

CHRISTI CRADDICK, *CHAIRMAN*  
WAYNE CHRISTIAN, *COMMISSIONER*  
JIM WRIGHT, *COMMISSIONER*



DANA AVANT LEWIS, *DIRECTOR*

## RAILROAD COMMISSION OF TEXAS HEARINGS DIVISION

### OIL AND GAS DOCKET NO. 06-0327278

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**APPLICATION OF KUDU MIDSTREAM LLC (OPERATOR NO. 478441) PURSUANT TO STATEWIDE RULE 36 FOR A PERMIT TO DISPOSE OF OIL AND GAS WASTE INCLUDING H<sub>2</sub>S INTO A POROUS FORMATION NOT PRODUCTIVE OF OIL OR GAS FOR THE BLAND LAKE AGI LEASE, CARTHAGE FIELD, SAN AUGUSTINE COUNTY, TEXAS**

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### OIL AND GAS DOCKET NO. OG-20-00003358

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**APPLICATION OF KUDU MIDSTREAM LLC (OPERATOR NO. 478441) PURSUANT TO STATEWIDE RULE 41 FOR A NEW FIELD DESIGNATION FOR THE BLAND LAKE (RODESSA H<sub>2</sub>S DISPOSAL) FIELD, SAN AUGUSTINE COUNTY, TEXAS; DISTRICT 06**

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**HEARD BY:** Robert Musick, P.G. - Technical Hearings Examiner  
Kristi M. Reeve - Administrative Law Judge

**HEARING DATE:** October 7, 2020

**CONFERENCE DATE:** March 23, 2021

### APPEARANCES:

#### **REPRESENTING:** Kudu Midstream, LLC

Mickey R. Olmstead, attorney, *McElroy, Sullivan, Miller & Weber, LLP*  
John Copeland, Senior Facility Engineer  
Jason Moxley, Environment, Health and Safety Manager  
Ted Lilly, Environment, Health and Safety consultant  
Jacob Mezey, Texas Air Supervisor  
Steve Pattee, consulting Petroleum Engineer  
Ramona Hovey, consulting Petroleum Engineer  
Parker Jessee, consulting Geologist  
Peter Jordan, PhD, consulting Scientist

**EXAMINERS' REPORT AND RECOMMENDATION****STATEMENT OF THE CASE**

Kudu Midstream, LLC (478441) ("Kudu") requests authority, pursuant to 16 Tex. Admin. Code § 3.36 ("Rule 36" or "Statewide Rule 36") to inject hydrogen sulfide ("H<sub>2</sub>S") and carbon dioxide ("CO<sub>2</sub>") into a formation not productive of oil and gas for the Bland Lake AGI (Gas ID No. 478441) Lease, Well No. 1 in the Carthage Field located in San Augustine County, Texas. In addition, Kudu is seeking a new field designation pursuant to 16 Tex. Admin. Code § 3.41 ("Rule 41" or "Statewide Rule 41") as the Bland Lake (Rodessa H<sub>2</sub>S Disposal) Field (Field No. 08816-600) in San Augustine County, Texas. Once the new field is designated and Kudu has been approved by the Commission for disposal of waste with elevated H<sub>2</sub>S, a disposal well will be drilled and completed in accordance with 16 Tex. Admin. Code § 3.9 ("Rule 9" or "Statewide Rule 9").

Kudu filed Form W-14 (*Application to Dispose of Oil and Gas Waste by Injection into a Formation Not Productive of Oil and Gas*) pursuant to Statewide Rule 9 to drill and complete the proposed disposal well (identified as the "AGI Well" or "proposed disposal well") into the Carthage Field. In its Rule 9 application, which is being administratively processed by the Commission's Injection-Storage Permits Unit ("UIC"), Kudu requested authority to inject a maximum daily injection volume of 7,700 barrels per day ("bpd") or an estimated volume of 15,000 thousand standard cubic feet per day ("Mcfd") of a gaseous mixture of saltwater, CO<sub>2</sub>, H<sub>2</sub>S and natural gas. The maximum surface injection pressure for the AGI Well in their application is 3,458 pressure square inch, gauge ("psig").

