

**STATE OF NEW MEXICO  
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT  
OIL CONSERVATION DIVISION**

**IN THE MATTER OF THE HEARING CALLED BY  
THE OIL CONSERVATION DIVISION FOR THE  
PURPOSE OF CONSIDERING:**

**CASE NO. 20093  
ORDER NO. R-21617**

**APPLICATION OF NGL WATER SOLUTIONS PERMIAN, LLC FOR APPROVAL OF  
A SALTWATER DISPOSAL WELL, LEA COUNTY, NEW MEXICO.**

**ORDER OF THE DIVISION**

**BY THE DIVISION:**

This case was heard by the Oil Conservation Division (“OCD”) at 8:15 a.m. on November 16, 2018, in Santa Fe, New Mexico.

The OCD Director, having considered the testimony, the record, and the recommendations of Technical Examiner Baylen Lamkin issues this order.

**FINDINGS OF FACT**

- (1) Due notice has been given, and the OCD has jurisdiction of the subject matter of this case.
- (2) In Case No. 20093, NGL Water Solutions Permian, LLC (the “Applicant,” or the “Operator” ) seeks an order to instate authority to inject into its Thunderbird SWD Well No. 1 (API No. 30-025-Pending; “Subject Well”) with a surface location 190 feet from the South line and 314 feet from the East line (Unit P) in Section 30, Township 25 South, Range 36 East, NMPM, Lea County, as an Underground Injection Control (UIC) Class II well for disposal of produced water into the Devonian and Silurian formations through an open-hole interval from approximately 15,430 feet to approximately 17,100 feet below surface.
- (3) On October 11, 2018 NGL Water Solutions Permian, LLC filed an application for hearing for the approval of authority to inject for the Subject Well.
- (4) On November 7, 2018 NGL Water Solutions Permian, LLC filed a pre-hearing statement in Case No. 20093.

(5) On November 13, 2018 Ameredev Operating, LLC filed an entry of appearance in Case No. 20093.

(6) The applicant appeared at the hearing through counsel and presented geologic and engineering evidence to the effect that:

(a) The Applicant seeks to inject into the Subject Well at an approximate total depth of 17,100 feet below surface. The injection will occur through an open borehole (6.5-inch diameter) from approximately 15,430 feet to approximately 17,100 feet below surface.

(b) The Subject Well will be constructed with the following four casing strings and liner system: 20-inch surface casing set at 1,620 feet; 13<sup>3</sup>/<sub>8</sub>-inch intermediate casing set at 5,200 feet; and a 9<sup>5</sup>/<sub>8</sub>-inch intermediate casing set at 11,100 feet, and a 7<sup>5</sup>/<sub>8</sub>-inch production liner set at 15,430 feet.

(c) All casings will have cement circulated to the surface except the production liner which will have cement circulated at least to the tie-in to the second intermediate casing.

(d) The Subject Well will inject fluids through a tapered tubing set consisting of plastic-lined, 5<sup>1</sup>/<sub>2</sub>-inch outside diameter (OD) tubing within the liner and plastic-lined, 7-inch OD tubing above the liner. The tubing is attached to a packer set no shallower than 100 feet above the top of the open-hole interval.

(e) The primary sources of produced water will be wells with production from the Delaware Mountain group and the Bone Spring (including Avalon), and Wolfcamp formations.

(f) The analyses of produced water samples provided by NGL Water Solutions Permian, LLC showed the compatibility of the injection fluids with formation fluids in the proposed disposal interval.

(g) The Applicant proposes a commercial operation with an average injection rate of 40,000 barrels of water per day (BWPD) and a maximum injection rate of 50,000 BWPD using a maximum surface injection pressure of 3,086 pounds per square inch (psi).

(h) There are no production or disposal wells that penetrate the Devonian formation within the one-mile Area of Review (AOR) of the surface location and the bottom-hole location for the Subject Well.

(i) Based on the records of the New Mexico Office of the State Engineer, there are eight freshwater wells within one mile of the surface location of the Subject Well. Two of the wells were sampled and analysis was provided.

- (j) Applicant's witness presented affidavits from industry experts that they have examined the available geological and engineering data and found no evidence of open faults or any other hydrologic connection between the disposal zone and any underground sources of drinking water.
- (k) The proposed well completion with the tubing set with the available annular space of the 5½-inch OD tubing inside 7⅝-inch production liner would be sufficient to allow the extraction of any lost tubing with standard fishing tools including overshot tools.
- (l) Based on the application of a risk assessment model (the *Fault Slip Potential* software tool; Stanford Center for Induced and Trigger Seismicity; 2017) with publicly-available data, there was an extremely low probability of any induced-seismic event occurring during the operational lifespan of injection activity for the Subject Well.
- (m) The Applicant provided evidence of notification of this application to all "affected persons" within a one-mile radius of the surface location of the Subject Well and with publication in a newspaper of general circulation in the county.
- (7) Ameredev Operating, LLC appeared through counsel at hearing and were not opposed to granting the application provided the applicant supplies directional surveys for the well when it is drilled.
- (8) OCD hearing examiners determined the request was acceptable and that the application could be taken under advisement.

