



RAILROAD COMMISSION OF TEXAS HEARINGS DIVISION

OIL AND GAS DOCKET NO. 8A-0304321

THE APPLICATION OF KINDER MORGAN PRODUCTION CO LLC FOR AUTHORIZATION PURSUANT TO STATEWIDE RULE 36 TO INJECT FLUID CONTAINING HYDROGEN SULFIDE (STATEWIDE RULE 46, PROJECT NO. F-19864, UIC NO. 000110809), BERGEN (70250) LEASE, WELL NO. I11, TALL COTTON (SAN ANDRES) FIELD, GAINES COUNTY, TEXAS

OIL AND GAS DOCKET NO. 8A-0304324

THE APPLICATION OF KINDER MORGAN PRODUCTION CO LLC FOR AUTHORIZATION PURSUANT TO STATEWIDE RULE 36 TO INJECT FLUID CONTAINING HYDROGEN SULFIDE (STATEWIDE RULE 46, PROJECT NO. F-19864, UIC NO. 000110813), BERGEN (70250) LEASE, WELL NO. I12, TALL COTTON (SAN ANDRES) FIELD, GAINES COUNTY, TEXAS

OIL AND GAS DOCKET NO. 8A-0304325

THE APPLICATION OF KINDER MORGAN PRODUCTION CO LLC FOR AUTHORIZATION PURSUANT TO STATEWIDE RULE 36 TO INJECT FLUID CONTAINING HYDROGEN SULFIDE (STATEWIDE RULE 46, PROJECT NO. F-19864, UIC NO. 000110811), BERGEN (70250) LEASE, WELL NO. I13, TALL COTTON (SAN ANDRES) FIELD, GAINES COUNTY, TEXAS

OIL AND GAS DOCKET NO. 8A-0304326

THE APPLICATION OF KINDER MORGAN PRODUCTION CO LLC FOR AUTHORIZATION PURSUANT TO TO STATEWIDE RULE 36 TO INJECT FLUID CONTAINING HYDROGEN SULFIDE (STATEWIDE RULE 46, PROJECT NO. F-19864, UIC NO. 000110812), BERGEN (70250) LEASE, WELL NO. I14, TALL COTTON (SAN ANDRES) FIELD, GAINES COUNTY, TEXAS

OIL AND GAS DOCKET NO. 8A-0304327

THE APPLICATION OF KINDER MORGAN PRODUCTION CO LLC FOR AUTHORIZATION PURSUANT TO STATEWIDE RULE 36 TO INJECT FLUID CONTAINING HYDROGEN SULFIDE (STATEWIDE RULE 46, PROJECT NO. F-19864, UIC NO. 000110814), BERGEN (70250) LEASE, WELL NO. I21, TALL COTTON (SAN ANDRES) FIELD, GAINES COUNTY, TEXAS

OIL AND GAS DOCKET NO. 8A-0304328

THE APPLICATION OF KINDER MORGAN PRODUCTION CO LLC FOR AUTHORIZATION PURSUANT TO STATEWIDE RULE 36 TO INJECT FLUID CONTAINING HYDROGEN SULFIDE (STATEWIDE RULE 46, PROJECT NO. F-19864, UIC NO. 000110816), BERGEN (70250) LEASE, WELL NO. I22, TALL COTTON (SAN ANDRES) FIELD, GAINES COUNTY, TEXAS

OIL AND GAS DOCKET NO. 8A-0304329

THE APPLICATION OF KINDER MORGAN PRODUCTION CO LLC FOR AUTHORIZATION PURSUANT TO STATEWIDE RULE 36 TO INJECT FLUID CONTAINING HYDROGEN SULFIDE (STATEWIDE RULE 46, PROJECT NO. F-19864, UIC NO. 000110817), BERGEN (70250) LEASE, WELL NO. I23, TALL COTTON (SAN ANDRES) FIELD, GAINES COUNTY, TEXAS

OIL AND GAS DOCKET NO. 8A-0304330

THE APPLICATION OF KINDER MORGAN PRODUCTION CO LLC FOR AUTHORIZATION PURSUANT TO STATEWIDE RULE 36 TO INJECT FLUID CONTAINING HYDROGEN SULFIDE (STATEWIDE RULE 46, PROJECT NO. F-19864, UIC NO. 000110818), BERGEN (70250) LEASE, WELL NO. I24, TALL COTTON (SAN ANDRES) FIELD, GAINES COUNTY, TEXAS

