

**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

PROPOSED FINDINGS AND CONCLUSIONS

Read & Stevens, Inc. (“Read & Stevens”) and Permian Resources Operating, LLC (“Permian Resources”) (collectively “Permian Resources”), through undersigned counsel, submit these Proposed Findings and Conclusions that outline the basis for granting Permian Resources’ applications under Case Nos. 23508-23523 and denying Cimarex’s competing applications under Case Nos. 23508-23534 and 23594-23601.

PROPOSED FINDINGS AND CONCLUSIONS

Land Ownership and Working Interest Support

1. Permian Resources is actively pursuing co-development of the Bone Spring and Wolfcamp pools in this area and has filed 17 different compulsory pooling applications for its co-development projects within Cimarex’s area of interest. Aug. 9, 2023, Tr. 84:13-25; 85:1-4; 86:2-19; Aug. 10, 2023, Tr. 234:22-237:16.

2. Permian Resources and Cimarex own a similar share of the leasehold interest in the Bone Spring formation across the subject acreage: 29.31% compared to 29.12%, respectively. Read & Stevens Exhibit I.

3. Permian Resources and Cimarex also own a similar share of the leasehold interest in the Wolfcamp formation across the subject acreage: 33.29% compared to 21.63%, respectively. Read & Stevens Exhibit I.

4. Including all working interest support, Permian Resources has approximately 34.18% working interest control in the Bone Spring formation and 39.48% working interest control in the Wolfcamp formation across the subject acreage. Read & Stevens Exhibit I.

5. Including all working interest support, Cimarex has approximately 50.23% working interest control in the Bone Spring formation and 41.80% working interest control in the Wolfcamp formation across the subject acreage. Read & Stevens Exhibit I.

6. It is undisputed that mineral ownership between the Bone Spring pool and the Wolfcamp pool in these cases is not uniform. There is a difference in the percentage of ownership between the pools and in some circumstances the owners are different between the pools. Aug. 9, 2023, Tr. 63:24-25; 64:1-6; 141:15-21; 62:4-8; 63:5-23.

7. Cimarex relied on Permian Resources' title opinion and ownership breakdown for the Wolfcamp formation. Aug. 9, 2023, Tr. 64:9-13; Aug. 11, 2023, Tr. 10:19-21.

8. Most of the owners with a greater share of ownership in the Wolfcamp support Permian Resources. Aug. 9, 2023, Tr. 113:16-19; Read & Stevens Exhibit I.

9. Owners with a greater share of ownership in the Bone Spring support Cimarex. Read & Stevens Exhibit I.

10. S.K. Warren Resources, LLC and CLM Production Company own interests in the Wolfcamp formation and nothing in the Bone Spring formation at all. Both companies strongly support Permian Resources' plan of development. *See* Read & Stevens Exhibit C-8 at 10. CLM Production Company and S.K. Warren Resources, LLC declined offers from Cimarex to blend their interest with a Bone Spring interest for a "straight-up assignment free of charge." Aug. 9, 2023, Tr. 141:15-21, Tr. 142:1-21.

11. The correlative rights of nearly half the working interest owners who either own a greater share of working interest in the Wolfcamp than in the Bone Spring or, like S.K. Warren Resources, LLC and CLM Production Company, own no interests in the Bone Spring, will be adversely impacted under Cimarex's proposed development plan. Aug. 10, 2023, Tr. 239:13-16; Read & Stevens Exhibit I.

12. Cimarex's proposed plan of development will not allocate any of the Wolfcamp production from its Bone Spring wells to S.K. Warren Resources, LLC or CLM Production Company. Aug. 10, 2023, Tr. 102:17-103:7.

13. The fact that owners with a greater share of ownership in the Bone Spring support Cimarex strongly suggests a financial bias drives their support because they would disproportionately benefit from Cimarex's plan which would drill Bone Spring wells but also produce Wolfcamp reserves without having to pay Wolfcamp owners on their Wolfcamp ownership share of production. Read & Stevens Exhibit; Aug. 10, 2023, Tr. 240:13-241:5; Aug. 11, 2023, Tr. 8:19-9:1.