### **CONCLUSIONS OF LAW**

- (9) The application has been duly filed under the provisions of Rule 19.15.26.8 NMAC.
- (10) Applicant has presented satisfactory evidence that all requirements prescribed in Rule 19.15.26.8 NMAC have been met.
- (11) The proposed well construction provided in the application was protective of the underground sources of drinking water ("USDW") at the location of the Subject Well.
- (12) There are no wells that penetrate the proposed injection interval within the one-mile AOR for the Subject Well.
- (13) OCD records indicate NGL Water Solutions Permian, LLC (OGRID 372338) as of the date of this order is in compliance with Rule 19.15.5.9 NMAC.
- (14) The OCD is responsible for the orderly development and production of hydrocarbon resources including the authority to regulate the disposition of produced water as described in NMSA 1978, Section 70-2-12(B)(15). It is obligated to prevent waste, to protect correlative rights, and to protect human health and the environment.

(15) The OCD supports the use of Devonian and Silurian formations as suitable disposal intervals to lessen the potential impact upon production of hydrocarbon resources and associated correlative rights that occur in shallower Permian formations. The OCD recognizes the necessity to increase the efficiency of these deeper disposal wells with their increased cost associated with the deeper disposal interval.

(16) OCD records identified no pending C-108 applications for the same injection interval within a 1.5-mile radius of the surface location of the Subject Well. Additionally, there are no approved UIC permits for other disposal wells with the same proposed injection interval with a surface location within a 1.5 mi radius of the surface location of the subject well.

(17) To avoid the drilling of additional disposal wells, protect correlative rights, and prevent waste while affording the Applicant the opportunity to fully utilize the disposal potential of the Subject Well in a manner that safeguards the public health and the environment, this application should be approved.

### **ORDER**

(1) NGL Water Solutions Permian, LLC is hereby authorized to utilize its Thunderbird SWD Well No. 1 (API No. 30-025-Pending) with a surface location 190 feet from the South line and 314 feet from the East line (Unit P) in Section 30, Township 25 South, Range 36 East, NMPM, Lea County, New Mexico as a disposal well for UIC Class II fluids.

(2) Disposal shall be through open hole in the Devonian and Silurian formations (below the lower contact of the Woodford Shale) from approximately 15,430 feet to approximately 17,100 feet below surface (the "permitted disposal interval"). Injection is to be through a plastic-lined tubing set and a packer placed within 100 feet above the top of the permitted disposal interval. This order shall approve the use of a tubing set consisting of 5½-inch (OD) or smaller tubing placed within the 7⅞-inch production liner.

(3) The Operator shall take all steps necessary to ensure that the disposed water enters only the permitted disposal interval and is not allowed to escape to other formations or onto the surface. This order does not authorize disposal into formations below the Silurian formations including the Montoya formation and the Ellenburger formation (lower Ordovician) or lost circulation intervals directly on top and obviously connected to these formations.

(4) The Operator shall complete a mudlog over the permitted disposal interval sufficient to demonstrate the hydrocarbon potential. The Operator shall notify the OCD's District office and the Santa Fe engineering bureau office of significant hydrocarbon shows that are observed during drilling of the permitted disposal interval. Prior to commencing disposal, the Operator shall submit the mudlog and geophysical logs information to the OCD's District geologist and Santa Fe engineering bureau office, showing evidence agreeable that only the permitted formation is open for disposal including a summary of depths (picks) for contacts of the formations which the OCD shall use to amend this order for a final description of the depth for the injection interval and any corresponding change in the wellhead injection pressure.

(5) The Operator shall conduct and document the casing testing requirements for the Subject

Well in accordance with Rule 19.15.16 NMAC.

(6) If cement does not circulate to surface on any casing string, the operator shall run a cement bond log (“CBL”) or other log to determine top of cement and shall notify the District with the top of cement on the emergency phone number prior to continuing with any further cement activity with the proposed well. *If cement did not tie back into the next higher casing shoe, the operator shall perform remedial cement job to bring cement, at least, 200 feet above the next higher casing shoe.*

(7) The Operator shall run a CBL for the 7 $\frac{5}{8}$ -inch liner from at least 500 feet above the liner to the bottom of the liner to demonstrate placement of cement across the length of the liner and the cement bond with the tie-in with the 9 $\frac{5}{8}$ -inch casing.

(8) Prior to commencing disposal, the Operator shall obtain a **bottom-hole pressure measurement** representative of the injection interval and submit this data with the information required in Ordering Paragraph (15).