Initially, Kudu's Form W-14 was seeking authority to dispose of the waste into the Carthage Field in the Rodessa formation at a subsurface depth from 6,916 feet to 7,339 feet. Currently, Kudu is seeking authority to dispose of the waste into the same formation (i.e., Rodessa formation) and same subsurface depth interval, but designated the injection interval a new field named, the Bland Lake (Rodessa H<sub>2</sub>S Disposal) Field, pursuant to Statewide Rule 41. The Commission's UIC staff reviewed the Rule 9 application and determined it to be administratively complete. The Rule 9 application is unprotested and may be administratively processed pursuant to Statewide Rule 9(5)(F), pending approval of the Rule 36 application by the Commission after a public hearing.

Statewide Rule 36(c)(10)(A) states that "injection of fluids containing hydrogen sulfide [H<sub>2</sub>S] shall not be allowed under the conditions specified in this provision unless first approved by the Commission after a public hearing:

- (i) where 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 [parts per million] 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;

(ii) where the hydrogen sulfide [H<sub>2</sub>S] content of the gas or gaseous mixture to be injected has been increased by a processing plant operation."

Evidence indicates that Kudu's Bland Lake Plant generates an acid gas mixture from an inlet feed gas estimate of 5 parts per million ("ppm") to 10 ppm H<sub>2</sub>S, thus increasing the H<sub>2</sub>S concentration by a processing plant operation. Therefore, a public meeting is required pursuant to Statewide Rule 36(c)(10)(A)(ii). A hearing was held on October 7, 2020 for the captioned dockets' applications ("Applications") for consideration of Kudu's application to inject H<sub>2</sub>S and CO<sub>2</sub> into a formation not productive of oil and gas and the designation of a new H<sub>2</sub>S disposal field.

In its Applications, Kudu is seeking to inject acid gas containing H<sub>2</sub>S and CO<sub>2</sub> into the Rodessa formation, a formation not productive of oil or gas within 10 miles of the proposed disposal well. The closest oil and gas activity within two miles of the proposed disposal well is associated with the Haynesville Field, which is approximately 13,000 feet deep, with 5,000 feet of sediments separating the Haynesville Field from the Rodessa formation. Evidence indicated the Haynesville Field will not be impacted by the disposal activities associated with these Applications. In addition, Kudu is requesting under Statewide Rule 41, the designation of a new field, the Bland Lake (Rodessa H<sub>2</sub>S Disposal) Field in San Augustine County, Texas, to inject H<sub>2</sub>S with concentrations up to 300 ppm.

As part of the risk assessment, Kudu modeled exposure of the H<sub>2</sub>S in the event of a catastrophic release from the proposed disposal well. The H<sub>2</sub>S risk assessment determined that the 500 ppm radius of exposure ("ROE") for the disposal well is estimated to be 1-foot; and the 100 ppm ROE is estimated at 100 feet.

Prior to the hearing, the Commission's H<sub>2</sub>S Coordinator for District 6 reviewed the proposed Rule 36 application and associated materials and determined it complies with the applicable provisions of the rule. However, the Commission's H<sub>2</sub>S Coordinator cannot process Kudu's Form H-9 (*Certificate of Compliance Statewide Rule 36*) without a designated H<sub>2</sub>S disposal field. Therefore, upon approval of the newly designated Bland Lake (Rodessa H<sub>2</sub>S Disposal) Field under Statewide Rule 41 and the completion of the AGI Well into the proposed H<sub>2</sub>S Field, the Commission can proceed with administrative approval of Kudu's unprotested Rule 9 application.

Kudu requested that, following approval of the newly designated Bland Lake (Rodessa H<sub>2</sub>S Disposal) Field and authorization to inject hydrogen sulfide in accordance with the Rule 41 and Rule 36 applications, the Rule 9 application be remanded for administrative consideration pursuant to Statewide Rule 9(5)(F), as the Applications are all unprotested.

