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

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

14976
Re-opened Case No. ~~14664~~

APPLICATION OF OCCIDENTAL PERMIAN, LTD. FOR APPROVAL TO ADD THE NORTH HOBBS G/SA UNIT WELL NO. 431 AS AN INJECTION WELL FOR WATER, CARBON DIOXIDE, AND PRODUCED GAS IN ITS NORTH HOBBS GRAYBURG-SAN ANDRES TERTIARY RECOVERY PROJECT LOCATED WITHIN THE HOBBS GRAYBURG-SAN ANDRES POOL, LEA COUNTY, NEW MEXICO

Pre-File Testimony of William V. Jones, P.E.

Review of the form C-108 and Division well file and public records and submit the following:

On December 20, 2012, Occidental Permian, Ltd. submitted form C-108 to the Division asking for administrative approval of injection of CO2 and Produced Gases into the North Hobbs Unit Well No. 431 (API No. 30-025-05445). As the engineer with the Oil Conservation Division assigned to review this sort of application, I received the application, logged it into the database system, and reviewed it to ensure all items required with form C-108 were properly addressed and then examined the application for approvability.

My review of this form C-108 indicated that Occidental had submitted a complete package, addressing all required items.

My review of the proposal for approvability indicated:

a. Fresh water sands are protected in this well and in the examined one half mile area of review. Occidental indicated there were no geologic faults or other means with which injected fluids could communicate with shallow fresh water intervals.

b. Proper notice was given as required for providing notice for approval of injection or disposal applications (19.15.26 NMAC). Occidental identified separately owned tracts within one half mile and identified the owners of each of those tracts. To my

EXHIBIT A

knowledge, the Division received no protest of this application while it was being reviewed administratively.

c. The wells within one half mile were properly cased or cemented to prevent migration of injected fluids out of the proposed injection interval. Occidental's application indicated there are 8 plugged wells within the one half mile Area of Review and 18 wells which have not been plugged (considered as "active" by the US EPA). Most of these wells had been examined under previous reviews and the casing and cementing data for those previously examined wells were not submitted again for this review.

d. Occidental Permian, Ltd. (OGRID 157984) was at that time in compliance with Division Rule 19.15.5.9 as far as bonding in place and numbers of inactive wells.

e. There are no sensitive areas threatened by this proposal for injection such as the Capitan Reef, the Potash enclave, or the Salado Salt.

f. Occidental's well diagram indicated that the proposed well is already cased and equipped for injection and indeed has been recently injecting (only) water as part of the North Hobbs Unit Pressure Maintenance Project.

g. The tubing shown in the well diagram is installed in dual bottom hole packers, the bottom of which is an isolation packer – intended to direct injection into preferred portions of the "open" interval. Both packers are located within approximately 100 feet above the proposed 4000 feet to 4365 feet (San Andres formation, perforated and open hole) injection interval. The dual packer arrangement as proposed by Occidental is necessary for this operation and, in my opinion, should be expressly approved in any order of the Commission.

h. The application did not address continuous recording of injection rates, temperatures, and tubing and annulus pressures. This information should be available for the Division's district office and used to determine whether an MIT is needed. Otherwise MIT's should be scheduled as per other wells in the North Hobbs Unit.

i. The application did not address the H2S contingency plan – the well should be included in any plan proposal prior to use for injection.

j. Injection of CO2 should be contained within this Unit either with Unit producing wells acting as a "sink" or by stratigraphic pinchout. This well is near the northern edge of the North Hobbs Unit and it seems bounded on the north by plugged wells which were at one time used for disposal into some portion of the San Andres

formation. The application did not say why these wells were plugged or whether the CO2 would be adequately contained within the Unit.

As part of the consideration as to whether this well could be approved administratively, I reviewed the well permitting history and found the following:

a. The North Hobbs Unit was approved as a Statutory Unit for purposes of Pressure Maintenance at approximate depths of 3700 to 4500 feet in the Grayburg San Andres formation by Commission Order R-6198 issued in Case No. 6652 on November 30, 1979. The Order R-6198 says this Unit is being set up for Pressure Maintenance purposes but does not specify which fluids would be used for injection. The case files (6652 and 6653) indicate water would be the fluid used for injection.

b. The North Hobbs Unit Pressure Maintenance Project was approved by Commission Order R-6199 on November 30, 1979. This Order is not available as an image on the Division's web site and I have not reviewed the hard copy to ensure that only water injection (and not also gas injection) was authorized. It appears from other records that only water injection was used for pressure maintenance beginning in 1979.

c. Under authority of Order R-6199, the North Hobbs Unit Well No. 431 (the subject well) was authorized for injection of water under administrative order PMX-89 approved August 26, of 1980. Injection records indicate this well was used in 1993 (and possibly earlier) for water injection and not again until 2009 – and records indicate water injection has occurred continuously since 2009.

d. The Division with Order R-6199-B issued in Case No. 12722 on October 22, 2001; approved an areally defined Phase I area within the North Hobbs Unit for injection of water, CO2, and Produced Gas. According to findings within that Order, Occidental agreed to restrict injection of Unit produced H2S into only the "west side" of the North Hobbs Unit. That Order also set up separate injection pressure limits while injecting water, CO2, or Produced Gas.

e. In 2006, Occidental requested the Division grant approval to return Well No. 431 to active injection status since the well had not been used for injection since 1993. The Division Director issued a letter granting this permission and also specifically in this letter granted permission (under authority of Order R-6199-B) for injection into this well of Water, CO2, and Produced Gas. That letter was scanned into the permit file for PMX-89 and into Case No. 12722.

f. While reviewing the recently submitted C-108, I became aware that the subject well (Well No. 431) is located just outside and to the north of the defined Phase I area which area was approved for CO2 and produced gas injection.

Conclusions:

My review shows the injection application for Well No. 431 is approvable, however, to be consistent with Order R-6199-B, the Well No. 431 should not be approved for injection of CO2 and Produced Gas without expansion of the Phase I area.

Despite the letter of permission issued for this well in 2006, and because the Well No. 431 is located outside the permitted Phase I area of the North Hobbs Unit, the applicant, Occidental Permian, Ltd. should request the Phase I area be expanded to include this well and any associated offsetting producing wells which may produce fluids or gases injected into this well No. 431.

If the Phase I area is expanded by the Commission, the injection permission could (optionally) be approved administratively with the same approval language used in the latest permits within the North Hobbs Unit. That would ensure consistency of permitting.

Sincerely,

William V. Jones, P.E.

Subscribed and sworn to before me this 30 day of April 2013, by William V. Jones.

Notary Public

My commission expires:

12-13-15

OFFICIAL SEAL
Paulette Romero
NOTARY PUBLIC
STATE OF NEW MEXICO
My Commission Expires: 12-13-15