

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

**APPLICATION OF CHEVRON USA INC.  
TO APPROVE SALT WATER DISPOSAL  
WELL IN LEA COUNTY, NEW MEXICO.**

**CASE NO. 23686**

**APPLICATION OF CHEVRON USA INC.  
TO APPROVE SALT WATER DISPOSAL  
WELL IN EDDY COUNTY, NEW MEXICO.**

**CASE NO. 23687**

**OIL CONSERVATION DIVISION'S  
PRE-HEARING STATEMENT**

The New Mexico Oil Conservation Division (“OCD”) submits this Pre-Hearing Statement pursuant to 19.15.4.13(B) NMAC.

**I. IDENTIFICATION OF PARTY AND COUNSEL**

OCD has intervened in this matter and is represented by undersigned counsel.

**II. STATEMENT OF THE CASE**

Chevron USA Inc, (“Applicant”) filed two applications for authorization to inject produced water into two proposed wells, both with injection intervals in the Delaware Mountain Group (“DMG”).

In Case No. 23686, Applicant seeks approval of the Papa Squirrel State SWD No.1 (“Papa Squirrel”) with a surface location of 1,928 feet from the South line and 870 feet from the West line of Section 13, Township 26 South, Range 32 East, NMPM, Lea County, New Mexico. Applicant is proposing to a maximum volume of 20,000 barrels per day (“BWD”) at a proposed maximum surface injection pressure not to exceed 925 pounds per square inch (“PSI”) through proposed perforations from approximately 4,625 feet to approximately 8,500 feet (base of the production casing) below the surface. Applicant has proposed the injection interval extend

approximately 439 feet below the shoe of the production casing to the upper contact with the Bone Spring formation. Therefore, the Applicant seeks approval of an Underground Injection Control (“UIC”) permit for an interval of 4,314 feet that comprises the Bell Canyon (including the Lamar limestone), Cherry Canyon, and Brushy Canyon formations of the DMG.

In Case No. 23687, Applicant seeks approval of the Severitas 2 State SWD No.1 (“Severitas”) with a surface location of 185 feet from the North line and 1,082 feet from the East line of Section 2, Township 26 South, Range 27 East, NMPM, Eddy County, New Mexico. Applicant is proposing to a maximum volume of 15,000 BWD at a proposed maximum surface injection pressure not to exceed 468 PSI through proposed perforations from approximately 2,343 feet to approximately 5,500 feet (base of the production casing) below the surface. Applicant has proposed the injection interval extend approximately 512 feet below the shoe of the production casing to the upper contact with the Bone Spring formation. Therefore, the Applicant seeks approval of an UIC permit for an interval of 3,669 feet that comprises the Bell Canyon (including the Lamar limestone), Cherry Canyon and Brushy Canyon formations of the DMG.

Both wells are to be constructed using a three-casing string design: 13 3/8-inch surface casing, 10 3/4-inch intermediate casing, and 7 5/8-inch casing with all casing strings cemented to surface. Injection is to occur through plastic lined, 5 1/2-inch tubing attached to a packer set within 100 feet of the upper perforation. Applicant has stated in both applications that the only source of produced water for disposal will be from Applicant’s own oil and gas production operations in the proximity of the respective wells.

With the submission of Applicant’s proposed disposal wells in the DMG, OCD is required to review and assess the applications both for the consideration of the individual permit action

and the larger scope of expanding demand for disposal in the DMG to offset the increasing volume of produced water from horizontal well development. Historically, the DMG was a preferred shallow hydrocarbon target produced with vertical wells and was later utilized as an inexpensive disposal interval as the hydrocarbon plays become uneconomical for vertical development. With the current rapid expansion of horizontal completions in the Wolfcamp, the demand for produced water disposal intervals with large capacity has exponentially increased along with corresponding issues for the DMG. This situation has been further complicated by the issues of the recent expansion of deep disposal and related induced seismicity occurrences. Therefore, OCD is attempting through the review of these applications to address existing concerns with the rise of the DMG as an alternate disposal interval on a basin-wide scale. Some of these concerns include:

- The impacts on correlative rights and prevention of waste especially for undeveloped resources and existing production in the Avalon Shale and the Brushy Canyon formation;
- The exceedance of the formation parting pressures for the units of the DMG during disposal operations;
- The impacts of shallow disposal on the drilling and the completions of wells in deeper producing zones of the Permian strata;
- The ability to adequately determine compliance with UIC permit conditions; and
- The best practices to address the anticipated rapid expansion of commercial disposal in DMG.

