

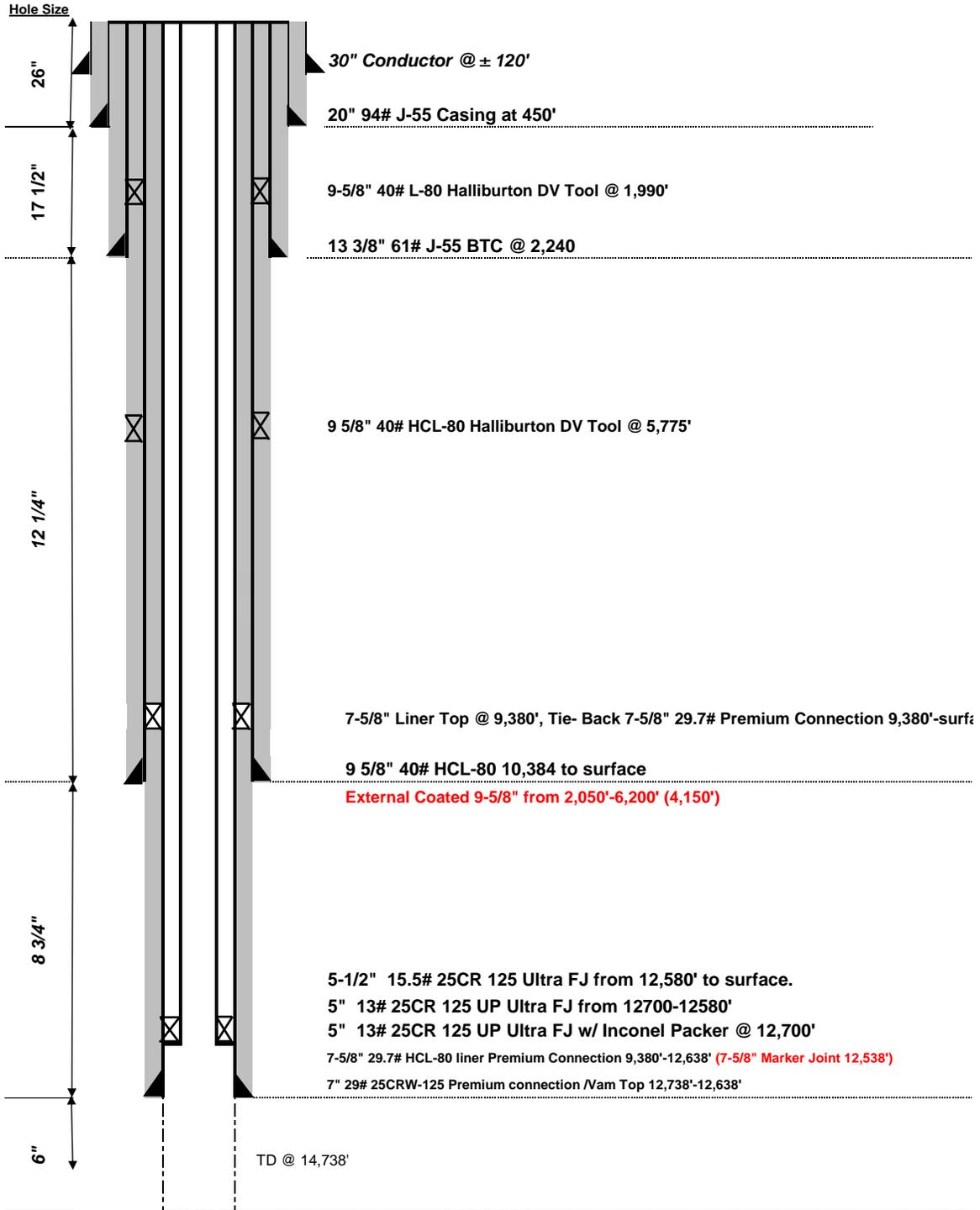
Additional Information

Updated WBD, Seismic Review,
and Additional Notice 9/14/20



DRILLING PROGNOSIS
Cimarex Energy Co.