## **DISCUSSION OF THE EVIDENCE**

At the hearing, Kudu's experts offered testimony and 39 exhibits to demonstrate that the AGI Well is suitable for injection of the acid gas mixture into a newly designated field, the Bland Lake (Rodessa H<sub>2</sub>S Disposal) Field.

### **Notice**

Kudu filed its Form W-14 (*Application to Dispose of Oil and Gas Waste by Injection into a Formation Not Productive of Oil and Gas*) with UIC pursuant to Statewide Rule 9 on January 17, 2020. The Notice of the Rule 9 application was published in the San Augustine Tribune, a newspaper of general circulation in Augustine County, on January 23, 2020, pursuant to the requirements in Statewide Rules 9 and 36.

After the Kudu Applications were reviewed for administrative approval by the Commission's UIC staff, the Rule 9 and Rule 36 applications were received by the Hearings Division on September 16, 2020 to schedule a hearing. On September 23, 2020, the Hearings Division of the Commission sent a Notice of Hearing ("Notice") to the Applicant and nearby operators and property owners, all those entitled to notice. The Notice identified a hearing scheduled for October 7, 2020. Consequently, the parties received more than 10 days' notice. The Notice contains (1) a statement of the time, place, and nature of the hearing; (2) a statement of the legal authority and jurisdiction under which the hearing is to be held; (3) a reference to the particular sections of the statutes and rules involved; and (4) a short and plain statement of the matters asserted.

On October 5, 2020, returned mailed was received by the Hearings Division for the Notice sent to Dixie Rule Reese of San Augustine, Texas. In response, Judge Reeve sent a letter on October 22, 2020 to Ms. Reese at the forwarding address provided by the United States Postal Service giving Ms. Reese until November 2, 2020 to request a hearing, file a protest, or otherwise comment on the Applications. No response was received from Ms. Reese. Therefore, all persons on the Notice's Service List, including owners of tracts, were given an opportunity to protest or comment.

The hearing was held on October 7, 2020, as noticed. Applicant appeared and participated in the hearing. No one appeared in protest.

### **Bland Lake Plant**

Amine plants are large CO<sub>2</sub> emitters caused by the amine treatment process. To make gas sellable downstream, the CO<sub>2</sub> and H<sub>2</sub>S contaminants are extracted in the amine treatment plant. The CO<sub>2</sub> and H<sub>2</sub>S are absorbed into the amine fluid solution and then boiled off as waste, resulting in an acid gas mixture composed of CO<sub>2</sub> and H<sub>2</sub>S. The acid gas goes through a thermal oxidizer which breaks down the sulfur dioxide and the CO<sub>2</sub> for disposal.

Kudu, a wholly-owned subsidiary of Aethon Energy, operates the Bland Lake amine treatment plant. Aethon Energy operates about 2,500 wells across Texas, with approximately 200 wells in East Texas, seven of which are fed directly into the amine plant. Therefore, Kudu's Bland Lake Plant services Aethon Energy's horizontal wells in

the nearby Haynesville Field that have elevated concentrations of sour gas. Currently, the H<sub>2</sub>S and CO<sub>2</sub> vapors are vented to the atmosphere pursuant to a TCEQ permit. In the hearing, Kudu indicated that capturing and injecting the CO<sub>2</sub> and H<sub>2</sub>S from the Bland Lake Plant will remove 130,000 tons per year of CO<sub>2</sub> being emitted into the atmosphere. In addition, the injection will eliminate about 60 tons per year of SO<sub>2</sub> emissions.

### Location and Well Information

Evidence in the hearing indicate the AGI Well is located in a rural area with no public roads, no public receptors and no public areas within the 100 ppm ROE. The nearest residence to the well is approximately one-half mile away. The proposed injection well is located approximately 3.4 miles northeast of the City of San Augustine. The facility is fenced and secured for limited access. Evidence indicated the facility and equipment are monitored 24 hours a day to confirm operations are within specifications with three levels of redundancy to address any issues. In addition, Aethon has mineral leases for all the tracks around the proposed disposal well.