OIL AND GAS DOCKET NO. 8A-0304331

THE APPLICATION OF KINDER MORGAN PRODUCTION CO LLC FOR AUTHORIZATION PURSUANT TO STATEWIDE RULE 36 TO INJECT FLUID CONTAINING HYDROGEN SULFIDE (STATEWIDE RULE 46, PROJECT NO. F-19864, UIC NO. 000110815), BERGEN (70250) LEASE, WELL NO. I31, TALL COTTON (SAN ANDRES) FIELD, GAINES COUNTY, TEXAS

OIL AND GAS DOCKET NO. 8A-0304332

THE APPLICATION OF KINDER MORGAN PRODUCTION CO LLC FOR AUTHORIZATION PURSUANT TO STATEWIDE RULE 36 TO INJECT FLUID CONTAINING HYDROGEN SULFIDE (STATEWIDE RULE 46, PROJECT NO. F-19864, UIC NO. 000110819), BERGEN (70250) LEASE, WELL NO. I32, TALL COTTON (SAN ANDRES) FIELD, GAINES COUNTY, TEXAS

OIL AND GAS DOCKET NO. 8A-0304333

THE APPLICATION OF KINDER MORGAN PRODUCTION CO LLC FOR AUTHORIZATION PURSUANT TO STATEWIDE RULE 36 TO INJECT FLUID CONTAINING HYDROGEN SULFIDE (STATEWIDE RULE 46, PROJECT NO. F-19864, UIC NO. 000110820), BERGEN (70250) LEASE, WELL NO. I33, TALL COTTON (SAN ANDRES) FIELD, GAINES COUNTY, TEXAS

OIL AND GAS DOCKET NO. 8A-0304334

THE APPLICATION OF KINDER MORGAN PRODUCTION CO LLC FOR AUTHORIZATION PURSUANT TO STATEWIDE RULE 36 TO INJECT FLUID CONTAINING HYDROGEN SULFIDE (STATEWIDE RULE 46, PROJECT NO. F-19864, UIC NO. 000110821), BERGEN (70250) LEASE, WELL NO. I34, TALL COTTON (SAN ANDRES) FIELD, GAINES COUNTY, TEXAS

OIL AND GAS DOCKET NO. 8A-0304335

THE APPLICATION OF KINDER MORGAN PRODUCTION CO LLC FOR AUTHORIZATION PURSUANT TO STATEWIDE RULE 36 TO INJECT FLUID CONTAINING HYDROGEN SULFIDE (STATEWIDE RULE 46, PROJECT NO. F-19864, UIC NO. 000110822), BERGEN (70250) LEASE, WELL NO. I43, TALL COTTON (SAN ANDRES) FIELD, GAINES COUNTY, TEXAS

HEARD BY: Karl Caldwell – Technical Examiner
Clayton Hoover – Administrative Law Judge

HEARING DATE: May 16, 2017
RECORD CLOSED: June 28, 2017
CONFERENCE DATE: August 1, 2017

APPEARANCES:**REPRESENTING:****APPLICANT:**

Kinder Morgan Production Co LLC

Bill Hayenga
Ken Michie
Troy Kelly**EXAMINERS' REPORT AND RECOMMENDATION****STATEMENT OF THE CASE**