Well: **Patriot 9 State SWD 1**
Date: 9/10/2020
Co., State: Eddy Co, NM
Surf. Loc: 671' FSL & 142' FWL Sec 9, 25S, 27E
Bottomhole Loc: Vertical



Cimarex Energy Co.
Doug Klepacki – Manager of Geophysics
202 S. Cheyenne Ave
Suite 1000
Tulsa, OK 74103-3001



Statements Regarding Seismicity

Cimarex Energy Co. performed a seismicity risk assessment in conjunction with the proposed Patriot 9 State SWD. We investigated historic seismicity in the vicinity of the permit location, the presence of deep faulting and the pressure buildup that could induce slip on existing faults. Fault slip analysis was performed using Stanford’s Fault Slip Potential Tool version 2.0.

The permitted location is covered by Cimarex’s mitigation protocol that includes enhanced seismicity monitoring, 24/7 notification, and operational actions to be taken if seismicity were to occur proximal to oilfield operations.

Review of Historic Seismicity

Our investigation located no earthquakes over 2.0 ML reported by the USGS or NMTSO within 9 miles of the Patriot 9 State SWD permit location. (Figures 1 and 2).

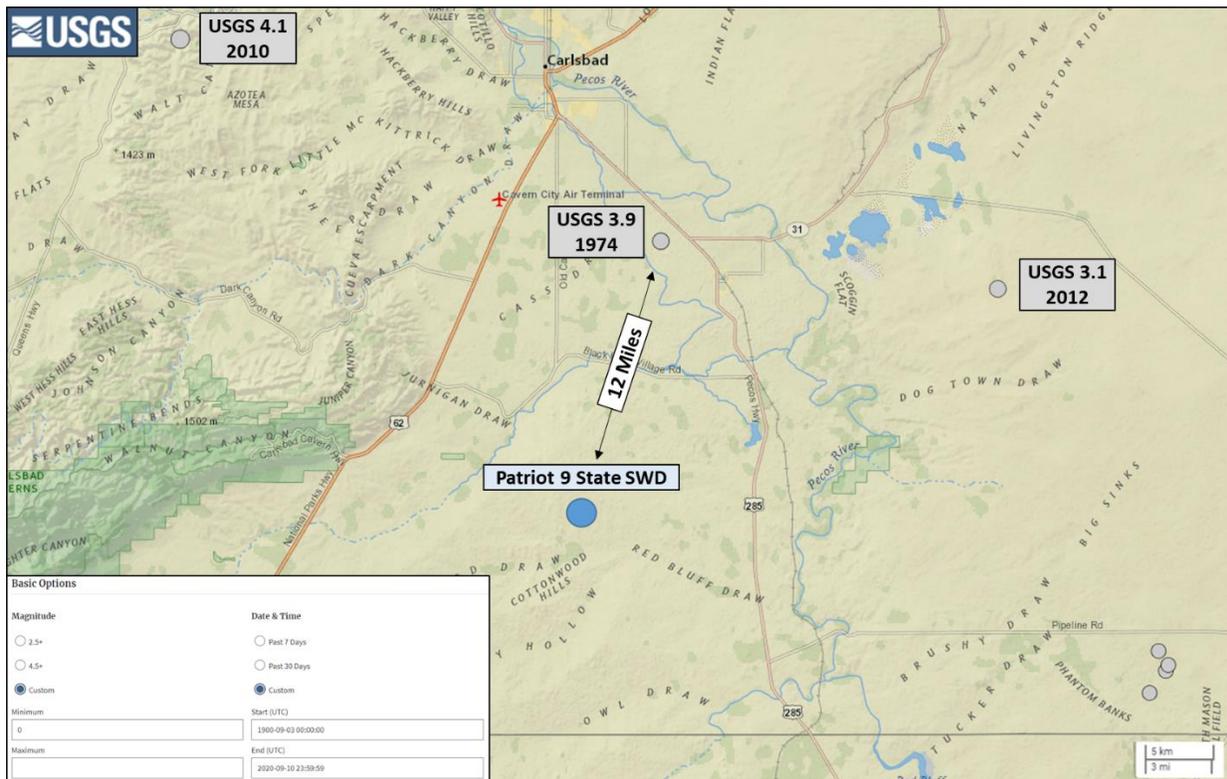


Figure 1: USGS earthquakes since 1900

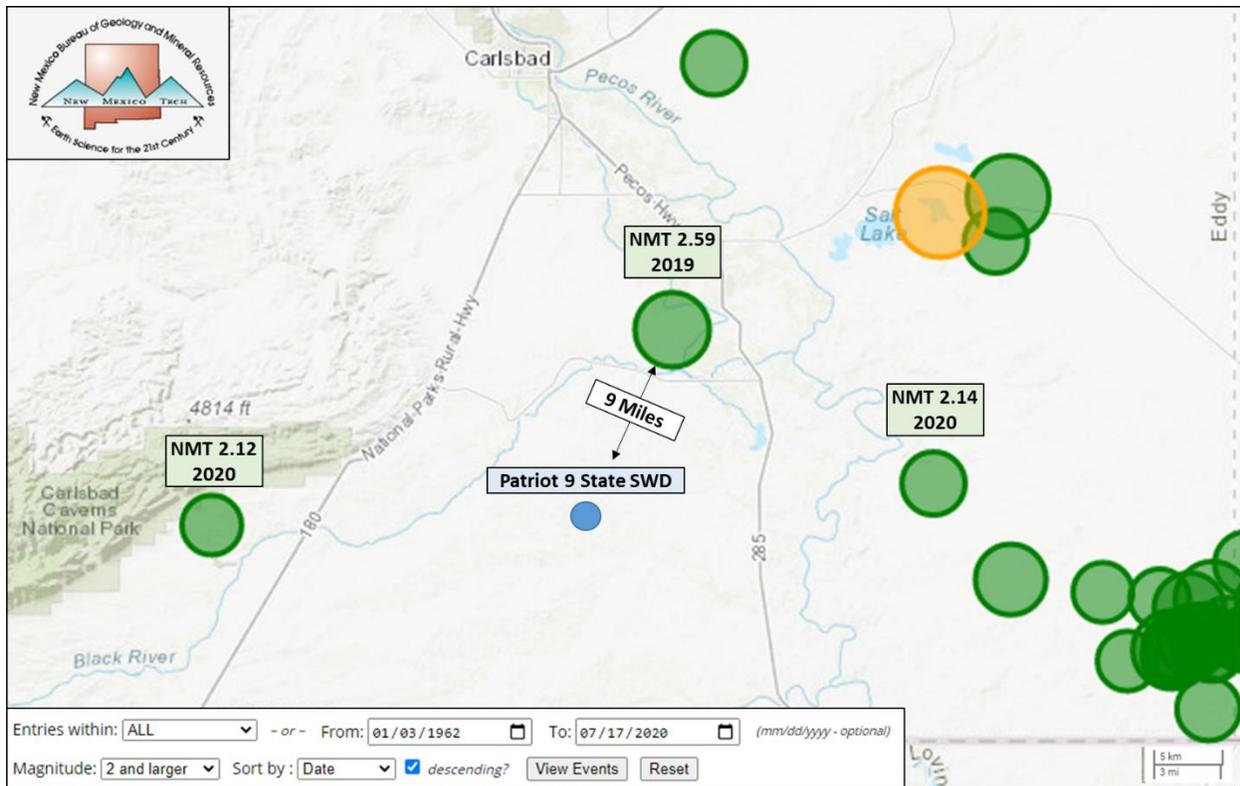


Figure 2: NMTSO earthquakes since 1962

Deep Faulting

Cimarex utilized licensed 3D seismic to investigate fault trends in the vicinity of the permit location. We did not interpret any significant faulting within several miles of the permit location. We do identify several discontinuous structural features proximal to the permit location that we interpret to represent karsting in the Devonian Carbonate section.

Stress Regime

We used data published by Snee and Zoback (2018 Leading Edge) to determine that the stress regime in the vicinity of the permit location represents normal faulting. (Figure 3).

Pore Pressure Modeling

Cimarex used the FSP software to simulate pore pressure increase through time caused by the Patriot 9 SWD. We considered pore pressure change at 20 years using the proposed average daily injection rate of 25,000 BFPD and the proposed maximum daily injection rate of 40,000 BFPD. Images of the computed pore pressure are shown in figures 4 and 5.