(9) The wellhead injection pressure shall be limited to **no more than 3,086 psi (calculated using the gradient of 0.2 psi per foot to the top of open hole)**. In addition, the Subject Well shall be equipped with a pressure limiting device in workable condition which shall, at all times, limit surface tubing pressure to the maximum allowable pressure for this well.

(10) The Director may authorize an increase in tubing pressure upon a proper showing by the Operator of said well that such higher pressure will not result in migration of the disposed fluid from the approved injection interval. Such proper showing shall be demonstrated by sufficient evidence including but not limited to an acceptable Step-Rate Test.

(11) Further, the Subject Well shall be limited to a maximum injection rate of **no more than 50,000 barrels of water per day**.

(12) The Director of the OCD may authorize an increase in the injection rate upon a proper showing by the Operator of said well that such increase in injection rate will not result in migration of the disposed fluid from the approved injection interval. Such proper showing shall be demonstrated by sufficient evidence including but not limited to assessment of induced-seismicity risks and calculation of a radius of influence representative of the proposed injection rate.

(13) The Subject Well shall pass an initial mechanical integrity test (“MIT”) prior to commencing disposal and prior to resuming disposal each time the well has significant equipment changes including, but not limited to, the packer being unseated, tubing being pulled, or when casing repairs have occurred. The Operator shall notify the OCD’s District office a minimum of 48 hours in advance of the proposed date and time of the modification of disposal equipment and of any MIT test so that the same may be inspected and witnessed. All MIT procedures and schedules shall follow the requirements in Rule 19.15.26.11(A) NMAC.

(14) The Operator shall provide copies of Notice of Intents and Subsequent Reports (either

Form C-103 or a copy of the federal Form 3160-5) with the OCD's District office for any testing of the well or for any activities that shall modify the well construction or operation.

(15) The Operator shall provide written notice of the date of commencement of disposal to the OCD's District office. The Operator shall submit monthly reports of the disposal operations on OCD Form C-115, in accordance with Rules 19.15.26.13 NMAC and 19.15.7.24 NMAC.

(16) If the Subject Well fails a MIT or if there is evidence that the mechanical integrity of said well is impacting correlative rights, the public health, any USDWs, or the environment, the OCD Director shall require the Subject Well to be shut-in within 24 hours of discovery and the Operator shall redirect all disposal waters to another facility. The Operator shall take the necessary actions to address the impacts resulting from the mechanical integrity issues in accordance with Rule 19.15.26.10 NMAC, and the Subject Well shall be tested pursuant to Rule 19.15.26.11 NMAC prior to returning to injection.

(17) Without limitation on the duties of the Operator as provided in Rules 19.15.29 NMAC and 19.15.30 NMAC, or otherwise, the Operator shall immediately notify the OCD's District office of any failure of the tubing, casing or packer in the Subject Well, or of any leakage or release of water, oil or gas from around any produced or plugged and abandoned well in the area, and shall take such measures as may be timely and necessary to correct such failure or leakage.

(18) The OCD further stipulates the following "best management practices" shall be included as conditions of the approved application:

(a) The Subject Well shall be included in a Supervisory Control and Data Acquisition (SCADA) system for operation as an injection well.

(b) The Operator shall first contact the OCD's District supervisor for approval of proposed remedial actions prior to initiating any recovery attempts should a failure of tubing occur with a loss of a tubing section within the Subject Well.

(19) The injection authority granted under this order is not transferable except upon OCD approval. The OCD may require the Operator to demonstrate mechanical integrity of any injection well that will be transferred prior to approving transfer of authority to inject.

(20) The OCD may revoke this injection permit after notice and hearing if the Operator is in violation of Rule 19.15.5.9 NMAC.

(21) The disposal authority granted herein shall terminate one year after the effective date of this order if the Operator has not commenced injection operations into the proposed well, provided however, the OCD, upon written request, mailed by the Operator prior to the termination date, may grant an extension thereof for good cause.

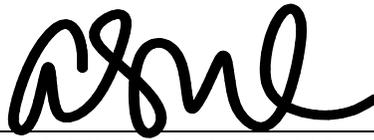
(22) One year after disposal into the Subject Well has ceased, said well will be considered abandoned and the authority to dispose will terminate *ipso facto*.

(23) Compliance with this order does not relieve the Operator of the obligation to comply with other applicable federal, state or local laws or rules, or to exercise due care for the protection of fresh water, public health and safety, and the environment.

(24) Jurisdiction is retained by the OCD for the entry of such further orders as may be necessary for the prevention of waste and/or protection of correlative rights or upon failure of the Operator to conduct operations (1) to protect fresh or protectable waters or (2) consistent with the requirements in this order, whereupon the OCD may, after notice and hearing, or prior to notice and hearing in event of an emergency, terminate the disposal authority granted herein.

DONE at Santa Fe, New Mexico, on this the 22<sup>nd</sup> day of February 2021.

STATE OF NEW MEXICO  
OIL CONSERVATION DIVISION

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

ADRIENNE SANDOVAL  
Director