



RAILROAD COMMISSION OF TEXAS

HEARINGS DIVISION

OIL AND GAS DOCKET NO. 04-0304783

THE APPLICATION OF CCNG GAS STORAGE, LLC FOR AUTHORITY PURSUANT TO STATEWIDE RULE 97 FOR A PERMIT TO CREATE, OPERATE AND MAINTAIN AN UNDERGROUND HYDROCARBON STORAGE FACILITY ON THE CCNG GAS STORAGE LEASE, WELL NOS. 7,8,9, & 10, PALANGANA DOME FIELD, DUVAL COUNTY, TEXAS

HEARD BY: Richard Eyster, P.G. – Technical Examiner
Ryan Lammert – Administrative Law Judge

HEARING DATE: June 21, 2017

RECORD CLOSED: June 21, 2017

CONFERENCE DATE: August 15, 2017

APPEARANCES:

REPRESENTING:

APPLICANT:

Olga Kobzar
Daniel B. Porter
Richard R. Conquist
Stephen Pattee
Raymond Welch

CCNG Gas Storage, LLC

OBSERVER

David Jackson

Palangana Ranch Management, LLC

EXAMINERS' REPORT AND RECOMMENDATION

STATEMENT OF THE CASE

CCNG seeks a permit to create, operate and maintain an hydrocarbon storage facility in the Palangana Salt Dome on the CCNG Gas Storage Lease, Palangana

Dome Field, Duval County, Texas. The application is filed pursuant to Statewide Rule 97. The application is unopposed and the Technical Examiner and the Administrative Law Judge, (collectively the Examiners) recommend that the application be approved, as requested by CCNG Gas Storage, LLC (CCNG)

Notice of the application and hearing were provided to each person and entity entitled to notice. Notice of the hearing was also published in the *Alice Echo News Journal*, a newspaper of general circulation in Jefferson County, for three consecutive weeks: August 31, 2016, September 7, 2016, and September 14, 2016. The application is unopposed and the Examiners recommend approval of the underground hydrocarbon storage facility, as requested by CCNG.

DISCUSSION OF THE EVIDENCE

The proposed underground hydrocarbon storage facility is located atop the Palangana Salt Dome in Duval County. The CCNG Gas Storage Lease consists of approximately 383 acres located in a rural area approximately 6.5 miles north of Benavides, Texas. CCNG requests authority create and operate six storage caverns for the storage of hydrocarbons at the Palangana Salt Dome on the surface lease owned by its affiliate Corpus Christi Brine Services, L.P.

Structural contour mappings and cross sections depict Palangana Salt Dome as a large salt dome with a broad flat top, approximately two miles in diameter, with steeply dipping flanks. The salt is overlain with at least 400 feet of caprock. The proposed facility is located away from the perimeter boundaries of the salt. A study of the Palangana Salt Dome geology as well as information available from existing caverns completed in the area of this proposed facility revealed no subsurface effects of salt dissolution in the dome. The study also indicated that the Palangana Salt Dome composition at this location is typical of other strong Gulf Coast domal salt formations and is suitable for underground storage of hydrocarbons. Salt rock to be encountered by the wells and caverns at the proposed facility is an impermeable salt formation that will confine stored liquids, prevent waste of the stored hydrocarbons, prevent uncontrolled escape of hydrocarbons, and protect usable-quality water from pollution by stored hydrocarbons.

The Commission Groundwater Advisory Unit recommends that usable-quality ground water is to be protected to a depth of 400 feet. Through a search of public records, CCNG identified all oil and gas-related wells within the area of review of the proposed storage caverns. The majority of those wells have been plugged and abandoned and all available plugging reports were submitted.

CCNG plans to create and operate four gas storage caverns at the Palangana Salt Dome. Each of the four storage caverns will be created by brine mining. After a well is drilled and completed at total depth, fresh water will be injected under controlled conditions to dissolve the salt and create the cavern space, and brine fluid will be removed. A blanket liquid (diesel) will be used to control and limit dissolution. Brine

density will be monitored periodically as fluid is removed. Sonar caliper surveys will be performed periodically to monitor cavern development.

Well No. 7 will be constructed as follows: 40-inch conductor pipe will be driven to 40 feet and cemented to surface. 30 inch surface pipe will be set at 440 feet and cemented to the surface; 24" intermediate casing set at 1,140 feet and cemented to the surface; 20" production casing set at 2,100 feet and cemented to the surface; 16 inch hanging string No. 1 will be set at 3,550 feet, and the 10-3/4 inch hanging string No. 2. will be set at 4,340 feet.

