

State of New Mexico
Energy, Minerals and Natural Resources Department

Michelle Lujan Grisham
Governor

Sarah Cottrell Propst
Cabinet Secretary

Todd E. Leahy, JD, PhD
Deputy Secretary

Adrienne Sandoval, Director
Oil Conservation Division



September 30, 2020

Ms. Deana Bennett, Esq.
Modrall Sperling
P.O. Box 2168
Albuquerque, NM 87103
E-mail: Deana M. Bennett dmb@modrall.com

RE: PROPOSED HORNSBY WELL STIMULATION PROJECT

Dear Ms. Bennett:

This letter responds to the request of Cimarex Energy Company (“Cimarex”) for a determination whether the proposed Hornsby Well Stimulation Project (“Project”) constitutes either well stimulation or enhanced oil recovery (“EOR”) under OCD’s rules. Based on the information provided by Cimarex, OCD determines that the Project constitutes well stimulation, and can be approved subject to certain conditions to protect the reservoir and ground water and to prevent waste.

Cimarex described the Project as initially involving the Hornsby 35 Federal Com Well No. 7H (API 30-015-42168), with the potential to expand to adjacent wells in the same formation if the Hornsby well shows economic benefit. Specifically, Cimarex stated the following:

1. Hornsby is a horizontal well that was hydraulically fractured following completion.
2. Hornsby and the adjacent wells have successfully produced hydrocarbons but are showing a steady decline in production.
3. Cimarex will inject a fluid into Hornsby with a proprietary composition over a specific period of time.
4. Following the injection, Cimarex will place the well back on production and assess the effect of the fluid on production.
5. Cimarex expects that the fluid will through the fracture system originally created in the first stimulation operation and will not advance more than a meter into the formation.

6. Cimarex will monitor the adjacent wells for any change in reservoir conditions or the production performance.

OCD's Engineering Bureau identified the following sections of the OCD's rules as potentially applicable to the Project:

- 19.15.2.7(E)(2) NMAC: *“Enhanced oil recovery project” means the use or the expanded use of a process for the displacement of oil from an oil well or division-designated pool other than a primary recovery process, including but not limited to the use of a pressure maintenance process; a water flooding process; an immiscible, miscible, chemical, thermal or biological process; or any other related process.*
- 19.15.26.8 (A)(1) NMAC: *A permit is required under 19.15.26 NMAC for any injection wells that inject fluids for enhanced recovery of oil or natural gas.*
- 19.15.16.17 NMAC: *Shooting and Chemical Treatment of Wells: If shooting, fracturing or treating a well injures the producing formation, injection interval, casing or casing seat and may create underground waste or contaminate fresh water, the operator shall within five working days notify in writing the division and proceed with diligence to use the appropriate method and means for rectifying the damage. If shooting, fracturing or chemical treating results in the well's irreparable injury the division may require the operator to properly plug and abandon the well.*

Technological advances in horizontal well completions, including hydraulic fracturing, have changed the concept of “primary recovery process” as used in OCD's rules. Historically, the stimulation of vertical wells was limited to the immediate vicinity and a small vertical section of the producing reservoir. However, current fracturing technology significantly increases penetration into the producing reservoir. As a result, the area reached during the primary recovery process is much greater. Given Cimarex's representations regarding the purpose and the sequence of the injection activities into the Hornsby well, the Project appears to be better classified as stimulation for a well still in the primary recovery phase.

Additionally, the Project does not fit the scale and interaction of multiple wells that typically characterize in EOR. EOR projects usually involves injection through more than one well to interact with and improve production from other wells within the same reservoir. The injection fluid eventually appears in the producing wells as it migrates through the reservoir. Here, Cimarex asserts the injected fluid in any single well will only affect the immediate fractured reservoir for that well.

To ensure that the Project does not damage the producing formation, create, underground waste or contaminate fresh water, Cimarex shall, upon completion of major milestones of the Project, submit to OCD a report assessing the performance of the Project and any impacts to the formation, reservoir, and fresh water, including any communication between Hornsby and the producing wells. These milestones shall include (1) the conclusion of the monitoring and assessment for initial stimulation of the Hornsby well, (2) and upon the completion of the monitoring and assessment of any subsequent stimulations of the Hornsby well, and (3) upon the completion of the Project.

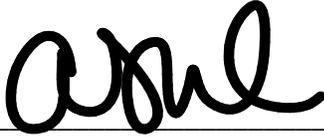
Cimarex Energy Co.

September 30, 2020

Page 3 of 3

This determination does not relieve Cimarex of the obligation to comply with other applicable federal, state or local laws or rules, and to exercise due care for the protection of fresh water, public health, safety and the environment.

Sincerely,

A handwritten signature in black ink, appearing to read 'AS', written over a horizontal line.

ADRIENNE SANDOVAL

Director

AS/prg

cc: Artesia District Office
Well File 30-015-42168