

AUGUST 2, 2019

BEFORE THE NEW MEXICO OIL CONSERVATION DIVISION

Sierra Club and Western Environmental Law Center's Letter of Interest

Re: Application of Mesquite SWD, Inc., for Approval of a Saltwater Disposal Well, Eddy County, New Mexico (Case No. 20472); and Application of Mesquite SWD, Inc., for Approval of a Produced Water Disposal Well, Eddy County, New Mexico (Case Nos. 20313 and 20314)

Sierra Club and Western Environmental Law Center ("WELC") respectfully submit the following comments regarding Cases No. 20472, 20313, and 20314. Sierra Club is the most enduring and influential grassroots environmental organization in the United States, with more than 10,000 members in New Mexico and West Texas. Its mission is to explore, enjoy, and protect the planet, while taking action to protect the climate, air, water, wildlife, and public lands of New Mexico and West Texas. WELC is a public interest law firm with offices in Oregon, Washington, Montana, and New Mexico. WELC uses the power of the law to defend and protect the American West's treasured landscapes, iconic wildlife and rural communities. WELC combines legal skills with sound conservation biology and environmental science to address major environmental issues in the West in the most strategic and effective manner.

We have been closely following these cases, and the broader discussion about how to best regulate salt-water disposal ("SWD") facilities in order to minimize the risk of induced seismicity. We urge the Oil Conservation Division ("OCD") to deny the applications at issue here. OCD has a statutory obligation to prevent SWD activities from threatening "public health, the environment and fresh water resources." N.M. Stat. Ann. § 70-2-12(B)(15). The record makes clear that operation of these facilities would pose an unacceptable risk to these values.

All of the proposed facilities at issue in this case are located 13 miles or closer¹ to the U.S. Department of Energy's Waste Isolation Pilot Plant ("WIPP"), which stores store transuranic radioactive waste. That is certainly close enough to create seismic events that would affect WIPP.² If radioactive material stored at, or being transported to, WIPP were disturbed by seismic activity, the environmental impact would be catastrophic. Induced seismic activity could also cause death and destruction in Carlsbad and other nearby towns.

Given the magnitude of potential harm, OCD should not permit SWD facilities in this area if there is any discernable risk of induced seismicity. Such a risk is clearly present here. Todd W. Reynolds, one of Mesquite's expert witnesses, testified that proximity to a geologic fault is the most important factor for determining whether a facility will cause seismic activity. However, he that he had only "an intermediate level of confidence" that there was no faulting in the area of the proposed wells.³ As Examiner Brancard noted, leading academics have noted that great uncertainty remains regarding the location of subsurface faults.⁴ As the experiences in Youngstown, Ohio and North Texas demonstrate, faults of concern can go undetected until it is too late,⁵ and the fact that an area has no prior history of seismic activity is no assurance that

¹ Tr. of June 28, 2019 Hearing [hereinafter "June 28 Tr."] at 140–41 (the Laguna Salada wells are 12 to 12.8 miles from WIPP, the Blackbuck-Solaris wells are 9 to 9.5 miles away, and the Baker well is 9.1 or 9.2 miles away).

² U.S. Geological Survey, *Induced Earthquakes: Myths and Misconceptions* ("Seismicity can be induced at distances of 10 miles or more away from the injection point and at significantly greater depths than the injection point.") (accessed Aug. 1, 2019).

³ Tr. of May 31, 2019 Hearing at 189.

⁴ June 28 Tr. at 243 (citing Lund Snee-Zoback article).

⁵ U.S. Environmental Protection Agency, Underground Injection Control National Technical Workgroup, *Minimizing and Managing Impacts of Injection-Induced Seismicity from Class II Disposal Wells: Practical Approaches* (Nov. 12, 2014) [hereinafter "UIC Workgroup Report"],

induced seismicity will not occur.⁶ Because Mesquite did not provide 3D fault maps for the area⁷ (the “gold standard” for determining whether faults might be present),⁸ OCD cannot make an informed judgment as to whether faults of concern might be present.