The proposed disposal well is identified in the Rule 9 application as the Bland Lake AGI Lease, Well No. 1 (ID No. 42-405-30723) located in San Augustine County, Texas. Originally, Kudu was seeking authority to dispose of the waste into the Carthage Field, but changed the application to dispose of the waste into the Rodessa formation once a new field designation has been established pursuant to Statewide Rule 41. In the Rule 9 application, Kudu is seeking authority to inject a maximum daily injection volume of 7,700 bpd or 15,000 Mcfd of saltwater, CO<sub>2</sub>, H<sub>2</sub>S and natural gas into the proposed Bland Lake (Rodessa H<sub>2</sub>S Disposal) Field. The maximum surface injection pressure for the AGI Well in their Rule 9 application is proposed at 3,458 psig. Kudu is seeking authority to dispose of the waste into the Rodessa formation at a subsurface depth from 6,916 feet to 7,339 feet.

The proposed injection well will be drilled, cased and cemented with H<sub>2</sub>S and corrosion resistant tubular packers and cement. The surface casing will be a 9 5/8-inch diameter casing set at 2,400 feet below ground surface ("bgs") which is 100 feet below the base of the underground source of drinking water ("USDW") as identified by the Groundwater Advisory Unit. The long-string casing is 7-inch diameter casing set to approximately 7,339 feet bgs. Both the surface and long-string casing will be cemented back to the surface.

The injection tubing is proposed to be 3 1/2-inch tubing set at 6,816 feet with a packer. The injection interval is one hundred feet below the packer from 6,916 (total depth, "TD") feet to 7,339 feet TD, which is the Rodessa formation. It is noted that the tubing will be composed of an alloy that will be metallurgically compatible with gas composition. The wellbore design has been designed to exceed minimum standards in several factors such as the metallurgy composition of the tubing and the well and cement will be the entire length of the well.

### Formation

The proposed disposal well's target zone is the nonproductive Rodessa formation, a formation that is about 450 feet thick. Kudu's structure maps and cross-sections demonstrated that the Rodessa formation is laterally extensive throughout the area and

is confined by the Ferry Lake formation (anhydrite lithology) on top and the Bexar formation (shale lithology) on the bottom of the target injection zone. The Ferry Lake anhydrite is about 480 feet thick and the Bexar Shale is about 140 feet thick. Evidence indicates that the waste will be contained within the Rodessa formation by the confining Ferry Lake and Bexar formations.

Kudu opined that a new field designation will identify the proposed disposal zone as a formation containing H<sub>2</sub>S. This will alert operators drilling in the area to the potential of H<sub>2</sub>S in the Rodessa formation.

The nearest historical producing Rodessa well is over 10 miles away from the proposed disposal well and the nearest saltwater disposal well is approximately 12.4 miles to the northeast of the proposed disposal well. Well logs indicate no known faulting exist in the area of investigation.

### Ground Water Protection

The Groundwater Advisory Unit identified that the base of the Wilcox must be protected as useable quality water (UQGW) which occurs at 2,300 feet bgs. This also corresponds to the base of the USDW identified at 2,300 feet. The Wilcox and Midway aquifers are part of the USDW, with the Midway being the deepest portion of the USDW with its base at 2,247 feet. Geologic isolation from the USDW is established at 2,550 feet, therefore the target injection zone is approximately 4,000 feet deeper than the base of the USDW.

### Groundwater Modeling

The SWIFT model (Sandia Waste-Isolation Flow and Transport), a numerical simulation model that was developed by the Sandia Federal Laboratory, was utilized by Kudu to simulate groundwater plume migration and predict the maximum probable extent of the underground plume migration. The SWIFT numerical model is widely used throughout the industry to simulate groundwater plume migration. The model parameters were textbook values, not field values. Input data included a net pay thickness range of 48.9 feet to 163.1 feet, a porosity range of 4.2% to 20.2%, and a permeability of 18.3 millidarcies. The model simulations were run using the input parameters to simulate 50 years of continuous injection at the proposed maximum permitted rate of 15,000 Mcfd. In addition, the model simulated the plume migration for 50 years beyond the service life, for a total model run simulation of 100 years. At the end of the service life the model predicted the plume would migrate easterly to 6,300 feet at a one percent H<sub>2</sub>S concentration. After the 100-year period of model simulation, the direction of maximum radius was predicted to be 6,424 feet. Kudu contends this is a conservative model simulation which would predict the maximum migration within the injection interval. The SWIFT model simulations predicted that plume migration from the injection of waste would stay within the 2.5 mile area of injection.

