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Energy, Minerals and Natural Resources
Department

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NOTICE TO OPERATORS

IMMEDIATE RESPONSE PLAN FOR SEISMIC EVENTS RELATED TO CLASS II UNDERGROUND INJECTION CONTROL WELLS

November 23, 2021

The New Mexico Energy, Minerals and Natural Resources Department, Oil Conservation Division (“OCD”) has the authority under the Oil and Gas Act (Section 70-1-1 *et seq.*, NMSA 1978) and pursuant to delegated authority from the U.S. Environmental Protection Agency under the Safe Drinking Water Act (42 U.S.C. 300f *et seq.*) to regulate all aspects of Underground Injection Control (“UIC”) Class II well development and operation, and decommissioning, including their contribution to induced seismic activity. See 19.15.26 NMAC. This Notice sets forth OCD’s framework for responding to seismicity related to UIC Class II injection well operations wherever it may occur across New Mexico.

The USGS and New Mexico Bureau of Geology has detected increasing seismic activity over the last two years in the vicinity of several UIC wells located across New Mexico, including:

- Seven earthquakes of magnitude from M2.5 to M4.0 between March 2021 and September 2021, in an area known as the County Line Seismic Response Area (“County Line SRA”) located approximately 35 miles east southeast of Malaga, NM;
- Thirteen earthquake events ranging from M1.8 to M2.7 in a location approximately six miles northeast of Jal, NM, that started in August 2020 and have occurred periodically to the present;
- A swarm of 21 earthquakes ranging between M2.3 and M3.3 over a three-day period in June 2020 located in an area approximately 12 miles southwest of Lovington, NM; and,
- A collection of earthquakes in the last month, including:
 - A M3.2 event in an area approximately 24 miles southwest of Monument, NM;
 - A M4.0 event in an area approximately 15 miles North of Cimarron, NM; and,
 - A M2.5 event in an area approximately 15 miles north northeast of Ute Park, NM.

OCD has actively engaged with UIC well operators in these areas to gather data on the seismic events and to understand their causes. Based on the available data, the location of the seismic activity, and its proximity to existing UIC injection activities, as well as the experience of other states managing oil and gas related induced seismicity, OCD believes that these seismic events are directly related to UIC injection activities. These seismic events demonstrate the need for OCD to marshal available tools and data to mitigate induced seismicity and ensure that appropriate measures are established to manage it going forward.

To that end, the OCD announces the following statewide induced seismicity mitigation and response framework (see Attachment A). The framework incorporates requirements that will be implemented either through voluntary actions by operators and/or orders issued by the OCD. The OCD has the authority to institute the framework under the Oil and Gas Act, including 19.15.26.11 NMAC, which provides for:

- 1) “more comprehensive testing of [an] ...injection well when deemed advisable, including the use of tracer surveys, noise logs, temperature logs or other test procedures or devices;” and,
- 2) “special tests [of an injection well] ...if the division believes conditions so warrant.”

Testing under this authority may include but is not limited to: (1) operational curtailment of injection volumes and shut-ins,¹ (2) pressure monitoring, (3) well communication testing, and (4) phased-in reinstatement of operational activities. Consistent with this authority, the OCD expects the following actions in response to seismic events depending on the timing and magnitude of the observed event:

1. Following the occurrence of two seismic events equal to or greater than M2.5 within a 30-day period and within a 10-mile radius, OCD expects all UIC well operators within 10 miles of the epicenter of the seismic events (the “Seismic AOI”) to:
 - a. comply with the Category 1 Seismicity Response Protocols identified in Attachment A to this notice until such time as OCD determines appropriate mitigation actions in response to the observed seismic events have occurred.
2. Following the occurrence of one seismic event equal to or greater than M3.0, OCD expects all UIC well operators within the Seismic AOI to:
 - a. Implement all the monitoring and reporting requirements in the Category 1 Seismicity Response Protocols set forth in Attachment A, plus
 - b. The additional operational controls in the Category 2 Seismicity Response Protocols set forth in Attachment A.
3. OCD expects the duration the of any measures identified above will be until such time as OCD determines, in its sole discretion, that appropriate mitigation actions in response to the observed seismic events have occurred. Factors the OCD will consider, without limitation, including the lack of additional seismic activity for 6 months after the triggering event and/or approval of an operator/industry response plan to the seismic activity.
4. Attachment B contains OCD’s Seismicity Response Protocol Information Form, which OCD in its discretion may convert into an online form.

OCD may add additional requirements in any order issued in response to a seismic event as it deems necessary and appropriate to address the specific circumstances.

Finally, OCD will consider an operator’s voluntary implementation of the measures outlined in this Notice when deciding whether and when to issue an order. For additional information, contact OCD.Engineer@state.nm.us.

Attachments:

Attachment A: OCD, Seismicity Response Protocol

Attachment B: OCD, Seismicity Response Protocol Information Form (*form shall be submitted using OCD’s e-permitting system*)

¹ Operational controls are intended to test the geologic response to reductions in disposal volumes.