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

Revised

OCD Guidance for Closed Loop Gas Capture Pilot Projects

This document provides guidance for operators proposing a Closed Loop Gas Capture ("CLGC") pilot project to the New Mexico Oil Conservation Division ("OCD"). OCD's rules do not contain a prescriptive process for this type of application. Accordingly, they are considered pursuant to OCD's general authority. As a result, OCD will consider whether to grant an application for a project that meets the requirements described below on a case-by-case basis after a public hearing. OCD in its discretion reserves the right to modify these requirements and impose additional conditions as necessary to prevent waste and protect correlative rights, public health, and the environment.

Project

1. The project shall have only one designated operator.
2. The project shall consist of a defined CLGC area and one or more CLGC wells with the same or similar source gas, completed in the same or similar pools, and connected to the same gas gathering system.
3. The project area shall comprise the lease(s) containing each CLGC well and may include the adjacent leases owned or operated by the operator.
4. The project shall have an initial duration not to exceed two (2) years, provided however, that OCD may grant an extension time upon a written request from the operator on good cause shown. Such requests for extension shall be submitted to the ocd.engineer@emnrd.nm.gov email prior to the expiration of the initial approval term. Provided the request for extension is timely filed, the authority to operate the CLGC project may continue in accordance with the approved terms and conditions or as directed by OCD until final disposition of an extension request is made. If the extension isn't timely filed to the ocd.engineer@emnrd.nm.gov email or as directed by OCD it will be deemed not properly submitted to OCD.

Well

5. Each CLGC well shall have a maximum allowable surface pressure ("MASP") that does not endanger the mechanical integrity of the well or exert pressure upon the formation which may cause it to fracture or part. The operator shall install equipment to limit the production casing pressure to less than the MASP and incorporate procedures into its operational plan to allow the safe reduction or cessation of injection to prevent the production casing pressure from exceeding the MASP.
6. The operator shall conduct mechanical integrity tests ("MIT") pursuant to 19.15.26.11 NMAC on each CLGC well in accordance with the following:

a. A MIT shall consist of isolating the production casing from the reservoir by setting a retrievable bridge plug or packer within one hundred (100) feet of the uppermost perforations or production casing shoe unless otherwise directed by OCD, loading the production casing with an inert fluid, and conducting a pressure test with a pressure drop of not more than ten percent (10%) over a thirty (30) minute period and stabilizes within the last 10 minutes of the test.
b. The appropriate inspection supervisor shall be notified no less than three (3) business days prior to conducting the MIT.
c. A chart recorder with a maximum two (2) hour clock and an appropriate maximum pound spring and which has been calibrated within the six (6) months prior to conducting the test shall be used during each MIT. Copies of the chart shall be submitted to OCD with a Form C-103 within thirty (30) days following the test date.
d. No more than one (1) year prior to submission of the application, unless otherwise directed by OCD, a MIT shall be conducted to a pressure of at least one hundred ten percent (110%) of the proposed MASP or five hundred (500) psi, whichever is greater.
e. No later than six (6) months after the CLGC project has terminated, a MIT shall be conducted to a pressure of at least five hundred (500) psi.
f. Additional MITs shall be conducted as directed by OCD.

7. The operator shall install a tubing packer in a CLGC well if directed by OCD.

Geology and Reservoir

8. The operator shall ensure that the injectate enters only the approved formation and will not migrate vertically or laterally or affect other formations, protectable waters, or correlative rights.

9. The operator shall not inject a source gas that has a composition that may damage the reservoir or reduce the value or total recoverable volume of the hydrocarbons in place.

10. The operator shall inject a source gas that has a composition that is non-corrosive, or alternatively, shall establish a corrosion prevention plan to ensure the mechanical integrity of the CLGC well(s).

Monitoring and Reporting

11. The operator shall provide to the OCD Engineering Bureau project status updates every three (3) months after the pilot project is approved and a final report no later than three (3)

months after the cessation of the pilot project or upon request from the OCD at ocd.engineer@emnrd.nm.us. Status updates shall include a summary of the actions taken and problems and solutions identified and implemented. The final report shall include:

a. a summary of all project-related activity;
b. a review and supporting data regarding any problems and solutions identified and implemented;
c. for each injection test, a summary of the results, including:
    i. identity of each CLGC well;
    ii. average and maximum injection flow rates;
    iii. injection duration; and
    iv. total injected volume.
d. for each injection test, the following data graphed and tabulated with a resolution of at least; one (1) data point per hour beginning twenty-four (24) hours before the injection, four (4) data points per hour during the injection, and one (1) data point per hour ending twenty-four (24) hours after the injection:
    i. for each CLGC well, the oil and gas production and injection flow rates and annulus pressure of all casing strings; and
    ii. for each well required by OCD that is operated by the operator, which may include wells located within one-quarter (¼) mile of each CLGC well producing from the same formation, the oil and gas production and injection flow rates and production casing pressure.
e. for each injection test, a recovery profile for CLGC well and each well within a (1/4) mile where a change in casinghead pressure or production is observed during injection into the CLGC, including:
    i. a summary of the results, including the volume and percent of total production recovered from each well and the duration of time required to achieve that recovery; and
    ii. a tabulation of the daily oil and gas production totals and projected expected totals if no injection had occurred beginning a week before the test and ending when either the oil and gas production is equal to the projected expected oil and gas production for that well or the operator conducts another injection test on the CLGC well.