Kinder Morgan Production Co LLC (KM) requests authority pursuant to Statewide Rule 36 to inject fluids containing hydrogen sulfide (H₂S) into Well Nos. Ill, I12, I13, I14, I21, I22, I23, I24, I31, I32, I33, I34, and I43 (Subject Wells) on its Bergen (70250) Lease, in the Tall Cotton (San Andres) Field, Gaines County, Texas. KM has existing injection authority pursuant to Statewide Rule 46 for the subject wells. Statewide Rule 36(c)(10)(A)(i) states that injection of fluids containing hydrogen sulfide will be allowed only after public hearing when "... injection fluid is a gaseous mixture, or would be a gaseous mixture in the event of a release to the atmosphere, and where the 100 ppm radius of exposure is in excess of 50 feet and includes any part of a public area except a public road; or, if the 500 ppm radius of exposure is in excess of 50 feet and includes any part of a public road; or if the 100 ppm radius of exposure is 3,000 feet or greater." KM's largest radius of exposure (ROE) on the Bergen Lease is at the WAG Header where the 100 ppm ROE is 3,820 feet, and includes two public roads (County Roads 208 and 231). A public hearing is therefore required before the subject application to inject fluids with the expected concentration of H₂S can be granted. The application is unopposed and the Commission's Hydrogen Sulfide Coordinator for District 08/08A has reviewed KM's Form H-9 Form dated February 21, 2017 and field review and inspection has been completed. The Technical Examiner and Administrative Law Judge (collectively, "Examiners") recommend Statewide Rule 36 authorization be granted.

DISCUSSION OF THE EVIDENCE

The Tall Cotton (San Andres) Field was discovered in 2014 and produces from the San Andres Formation and KM is the only operator in the field. The productive interval is in a residual oil zone ("ROZ"). KM operates a "greenfield" CO₂ flood where no primary or secondary operations have previously taken place.¹ This ROZ flood is the first of its kind and could have major beneficial impacts in enhanced oil recovery throughout Texas. The Department of Energy has estimated that there are potentially billions of barrels of oil that could be recovered through this new ROZ flood process.² This project allows hydrocarbons to be recovered that would otherwise go unrecovered. If Statewide Rule 36 authorization is not granted for the subject wells it would essentially halt the project.

¹ KM Exhibit 7.

² KM Exhibit 6.

The 13 Subject Wells were permitted for saltwater, CO₂, and non-hazardous oil and gas waste on September 10, 2014.³ In March 2015, the permits were amended, at which time the project number changed to F-19864.⁴ On April 8, 2015, the Commission approved an amendment to KM's permits, permitting the injection of H₂S.⁵ KM has had an approved Form H-9 for the Subject Wells since January 2015.⁶ The original Form H-9 for the Subject Wells in the Tall Cotton Field was filed in January 2015. At the time of the filing, KM identified a threshold concentration of H₂S of less than 100 ppm. Initially, KM was injecting pure pipeline CO₂. KM filed an amended Form H-9 in October 2015 when recycled CO₂ started to be added to the injection stream. Early on, the wells had a very low GOR producing naturally, so there wasn't enough gas to start gas compressors. Once the gas volumes increased to a point where KM could start the compressors, KM started to comingle the produced gas stream with their pipeline CO₂.

As the project's sweep efficiency has increased, the H₂S concentration of produced gas has subsequently increased, and now approaches the threshold requiring a public hearing pursuant to Statewide Rule 36(c)(10). Accordingly, KM amended the previously approved Form H-9 for the Subject Wells and had an inspection done by the district office.⁷ The result of the inspection was that KM was in compliance but needed to conduct a public hearing.⁸ KM already has injection authority for H₂S under Statewide Rule 46 for the subject injection wells. The purpose of the subject application and hearing is to demonstrate full compliance with the Statewide Rule 36(c)(10) requirement to have a public hearing.

The Commission's Midland District Office approved the Form H-9 and Contingency Plan submitted by KM for the Bergen Lease on March 9, 2016. The Contingency Plan⁹ complies with the requirements of Statewide Rule 36, including safeguards to protect the general public from the harmful effects of any H₂S release. KM filed amended Form H-9 for the Bergen Lease on February 21, 2017 with the expected increase in H₂S concentration. The calculated largest radius of exposure (ROE) on the Bergen Lease will be at the WAG Header where the 100 ppm ROE is 3,820 feet, and includes two public roads, County Roads 208 and 231. The Commission's Midland District Office has reviewed KM's H-9 Form dated February 21, 2017, and field review and inspection was conducted on January 26, 2017 regarding sour CO₂ injection on the Bergen Lease, and appeared to be in compliance with Statewide Rule 36.¹⁰

All equipment associated with the Subject Wells for injection of sour-CO₂ satisfies the requirements in the latest edition of NACE Standard MR-175. The Bergen Lease supply and gathering lines will be monitored for pressure loss via automated pressure

³ KM Exhibit 12.