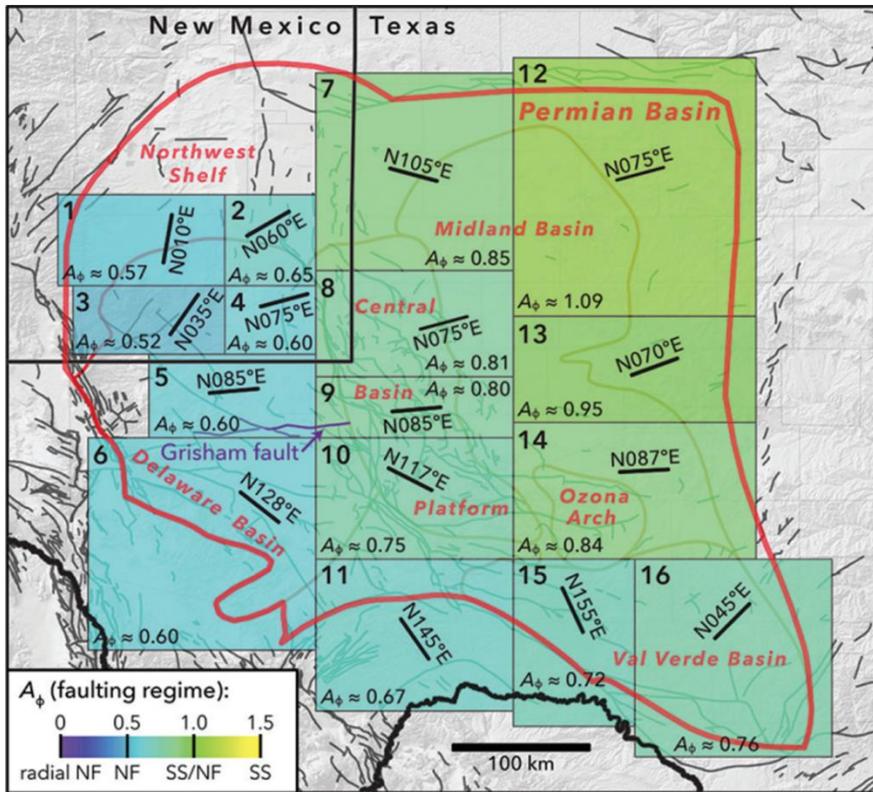


Figure 3: Stress orientation and magnitude published by Snee and Zoback (2018)

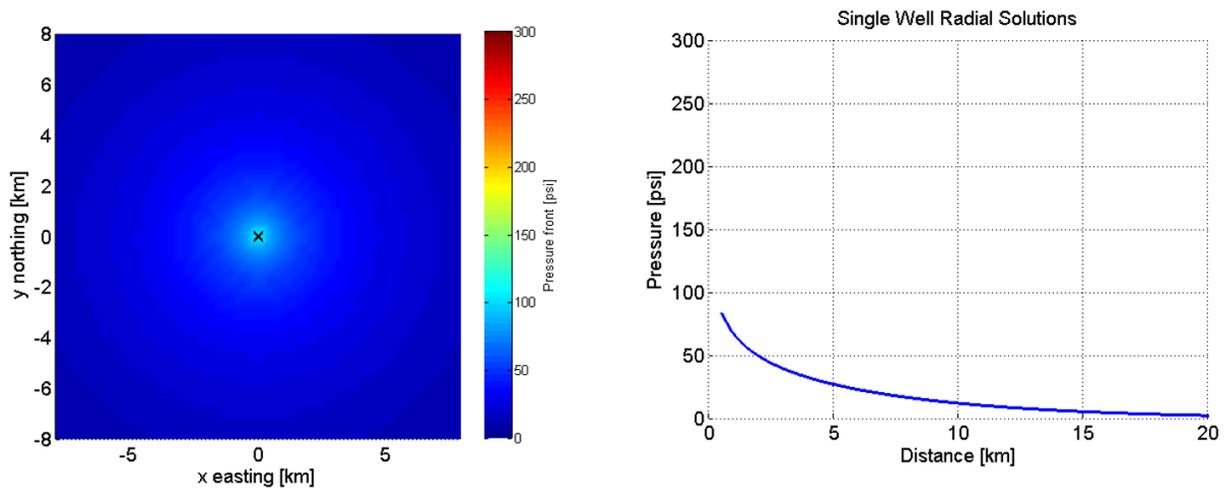


Figure 4: Pressure calculation for the Patriot 9 State SWD at 20 years using 25,000 BFPD