12. For each CLGC well, the operator shall submit a Form C-115 in accordance with 19.15.7.24 NMAC and 19.15.26.13 NMAC or as otherwise directed by the OCD.

13. The operator shall install a supervisory control and data acquisition ("SCADA") system approved by OCD. The information collected during the active project shall be maintained and made available to the OCD upon request for no less than five (5) years after the cessation of the project, including:
    a. for each CLGC well, the oil and gas production and injection flow rates, tubing pressure, and annulus pressure for all casing strings; and

b. the OCD may additionally require SCADA information from nearby wells being operated by the applicant within one-quarter (¼) mile of each CLGC well producing from the same formation. The required information will include; all production information, injection flow rates and production casing pressures.

14. Prior to initially placing each CLGC Well into service and making it available for injection, the operator shall submit a notice of intent on Form C-103, notify the OCD Engineering Bureau at ocd.engineer@emnrd.nm.gov, and await approval from the OCD Engineering Bureau before placing the CLGC Well into service. The notice of intent shall include the following content:
    a. The results of the most recent MIT conducted upon the CLGC Well.
    b. Confirmation that OCD has on record a CBL that demonstrates the placement of cement and cement bond of the production casing and the tie-in of the production casing with the next prior casing.
    c. Confirmation that equipment is installed to limit the injection pressure to less than or equal to the MASP.
    d. Confirmation that equipment to monitor the casing annulus pressure(s) and injection rate is installed.

15. The operator shall monitor the casing annulus pressure(s) while injecting into a CLGC Well during each CLGC event. For casings other than the production casing whenever the pressure increases over normal operational conditions:
    a. more than **50 psi** within the surface casing annulus or **100 psi** within any intermediate casing annulus, Applicant shall notify the OCD Engineering Bureau at ocd.engineer@emnrd.nm.gov within twenty-four (24) hours; and
    b. more than **200 psi** within the surface casing anulus or **500 psi** within any intermediate casing annulus, Applicant shall:
        i. immediately cease injection into the CLGC Well;
        ii. within thirty (30) days, submit a Form C-103 to the OCD Engineering Bureau containing a summary of the event that includes the cause for the pressure increase, description of any remedial actions and a revised operational plan to reduce and maintain the pressure below the thresholds described in Subparagraph b of this paragraph; and
        iii. not re-commence injection into the CLGC Well until OCD has approved the revised operational plan.

16. The operator shall have a procedure to determine if the injected gas is corrosive and to treat corrosive gas if it is detected. If the composition of the source gas injected into a CLGC well becomes inherently more corrosive than the composition approved by OCD the operator shall immediately perform the following
    a. immediately cease injection into the well;
    b. notify the OCD Engineering Bureau at ocd.engineer@emnrd.nm.gov within twenty-four (24) hours;

c. submit a Form C-103 to the OCD Engineering Bureau describing the alteration to the source gas's composition and a revised operational plan which addresses the effect of the alteration within thirty (30) days; and
d. not recommence injection into the well until OCD has approved the revised operation plan.

17. If the casing of a CLGC well fails or fluids leak from or around the well or any well within the AOR, the operator shall:
    a. immediately cease injection into the well;
    b. immediately notify the OCD Engineering Bureau Chief via the emergency contact number at (505) 320-0200;
    c. notify the OCD Engineering Bureau at ocd.engineer@emnrd.nm.gov within twenty-four (24) hours;
    d. take all necessary steps and actions required and approved by OCD to correct the failure or leakage; and
    e. not recommence injection into the well until OCD has approved the revised operation plan.

Application Process

18. The operator shall apply for authority to conduct and operate a new or modified project by filing an application pursuant to 19.15.4 NMAC.

19. The operator shall provide notice of the hearing pursuant to 19.15.4.9 NMAC and 19.15.26.8(B)(2) NMAC.
    a. The "tract wholly or partially contained within one-half mile of the well" shall be determined by measuring one-half (1/2) mile from each CLGC well including the surface location, the first take point, the terminus, and the lateral segment of the well.
    b. A map and list identifying the tract and persons given notice.

20. The application shall be filed thirty (30) days before the hearing date and contain the information detailed within the Application section.