There are no wells of concern within the modeled injection plume that penetrate the disposal interval. There are no known faults within the modeled injection plume or within the 2.5 area of injection. Therefore, there are no known conduits for the migration of the injected fluid outside the disposal interval.

### Canary Dispersion Modeling

Kudu is requesting a maximum H<sub>2</sub>S concentration up to 300 ppm be authorized for injection at the proposed disposal well into the proposed Bland Lake (Rodessa H<sub>2</sub>S Disposal) Field.

The Canary Dispersion Model is an industry standard for assessment of Rule 36 risk and is widely accepted in other Commission programs, as well as the Hearings Division. A Commission letter dated August 10, 2020, approved the Canary Dispersion Model simulation results based on the projected authorized volumes and concentrations.

The Canary Dispersion Model estimated the maximum escape volume from the proposed disposal well in case of a catastrophic wellhead failure. The model established the “absolute open flow volume” at 715.4 million cubic feet per day (“MMcfd”). Accordingly, the 100 ppm ROE was determined to be 100 feet from the proposed injection well and the 500 ppm ROE is estimated at 1-foot from the disposal well. It is noted that the 500 ppm ROE is theoretical since the concentrations of the Bland Lake Rodessa H<sub>2</sub>S Disposal Field should never exceed 300 ppm based on what is requested to be injected via the Rule 36 application. The Canary Dispersion Model simulations indicate the 100 ppm and 500 ROE for the H<sub>2</sub>S plume is within the property boundary. In addition, the nearest resident and public road to the proposed disposal well is about one-half mile away. If there were a catastrophic release from the proposed injection well, the 100 ppm H<sub>2</sub>S plume would likely not leave Kudu’s property.

A Form H-9 (*Certificate of Compliance Statewide Rule 36*) and a contingency plan were prepared for the proposed disposal operations based on the calculated ROE values. Kudu worked with Commission’s H<sub>2</sub>S Coordinator for District 6 to establish the proposed contingency plan for the AGI Well.

### Seismic Investigation

A seismic investigation within a radius of 9.08 kilometers resulted in two seismic events: one in 2019 with a magnitude of 2.1; and another in 2013 also with a magnitude of 2.1. The 2019 seismic event was approximately seven-plus kilometers to the northeast of the proposed location and approximately 3.5 kilometers deep. The 2013 seismic event occurred to the southeast, also a magnitude 2.1. Kudu hypothesized that both seismic events appear to be related to the Cotton Valley or Haynesville Fields and associated fracking activities.

### Recommendation

The Examiners recommend approval of the new field designation pursuant to Statewide Rule 41 (16 Tex. Admin. Code § 3.41), known as the Bland Lake (Rodessa H<sub>2</sub>S Disposal) Field (Field No. 08816-600) in San Augustine County, Texas for the Bland Lake AGI (478441) Lease, Well No. 1. In addition, the Examiners recommend granting the Statewide Rule 36 authorization for the Bland Lake AGI (478441) Lease, Well No. 1 in San Augustine County, Texas; and remand Kudu’s Rule 9 application for administrative consideration pursuant to Statewide Rule 9(5)(F), as the Applications are all unprotested.