Mesquite makes much of the fact that OCD staff utilized a three-quarter-mile radius “screening tool,” which allegedly had not been publicly disclosed at the time Mesquite’s applications were filed. Mesquite also objects that there is no sound technical basis for using this tool. But all of that is beside the point. At the end of the day, it is Mesquite’s burden to demonstrate that these permits can be granted, consistent with OCD’s statutory obligation to protect public health and the environment. It has not carried that burden. Given the proximity of these wells to WIPP, an “intermediate level of confidence” that these wells will not cause

at 22–23 (“Starting on March 17, 2011, a series of 12 small magnitude seismic events occurred in Mahoning County in and around Youngstown, Ohio, culminating in a M4.0 event on December 31, 2011. Evidence suggested that the newly permitted, Northstar 1 Class II saltwater disposal well was the cause of the seismic activity Prior to the earthquakes recorded in 2011, the only known deep-seated fault was mapped approximately 20 miles (32 km) away from the seismic activity, based on a Pennsylvania Geological Survey report (Alexander et al., 2005). . . . *Due to the lack of deep geological information available for the Mahoning County area, a deep Precambrian basement fault in close proximity to the Northstar 1 went undetected.*”).

⁶ See *id.* at 17–19 (“Several small earthquakes occurred in the central part of the Dallas-Fort Worth metroplex near the Dallas-Fort Worth (DFW) International Airport on October 31, 2008, and near the town of Cleburne on June 2, 2009. Both areas are located in north central Texas, in the eastern portion of the Barnett shale play. *Prior to 2008, no earthquakes had been reported within 40 miles (64 km) of the DFW and Cleburne case study areas.* . . . The [Texas Railroad Commission] subsequently reviewed its permit actions for these wells and other wells in the area in an effort to determine if the activity could have been predicted. No indications of possible induced seismicity were found in these reviews.”).

⁷ *Id.* at 57.

⁸ *Id.* at 189.

seismic events, based on a technical review that fails to include the best scientific information available (3D fault mapping), is not sufficient to protect human health and the environment.

More generally, the proceedings in these cases have highlighted the urgent need for OCD to undertake comprehensive rulemaking to manage the risk of induced seismicity in southeast New Mexico. It is clear that New Mexico's regulations lag far behind those in other states. OCD's regulations do not set forth a comprehensive plan for maintaining buffer zones around known faults or for identifying where faults might be located, do not require consideration of net fluid balance at local and regional scales, as is done in Oklahoma, and do not codify the agency's practice of limiting injection pressures to 0.2 psi per foot.

Matters are exacerbated by the tremendous strain on OCD staff and the dynamic state of the literature on induced seismicity. OCD currently has more than 200 pending applications and a 55 percent vacancy rate. The agency simply does not have the resources to make fully informed, individualized decisions on this number of highly technical applications. Moreover, rapid advances in the scientific literature mean that even the best available guidance documents are now woefully outdated. For example, the UIC Workgroup Report did not consider studies published after September 2013.⁹ Yet at least half-a-dozen case studies linking SWD operations to earthquake occurrence were published in 2017 and 2018 alone.¹⁰

⁹ UIC Workgroup Report at 9.

¹⁰ Hearn, E. H., Koltermann, C. & Rubinstein, J. L., *Numerical models of pore pressure and stress changes along basement faults due to wastewater injection: applications to the 2014 Milan, Kansas earthquake*. *Geochem., Geophys., Geosystems* 19, 1178–1198 (2018); Ogwari, P. O., DeShon, H. R. & Hornbach, M. J., *The Dallas-Fort Worth Airport Earthquake Sequence: Seismicity Beyond Injection Period*, *J. Geophys. Res.: Solid Earth* 123, 553–563 (2018); Schoenball, M., Walsh, F. R., Weingarten, M. & Ellsworth, W. L., *How faults wake up: the Guthrie-Langston, Oklahoma earthquakes*, *Lead. Edge* 37, 100–106 (2018); Brown, M. R., Ge,

Rather than continuing to rely on overtaxed staff to exercise their discretion on a case-by-case basis in the face of rapidly advancing science, OCD should issue a moratorium on new applications until such time as the agency can finalize a comprehensive set of regulations to protect New Mexicans from seismic risk. As part of such rulemaking, OCD should conduct a comprehensive literature review, with special emphasis on publications that post-date the UIC Workgroup Report. It appears this approach would be supported by a number of other stakeholders, including at least some members of industry.¹¹

We look forward to engaging in this process with other stakeholders.

Respectfully submitted this 2nd day of August 2019,

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¹¹ *Id.* at 171 (Ernest L. Padilla, counsel for Blackbuck Resources, asking OCD’s witness why OCD hasn’t “issued a moratorium and given a certain time period within which to implement the rules so that everybody can be on the same page”).