:

The purpose of this letter is to allow EGL Resources, Inc. ("EGL") as an impacted operator within the area the opportunity to make a reference to its opinion on the development strategy.

EGL, as an offset operator in similar geology, has been observing the ongoing cases between Permian Resources Operating and Cimarex Energy Company. EGL is presently exploring the co-development of the Bone Spring and Wolfcamp formations together and has concern for any precedent Cimarex is attempting to set by restricting the development of the Wolfcamp formation.

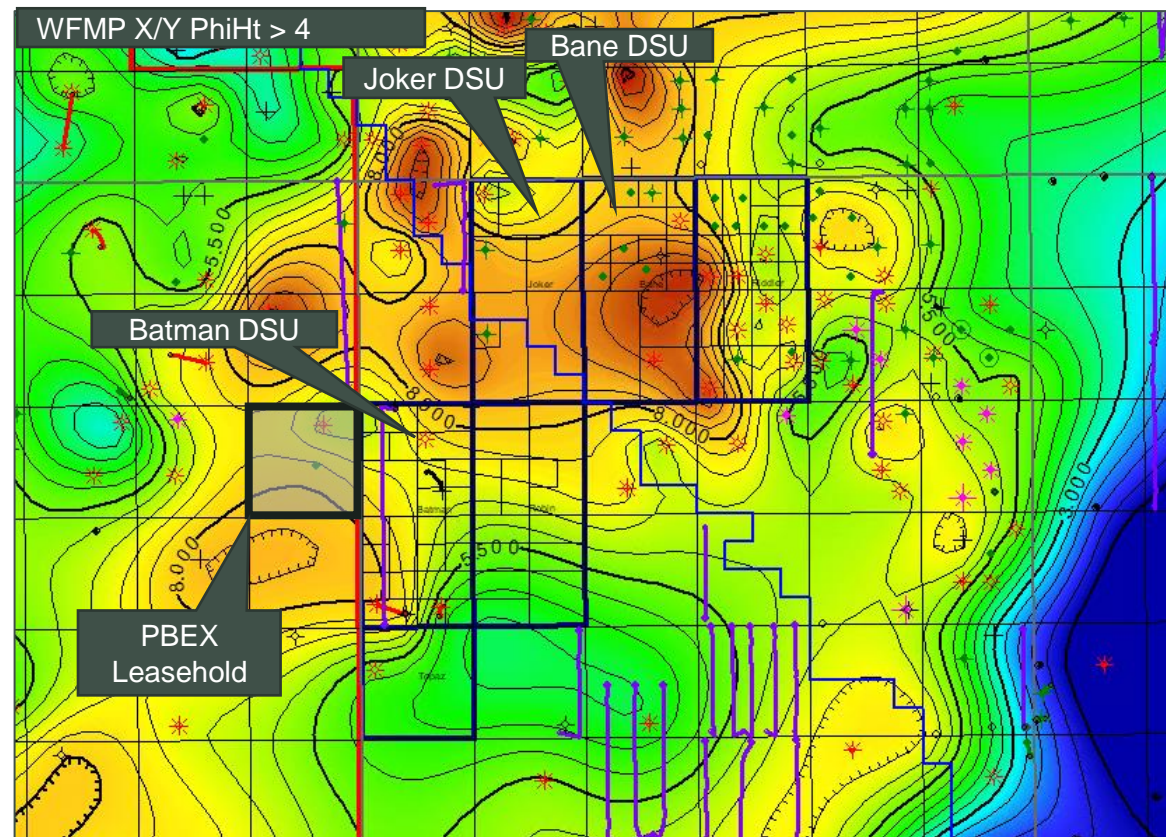
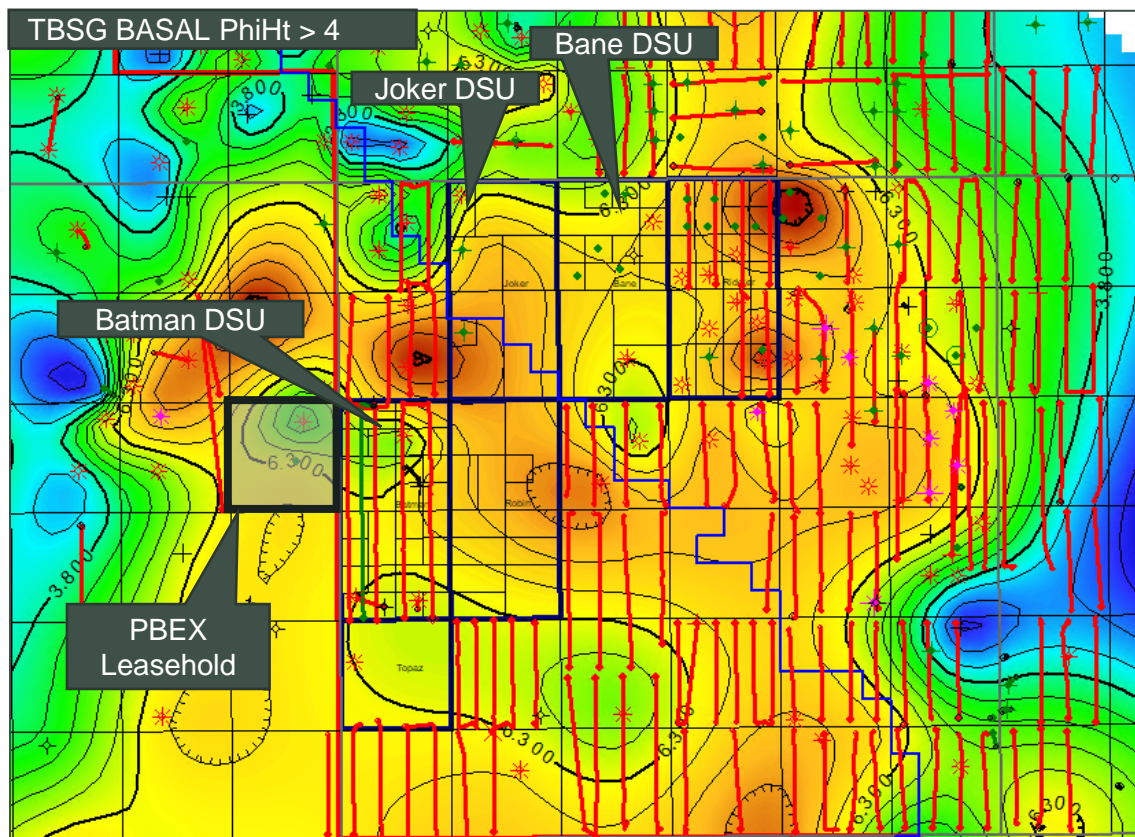
Respectfully,

A handwritten signature in blue ink that reads "Ashley Roush".

Ashly Roush  
Land Manager

CC: NMOCD  
1220 S. St. Francis Drive  
Santa Fe, NM 87505

# PBEX Offset Leasehold



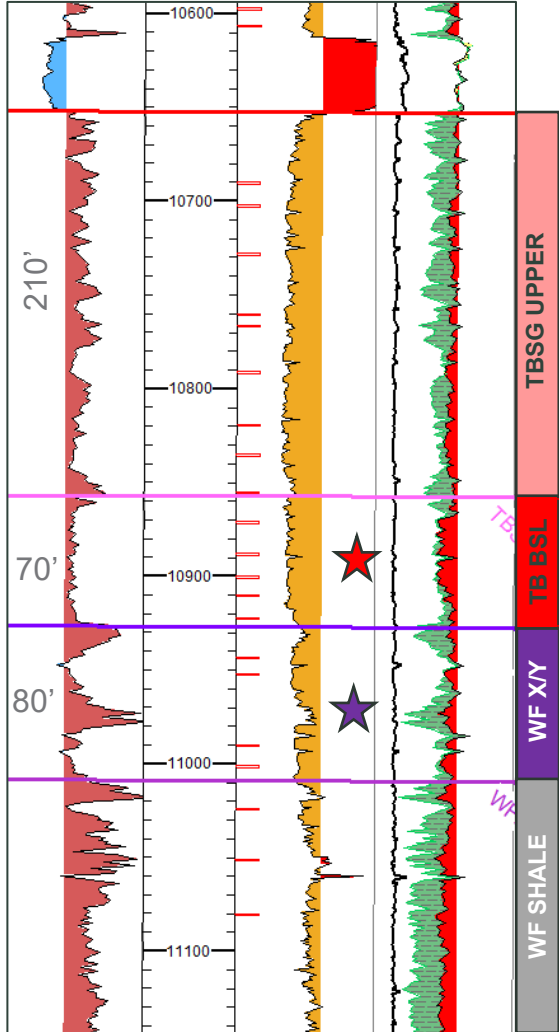
PBEX offset leasehold is in a similar geologic environment as the Bane/Joker units

# Permian Resources Offset Study

## Pilot Hole and Core Support Wolfcamp XY as a High Quality Target

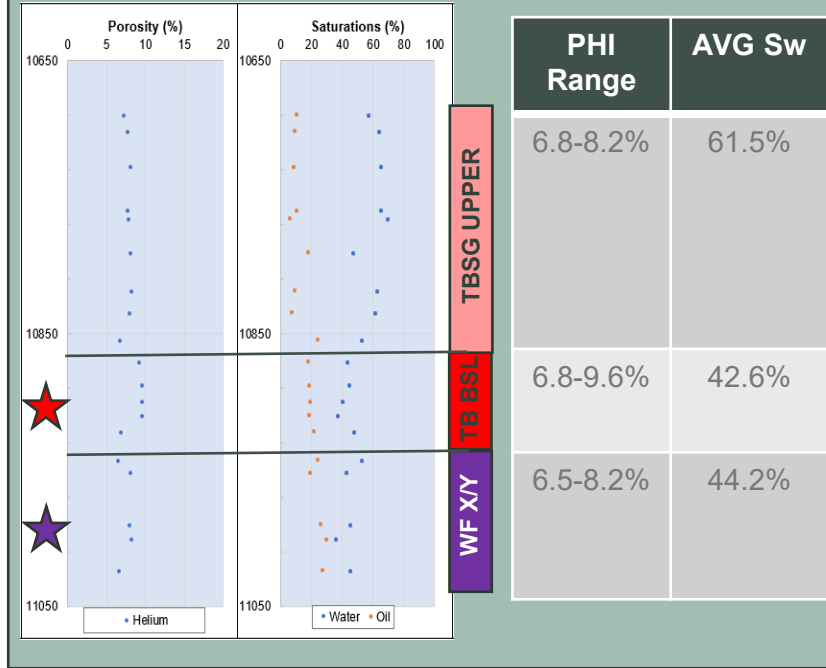


### ★ Batman Fed 132H Pilot

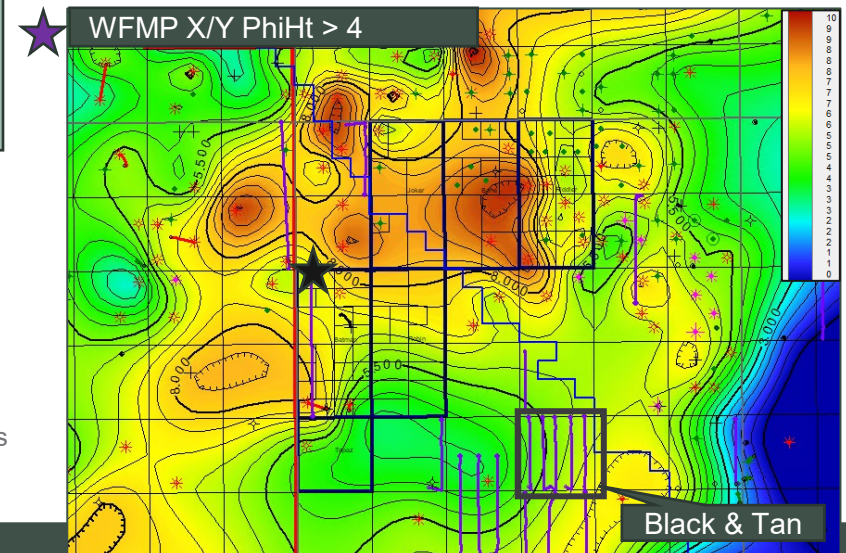
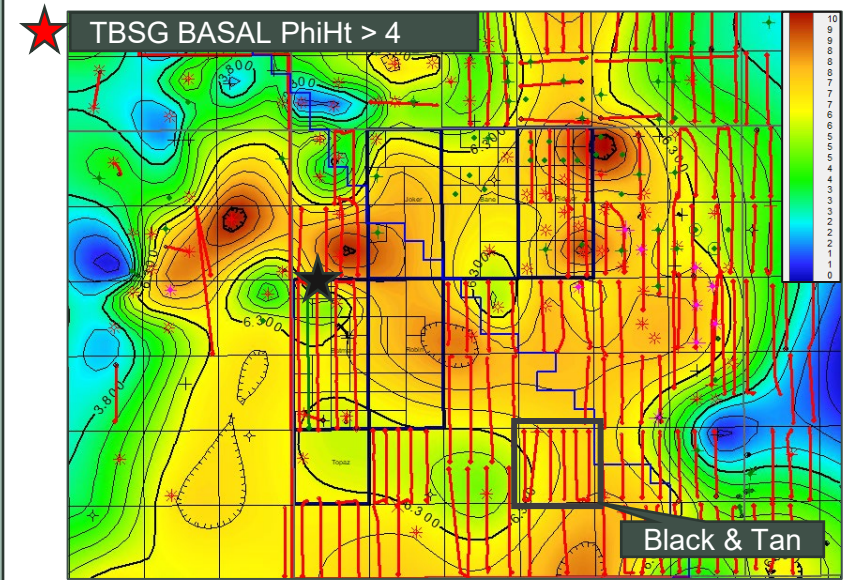