## **FINDINGS OF FACT**

1. Kudu Midstream, LLC (478441) ("Kudu") requests authority, pursuant to 16 Tex. Admin. Code § 3.36 ("Rule 36" or "Statewide Rule 36") to inject hydrogen sulfide ("H<sub>2</sub>S") and carbon dioxide ("CO<sub>2</sub>") into a formation not productive of oil or gas for the Bland Lake AGI (Gas ID No. 478441) Lease, Well No. 1 in San Augustine County, Texas.
2. Kudu is also seeking a new field designation pursuant to 16 Tex. Admin. Code § 3.41 ("Rule 41" or "Statewide Rule 41") as the Bland Lake (Rodessa H<sub>2</sub>S Disposal) Field in San Augustine County, Texas. Once the new field is designated and Kudu has been approved for disposal of waste with elevated H<sub>2</sub>S, a disposal well will be drilled and completed in accordance with 16 Tex. Admin. Code § 3.9 ("Rule 9" or "Statewide Rule 9") into the newly designated Bland Lake (Rodessa H<sub>2</sub>S Disposal) Field.
3. Kudu filed a Form W-14 (*Application to Dispose of Oil and Gas Waste by Injection into a Formation Not Productive of Oil and Gas*) pursuant to Statewide Rule 9 to drill and complete the proposed disposal well (identified as the "AGI Well" or "proposed disposal well") into the Rodessa formation at a subsurface depth from 6,916 feet to 7,339 feet, once a new field designation has been established pursuant to Statewide Rule 41.
4. Notice of the pending Rule 9 application was published in the San Augustine Tribune, a newspaper of general circulation in Augustine County, on January 23, 2020, pursuant to the requirements in Statewide Rules 9 and 36.
5. In its Rule 9 application, Kudu requested authority to inject a maximum daily injection volume of 7,700 barrels per day ("bpd") or an estimated volume of 15,000 thousand standard cubic feet per day ("Mcfd") of a gaseous mixture of saltwater, CO<sub>2</sub>, H<sub>2</sub>S and natural gas. The maximum surface injection pressure for the proposed AGI Well in the application is stated to be 3,458 pressure square inch, gauge ("psig").
6. The Commission's Storage-Injection Permits Unit ("UIC") staff reviewed the Rule 9 application and determined it to be administratively complete. The Statewide Rule 9 application is unprotested and may be administratively processed pursuant to Statewide Rule 9(5)(F), pending approval of the Rule 36 and 41 applications by the Commission after a public hearing.
7. Statewide Rule 36 requires a public hearing to be held for the injection of fluids containing hydrogen sulfide where:
  - a. 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; or

- b. the hydrogen sulfide content of the gas or gaseous mixture to be injected has been increased by a processing plant operation.
- 8. A request for a public hearing for the Rule 9 and Rule 36 applications were received from Kudu by the Hearings Division on September 16, 2020 to schedule a hearing. On September 23, 2020, the Hearings Division of the Commission sent a Notice of Hearing ("Notice") to the Applicant and nearby operators and property owners, all entitled to notice. The Notice contains (1) a statement of the time, place, and nature of the hearing; (2) a statement of the legal authority and jurisdiction under which the hearing is to be held; (3) a reference to the particular sections of the statutes and rules involved; and (4) a short and plain statement of the matters asserted. On October 5, 2020, returned mail was received by the Hearings Division for an individual on the Notice's Service List sent on September 23, 2020. In response, on October 5, 2020 another letter was sent to the individual utilizing the forwarding address provided by the United States Postal Service giving Notice. No response was received from the Commission's Notice correspondence. Therefore, all persons on the Notice's Service List, including owners of tracts offsetting the proposed injection well, were given an opportunity to protest or comment. No one protested the hearing.
- 9. The hearing was held on October 7, 2020, as noticed, for the captioned dockets' applications ("Applications"). Applicant appeared and participated in the hearing. No one appeared in protest.
- 10. The proposed injection well, the Bland Lake AGI Lease, Well No. 1 (API No. 42-405-30723) is a new drill that will be located approximately 3.4 miles northeast of the City of San Augustine. The proposed disposal well is permitted to be drilled in a rural area with no public roads, no public receptors and no public areas. In addition, the proposed disposal well location is approximately one-half mile away from the nearest resident.
- 11. The proposed injection well is to be cased and cemented with H<sub>2</sub>S, corrosion resistant tubulars, packers, and cement sufficient to confine the injected fluid to the proposed Rodessa disposal interval.
- 12. The proposed disposal well's target zone is the nonproductive Rodessa formation, a formation that is about 450 feet thick. The Rodessa formation is laterally extensive throughout the area and is confined by the Ferry Lake formation (anhydrite lithology) on top and the Bexar formation (shale lithology) on the bottom of the target injection zone.
- 13. The Commission's Groundwater Advisory Unit identified that the base of the Wilcox must be protected as useable quality water ("UQGW") which occurs at 2,300 feet bgs. Geologic isolation from the underground source of drinking water ("USDW") is established at 2,550 feet, therefore the target injection zone is approximately 4,000 feet deeper than the base of the USDW and is protective of drinking water resources.