⁴ KM Exhibit 13.

⁵ KM Exhibit 14.

⁶ KM Exhibit 8.

⁷ KM Exhibit 9.

⁸ *Id.*

⁹ KM Exhibit 18.

¹⁰ KM Exhibit No. 9 (Oil and Gas Division Letter dated March 8, 2017).

transmitters and emergency shut down valves. Alarms will notify KM employees if the emergency shut down valves or the detectors are activated, indicating the possible presence of a leak. KM has the proper protocols and safety measures in place, representing by its contingency plan.¹¹ The town of Seminole is approximately 14 miles east of the Bergen Lease and the general wind direction is north to south. Each of the Subject Wells' 100 and 500 part per million radii of exposures were calculated to extend no further than 1,098 feet and 502 feet, respectively, from each Subject Well based on a maximum escape volume of 7,576 cubic feet of gas per day.¹² There are no occupied or unoccupied dwellings (Public Areas) within the 100 ppm or 500 ppm ROE. There are two public roads within the 100 and 500 ppm ROE, county roads 208 and 231 of the Bergen Lease.

On March 15, 2017, KM mailed copies of the Commission Forms H-1 and H-1A for the Subject Wells in accordance with Statewide Rule 46(c)(1) and information related to the hearing to the additional following person/entities: (1) surface owners on the Subject Wells tract and surface owners within the 100 and 500 ROE; (2) oil and gas operators within one-half mile of the well's location (none); (3) EMS offices including the Gaines County Sherriff, Hobbs Fire Department and Gaines County EMS; and (4) the Gaines County Clerk.¹³ Applicant also published notice of the application on March 1 and March 8, 2017, in the *Seminole Sentinel*, a newspaper of general circulation in Gaines County, Texas.¹⁴ On April 26, 2017, the Notice of Hearing (NOH) was sent by U.S. mail to the list of persons identified on the Service List (List).¹⁵ The List is composed of the aforementioned persons and entities. No protests were received. The application is unprotested and the Commission's Hydrogen Sulfide Coordinator for District 08/08A has reviewed KM's Form H-9 Form dated February 21, 2017 and field review and inspection has been completed.

FINDINGS OF FACT

1. Kinder Morgan Production Co LLC (KM) requests authority pursuant to Statewide Rule 36 for Well Nos. III, I12, I13, I14, I21, I22, I23, I24, I31, I32, I33, I34, and I43 (Subject Wells) on its Bergen (70250) Lease, in the Tall Cotton (San Andres) Field, Gaines County, Texas.
2. Statewide Rule 36 requires a public hearing to be held for the injection of fluids containing hydrogen sulfide in which the injection fluid is a gaseous mixture, or would be a gaseous mixture in the event of a release to the atmosphere, and where the 100 ppm radius of exposure is in excess of 50 feet and includes any part of a public area except a public road; or, if the 500 ppm radius of exposure is in excess of 50 feet and includes any part of a public road; or if the 100 ppm radius of exposure is 3,000 feet or greater."

¹¹ KM Exhibit 18.

¹² KM Exhibit 16.

¹³ KM Exhibit 11.

¹⁴ KM Exhibit 10.

¹⁵ KM Exhibit 4.

The largest radius of exposure (ROE) on the Bergen Lease is at the WAG Header where the 100 ppm ROE is 3,820 feet, and includes two public roads (County Roads 208 and 231).