14. More working interest owners support Permian Resources than support Cimarex. Read & Stevens Exhibit I.

15. Highland (Texas) Energy changed its position from supporting Cimarex to being neutral. *See* Read & Stevens Exhibit I.

16. Chase Oil Corporation changed its position from supporting Cimarex to supporting “the scientific exploration of the two formations together, with consideration for the varying ownership interests in each formation.” Aug. 9, 2023, Tr. 52:22-25; 53:1-19; Read & Stevens Exhibit I.

17. Northern Oil & Gas supports “the scientific exploration of the two formations together, with consideration for the varying ownership interests in each formation.” Aug. 11, 2023, Tr. 12:12-20; Read & Stevens Exhibit C-12.

18. E.G.L. Resources, Inc. is the operating entity for PBEX, which operates offsetting acreage with similar geology to the subject acreage and is actively exploring co-development of the Bone Spring and Wolfcamp formations and submitted a letter to the Oil Conservation Division expressing its concerns for any precedent Cimarex is attempting to set by restricting the development of the Wolfcamp formation. *See* Read & Stevens Exhibit I; Aug. 11, 2023, Tr. 13:7-14:2. Neither E.G.L. nor PBEX are parties in these contested cases.

19. Permian Resources intends to initially drill its proposed basal Third Bone Spring wells with its proposed Upper Wolfcamp XY wells through simultaneous co-development. *See* Aug. 11, 2023, Tr. 31:6-11; Aug. 10, 2023, Tr. 171:20-172:14; 214:20-216:12.

20. Permian Resources’ well proposals provided working interest owners the opportunity to voluntarily pool their interests in each spacing unit and to elect to participate in Permian Resources’ initial proposed wells on a well-by-well basis. Read & Stevens Exhibit I (Bane 4-9 Federal Com Elections & Joker 5 & 8 Federal Com Elections).

21. Permian Resources proposes to modify the standard compulsory pooling order governing submission of estimated well costs and well elections to read:

~~Operator shall submit No later than thirty (30) days after Operator submits the Estimated Well Costs no sooner than 60 days before the commencement of the drilling of each initial well, and~~ the owner of a Pooled Working Interest shall have 30 days upon receipt of the Estimated Well Costs to elect whether to pay its share of the Estimated Well Costs or its share of the actual costs to drill, complete and equip the well (“Actual Well Costs”) out of production from the well. An owner of a Pooled Working Interest who elects to pay its share of the Estimated Well Costs shall render payment to Operator no later than thirty (30) days after receipt of the Estimated Well Costs, and shall be liable for operating costs, but not risk charges for the well. An owner of a Pooled Working Interest who fails to pay its share of the Estimated Well Costs or who elects to pay its share of the Actual Well Costs out of production from the well shall be considered to be a “Non-Consenting Pooled Working Interest.

Aug. 9, 2023, Tr. 74:14-25; 75:1-5; Read & Stevens Exhibit C, ¶ 25.

22. The modification will limit the number of wells a pooled working interest owner would have to elect to participate in to only the wells Permian Resources intends to drill if Permian Resources were awarded operatorship of its proposed spacing units and wells. *See* Aug. 11, 2023, Tr. 32:25-33:16.

Surface Impacts

23. Both Permian Resources and Cimarex plan to construct four well pads with a single central tank battery facility and associated roads. Aug. 11, 2023, Tr. 60:12-21.

24. Permian met with BLM and the Center of Excellence on location to coordinate use of existing roads and right-of-way corridors, and to prioritize the location of well pads and facility pads in open, flat areas to avoid disturbance of critical sand dune wildlife habitat for the Dunes Sagebrush Lizard. Permian adjusted planned flowlines to match existing roads to reduce surface impacts and disturbance. Read & Stevens Exhibit D, ¶ 5.