14. SWIFT (Sandia Waste-Isolation Flow and Transport) model simulations were performed to predict the maximum probable extent of the underground plume migration. After the 100-year period of model simulation, the direction of maximum radius was predicted to be 6,424 feet away from the well. The SWIFT model simulations predicted that plume migration from the injection of waste would stay within the 2.5 miles area of investigation. There are no known faults within the modeled injection plume or within the 2.5 area of investigation. Therefore, there are no known conduits for the migration of the injected fluid outside the disposal interval.
15. Kudu modeled exposure of the H<sub>2</sub>S, in the event of a catastrophic release from the proposed disposal well. The Canary Dispersion Model simulations indicate the 100 ppm and 500 radius of exposure ("ROE") for the H<sub>2</sub>S plume is within the property boundary. In addition, the nearest resident and public road to the proposed disposal well is about one-half mile away.
16. The Form H-9 (*Certificate of Compliance Statewide Rule 36*) and a contingency plan were prepared for the proposed disposal operations based on the calculated ROE values and Statewide Rule 36 requirements.
17. Prior to the hearing, the Commission's H<sub>2</sub>S Coordinator for District 6 reviewed the proposed Rule 36 application and associated materials and determined it complies with the applicable provisions of the rule. However, the Commission's H<sub>2</sub>S Coordinator cannot process Kudu's Form H-9 without a designated H<sub>2</sub>S disposal field.
18. Kudu requested at the hearing designation of the Bland Lake (Rodessa H<sub>2</sub>S Disposal) Field by the Commission in accordance with Statewide Rule 41; and the authorization to inject H<sub>2</sub>S waste into the newly designated H<sub>2</sub>S Disposal Field in accordance with Statewide Rule 36. After approval of the Statewide Rule 41 and 36 applications, it was requested that Kudu's Statewide Rule 9 application be remanded for administrative consideration pursuant to Statewide Rule 9(5)(F), as the Applications are all unprotested.
19. Kudu agreed on the record that, pursuant to the provisions of Texas Government Code §2001.144(a)(4)(A), the Final Order in this case shall be effective on the date a Master Order relating to the 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. Kudu has complied with the requirements of Statewide Rule 36(c)(10)(A)(ii).

4. Kudu has complied with the requirements of Statewide Rule 41 for new designation of an H<sub>2</sub>S disposal field.
5. Kudu's Statewide Rule 9 application is unprotested and can be administratively processed pursuant to Statewide Rule 9(5)(F).
6. Pursuant to § 2001.144(a)(4)(A) of the Texas Government Code, and the agreement of the applicant on the record, the Final Order in this case can be effective when a Master Order relating to the Final Order is signed.

#### **EXAMINERS' RECOMMENDATION**

Based on the above findings of fact and conclusions of law, the Examiners recommend approval of the new field designation pursuant to Statewide Rule 41 (16 Tex. Admin. Code § 3.41), known as the Bland Lake (Rodessa H2S Disposal) Field (Field No. 08816-600) in San Augustine County, Texas for the Bland Lake AGI (478441) Lease, Well No. 1. The Examiners also recommend the Commission grant Statewide Rule 36 authorization for the Bland Lake AGI (478441) Lease, Well No. 1 in San Augustine County, Texas. Kudu Midstream, LLC's application for a permit pursuant to Statewide Rule 9 for the above-referenced well be remanded for administrative consideration.

Respectfully submitted,

—DocuSigned by:



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Robert E. Musick, P.G.  
Technical Examiner

—DocuSigned by:



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Kristi M. Reeve  
Administrative Law Judge