MAPPED INTERVAL

### Rotary Sidewall Core Porosity and Water Saturation



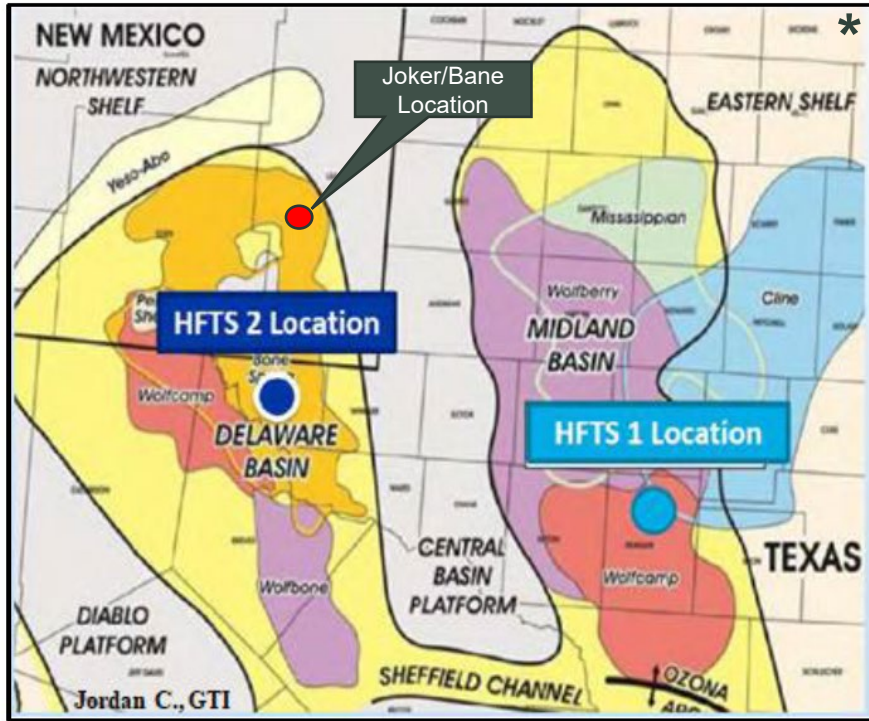
- WFMP X/Y sand target interval is a high-quality reservoir as evident in the offset production data which is further supported by log and core data.
- WFMP A shale is an organic rich, mature source-rock directly underlying the Wolfcamp X/Y and provides excellent hydrocarbon charge potential in the overlying sand target intervals.
- PHIHT mapping of both basal third bone spring and WFMP X/Y targets shows similar reservoir quality and thickness in this area allowing for codevelopment of both target zone intervals on subject acreage.





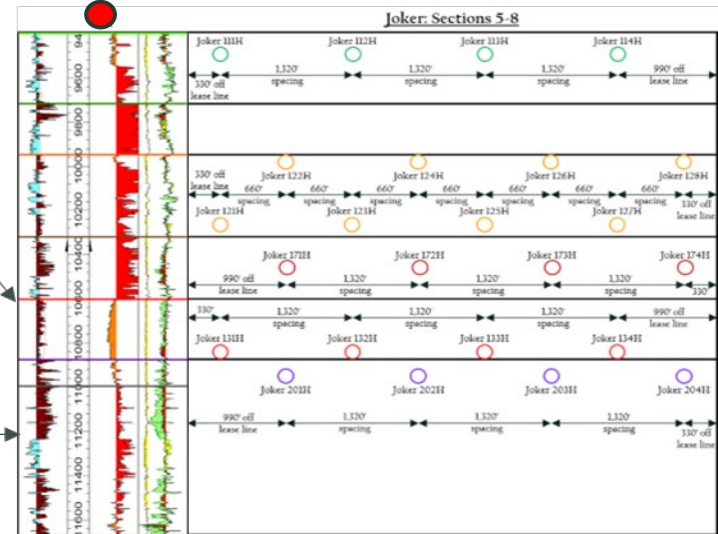
# HFTS-2 is not a direct analog for Joker/Bane

HFTS2 Study is 43.7 miles to the South

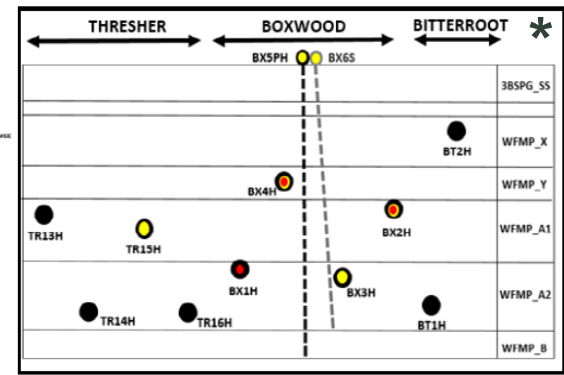
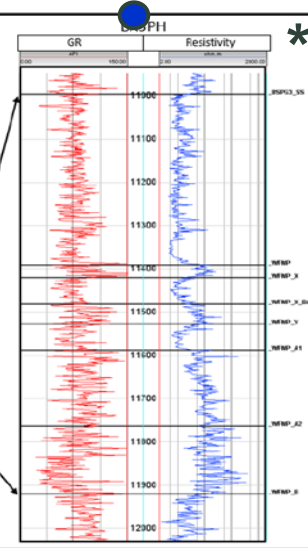


- The HFTS-2 Study is:
  - 43.7 miles away
  - In a different state
  - Does not include Third Bone Spring development

Texas Delaware Stratigraphic Column			
Age	Formation	Landing Target	
Upper	Avalon	AVLN	
		BSPG1_SS	
		BSPG2_LS	
	Middle	Bone Spring	BSPG2_SS
			BSPG3_LS
			BSPG3_SS
Lower	Wolfcamp A	WFMP_A1	
		WFMP_A2	
	Wolfcampian	Wolfcamp B	WFMP_B
			WFMP_C
			WFMP_D
			WFMP_E, WFMP_F



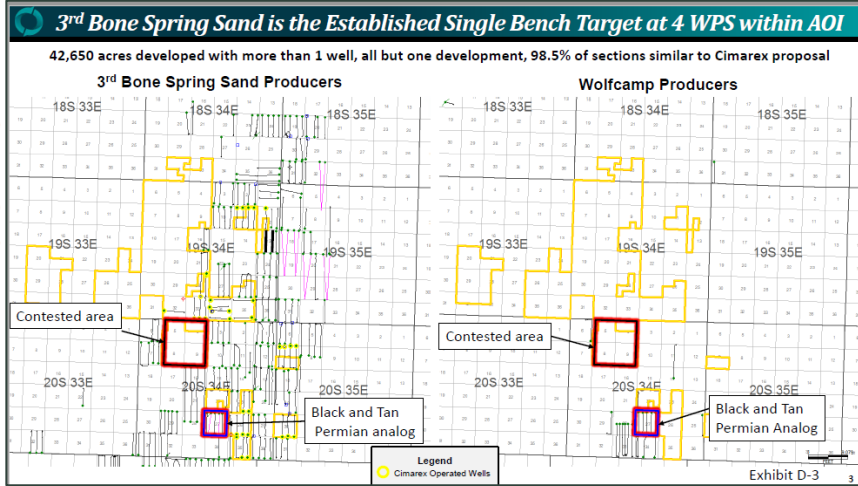
Texas Delaware Stratigraphic Column			
Age	Formation	Landing Target	
Upper	Avalon	AVLN	
		BSPG1_SS	
		BSPG2_LS	
	Middle	Bone Spring	BSPG2_SS
			BSPG3_LS
			BSPG3_SS
Lower	Wolfcamp A	WFMP_A1	
		WFMP_A2	
	Wolfcampian	Wolfcamp B	WFMP_B
			WFMP_C
			WFMP_D
			WFMP_E, WFMP_F



# Reconciling Offset Targeting

WFMP is Commonly Targeted, SBSG ≠ TBSG

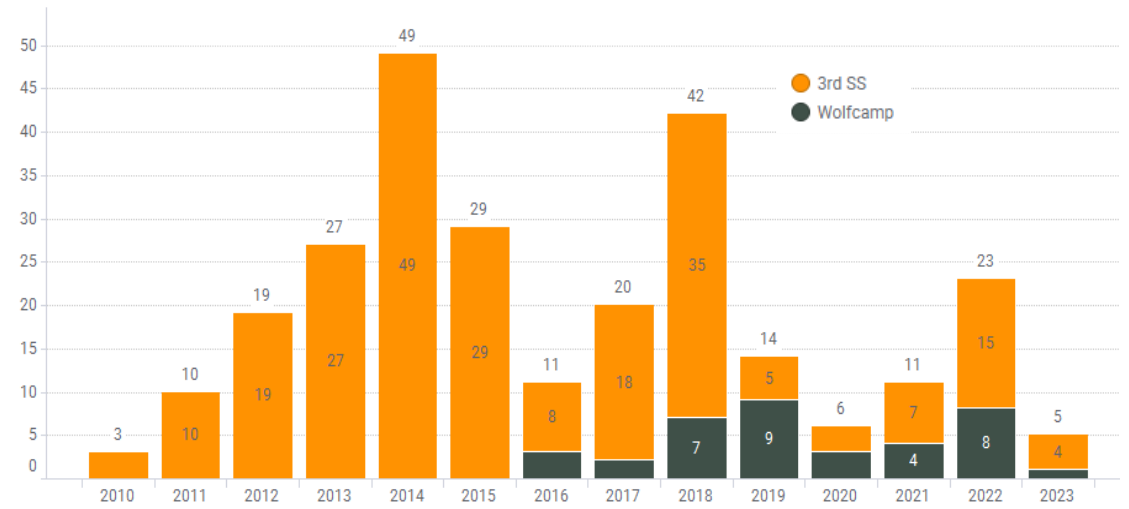
## Cimarex Exhibits on Offset Development



Cimarex cites its deep geology and engineering study of the area and references offset wells within this study. The well list used for this deep study includes:

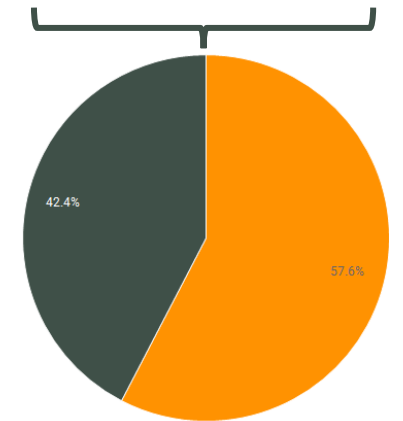
- 19 SBSG wells identified as TBSG that are likely landed in the SBSG
- Numerous missing or incorrectly identified WFMP wells
- Wells developed as far back as 2010