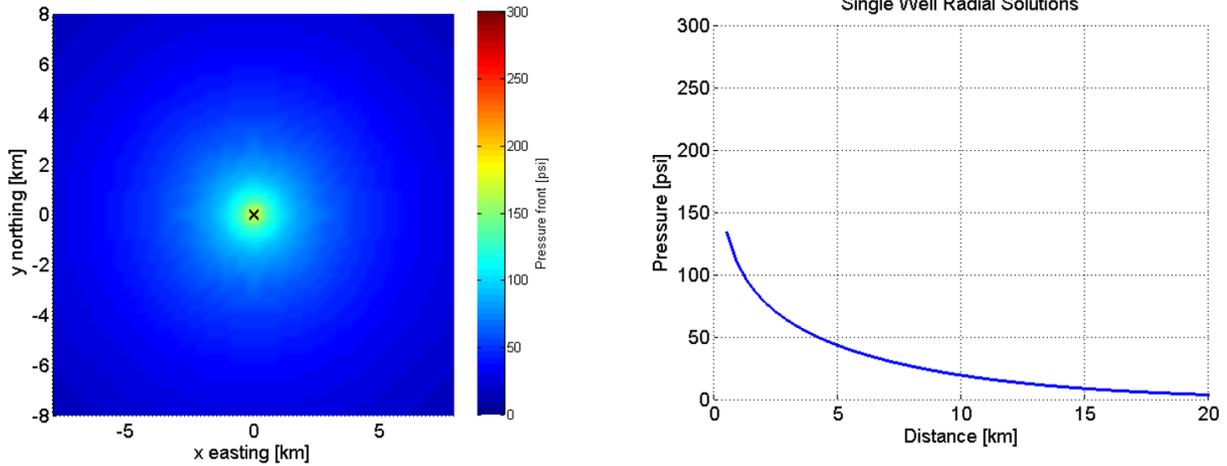


Figure 5: Pressure calculation for the Patriot 9 State SWD at 20 years using 40,000 BFPD

Mitigation Protocol

The permitted location is covered by Cimarex's mitigation protocol that includes enhanced seismicity monitoring, 24/7 notification, and operational actions to be taken if seismicity were to occur proximal to oilfield operations. This precautionary approach is intended to safeguard against uncertainties in characterization of the disposal interval, unknown future disposal rates, and unanticipated changes in the reservoir's response to injection. Our private array data provides enhanced detection should anomalous seismicity occur.

Doug Klepacki

Cimarex Energy Co.
 Manager of Geophysics

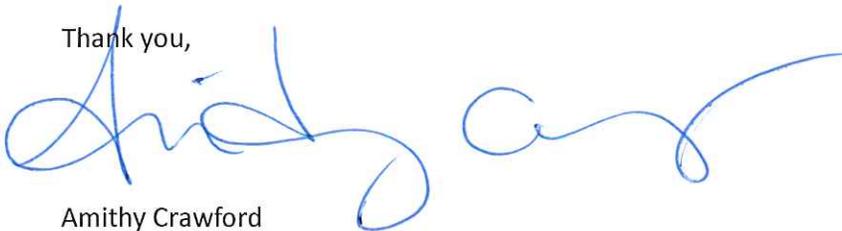
XIII.

Notification Requirements:

Surface Owner	NMSLO PO BOX 1148 Santa Fe, NM 87504	Certified # 9414 8108 9876 5055 0666 95 Sent 3/2/2020
Offset Operator Within 1 mile	Chevron USA INC 6301 Deauville BLVD Midland, TX 79706	Certified # 9414 8108 9876 5055 0672 96 Sent 3/2/2020
	EOG Resources Inc 1111 Bagby Street Sky Hobby 2 Houston, TX 77002	Certified # 9414 8108 9876 5055 0684 22 Sent 3/2/2020
	COG Operating LLC 600 W. Illinois Midland TX 79701	Certified # 9414 8118 9876 5827 8821 61 Sent 9/10/2020
Mineral Interest Within 1 Mile	Bureau of Land Management 310 Dinosaur Trail Santa Fe NM 87508 & 620 E Greene St. Carlsbad NM 88220	Certified # 9414 8118 9876 5827 2871 02 Sent 9/14/2020
		Certified # 9414 8118 9876 5827 2874 61 Sent 9/14/2020

A copy of the application was sent certified mail to the above addresses on dates mentioned above.

Thank you,



Amithy Crawford

Cimarex Energy

Cimarex Energy Co
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MIDLAND TX 79701-4405

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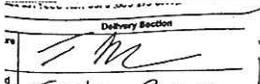
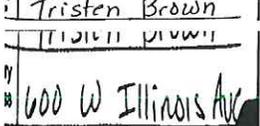
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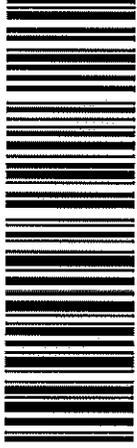
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