

125 FERC ¶ 61,325
UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Before Commissioners: Joseph T. Kelliher, Chairman;
Sudeen G. Kelly, Marc Spitzer,
Philip D. Moeller, and Jon Wellinghoff.

Southern Star Central Gas Pipeline, Inc.

Docket No. CP07-89-001

ORDER DENYING REHEARING

(Issued December 18, 2008)

1. On July 16, 2008, the Commission issued an order granting, in part, an application by Southern Star Central Gas Pipeline, Inc. (Southern Star) for certificate authorization under section 7(c) of the Natural Gas Act (NGA) to construct facilities and acquire additional property rights to expand the certificated boundaries of its North Welda Storage Field (North Welda) in Anderson County, Kansas, in order to recover gas migrating out of storage.¹ On August 10, 2008, Southern Star sought rehearing of the Commission's July 16 Order, which denied Southern Star the right to laterally expand the certificated boundaries of the North Welda Storage Field to include an additional 1,240 acres. This order denies rehearing.

I. Background

2. Southern Star's Welda Storage Complex comprises the North Welda gas storage field and two other gas storage fields (the South Welda Storage Field and the Colony Storage Field). The three storage fields are geologically connected by the Colony Sandstone formation, which is laterally continuous across the Welda storage complex. Southern Star stores gas within the Colony Sandstone formation in the three storage fields. North Welda's certificated boundaries include approximately 6,660 acres.

3. The Colony Sandstone is the lowest portion of the Upper Cherokee formation, which begins approximately 800 feet below the surface. The Upper Cherokee formation includes other formations. Above the Colony Sandstone, in which gas is stored, are the Lower and Upper Squirrel Sandstones. Between the Colony Sandstone and the Lower Squirrel Sandstone and between the Lower Squirrel Sandstone and the Upper Squirrel Sandstone are shale and siltstone formations.

¹ *Southern Star Central Gas Pipeline, Inc.*, 124 FERC ¶ 61,042 (2008) (July 16 Order).

4. The shale and siltstone form a non-permeable barrier and, along with the Squirrel Sandstone strata in the Upper Cherokee, historically have been classified as the confining layer, or cap rock, above the Colony Sandstone storage area. However, a study conducted for Southern Star by Netherland, Sewall, and Associates (NSA) revealed that ongoing oil production operations as well as storage well completion practices in the late 1970s have resulted in the creation of pathways for storage gas to migrate upward from the Colony Sandstone into the oil-bearing Squirrel Sandstone of the Upper Cherokee. Testing of samples confirmed that oil production well, Summers 2A (Squirrel Well #1) that overlies the existing certificated storage reservoir is producing gas with a chemical composition closely matching that of storage gas.

5. On February 23, 2007, Southern Star filed its application in this proceeding for certificate authority to address the gas migration problem. Specifically, Southern Star sought certificate authority to acquire property rights to expand North Welda's certificated boundaries both laterally and vertically to prevent further oil production activities that could further compromise the integrity of the storage field and to install a system to recover migrating storage gas.

6. The Commission's July 16 Order granted Southern Star certificate authority that will enable it to acquire all rights and interests in the remainder of the Upper Cherokee above the portions of the Colony Sandstone in which its gas is stored. The Commission concluded that this certificate authority would be sufficient to ensure that Southern Star can gain control of that portion of the Squirrel Sandstones in which oil production activities are recovering its migrated storage gas. The certificate granted by the July 16 Order also included authority for Southern Star to acquire five existing oil wells above the storage area (Squirrel Wells #1 through #5) so they can be converted to gas recovery wells to recover gas that migrates up into the Squirrel Sandstones.

7. The July 16 Order denied Southern Star's request for certificate authority to expand North Welda's certificated boundaries laterally. The Commission denied this request because the record did not demonstrate the presence of migrated storage gas in those areas.

II. Southern Star's Request for Rehearing

8. Southern Star requests rehearing of the July 16 Order's denial of certificate authority for Southern Star to expand North Welda's boundaries laterally to include an

additional 1,240 acres.² Southern Star states that the requested lateral expansion is necessary to ensure an adequate buffer zone to protect the integrity of the storage field.

9. Southern Star states that it has already purchased 544 acres in Sections 15, 22, and 23, T21S, R19E to the northeast of the North Welda field. Through the purchase of this land, Southern Star states that it also acquired the leasehold interests in the Benjamin-Knight Oil and Gas Lease, the Guy Rogers Oil and Gas Lease, and the Benjamin-Otto Oil and Gas Lease, as well as mineral rights, working interests, and rights-of-way necessary to construct a lateral to Squirrel Well #6 to use as part of its gas recovery operations.³ Southern Star emphasizes that its acquisition of these acres and property interests will reduce the need for it to rely on eminent domain if the Commission grants its rehearing request to laterally expand North Welda's certificated boundaries. Southern Star also emphasizes that as a result of these acquisitions, it owns any gas that could be produced from Squirrel Well #6, regardless of whether it is storage gas or native gas, and it therefore should be allowed to use that well as part of its gas recovery system.