## Offset Development Through Time by OCD Producing Pool

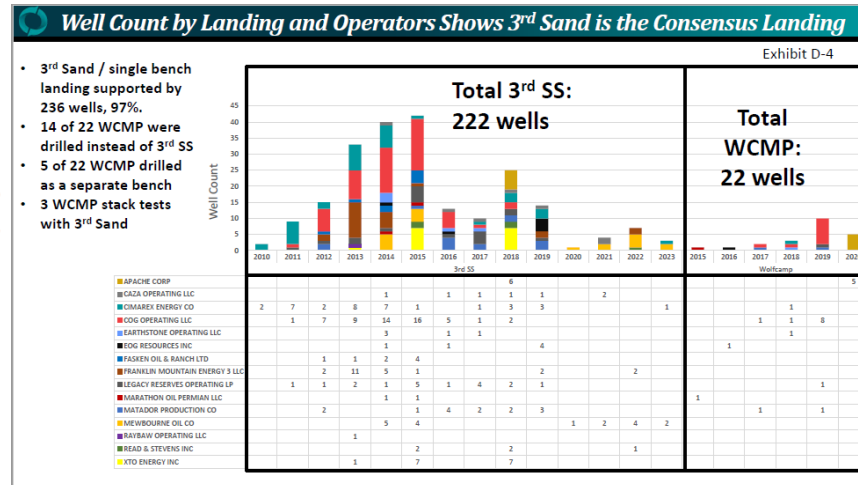


## Commentary

Offset development has decidedly shifted towards the appraisal and inclusion of the WFMP with >40% of wells drilled since 2018 targeting the WFMP



Offset Development Since 2018



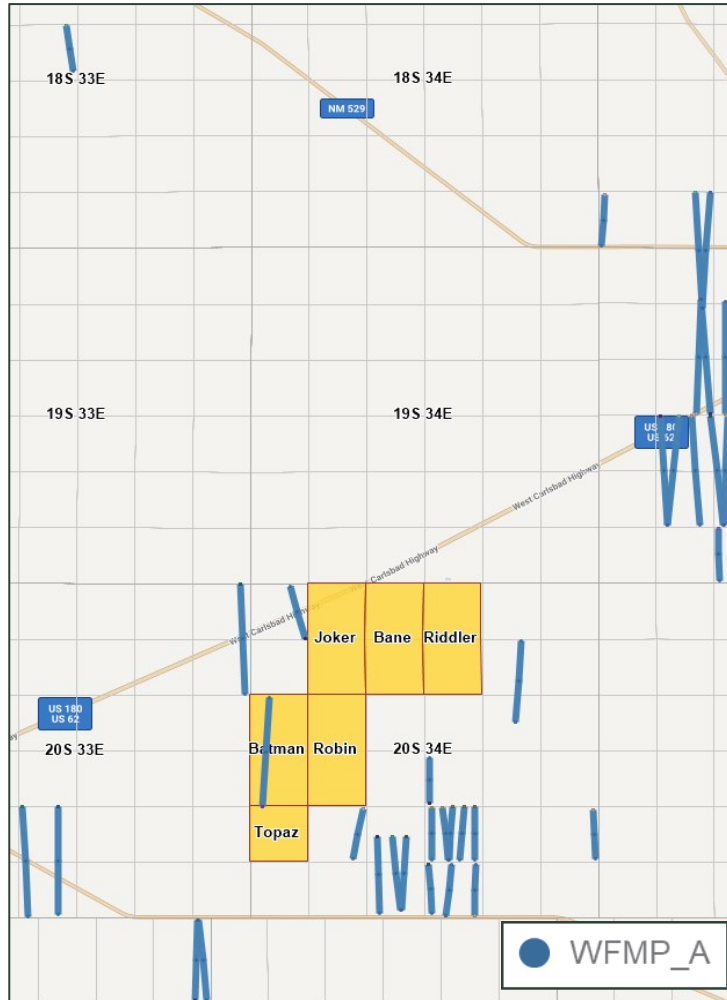
AOI assumed to be the extent of the maps in Exhibit C-3 (18S 33E-35E, 19S 33E-35E, 20S 33E-35E)  
'WFMP' excludes Penn Shale

# Reconciling Offset Targeting

## WFMP Targeting Far More Pervasive Than Cimarex Asserts



Map



Well List

UWI	API_10	Well Official Name	Producing Pool	Formation	Cimarex Formation
30025433950000	3002543395	AIRSTRIP 31 18 35 RN STATE COM 201H	WFMP	WFMP_A	Wolfcamp
30025458960000	3002545896	ANCHOR 19 35 33 STATE 001H	WFMP	WFMP_A	3rd SS
30025509680100	3002550968	BATMAN FED COM 201H	WFMP	WFMP_A	N/A
30025460720000	3002546072	BLACK & TAN 27 FEDERAL COM 401H	WFMP	WFMP_A	Wolfcamp
30025460730000	3002546073	BLACK & TAN 27 FEDERAL COM 402H	WFMP	WFMP_A	Wolfcamp
30025461230000	3002546123	BLACK & TAN 27 FEDERAL COM 403H	WFMP	WFMP_A	Wolfcamp
30025461240000	3002546124	BLACK & TAN 27 FEDERAL COM 405H	WFMP	WFMP_A	Wolfcamp
30025460750000	3002546075	BLACK & TAN 27 FEDERAL COM 406H	WFMP	WFMP_A	Wolfcamp
30025461400000	3002546140	CABLE 19 35 9 STATE COM 001H	WFMP	WFMP_A	3rd SS
30025499040000	3002549904	CHAROLAIS 28 21 W1MD STATE COM 001H	WFMP	WFMP_A	3rd SS
30025430530000	3002543053	DELLA 29 FEDERAL COM 701H	WFMP	WFMP_A	Wolfcamp
30025501680000	3002550168	FOXTAIL E2 05 32 W1 STATE COM 001H	WFMP	WFMP_A	3rd SS
30025501690000	3002550169	FOXTAIL E2 05 32 W1 STATE COM 002H	WFMP	WFMP_A	3rd SS
30025478630000	3002547863	GAVILON FED COM 708H	WFMP	WFMP_A	N/A
30025465880000	3002546588	GAVILON FEDERAL COM 704H	WFMP	WFMP_A	N/A
30025496910100	3002549691	GRACE 16 STATE COM 901H	WFMP	WFMP_A	N/A
30025499350000	3002549935	HEREFORD 29 20 W1PA STATE COM 001H	WFMP	WFMP_A	3rd SS
30025474830000	3002547483	HEREFORD 29-20 W1MD STATE COM 001H	WFMP	WFMP_A	3rd SS
30025474840000	3002547484	HEREFORD 29-20 W1NC STATE COM 001H	WFMP	WFMP_A	3rd SS
30025467680000	3002546768	HEREFORD 29-20 W1OB FED COM 001H	WFMP	WFMP_A	3rd SS
30025431100000	3002543110	LEA SOUTH 25 FEDERAL COM WCA 012H	WFMP	WFMP_A	Wolfcamp
30025452110100	3002545211	LEA UNIT 100H	WFMP	WFMP_A	Wolfcamp
30025451020000	3002545102	LITTLE BEAR FEDERAL COM 006H	WFMP	WFMP_A	Wolfcamp
30025451030000	3002545103	LITTLE BEAR FEDERAL COM 007H	WFMP	WFMP_A	Wolfcamp
30025451040000	3002545104	LITTLE BEAR FEDERAL COM 008H	WFMP	WFMP_A	Wolfcamp
30025451050000	3002545105	LITTLE BEAR FEDERAL COM 009H	WFMP	WFMP_A	Wolfcamp
30025434820000	3002543482	MAS FEDERAL 4H	WFMP	WFMP_A	Wolfcamp
30025442140100	3002544214	MAS FEDERAL COM 002H	WFMP	WFMP_A	Wolfcamp
30025448510000	3002544851	MINIS 1 FEDERAL COM WCA 010H	WFMP	WFMP_A	N/A
30025448530000	3002544853	MINIS 1 FEDERAL COM WCA 016H	WFMP	WFMP_A	N/A
30025416080000	3002541608	PERRY 22 FEDERAL COM 004H	WFMP	WFMP_A	Wolfcamp
30025495350000	3002549535	RAMBO E2 08 17 STATE COM 001H	WFMP	WFMP_A	N/A
30025495360000	3002549536	RAMBO E2 08 17 STATE COM 002H	WFMP	WFMP_A	N/A
30025504630000	3002550463	SAND CHUTE 4 9 W1DM FED COM 001H	WFMP	WFMP_A	N/A
30025444940000	3002544494	VERNA RAE FEDERAL COM 204H	WFMP	WFMP_A	Wolfcamp
30025474310000	3002547431	WAR EAGLE FEDERAL COM 701H	WFMP	WFMP_A	N/A

### Commentary

The WFMP A has been targeted more often than asserted by Cimarex ostensibly owing to a combination of:

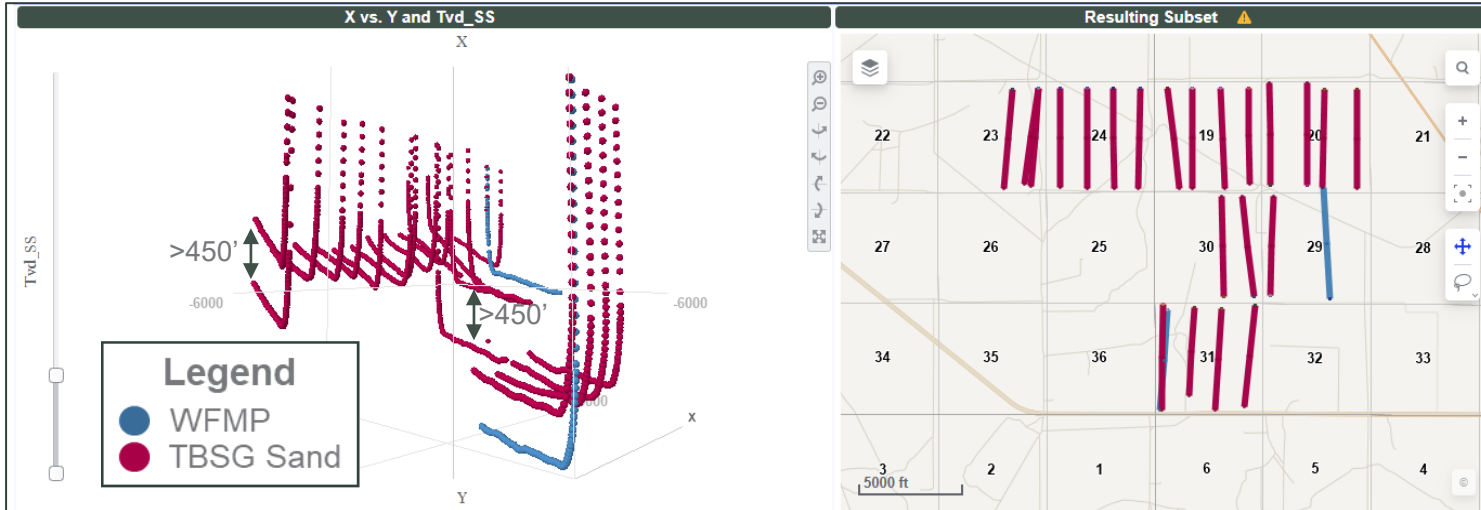
- Incorrectly identifying WFMP wells as TBSG
- Omitting WFMP wells entirely from well-set

