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

APPLICATION OF CELERO ENERGY II, LP TO AMEND THE UNIT AGREEMENT AND THE UNIT OPERATING AGREEMENT FOR THE ROCK QUEEN UNIT, AND FOR STATUTORY UNITIZATION, CHAVES AND LEA COUNTIES, NEW MEXICO.

Case No. 14,504

## APPLICATION OF CELERO ENERGY II, LP TO EXPAND THE WATERLOOD PROJECT AND INSTITUTE A TERTIARY RECOVERY PROJECT FOR THE ROCK QUEEN UNIT, AND TO QUALIFY THE PROJECT FOR THE RECOVERED OIL TAX RATE, CHAVES AND LEA COUNTIES, NEW MEXICO.

Case No. 14,505

## AFFIDAVIT OF MICHAEL W. METZA

COUNTY OF MIDLAND )

) ss. STATE OF NEW MEXICO )

Michael W. Metza, being duly sworn upon his oath, deposes and states:

1. I am over the age of 18 and have personal knowledge of the matters stated herein.

2. I am a petroleum engineer and testified on behalf of Celero Energy II, LP ("Celero") in the above cases.

3. In the above cases, as part of the carbon dioxide flood application, Celero requested that certain wells surrounding the initial project area be approved as monitor wells. Attached hereto is Exhibit 35 submitted at hearing, which identifies 17 wells to be used as monitor wells.

4. The request for monitor wells is based on the following:

(a) The miscibility pressure of pure carbon dioxide is approximately 1000 psi. Any reduction in pressure below that level in the RQU Pilot Area of the reservoir will likely result in the carbon dioxide project being less successful or unsuccessful. (b) A recent bottom hole pressure measurement north of the Pilot Area was approximately 900 psi. Thus, there is a pressure sink which Celero needs to minimize by limiting reservoir withdrawals north of the Pilot Area and by injecting into the water curtain water injection wells offsetting the Pilot Area.

(c) Celero will use the proposed wells to monitor offset reservoir performance during the project and to ensure that the water curtain WIW's are effectively controlling the migration of carbon dioxide from the Pilot Area. This will be done by bottom hole pressure measurements and well sampling, if necessary.

(d) If carbon dioxide migrates out of the project area (i) it will not recover oil, (ii) it will increase the project cost by requiring more carbon dioxide to recover the same amount of oil, and (iii) it will be more difficult to maintain reservoir pressure above miscibility pressure thereby risking the ongoing success of the project.

The monitor wells will prevent waste and are a low cost method to monitor the project.

5. The proposed monitor wells, if not approved, will have to be permanently abandoned which will increase project cost. Celero has discussed the use of these monitor wells with Division enforcement staff and they have approved using the subject wells as monitor wells. Using these wells as monitor wells will also allow Celero to continue meeting the terms of its Agreed Compliance Order.

Michael W. Metza

SUBSCRIBED AND SWORN TO before me this  $\underline{\$}$  day of December, 2010 by Michael W. Metza.

My Commission Expires: \_\_\_\_\_\_\_

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Queen Unit osed monitor wells offsetting CO2 Pilot
: RQU Producer Nos. 1, 2, 4, 5, 9, 10, 11, 20, 22, 25, 27, 29, 31, 33 and Injector Nos. 18, 21, 32.
shut-in producers, 6 temporarily-abandoned producers, and 3 shut-in injectors.
Celero is proposing to use these wells to monitor offset reservoir performance during the CO2 pilot.
Limiting production to the north offers the best opportunity to maximize CO2 utilization by limiting possible CO2 migration.
More cost effective than expanding water injection system and the number of injection wells to support what would likely be marginal or uneconomic production at this time.
If necessary, a number of the wells could readily be converted to active WIW's to maintain a water curtain to the north and west of the project.
Wells will be equipped with 2-3/8" plastic-coated tubing set on a packer. A single, minimum 1500 psi WP valve will be installed on each well.
An MIT will be run after the installation of tubing and packer and each year thereafter.
Bottomhole pressures will be measured initially and each quarter thereafter. The information would be made available to the NMOCD.
Wells would remain as monitor wells for approximately 2 years while the performance of the pilot is evaluated.
Sixteen of the 17 wells would be returned to production, and one would be returned to injection in the event the pilot is successful and the project is subsequently expanded.
Oil Conservation Division Case No. Exhibit No. 35

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