3. The purpose of the subject applications and hearing is to demonstrate compliance with the Statewide Rule 36(c)(10) requirement to have a public hearing.
4. Kinder Morgan Production Co LLC has existing injection authority pursuant to Statewide Rule 46 for the Subject Wells.
 - a. The 13 Subject Wells were permitted for saltwater, CO₂, and non-hazardous oil and gas waste on September 10, 2014.
 - b. In March 2015, the permits were amended, with the project number changed to F-19864.
 - c. On April 8, 2015, the Commission approved an amendment to KM's permits, which allowed the injection of H₂S.
5. KM has had an approved Form H-9 for the Subject Wells since January 2015. The original Form H-9 for the Subject Wells in the Tall Cotton Field was filed in January 2015. At the time of the filing, KM identified a threshold concentration of H₂S of less than 100 ppm as KM was initially injecting pure pipeline CO₂.
6. KM filed an amended Form H-9 in October 2015 when recycled CO₂ started to be added to the injection stream. Early on, the wells had a very low GOR producing naturally, so there wasn't enough gas to start gas compressors. Once the gas volumes increased to a point where KM could start the compressors, KM started to comingle the produced gas stream with their pipeline CO₂.
7. As the project's sweep efficiency has increased, the H₂S concentration of produced gas has subsequently increased, and now approaches the threshold requiring a public hearing pursuant to Statewide Rule 36(c)(10).
8. KM filed an amended Form H-9 for the Bergen Lease on February 21, 2017 with the increase in H₂S concentration to reflect the calculated largest radius of exposure (ROE) on the Bergen Lease to be at the WAG Header where the 100 ppm ROE is 3,820 feet, and includes two public roads County Roads 208 and 231.
9. The Commission's Midland District Office has reviewed KM's H-9 Form dated February 21, 2017 and field review and inspection was conducted on

January 26, 2017 regarding sour CO₂ injection on the Bergen Lease, and appeared to be in compliance with Statewide Rule 36.

10. Each of the Subject Wells' 100 and 500 part per million radii of exposures were calculated to extend no further than 1,098 feet and 502 feet, respectively, from each Subject Well based on a maximum escape volume of 7,576 cubic feet of gas per day.
11. There are no occupied or unoccupied dwellings (Public Areas) within the 100 ppm or 500 ppm ROE. There are two public roads within the 100 and 500 ppm ROE, county roads 208 and 231 of the Bergen Lease.
12. On March 15, 2017, KM mailed copies of the Commission Forms H-1 and H-1A for the Subject Wells in accordance with Statewide Rule 46(c)(1) and information related to the Statewide Rule 36 hearing to the additional following person/entities:
 - a. Surface owners on the Subject Wells tract and surface owners within the 100 and 500 ROE.
 - b. Oil and gas operators within one-half mile of the well's location.
 - c. EMS offices including the Gaines County Sherriff, Hobbs Fire Department and Gaines County EMS.
 - d. The Gaines County Clerk.
13. Applicant published notice of the application on March 1 and March 8, 2017, in the *Seminole Sentinel*, a newspaper of general circulation in Gaines County, Texas.
14. On April 26, 2017, the Notice of Hearing (NOH) was sent by U.S. mail to the list of persons identified on the Service List composed of the Surface owners on the Subject Wells tract and surface owners within the 100 and 500 ROE, Oil and gas operators within one-half mile of the well's location, EMS offices including the Gaines County Sherriff, Hobbs Fire Department and Gaines County EMS, and the Gaines County Clerk. No protests were received.
15. The Commission's Hydrogen Sulfide Coordinator for District 08/08A has reviewed KM's Form H-9 Form dated February 21, 2017 and field review and inspection has been completed.

16. KM agreed, that, pursuant to the provisions of Texas Government Code §2001.144(a)(4)(A), this Final Order shall be effective on the date a Master Order relating to this Final Order is signed.

CONCLUSIONS OF LAW

1. Proper notice was issued as required by all applicable statutes and regulatory codes.
2. All things have occurred and been accomplished to give the Commission jurisdiction in this matter.
3. Based on the Form H-9 filed with the Commission on February 21, 2017 Kinder Morgan has complied with the requirements of Statewide Rule 36(c)(10)(A)(i).
4. Pursuant to §2001.144(a)(4)(A), of the Texas Government Code, and the agreement of the applicant, this Final Order is effective when a Master Order relating to this Final Order is signed on August 1, 2017.

EXAMINERS' RECOMMENDATION

Based on the above findings of fact and conclusions of law, the Examiners recommend that the Commission grant Statewide Rule 36 authorization for Well Nos. III, I12, I13, I14, I21, I22, I23, I24, I31, I32, I33, I34, and I43 on the Bergen Lease, in the Tall Cotton (San Andres) Field, Gaines County, Texas.

Respectfully submitted,



Karl Caldwell
Technical Examiner



Clayton Hoover
Administrative Law Judge