# Reconciling Offset Targeting

SBSG ≠ TBSG



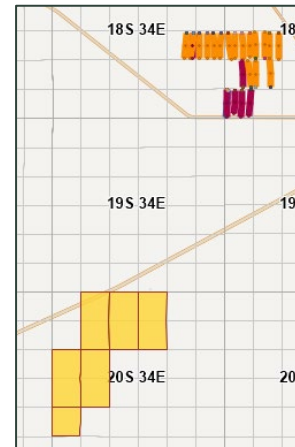
As Landed by Cimarex<sup>1</sup>



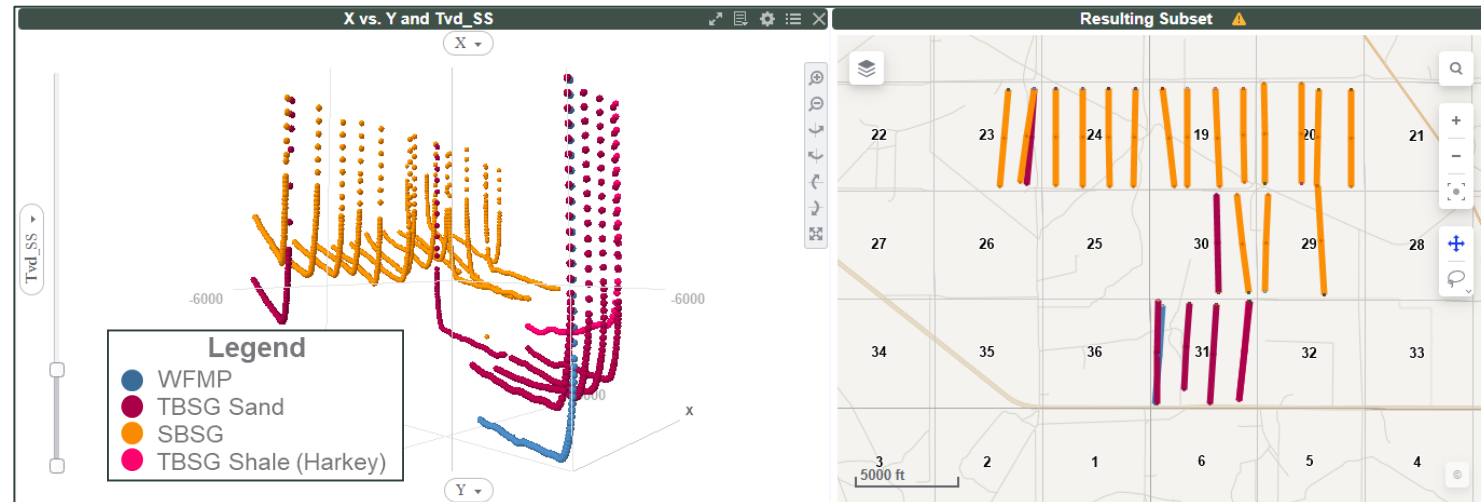
## Commentary

Cimarex supplied a well list used in the deep engineering and geology study (Exhibit D-24). A quick look at the directional surveys in the northern extents of the AOI show:

- '3<sup>rd</sup> SS' wells in the same unit have >450' of TVD separation
- There are WFMP wells shallower than the TBSG



Correct Landings



## Commentary

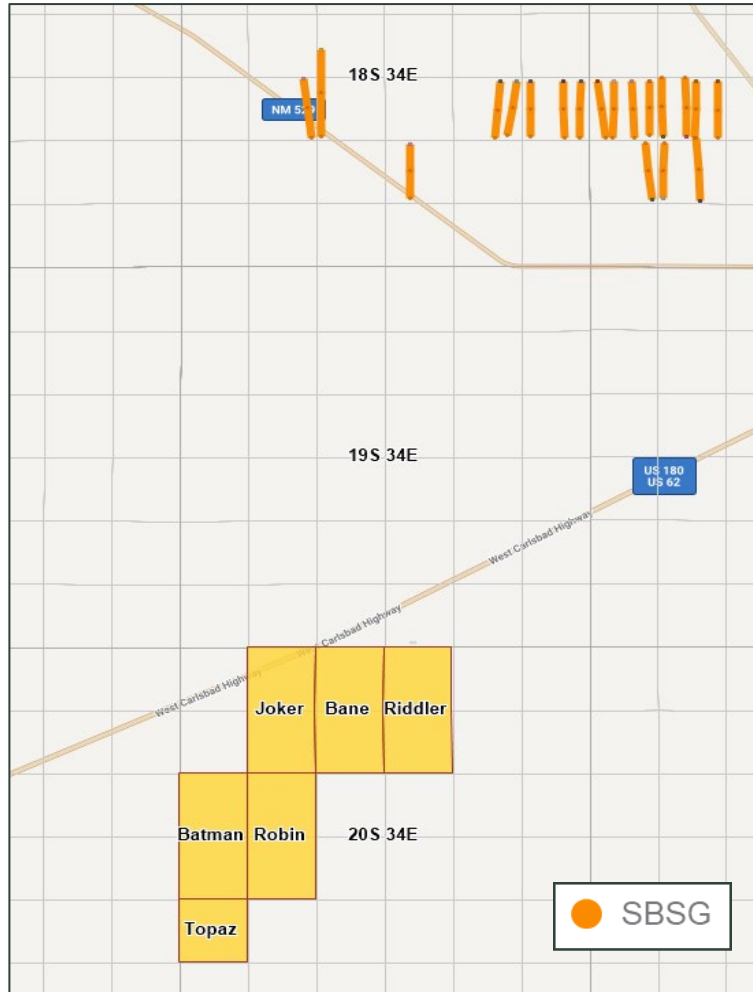
In reality, many of the '3<sup>rd</sup> SS' wells are most likely incorrectly identified and are actually landed in the **SBSG**

# Reconciling Offset Targeting

SBSG ≠ TBSG



## Map



## Well List

UWI	API_10	Well Official Name	Formation	Cimarex Formation
30025418090000	3002541809	ALBATROSS STATE COM 1H	SBSG	3rd SS
30025411480100	3002541148	CAPROCK 27 STATE FEDERAL COM 1H	SBSG	3rd SS
30025408140100	3002540814	CONDOR STATE 001H	SBSG	3rd SS
30025410250000	3002541025	CONDOR STATE 2H	SBSG	3rd SS
30025423770000	3002542377	IGGLES STATE COM 001H	SBSG	3rd SS
30025406760100	3002540676	IRONHOUSE 19 STATE COM 1H	SBSG	3rd SS
30025410940000	3002541094	IRONHOUSE 19 STATE COM 2H	SBSG	3rd SS
30025410500000	3002541050	IRONHOUSE 19 STATE COM 3H	SBSG	3rd SS
30025412450200	3002541245	IRONHOUSE 19 STATE COM 4H	SBSG	3rd SS
30025406110000	3002540611	IRONHOUSE 20 STATE 1H	SBSG	3rd SS
30025407480000	3002540748	IRONHOUSE 20 STATE COM 2H	SBSG	3rd SS
30025411630000	3002541163	IRONHOUSE 24 STATE COM 1H	SBSG	3rd SS
30025415950000	3002541595	IRONHOUSE 24 STATE COM 2H	SBSG	3rd SS
30025416960000	3002541696	IRONHOUSE 24 STATE COM 4H	SBSG	3rd SS
30025418360000	3002541836	KINGFISHER STATE COM 2H	SBSG	3rd SS
30025424720000	3002542472	KINGFISHER STATE COM 5H	SBSG	3rd SS
30025419500000	3002541950	NIGHTHAWK STATE COM 003H	SBSG	Wolfcamp
30025415190100	3002541519	NIGHTHAWK STATE COM 1H	SBSG	3rd SS
30025424990000	3002542499	PICKARD 20 18 34 RN STATE 124H	SBSG	3rd SS

## Commentary

19 of the wells identified by Cimarex as either TBSG or WFMP are likely SBSG wells

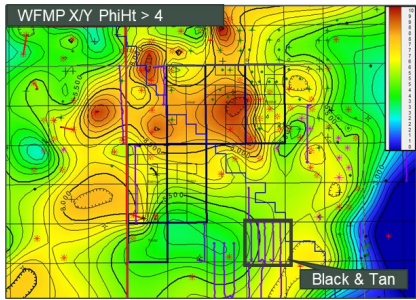


# Cimarex's Offset Development Analysis

## Apache Black & Tan

**Black & Tan, the Only Similar Development Plan...**

27. There is only one development plan within the entire AOI similar to the plan Permian Resources is proposing for its Joker and Bane Wells, the Black and Tan Wells drilled in Section 27, Township 20 South, Range 35 East, located just 2 miles south of the Subject Lands.



Analogous Geology?



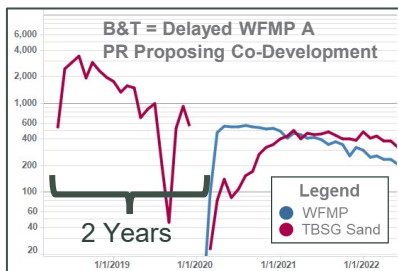
Although Apache's Black & Tan development is NOT an analog to PR's proposal, Cimarex's analysis features so heavily in their materials, it requires additional rebuttal

Analogous Density?



	TBSG Sand WPS	WFMP A WPS	Total WPS
Black & Tan	6	5	11
PR Proposal	4	4	8

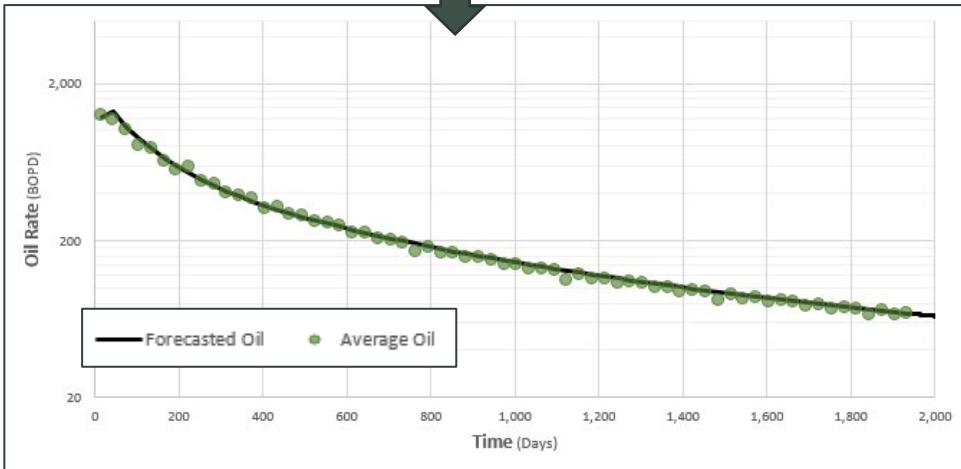
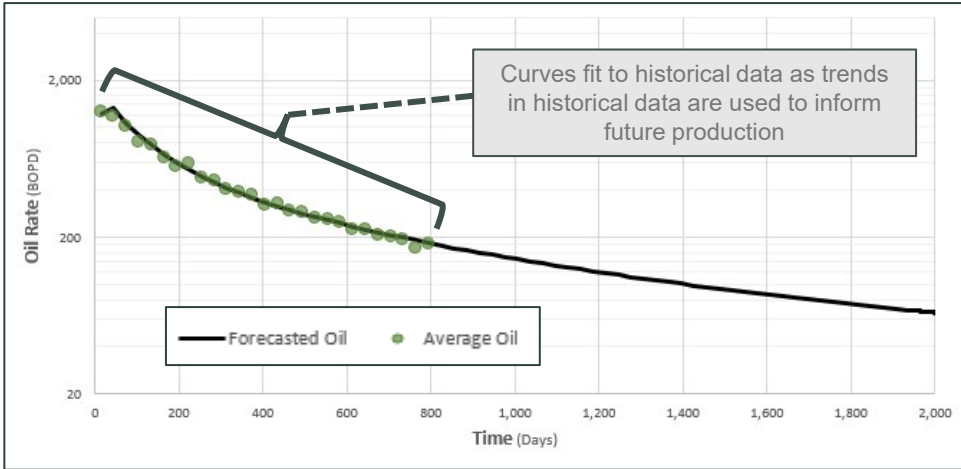
Analogous Sequencing?