25. Permian Resources has access to an existing \$2.5 million saltwater gathering and disposal system to support its project. Read & Stevens Exhibit D, ¶ 12. Cimarex does not have such a system in place.

26. Permian Resources has sufficient gas, oil, and water takeaway capacity to service its initial proposed wells. Aug. 11, 2023, Tr. 69:8-70:13.

27. Permian Resources will disturb approximately 9% fewer acres under its proposed development affecting 30.9 acres of surface compared to 33.9 acres under Cimarex's plan. Aug. 11, 2023, Tr. 60:12-21.

28. If its applications are approved, Permian Resources is prepared to proceed to drill its proposed initial basal Third Bone Spring and Upper Wolfcamp wells. Aug. 10, 2023, Tr. 174:4-8; Aug. 11, 2023, Tr. 227:9-11.

Cimarex's Geology Testimony

29. Cimarex has not drilled lower Wolfcamp wells in this area of development. Aug. 9, 2023, Tr. 117:17-20.

30. Cimarex confirmed that there is no frac baffle between the Third Bone Spring and Wolfcamp pools in this acreage, which is "pretty common in many places in the Delaware Basin." Aug. 9, 2023, Tr. 153:8-17.

31. Without a frac baffle, Cimarex confirmed that reserves will be produced from both the basal Third Bone Spring and Upper Wolfcamp. Aug. 9, 2023, Tr. 154:19-21, Tr. 155:2-4.

Cimarex's Engineering Testimony

32. Cimarex has not been active in the area of the subject acreage over the last five years. Aug. 10, 2023, Tr. 50:15-19; 71:5-10.

33. Cimarex's engineering witness testified that he believes Cimarex's proposed Bone Spring wells will access and produce the majority of the economic reserves from the Upper Wolfcamp interval. Aug. 10, 2023, Tr. 26:24-27:1; Tr. 31:14-16; 37:18-25; 41:18-42:7; 67:2-9; *see also* Aug. 9, 2023, Tr. 90:18-21; Tr. 91:1-2, Tr. 93:3-15; Tr. 94:1-8; Tr. 94:12-21; Tr. 95:1 (confirming Cimarex believes it will produce the "primary concentrations of hydrocarbons in the Wolfcamp" with its Bone Spring wells); *but see* Aug. 9, 2023, Tr. 195:6-196: 21 (Mueller stating that Cimarex's proposed Third Bone Spring wells will not drain the Upper Wolfcamp).

34. Cimarex's proposed basal Third Bone Spring wells are targeted to land approximately 40 feet off the top of the Upper Wolfcamp XY sands. Aug. 10, 2023, Tr. 108:19-23.

35. Cimarex's engineering witness testified that drilling the Upper Wolfcamp after the Bone Spring was already drilled would result in some degradation of Wolfcamp production. Aug. 10, 2023, Tr. 28:3-4.

36. Cimarex relies on the HFTS-2 Study for its assumptions about fracs. Aug. 10, 2023, Tr. 51:3-7; 82:16-20. Based on the HFTS-2 Study, Cimarex understands that fracs in the Third Bone Spring will extend up into the carbonate barrier at the top of the Third Bone Spring interval and down through the Upper Wolfcamp XY sands to the Wolfcamp A shales. Aug. 10, 2023, Tr. 84:18-85:8; 86:11-17.

37. To create equivalent PV10, Wolfcamp wells in the subject acreage would need to add approximately 40% more reserves compared to the reserves produced in the Apache Black and Tan Wolfcamp development. *See* Cimarex Exhibit D, ¶ 37; Cimarex Exhibit D-11.

38. Using porosity height ($\Phi \cdot H$) is a valid basis to predict reserves in production because it represents the total storage or pore space that can be accessed by a well. Aug. 10, 2023, Tr. 54:14-55:3.

39. The difference in $\Phi \cdot H$ in the Wolfcamp formation between the location of Apache's Black and Tan wells and the Permian Resources' proposed Wolfcamp wells is approximately 43%. Aug. 10, 2023, Tr. 72:2-16.