Application

- PROJECT SUMMARY:
    a. General description and timeline or Gantt chart of the project.
    b. Lease map depicting:
        i. CLGC area outlined;
        ii. lateral(s) for each CLGC well;
        iii. the pipeline that ties or proposed to tie the CLGC well into the gathering system; and

iv. area the gathering system incorporates including affected compressor stations.

c. Identification of CLGC well(s) in the project.

- WELL DATA:
  a. Well diagram that includes the following in both tabular and schematic form:
     i. lease name, well number, location by section, township and range, and footage location within the section;
     ii. each installed casing string with its size, setting depth, sacks of cement used, hole size, top of cement, and how such top was determined;
     iii. a description of the tubing to be used including its size, lining material, and setting depth;
     iv. the name, model, and setting depth of the packer used or a description of any other seal system or assembly used if applicable;
     v. perforation depths; and
     vi. formation tops.
  b. A proposed MASP and supporting data, including:
     i. current average surface pressure under normal operations;
     ii. maximum achievable surface pressure with current infrastructure;
     iii. plan to install additional infrastructure to achieve proposed MASP, if applicable;
     iv. plan to monitor and limit the surface pressure from exceeding the proposed MASP;
     v. confirmation that the proposed MASP with a full fluid column of reservoir brine water will not exert pressure at the top perforation more than ninety percent (90%) of the production casing or liner's burst pressure;
     vi. if the proposed MASP exceeds 0.14 psi/ft, a statement and supporting data that the proposed MASP will not exert pressure at the top perforation more than ninety percent (90%) of the formation parting pressure.
  c. A cement bond log (CBL) which demonstrates the placement of cement and cement bond of the production casing and the tie-in of the production casing with the next prior casing.
  d. A summary of all MITs performed on the CLGC well with at least one MIT conducted within the prior year using a pressure of at least one hundred ten percent (110%) of the proposed MASP or five hundred (500) psi, whichever is greater, including the results and chart depicting the surface pressure for the duration of the MIT.

- GEOLOGY AND RESERVOIR:
  a. Data demonstrating that the CLGC area is geographically suitable for the project, including:
     i. general characterization of the formation;

ii. identification of the confining layers and confirmation of their suitability to prevent vertical movement of the injected gas;
iii. depth and identity of the next higher and lower oil or gas zone to the formation within the CLGC area; and
iv. quantification of anticipated horizontal movement of the injected gas.

b. Data demonstrating that the reservoir within the CLGC area is suitable for the proposed project, including:
i. proposed average and maximum daily rate and volume of gas to be injected;
ii. estimated stimulated reservoir volume and supporting data for each well within the CLGC area;
iii. reservoir modeling and a technical review of potential effects on wells adjacent to the CLGC area; and
iv. review of potential effects on the reservoir caused by the injection of the gas which shall include the consideration of commingling fluids.

c. Review of the source gas, including:
i. the initial list of well(s) from which the source gas is derived;
ii. compositional analysis, including concentration values for H_2S and CO_2;
iii. if the gas composition may cause corrosion, description of the corrosion prevention plan, including the installation of a packer.

- AREA OF REVIEW (AOR):
  a. Lease map depicting:
  i. each CLGC well including its surface location and lateral;
  ii. surface location and lateral of every well within two (2) miles of the surface location or lateral of each CLGC well;
  iii. leases within two (2) miles of the surface location or lateral of each CLGC well; and
  iv. an outline identifying the area of review which shall be determined by measuring one-half (1/2) mile from each CLGC well including the surface location, the first take point, the terminus, and the lateral segment of the well AOR.

  b. Tabulation of data for all wells of public record that penetrates either the proposed injection zone or the confining layer within the AOR, including:
  i. a description of each well's type and construction;
  ii. date drilled, location, and depth of each well; and
  iii. completion date, completion interval record of completion, and tops of cement.

  c. Schematic for each plugged and abandoned or temporary abandoned well that penetrates either the proposed injection zone or the confining layer within the AOR, including:
  i. lease name, well number, location by section, township and range, and footage location within the section;

ii. current casing configuration including tops of cement and how such top was determined; and
iii. description of any plugs, including setting depths, sacks of cement used, and estimated top of cement.

- OPERATIONS AND SAFETY:
  a. Summary of the operational plan to ensure safe operation and efficient response in the event of emergency, including SCADA system to monitor and collect relevant data, including:
     i. for each CLGC well, the oil and gas production and injection flow rates, tubing pressure, and annulus pressure for all casing strings;
     ii. for each well required by OCD, which may include wells located within one-quarter (¼) mile of each CLGC well producing from the same formation, the oil and gas production and injection flow rates and production casing pressure.

- AFFIRMATIVE STATEMENTS:
  a. Affirmative statement that the operator examined the available geologic and engineering data and found no evidence of open faults or other hydrologic connections between the disposal zone and any underground source of drinking water.
  b. Affirmative statement that the operator examined the available geologic and engineering data and determined that the total recoverable volume of hydrocarbons from the reservoir will not be adversely affected by the project.

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_____ **DATE:** 3/13/24

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