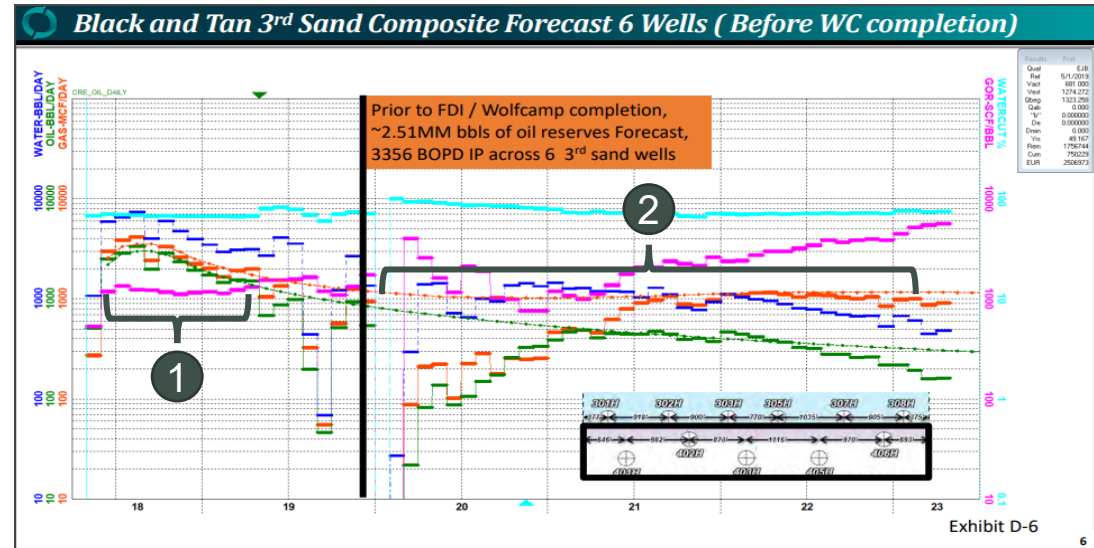
# Black & Tan Learnings

## Cimarex's Analysis Fundamentally Flawed

**Fundamentals Of Empirical Forecasting**



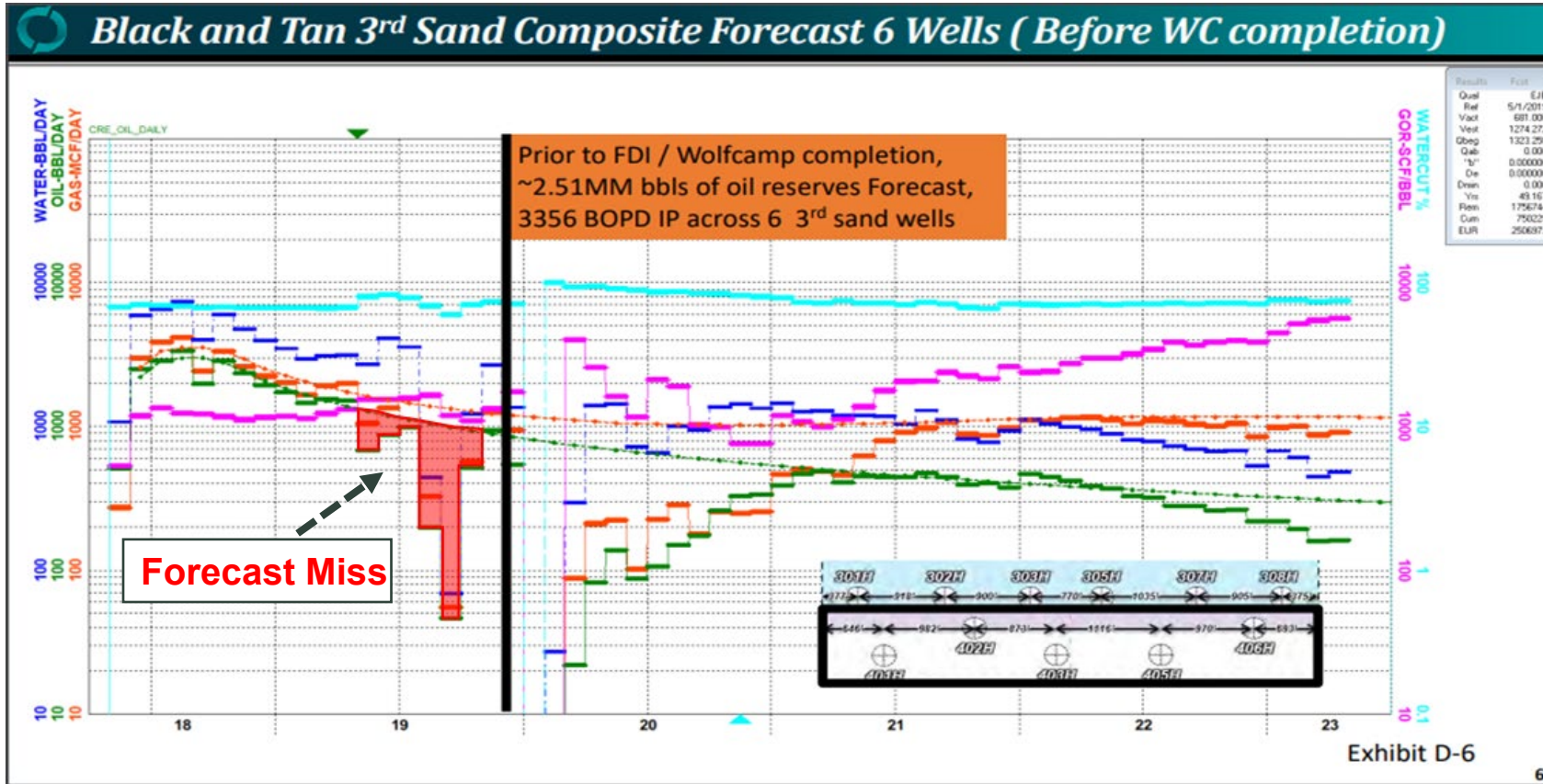
**Empirical Forecasting In Cimarex Analysis**



Cimarex uses Black & Tan TBSG production data through May 2019 **1** to establish the expected future performance of the project if left as a TBSG only development and then uses the difference between this forecast and the actual TBSG production to establish the damage the development of the TBSG did **2**

# Black & Tan Learnings

Cimarex's Analysis Fundamentally Flawed



## What Happened To The TBSG?

- Development of the WFMP?
  - 1<sup>st</sup> B&T WFMP spud August 2019
  - Last B&T WFMP spud October 2019
  - B&T Frac December 2019
- Changing operational conditions?
- Offset interference?



Concho Little Bear 2H (BSPG Pool) frac May 2019

The TBSG data to May 2019 used to generate the expected TBSG performance somehow lost the ability to predict future performance (June 2019- November 2019 highlighted in red)

# Black & Tan Learnings

Delayed WFMP Development Leads to Sporadic Production and Reduced Wellbores



Delayed WFMP Develop Causes Issues → Depletion Influences Fracs<sup>1</sup>

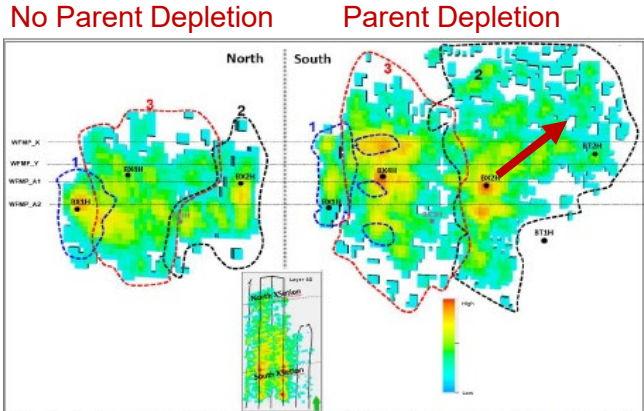
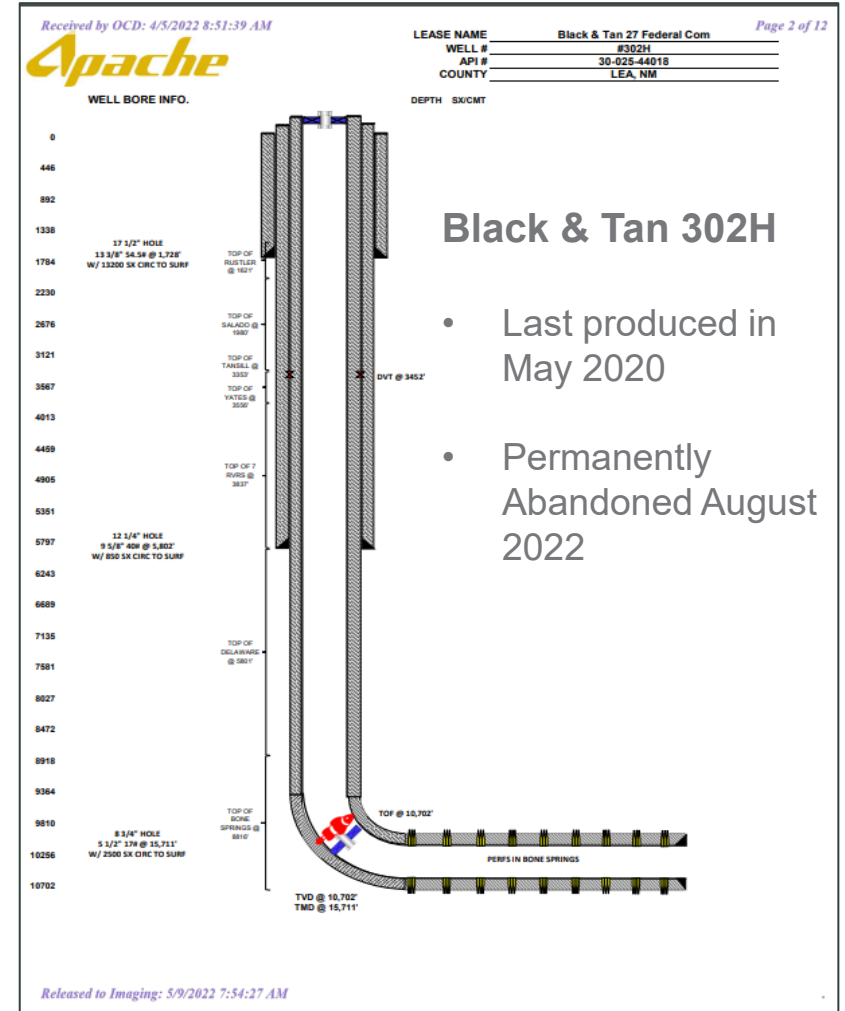


Fig 23—Areal and cross-sectional view in stimulation sequential timing of 3D heat maps grid generated for HFTS-2 area. The numbers and colors (blue, black, red) correspond to relative stimulation time successively.