Well Nos. 8, 9, & 10 will be constructed as follows: 40-inch conductor pipe will be driven to 40 feet and cemented to surface. 30 inch surface pipe will be set at 440 feet and cemented to the surface; 24" intermediate casing set at 1,140 feet and cemented to the surface; 20" production casing set at 3,610 feet and cemented to the surface; 16 inch hanging string No. 1 will be set at 5,050 feet, and the 10-3/4 inch hanging string No. 2. will be set at 5,840 feet.

The proposed caverns are expected to be 2,150 feet in height and 195 feet in diameter and will have a capacity of 8.6 million barrels when fully leached. Maximum injection rate for each cavern will be 500 mmcf/d. Injection pressure for Well No. 7 will be 1,700 psig and the maximum injection pressure for wells 8, 9 & 10 is expected to be at a maximum of 2,830 psig.

CCNG has complied with all of the requirements set forth in Statewide Rule 97 for approval of the requested permit. The CCNG facility, wells and caverns will be subject to the rules and safety standards adopted by the Commission pursuant to Statewide Rule 95. Technical Permitting is directed to issue the appropriate permit with the usual conditions, restrictions and limitations, as required by the Commission.

FINDINGS OF FACT

1. Notice of application and hearing were provided to each person and entity entitled to notice.
 - a. Notice of the hearing was published in the *Alice Echo News Journal*, a newspaper of general circulation in Duval County, for three consecutive weeks: August 31, 2016, September 7, 2016, and September 14, 2016.
 - b. On October 25, and November 21, 2016 CCNG mailed a copy of the Notice of Hearing to those persons entitled to receive notice of the application.
2. The proposed CCNG facility will be located atop the Palangana Salt Dome on a 383 acre surface lease, located approximately 6.5 miles north of Benavides, Duval County, Texas.

3. Structural contour mappings and cross sections depict Palangana Salt Dome as a large salt dome with a broad flat top, approximately two miles in diameter with steeply dipping flanks. The salt is overlain by a minimum of 400 feet of caprock. The salt dome composition at this location is typical of other strong Gulf Coast domal salt formations and is suitable for underground storage of hydrocarbons.
4. Each proposed cavern is to have a capacity of 8.6 million barrels when fully leached in the salt. The approximate cavern radius when fully leached will be approximately 195 feet.
5. Well No 7 will have a maximum injection rate of 500 mmscf/d, and injection pressure will be a maximum of 1,700 psig.
6. Well Nos. 8,9, & 10 will have a maximum injection rate of 500 mmscf/d and the maximum injection pressure will be 2,830 psig.
7. The storage caverns will be created by solution mining. A blanket liquid (diesel) will be used to control and limit dissolution. Sonar caliper surveys will be performed at stages to monitor cavern development.
8. The usable-quality ground water is to be protected to a depth of 400' feet.
9. Well No. 7 will be constructed as follows: 40-inch conductor pipe will be driven to 40 feet and cemented to surface. 30 inch surface pipe will be set at 440 feet and cemented to the surface; 24" intermediate casing set at 1,140 feet and cemented to the surface; 20" production casing set at 2,100 feet and cemented to the surface; 16 inch hanging string No. 1 will be set at 3,550 feet, and the 10-3/4 inch hanging string No. 2. will be set at 4,340 feet.
10. Well Nos. 8, 9, & 10 will be constructed as follows: 40-inch conductor pipe will be driven to 40 feet and cemented to surface. 30 inch surface pipe will be set at 440 feet and cemented to the surface; 24" intermediate casing set at 1,140 feet and cemented to the surface; 20" production casing set at 3,610 feet and cemented to the surface; 16 inch hanging string No. 1 will be set at 5,050 feet, and the 10-3/4 inch hanging string No. 2. will be set at 5,840 feet.
11. The facility is in the public interest, as its use will provide natural gas storage capacity.
12. CCNG has complied with all of the requirements set forth in Statewide Rule 97 for approval of the requested permit.

CONCLUSIONS OF LAW

1. Proper notice was timely given to all parties entitled to notice pursuant to applicable statutes and rules
2. All things have occurred and have been accomplished to give the Commission jurisdiction in this case.
3. The use of the proposed caverns to store liquid or liquefied hydrocarbons will not endanger oil, gas, or geothermal resources or cause the pollution of surface water or fresh water strata.
4. The facility is in the public interest, as its use will provide natural gas storage capacity in an area with a growing need for such a facility.
5. The applicant has complied with the requirements for approval, as set forth in Statewide Rule 97.

EXAMINERS' RECOMMENDATION

Based on the above findings of fact and conclusions of law, the examiners recommend that the Commission approve the underground hydrocarbon storage facility, as requested by CCNG Gas Storage, LLC.

Respectfully submitted,



Richard Eyster, P.G.
Technical Examiner



Ryan Lammert
Administrative Law Judge