40. The Apache Black and Tan Wolfcamp wells were drilled at a density approximately 40% greater than Permian Resources' proposed Wolfcamp spacing. Aug. 10, 2023, Tr. 76:15-23.

41. Apache did not co-develop its Black and Tan wells in the Bone Spring and Wolfcamp pools as Permian Resources proposes to do with its wells. Aug. 10, 2023, Tr. 78:16-79:12. The Apache Black and Tan Wolfcamp wells were drilled and completed approximately 19 months after the Black and Tan Bone Springs wells had started producing. Aug. 10, 2023, Tr. 78:1-15.

42. Cimarex substantially bases its economic analysis for Permian Resources' proposed co-development of the Bone Spring and Wolfcamp in the subject acreage on the performance of the Apache Black and Tan wells. Aug. 10, 2023, Tr. 91:1-17; 101:9-20.

43. The Wolfcamp is source rock that contributes to the hydrocarbon reserves in the subject acreage. Aug. 10, 2023, Tr. 82:1-4.

Cimarex's Option 1

44. Under Cimarex's Option 1, Cimarex's preferred option, production from the Third Bone Spring and the Upper Wolfcamp would go only to the Bone Spring interest owners and not the Wolfcamp interest owners, and Cimarex would ask the Division to institute a buffer

zone that would prevent drilling in a portion of the Upper Wolfcamp. Aug. 9, 2023, Tr. 108:13-21; 109:1-21; Tr. 110:1-7; Tr. 140:2-7.

45. Cimarex provided no testimony or evidence in the evidentiary record to describe, explain, or establish a technical basis for its proposed buffer zone within the Upper Wolfcamp, nor did it make any showing that its proposed buffer zone would not cause waste or impair correlative rights.

46. Cimarex confirmed that under Option 1 Wolfcamp production would not be allocated to any of the Wolfcamp interest owners in accordance with their ownership percentages in the Wolfcamp. Aug. 9, 2023, Tr. 110:17-112:4.

Cimarex's Option 2

47. Under Cimarex's Option 2, Cimarex's wells drilled in the Third Bone Spring would be dedicated to both the Bone Spring and Wolfcamp spacing units. Aug. 9, 2023, Tr. 114:2-19; Tr. 115:3-19; *see also* Cimarex Applications in Case Nos. 23594-23601. Cimarex would not drill any wells that penetrate or are completed in the Wolfcamp pool. Aug. 9, 2023, Tr. 116:6-17.

48. Under Option 2, Cimarex states that there would be a formula to allocate production between the Bone Spring and Woolfcamp pools but presented no evidence or testimony describing its proposed allocation formula or providing a technical basis for it. Aug. 9, 2023, Tr. 27:19-25; Tr. 28:1-4. Cimarex also did not make any showing on the record that a proposed allocation formula would not cause waste or impair correlative rights or that it would comply with the Oil and Gas Act or Division regulations.

Permian Resources' Geology Testimony

49. The basal Third Bone Spring and Wolfcamp XY are very similar in thickness and Phi*H and are the primary hydrocarbon tanks in the subject area, and the Wolfcamp XY is a high-quality reservoir unit that is on par with the basal Third Bone Spring in this area. Aug. 10, 2023, Tr. 195:9-24; 197:12-15; 198:10-18; 219:19-220:3; Read & Stevens Exhibit J at 1. While there is no frac baffle or barrier between them, the basal Third Bone Spring and Wolfcamp XY are distinct and separate reservoirs. Aug. 10, 2023, Tr. 204:5-207:14.

50. The underlying Wolfcamp A shale is a high-quality organic source rock that is most likely the primary hydrocarbon source for the Wolfcamp XY and Third Bone Spring. Aug. 10, 2023, Tr. 197:15-20; 199:19-200:7; Exhibit E, E-1 through E-29, Fechtel Exhibit F-2 through F-9.