Pressure depletion influences fracture growth

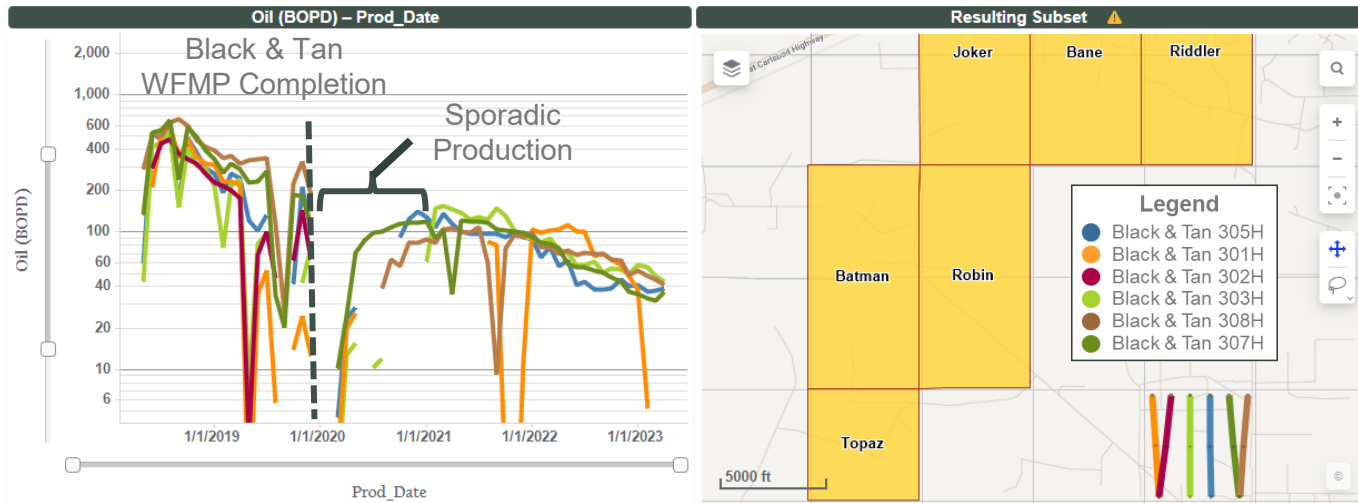
Black & Tan 302H WBD<sup>2</sup>



Black & Tan 302H

- Last produced in May 2020
- Permanently Abandoned August 2022

Black & Tan TBSG Production By Well



1 HFTS pg.164

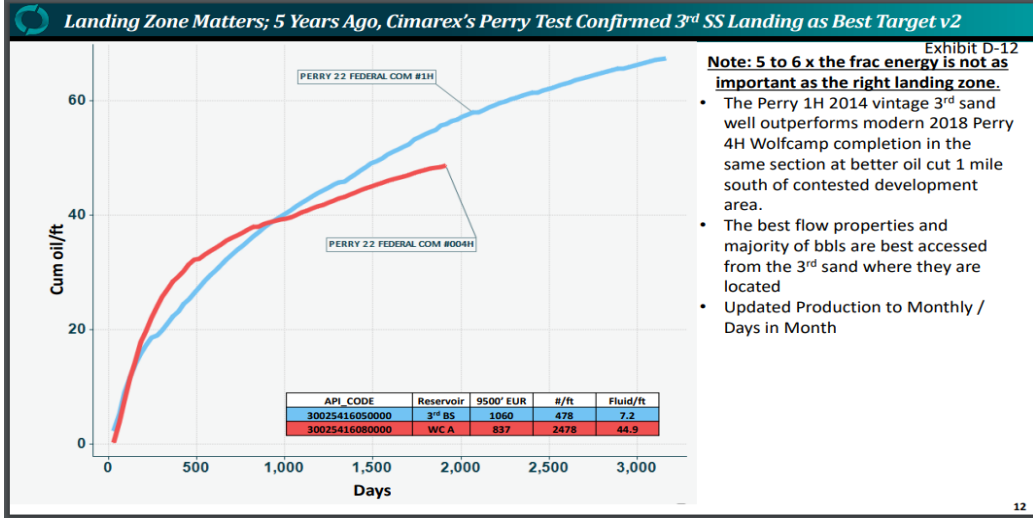
2 WBD from P&A application on file with the NMOCD

# Cimarex's Appraisal of the WFMP

Strong WFMP Results, TBSG not Damaged

Exhibit D-12

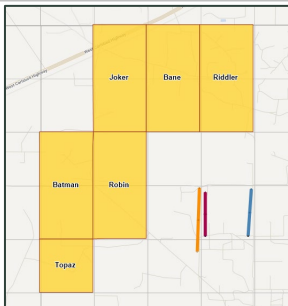
## Cimarex Supposed Learnings from Perry Development



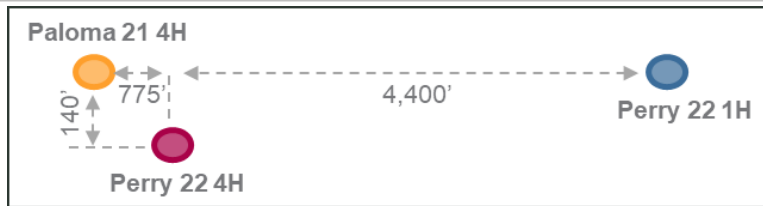
Cimarex cites their Perry development as proof positive that "drilling the upper Wolfcamp is a waste of resources"

## Development Overview

### Map

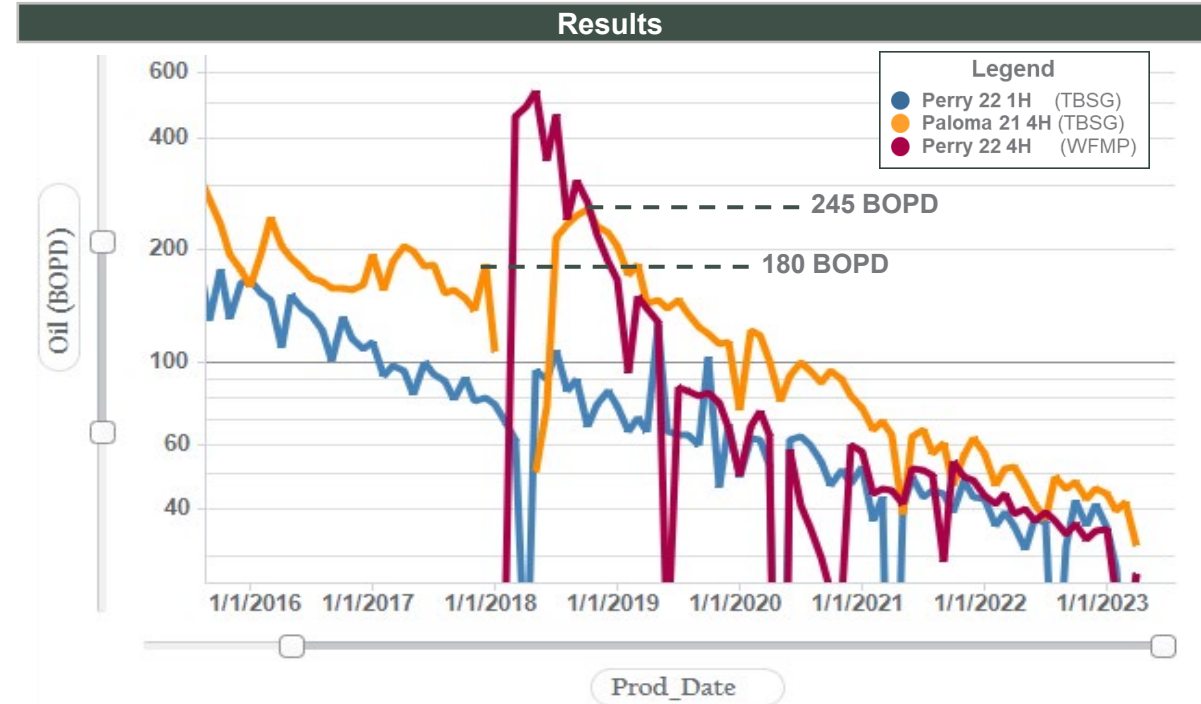


### Gun Barrel Diagram



Cimarex's Perry 22 Federal Com 004H WFMP appraisal was drilled offset of an existing TBSG well, Fasken operated Paloma 21 Federal Com 04H

## A Closer Look



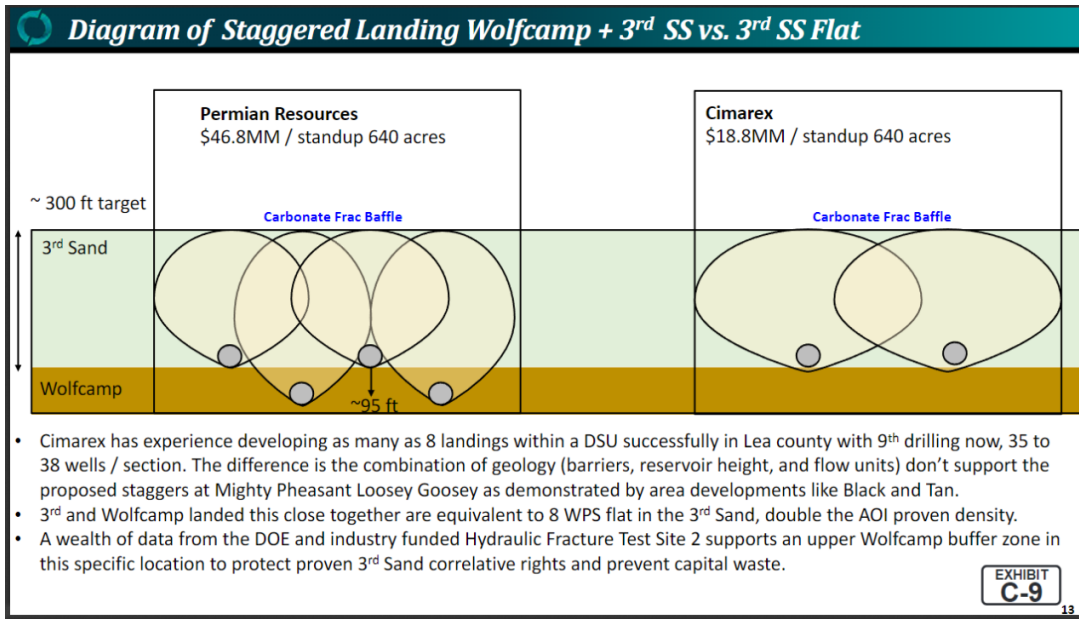
Far from destroying the TBSG, the Paloma 21 4H improves following offset completion of the Perry 4H

# Frac Dimensions

HFTS2 Demonstrated Fracture Growth Upward **AND** Downward



## Cimarex's Illustrative View Frac Dimensions



Cimarex has provided a cartoon depiction of fracture dimensions for WFMP/TBSG development and vaguely asserts that this is based on leanings from HFTS2

## Actual HFTS2 Takeaways<sup>1,2</sup>

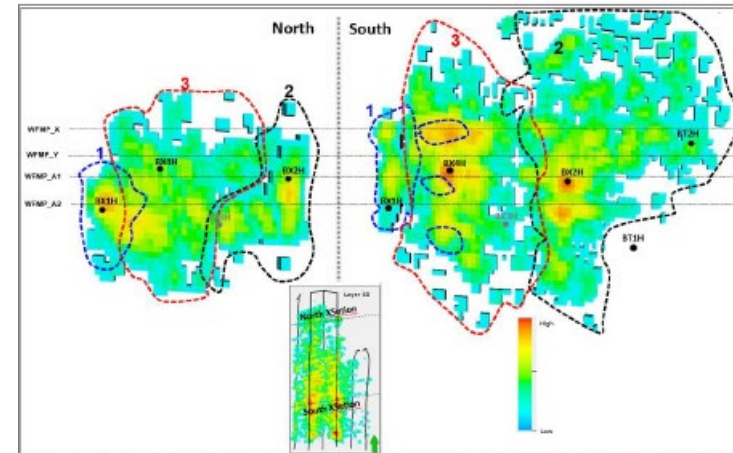
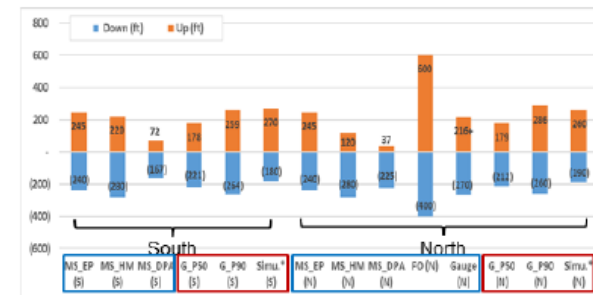


Fig 23—Areal and cross-sectional view in stimulation sequential timing of 3D heat maps grid generated for HFTS-2 area. The numbers and colors (blue, black, red) correspond to relative stimulation time successively.



b) Example of vertical coverage: Boxwood-4H

G\_P50, G\_P90: GOHFER statistical simulation results  
 Simu.\*: Calibrated simulation results  
 (N) - North; (S) - South

Diagnosics  
 Simulation

## HFTS2:

- Is more than 40 miles away and in very different geology
- Did not include the development of the TBSG
- Demonstrated upward **AND** downward fracture growth