For the review of the individual applications, OCD found the proposed well design consistent with current new well construction for Class II disposal wells and the assessment of the Area of Review (“AOR”) adequate. However, OCD notes the following observations for the individual applications:

- The Papa Squirrel located in Section 13 is located within the area with Avalon (Upper Bone Spring) Shale that is not favored for DMG disposal due to resource potential. The location of the well is between two areas where increased water saturation/water flows has been reported in the DMG. Additionally, the location of the Papa Squirrel is within ½ mile of a horizontal well in Section 14 that is completed and producing in the “upper Bone Spring shale” (SD WE 14 Federal P7 Well No. 3H; API No. 30-025-43086).
- The Severitas located in Section 2 also lies within the area characterized for Avalon (Upper Bone Spring) Shale production. The proposed well is approximately one mile northeast of a plugged SWD well, the Skeen 2 SWD Well No. 1 (API No. 30-015-41744) with a DMG injection interval that was completed with perforations from 2550 feet to 5285 feet. A step-rate test was conducted on the active disposal well for approval of an Injection Pressure Increase (“IPI”) order to increase the maximum surface injection pressure. The test results indicated a formation parting pressure of 570 PSI at surface. Administrative order IPI-467 approved a new surface injection pressure of 545 PSI which increased the pressure gradient from 0.2 PSI per foot to 0.21 PSI per foot suggesting the administratively approved surface injection pressure was very close to the formation parting pressure. The highest injection rate achieved was 41,179 barrels of water for 30 days (November 2014) or 1,373 BPD at a

reported maximum surface injection pressure of 510 PSI. The disposal well operated for only three years then was shut-in for three further years before being plugged.

OCD neither supports nor opposes the applications with the current knowledge of the DMG for the selected locations but would require any UIC permits to incorporate the additional conditions provided in Exhibit 11.

### **III. PROPOSED EVIDENCE**

#### **WITNESS:**

#### **ESTIMATED TIME:**

1. Brandon Powell, Deputy Director

20 minutes

Mr. Powell is the Deputy Director that manages the OCD's Engineering Bureau which contains the UIC Group. He has served with OCD in various positions for more than 15 years, including district supervisor, staff manager, inspection/enforcement supervisor, and environmental specialist. Prior to joining OCD, Mr. Powell was a facility manager and environmental technician for an environmental services company. His qualifications are described in Exhibit 1. Mr. Powell will testify regarding aspects of the production history of the DMG, the OCD's activities for disposal in the DMG, and the OCD's efforts to institute a uniform process for permitting in the DMG.

2. Phillip Goetze, UIC Program Manager

40 minutes

Mr. Goetze is presented as an expert in petroleum geology and underground injection. Mr. Goetze manages the review of Class II UIC applications for compliance with OCD's rules and to

prevent waste and protect correlative rights, public health, and environment. Mr. Goetze has more than forty (40) years of experience in the fields of geology, hydrology, and environmental protection. His professional qualifications are summarized in Exhibit 2.

Mr. Goetze will testify regarding the facts and opinions stated in this Pre-Hearing Statement, and that the specified permit conditions will provide an adequate assurance that the proposed wells will not cause waste or harm correlative rights, public health, or the environment, including Underground Source of Drinking Waters.

3. Million Gebremichael, Engineer, UIC Group

20 minutes

Mr. Gebremichael is presented as an expert in petroleum engineering and underground injection. He is a member of the OCD's UIC Group and has experience in the review of applications for compliance with OCD's rules and the prevention of waste and the protection of correlative rights, public health and the environment. Mr. Gebremichael has more than 10 years of experience in the fields of reservoir engineering, petroleum geology, and regulatory oversight. Mr. Gebremichael is providing testimony in support of the standardized step-rate test procedure contained in Exhibit 12 and any questions regarding engineering reporting and monitoring of Exhibit 11.

**EXHIBITS:**

- Exhibit 1      Curriculum Vitae of Brandon Powell
- Exhibit 2      Curriculum Vitae of Phillip Goetze
- Exhibit 3      Curriculum Vitae of Million Gebremichael

- Exhibit 4      OCD Presentation on Disposal in DMG
- Exhibit 5      Bureau of Economic Geology Paper [Nance] on DMG Geology
- Exhibit 6      Map Showing Avalon Production Area as Proposed by NMOGA
- Exhibit 7      OCD Hearing Orders for BOPCO Cases Involving DMG Disposal Wells
- Exhibit 8      OCD 2016 Workshop Presentation on Avalon Shale Production  
Interference
- Exhibit 9      Texas Railroad Commission Permit Restrictions by Geography and  
Geology
- Exhibit 10     Current Bureau of Economic Geology Paper on Seismicity in -Delaware  
Basin of West Texas and Southeast New Mexico
- Exhibit 11     OCD Recommendations for Administrative Approval of UIC Disposal  
Wells in the DMG
- Exhibit 12     OCD Current Step Rate Test Guidance [2023]

#### **IV. PROCEDURAL MATTERS**

The OCD has not identified any procedural matters to be resolved prior to the hearing.

Respectfully submitted,

/s/ Jesse K. Tremaine

Jesse Tremaine

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**CERTIFICATE OF SERVICE**

I certify that on November 2, 2023, I served this pleading by electronic mail on:

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