51. Oil saturation in the lower portion of the basal Third Bone Spring and Wolfcamp XY is very similar—ranging from 20%-30%. Read & Stevens Exhibit J at 1. In the upper Third Bone Spring, the oil saturation drops to about 10% or below and water saturations increase to 60% or more. Aug. 10, 2023, Tr. 198:19-199:10; Read & Stevens Exhibit J at 1. This confirms that the majority of the oil is stored within the Wolfcamp XY and the lower portion of the basal Third Bone Spring. Aug. 10, 2023, Tr. 199:10-14.

52. The Wolfcamp XY demonstrates a significant accumulation of high-quality reservoir rock in Permian Resources' Batman and Robin spacing units and its proposed Joker and Bane units. Aug. 10, 2023, Tr. 200:23-5; Read & Stevens Exhibit J at 1.

53. Permian Resources' targeted Wolfcamp geology in the subject acreage is more similar to its Batman spacing unit than to Apache's Black and Tan development. Aug. 10, 2023,

Tr. 221:3-7; *see also* Aug. 9, 2023, Tr. 157:16-17 (Mueller agreeing that Permian Resources' proposed Bane and Joker wells are geologically analogous to its offsetting Batman wells).

54. Permian Resources' proposed Upper Wolfcamp target in the subject acreage is a "sweet spot" in the Wolfcamp XY that requires additional wells, as proposed by Permian Resources, to efficiently and effectively drain the interval that will not merely accelerate production. Aug. 10, 2023, Tr. 201:5-9; 204:10-205:5.

55. In contrast, Cimarex's plan to target only the basal Third Bone Spring, while it will partially drain the Wolfcamp XY, will not effectively drain the reserves that are present. Aug. 10, 2023, Tr. 224:8-19.

56. If Cimarex or another operator were to later target the remaining reserves in the Wolfcamp XY, there likely would be adverse parent-child effects because the Wolfcamp A shale is still too close to the basal Third Bone Spring to avoid depletion effects. Aug. 10, 2023, Tr. 227:19-228:2.

Permian Resources Engineering Testimony

57. Since 2018, 40% of wells drilled in Cimarex's area of interest target the Wolfcamp formation, establishing that the Wolfcamp is a viable, standalone target within the subject acreage. Aug. 10, 2023, Tr. 127:16-128:4.

58. Wells developed in the basal Third Bone Spring sand will produce some reserves from the Upper Wolfcamp XY interval and vice versa. Aug. 10, 2023, Tr. 180:20-181:4.

59. Apache's Black and Tan well development is not analogous to Permian Resources' proposed Bane and Joker Bone Spring and Wolfcamp co-development plan. The Wolfcamp geology in the subject acreage is superior to the Black and Tan acreage, with 43% increase in $\Phi \cdot H$; the well density is approximately 37% lower than in the Black and Tan

Wolfcamp development; and Permian Resources intends to simultaneously drill and complete its wells to avoid parent-child depletion effects rather than wait to drill and complete the Wolfcamp 19 months after first producing the Bone Spring as in the Black and Tan development. Aug. 10, 2023, Tr. 131:6-132:7; Read & Stevens Exhibit K at 5.

60. Cimarex's analysis that the Black and Tan Bone Spring wells were negatively impacted by the later development of the underlying Wolfcamp wells is flawed due to a fundamental inability to forecast Bone Spring production when there is not a sufficient production trend to apply a decline curve analysis. Aug. 10, 2023, Tr. 132:23-137:4; Read & Stevens Exhibit K at 6-7.

61. Cimarex's analysis incorrectly suggests that the Black and Tan Wolfcamp wells did not add additional reserves to the project's production because the existing Bone Spring wells were already sufficiently and effectively draining the Bone Spring and Wolfcamp pools in the acreage. *See* Aug. 10, 2023, Tr. 28:3-10. The correct reason the Black and Tan Wolfcamp wells performed poorly is because when the Wolfcamp wells were completed 19 months later they were unable to create additional stimulated rock volume due to parent-child effects from the existing Black and Tan Bone Spring wells, similar to what was documented in the HFTS-2 Study. Aug. 10, 2023, Tr. 137:5-25; 139:24-145:16.