# Cimarex Perry WFMP Appraisal

By Cimarex's Own Exhibits, the WFMP is Highly Economic

Exhibit D-9

	3rd Sand			Wolfcamp	(Wolfcamp - 3rd Sand Delta) = value added from 5 wells
	3rd Bone Spring	3rd Bone Post frac	3rd Sand Delta		
IP30 BOPD	3,356	NA	NA	555	NA
Pre vs. Post frac oil rate BOPD	950	500	-450	+555	105
EUR MMBO	2.51	1.63	-0.88	+0.89	0.01

$$\text{Wolfcamp Recovery (EUR)} = \frac{890 \text{ mbo}}{5 \text{ wells}} = \frac{178 \text{ mbo/well}}{4,600 \text{ ft/well}} = \mathbf{38.5 \text{ bo/ft}}$$

Exhibit D-11

## Black and Tan Analog Comparison To MP/LG Exhibit D-11

Analog Comparison	Black and Tan			Mighty Pheasant Loosy Goosey		
	3rd Sand	Wolfcamp	3rd SS % of total	3rd Sand	Wolfcamp	3rd SS % of total
PHIH	22	7	76	27	10	73

- Contested acreage is expected to outperform Black and Tan 2.5MMbo / 640-acre Technical EUR by ~20%
- Over performance driven by improved PHIH of 3rd sand. 27/22 = 122%.
- Sensitivities highlight impact of capital waste given 0% uplift on Black and Tan Wolfcamp 3rd SS analog
  - Table 1.3 - Wolfcamp must add ~40% reserves to break even vs Cimarex Development at P90 reserves case
  - Table 1.4 - Wolfcamp must add ~31% reserves to break even vs. Cimarex Development at SM business case
  - Neither Table 1.3 or 1.4 increase in performance is reasonable to expect given public data

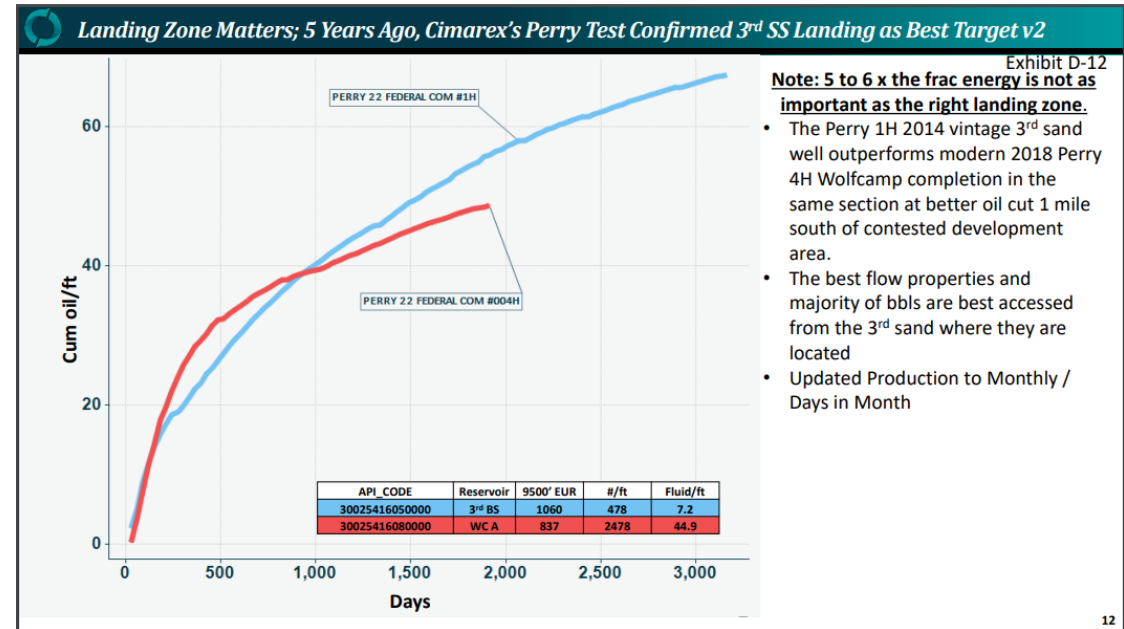
Reserves	\$65 flat analysis at Cimarex WI & NRI			Permian		Cimarex	
	IP	Economic EUR MBO	PV10 SMM	Payout months	PV10 SMM	Payout months	PV10 SMM
100%	14,738	8,860	14.7	43	41.8	12	
110% expected	16,212	9,820	21.4	33			
120% expected	17,685	10,780	28.2	26			
130% expected	19,159	11,740	34.9	23			
140% expected	20,633	12,700	41.5	21			

12 MM EUR	\$65 flat analysis at Cimarex WI & NRI			Permian		Cimarex	
	IP	Economic EUR MBO	PV10 SMM	Payout months	PV10 SMM	Payout months	PV10 SMM
100%	18,897	11,026	34.8	23	61.9	10	
110% expected	20,787	12,987	43.6	20			
120% expected	22,676	14,233	52.3	18			
130% expected	24,566	15,480	61	16			
140% expected	26,456	16,727	69.7	15			

- In order to create equivalent PV10, Wolfcamp landings must add ~40% more reserves vs reserves estimate (table 1.3) and 31% more reserves vs. P50 expectation (table 1.4). This outcome is unrealistic vs. observed results.
- Cimarex lower terminal fixed OpEx + less well degradation results in 9.1MM EUR vs. Permian 8.9MM EUR at 100% reserves expectation.
- The Cimarex plan self-funds annual drilling after first batch of wells supporting rapid development
- Permian plan supports slower development speed

40% more reserves would represent:  $38.5 \text{ bo/ft} \times 1.4 = 54 \text{ bo/ft}$

Exhibit D-12



Cimarex provides their internal EUR for the Perry 22 4H

-  $837 \text{ mbo} / 9,500 \text{ ft} = \mathbf{88 \text{ bo/ft}}$

API_CODE	Reservoir	9500' EUR	#/ft	Fluid/ft
30025416050000	3rd BS	1060	478	7.2
30025416080000	WC A	837	2478	44.9

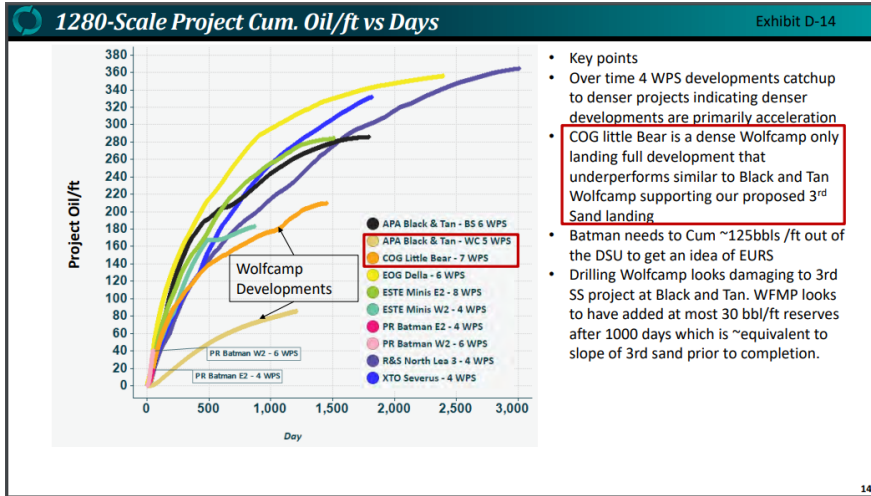
- Exceeding 54 bo/ft required by Cimarex economics

# Cimarex Offset Development Comparison

Selectively Breaking Out WFMP and TBSG is Misleading

## Cimarex's Offset Comparison

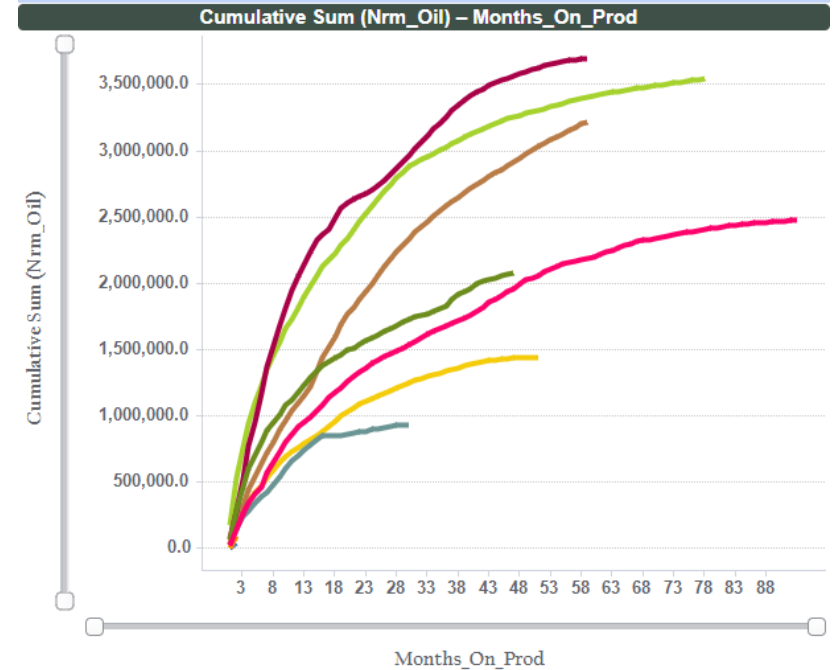
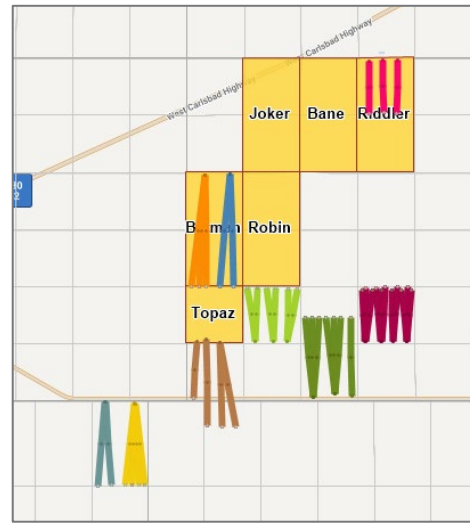
Exhibit D-14



Cimarex selects offset developments in an attempt to demonstrate that 4 WPS TBSG only development generates the most production. Some observations:

- Black & Tan WFMP are graphed separately than the WFMP defeating the purpose of this plot
- Even by this plot, through the first 5 years the Della development (6 WPS and includes a WFMP) is the strongest offset development

## A Closer Look



When grouping the developments together instead of selectively separating out the WFMP, the top 2 projects are WFMP & TBSG co-developments at greater than 4 WPS



