



# RAILROAD COMMISSION OF TEXAS

## HEARINGS DIVISION

**OIL & GAS DOCKET NO. 04-0286371**

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**THE APPLICATION OF CCNG LIQUIDS STORAGE, LLC FOR AUTHORITY PURSUANT TO STATEWIDE RULE 95 FOR A PERMIT TO CREATE, OPERATE AND MAINTAIN AN UNDERGROUND LIQUID OR LIQUEFIED HYDROCARBON STORAGE FACILITY ON THE CCNG STORAGE LEASE, PALANGANA DOME FIELD, DUVAL COUNTY, TEXAS**

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**HEARD BY:** Richard D. Atkins, P.E. - Technical Examiner  
Karl Caldwell - Technical Examiner  
Laura Miles-Valdez - Legal Examiner

**HEARING DATE:** February 11, 2014

**APPEARANCES:**

**REPRESENTING:**

**APPLICANT:**

Joe Sanders  
Sam Porter  
Olga Kobzar  
Harry Allison  
Raymond Welch

CCNG Liquids Storage, LLC

### EXAMINERS' REPORT AND RECOMMENDATION

#### STATEMENT OF THE CASE

CCNG Liquids Storage, LLC, ("CCNG") seeks a permit to create, operate and maintain an underground liquid or liquefied hydrocarbon storage facility in the Palangana Salt Dome on the CCNG Storage Lease, Palangana Dome Field, Duval County, Texas. The application is filed pursuant to Statewide Rule 95.

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: May 26, 2013, June 2, 2013, and June 9, 2013. The application was originally protested but the protests were withdrawn prior to the hearing. Therefore, the application is unprotested and the examiners recommend approval of the underground liquid or

liquefied hydrocarbon storage facility, as requested by CCNG.

### DISCUSSION OF THE EVIDENCE

The proposed underground liquid or liquefied hydrocarbon storage facility is located atop the Palangana Salt Dome in Duval County. The CCNG 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 liquid or liquefied 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. The between-cavern-wall distances at the proposed facility, will be no less than 320 feet apart. 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 600 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 six storage caverns at the Palangana Salt Dome on the surface lease owned by its affiliate Corpus Christi Brine Services, L.P. Each well will be completed with several casing strings: 36" conductor pipe, driven to refusal, 28" surface pipe set 25 feet into the caprock and cemented to the surface; 24" intermediate casing set at 1,100 feet and cemented to the surface; 20" production casing set at 2,500 feet and cemented to the surface; 16" hanging string No. 1 and 10-3/4" hanging string No. 2.

Each of the six 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.

The six proposed caverns are each expected to have a capacity of 1.5 million barrels when fully leached. The anticipated cavern radius when fully leached will be approximately 160 feet. Maximum injection rate for each cavern will be 167,000 barrels per day. Injection pressure is expected to be at a maximum of 1,440 psig.

CCNG has complied with all of the requirements set forth in Statewide Rule 95 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: May 26, June 2, and June 9, 2013.
  - b. On May 24, 2013, CCNG mailed a copy of the Notice of Hearing to those persons entitled to receive notice of the application.
  - c. On January 16, 2014, the Commission mailed a copy of the Notice of Hearing to those persons with corrected addresses 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 with at least 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. The proposed locations for the six storage wells were selected to afford ample distance between the wells and caverns and the perimeter boundaries of the facility to ensure that the caverns stay on CCNG's lease.
5. Each proposed cavern is to have a capacity of 1.5 million barrels when fully leached in the salt. The approximate cavern radius when fully leached will

be approximately 160 feet. Maximum injection rate for each cavern will be 167,000 barrels per day, and injection pressure will be a maximum of 1,440 psig.

6. 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.
7. The usable-quality ground water is to be protected to a depth of 600'. Each well will be completed with several casing strings: 36" conductor pipe, driven to refusal, 28" surface pipe set 25 feet into the caprock and cemented to the surface; 24" intermediate casing set at 1,100 feet and cemented to the surface; 20" production casing set at 2,500 feet and cemented to the surface; 16" hanging string No. 1 and 10-3/4" hanging string No. 2.
8. Through a search of public records, all oil and gas-related wells within the area of review of the proposed storage caverns have been identified. The majority of those wells have been plugged and abandoned and all available plugging reports were submitted.
9. The facility is in the public interest, as its use will provide natural gas liquids storage capacity in an area with growing need. The facility is located near the liquids-rich Eagle Ford Shale and nearby large-bore natural gas liquids pipelines providing access to the Permian Basin. The facility is also located near downstream markets for natural gas liquids, including petrochemical facilities and export terminals on the Gulf Coast.
10. CCNG has complied with all of the requirements set forth in Statewide Rule 95 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 liquids 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 95.

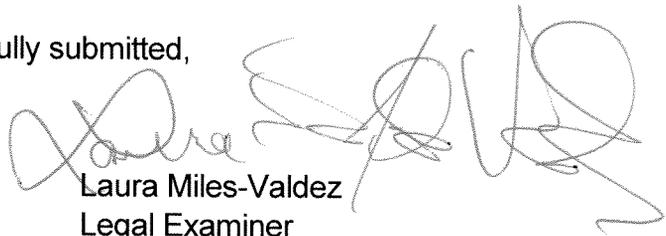
**EXAMINERS' RECOMMENDATION**

Based on the above findings of fact and conclusions of law, the examiners recommend that the Commission approve the underground liquid or liquefied hydrocarbon storage facility, as requested by CCNG Liquids Storage, LLC. Technical Permitting is directed to issue the appropriate permit with the usual conditions, restrictions and limitations, as required by the Commission.

Respectfully submitted,



Karl Caldwell  
Technical Examiner



Laura Miles-Valdez  
Legal Examiner