62. The HFTS-2 Study confirms that fracs propagate up and down around a horizontal well in the Wolfcamp and, when there is an existing fractured well, fracs will propagate towards the area of depletion, resulting in no additional stimulated rock volume being created by subsequent wells. Aug. 10, 2023, Tr. 140:2-143:10.

63. Lack of additional stimulated rock volume occurs because of parent-child effects, not because the Bone Spring and Wolfcamp formations are incompatible for co-development.

Aug. 10, 2023, Tr. 143:23-144:4; Read & Stevens Exhibit K at 8.

64. Co-developing wells together in the Bone Spring and Wolfcamp formations reduces the risk to the well bores and increases stimulated rock volume and the complexity of the fracture network, which leads to increased reserves. Aug. 10, 2023, Tr. 145:21-147:8; 187:11-16.

65. The improved quality of the Joker and Bane Wolfcamp geology with a 43% increase in $\Phi \cdot H$ relative to the Black and Tan acreage accounts for the additional 40% increase in reserves necessary to meet Cimarex's PV10 analysis. Aug. 10, 2023, Tr. 149:5-10.

Considering production from the Black and Tan Wolfcamp and Bone Spring wells together on a project basis demonstrates that it is one of the highest producing projects in the area of interest.

Aug. 10, 2023, Tr. 154:9-21; 156:10-22; Read & Stevens Exhibit K at 12-13.

66. Cimarex's Perry 4H Wolfcamp well also confirms that the Wolfcamp formation by itself is a viable and valid independent development target because its production at 85 barrels per lateral foot substantially exceeds Cimarex's cut-off of approximately 54 barrels per foot to be economic. Aug. 10, 2023, Tr. 149:11-25; Aug. 9, 2023, Tr. 197:1-12; Read & Stevens Exhibit K at 9, 11.

67. Cimarex's Perry 4H Wolfcamp well also suggests that rather than impairing Bone Spring production, co-developing the Wolfcamp is likely to improve Bone Spring production as demonstrated by production in the offsetting Bone Spring well—the Paloma 214H—which reflects a sustained material improvement in performance after the Perry 4H Wolfcamp well commenced production. Aug. 10, 2023, Tr. 150:14-151:12; Read & Stevens Exhibit K at 9.

68. Early-time data on Permian Resources' offsetting Batman project strongly suggest that co-developing the Bone Spring and Wolfcamp formations results in increased stimulated rock volume, increased estimated ultimate recovery, better economics, and increased initial performance of approximately 125,000 barrels over 67 days compared to developing the Bone Spring formation by itself. Aug. 10, 2023, Tr. 157:7-158:8; Read & Stevens Exhibit K at 14; Read & Stevens Exhibit E, ¶¶ 6-10, E-2 through E-5. Co-development will prevent stranding reserves and protects the correlative rights of owners in both pools. Aug. 10, 2023, Tr. 159:12-23; 153:21-164:5.

69. In contrast, Cimarex's proposal to develop the Bone Spring formation by itself will either result in not drilling the Upper Wolfcamp at all, thereby stranding significant reserves and impairing Wolfcamp owners' correlative rights or drilling the Upper Wolfcamp later and failing to access additional stimulated rock volume, which also will result in permanently stranded reserves and impairment of Wolfcamp owners' correlative rights. Aug. 10, 2023, Tr. 160:15-161:13; 163:1-20.

70. Cimarex has not demonstrated that its proposals will prevent waste and protect correlative rights.

71. Permian Resources' proposal will prevent waste and protect correlative rights.

Respectfully submitted,

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CERTIFICATE OF SERVICE

I hereby certify that on September 21, 2023, I served a copy of the foregoing document to the following counsel of record via Electronic Mail:

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