# Cimarex Offset Development Comparison

Selectively Breaking Out WFMP and TBSG is Misleading

## Cimarex's Offset Comparison

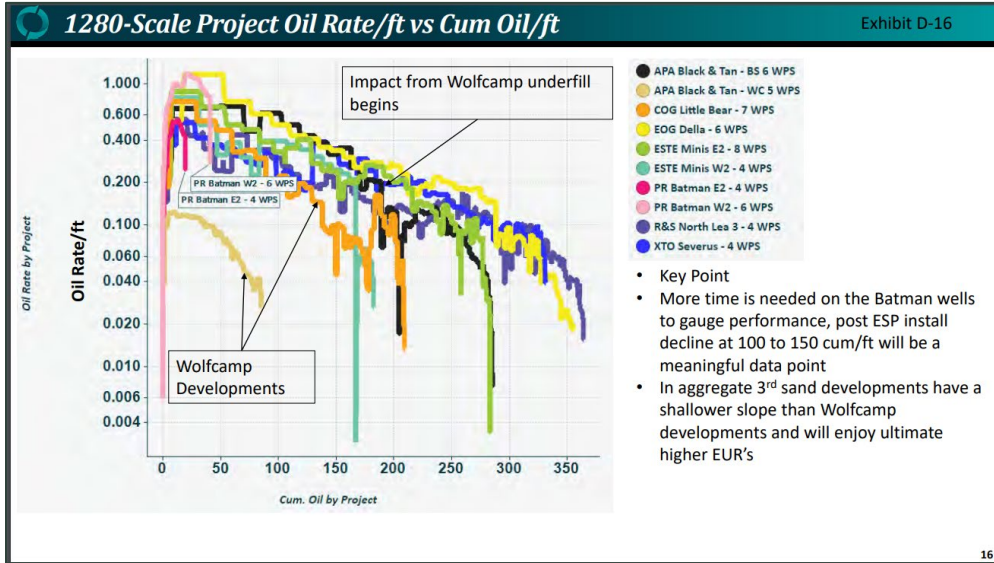
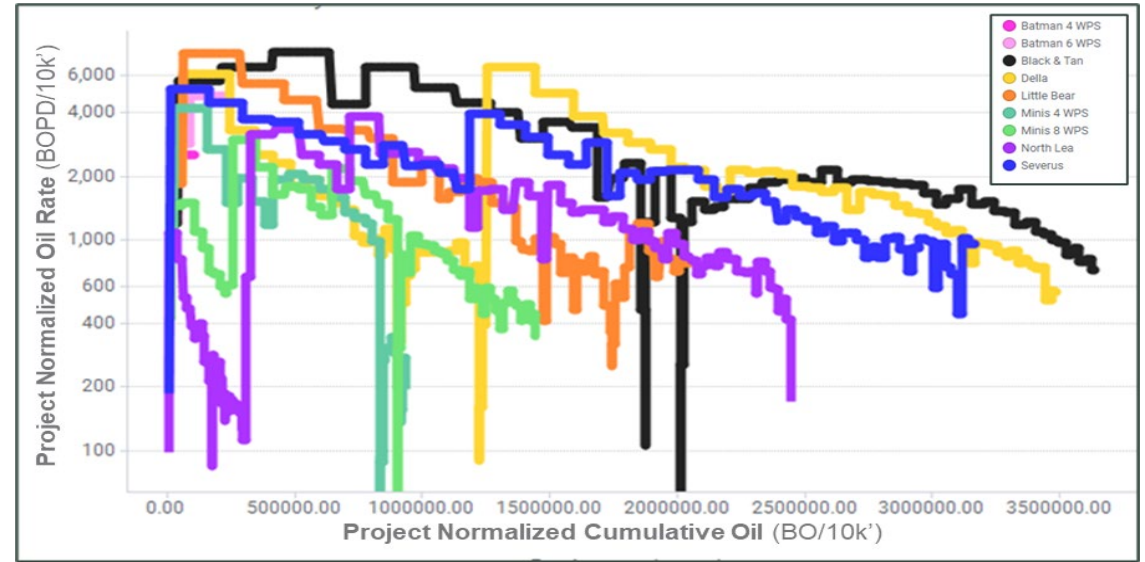


Exhibit D-16

- Merging daily and monthly can be misleading
- Selectively separating out WFMP and TBSG is misleading

## A Closer Look

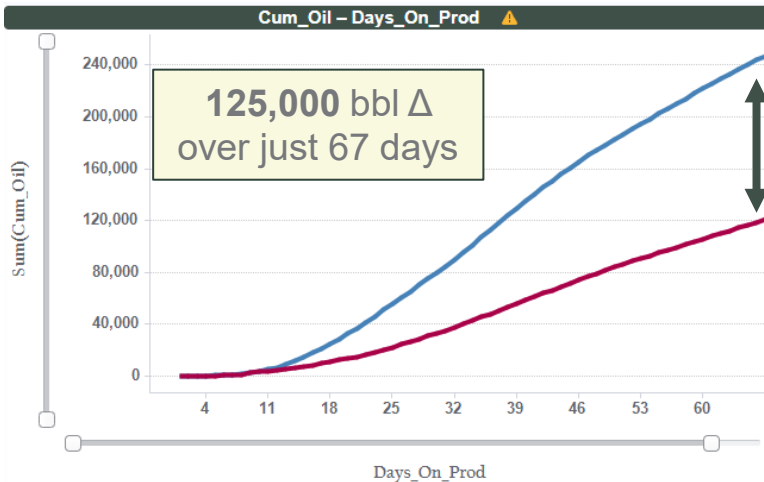
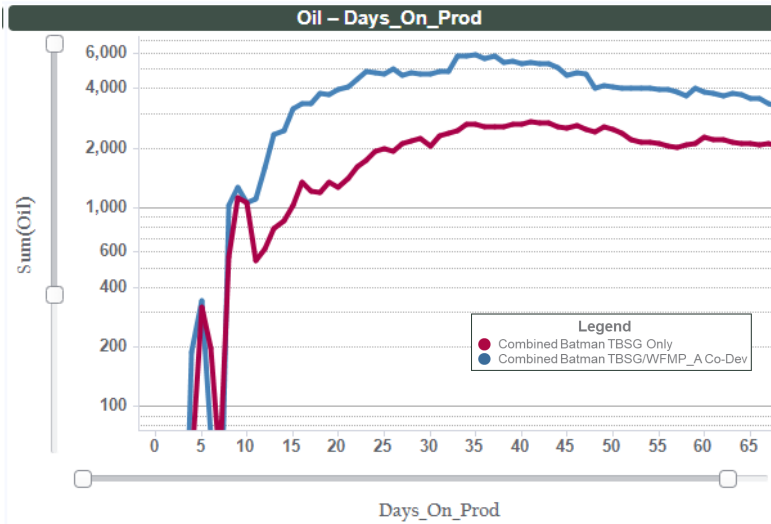


- Recreating the plot with the Black & Tan WFMP & TBSG yields very different results

# A Note on Economics

## Batman Supports Material Economic Uplift with Co-Development

### Batman Early Time Performance



### PR Internal Expectations

	Oil Production (bbls)	Total Forecasted EUR (MBO)	NPV 10 (\$MM)	Actual Revenue to Date (\$MM)	IRR
<b>Batman Co-Development</b>	251,000	2,524	\$14.9	\$8.40	78%
<b>Batman TBSG Only</b>	123,000	1,776	\$10.1	\$3.95	73%
<b>Delta</b>	<b>128,000</b>	<b>748</b>	<b>\$4.8</b>	<b>\$4.45</b>	<b>5%</b>

Current internal expectations strongly support TBSG/WCA co-development and additional reserves with:

- Massively increased early time performance
- Increased EUR
- Increased NPV10

# Coterra - 2Q23 Earnings Presentation

Filed 8/7/2023 on Coterra Website



## Permian Asset Overview

targeting prolific  
Wolfcamp & Bone Spring



### notable Permian projects

Larger-scale projects are driving capital efficiency by

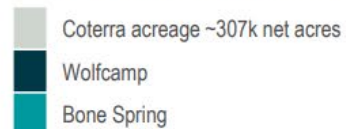
- Focusing on concentrated areas & reducing mobilization time for drilling & completion services
- Spreading facilities and infrastructure across more wells

**Culberson Mint Julep Row | Wolfcamp | 7.5 wps**  
11.4 net (23 gross) wells now online

**Culberson Row | Wolfcamp | 7-9 wps**  
25.5 net (51 gross) wells spud 3Q23  
Largest development to date

**Lea County | Bone Spring, 4 Landing Zones | 14 wps**  
4.6 net (8 gross) wells coming online Q4 2023  
Further testing multiple Bone Spring landing zones

**Culberson County | Wolfcamp & Harkey | 9 & 4 wps**  
9.0 net (18 gross) wells coming online 4Q23  
Given project timing, production tilts toward 2024

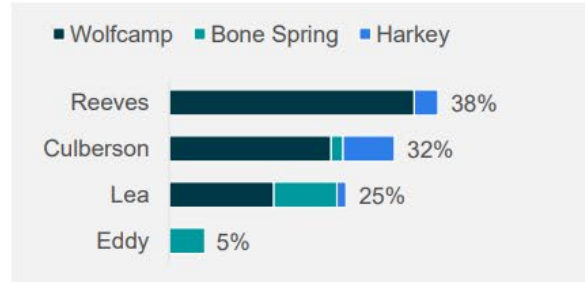


Note: wps = wells per section. <sup>1</sup>Of operated wells.

## COTERRA

### 2023 operational outlook

\$880mm - \$980mm	D&C capex
9,700'	avg. lateral length <sup>(1)</sup>
\$1,200	avg. well cost per foot <sup>(1)</sup>
\$1,250	Reeves
\$1,000	Culberson
\$1,400	Lea
\$1,000	Eddy
80 - 90	net wells online:



# Coterra - 2Q23 Earnings Presentation

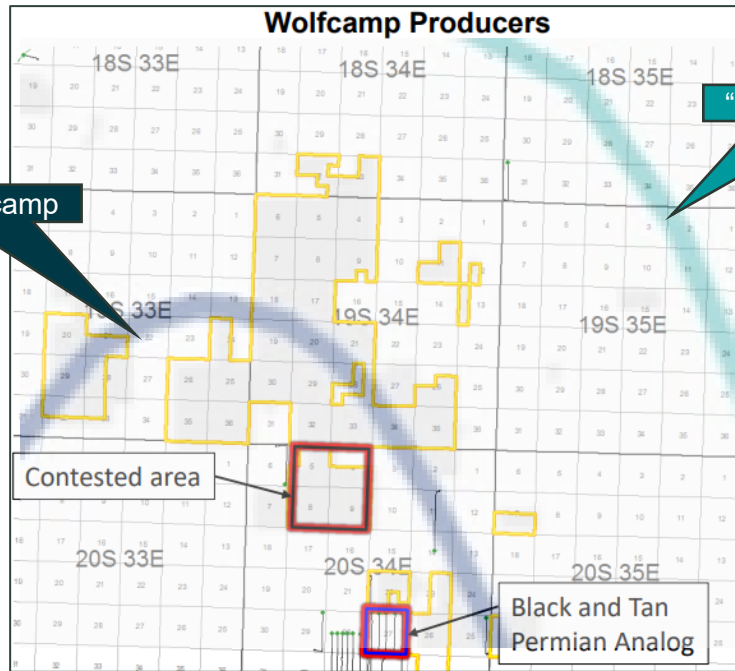
Filed 8/7/2023 on Coterra Website



## 2Q23 Earnings Presentation Slides

- Coterra highlights “targeting prolific Wolfcamp & Bone Spring” in 2Q23 earnings presentation map – yet is not developing the Wolfcamp inside its own “prolific” play outlines

### Map Overlay from Slides



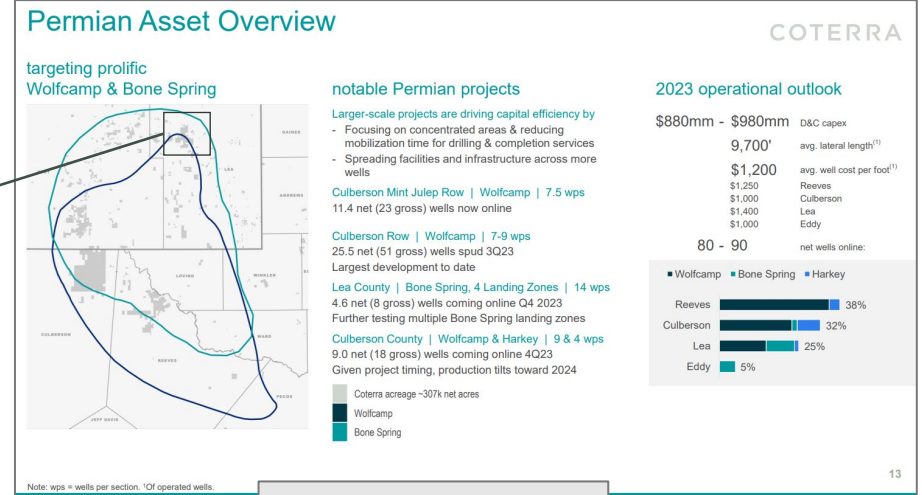
PR geo-referenced maps using Coterra acreage outline

“Prolific” Bone Spring

“Prolific” Wolfcamp

targeting prolific Wolfcamp & Bone Spring

- Coterra acreage ~307k net acres
- Wolfcamp
- Bone Spring



### Hearing Exhibit Map