10. In its rehearing request, Southern Star reiterates its reasons in support of its position that its storage gas has also migrated laterally into the proposed expansion area. Southern Star's rehearing request also includes an affidavit from the previous operator of the Benjamin-Knight Lease, Mr. Claron Benjamin, who believes that the source of the gas in the Benjamin-Knight Lease wells is migrated gas from Southern Star's North Welda storage field.

² The 1,240 acres that Southern Star wants to include within North Welda's certificated boundaries includes two separate parcels; 1,160 acres to the northeast of the North Welda field in parts of Sections 14, 15, 22, and 23, T21S, R19E, and 80 acres to the southeast boundary of the North Welda field in Sections 35, T21S, R19E.

³ The July 16 Order approved Southern Star's request for certificate authority to acquire Squirrel oil production wells #1 through #5 for use in its gas recovery program. These oil wells access the Squirrel Sandstone above Southern Star's currently certificated storage area. As stated above, this overlying portion of the Squirrel Sandstone is included in the property interests that Southern Star will be able to acquire pursuant to the certificate authority granted by the July 16 Order. Squirrel Well #6 is located outside of the currently certificated boundary. The July 16 Order did not authorize Southern Star to acquire and use Squirrel Well #6 as part of its gas recovery program because Southern Star did not provide adequate evidence to support its assertion that its storage gas has migrated laterally to the lease on which Squirrel Well #6 is located. 124 FERC ¶ 61,042 at P 49 n.44.

11. In its request for rehearing, Southern Star estimates that if it is allowed to add Squirrel Well #6 (which it has already acquired) to its gas recovery system, the well will produce 142 Mcf/d of migrated gas from the North Welda storage field. With the recovered gas from Squirrel Well #6, Southern Star estimates that, assuming a \$10.00 per Mcf gas price, the annual value of the recovered gas will be \$518,300.

12. Finally, Southern Star argues that if it “is allowed to attach Squirrel Well #6 to the gas recovery system, it will produce the gas and, regardless of whether the gas is storage gas or native gas, return that gas to the storage reservoir. This will reduce or offset any gas losses – including normal or routine losses – from the storage field and thereby reduce the cost to Southern Star’s storage customers.”⁴

III. Kansas Corporation Commission’s Comments

13. On August 18, 2008, the Kansas Corporation Commission (Kansas Commission) filed comments in support of Southern Star’s request for rehearing. The Kansas Commission believes that the Commission should grant Southern Star’s request for rehearing and authorized Southern Star to expand the North Welda storage field’s boundaries laterally, if needed, to ensure against the venting of migrated gas. The Kansas Commission notes that Southern Star has already acquired mineral rights and working interests in a limited portion of the requested lateral expansion.

IV. Discussion

14. As explained in the July 16 Order, the Commission grants jurisdictional storage field operators additional certificate authority to revise the boundary of storage fields when the applicant can demonstrate, with engineering and geological data, that such authorizations are required by the public convenience and necessity in order to improve the operation of the storage fields or to maintain their integrity.⁵ In deciding whether the public convenience and necessity requires approval of a company’s request to enlarge its storage boundary due to gas migration problems, a material consideration is whether the storage reservoir has expanded and whether the company’s estimations of the reservoir and protective boundaries are reasonable.⁶ Here, our analysis also considered whether

⁴ Southern Star’s request for rehearing at 8.

⁵ See *Williams Natural Gas Company*, 83 FERC ¶ 61,120 (1998); *Williams Natural Gas Company*, 77 FERC ¶ 61,150 (1996); *ANR Pipeline Company*, 76 FERC ¶ 61,263 (1996), *reh’g denied*, 78 FERC ¶ 61,122 (1997); and *Columbia Gas Transmission Corporation*, 35 FERC ¶ 61,345 (1986).

⁶ *ANR Pipeline Company*, 76 FERC ¶ 61,263, at 62,346 (1996).

Southern Star presented data to demonstrate that storage gas has migrated from the North Welda storage reservoir into a separate and distinct reservoir, and whether Southern Star's estimations of the extent of migration and necessary protective boundaries are reasonable.

15. After reviewing Southern Star's request for rehearing, the Commission's staff sent Southern Star a data request on September 2, 2008, seeking additional information. Based upon the information provided by Southern Star in its rehearing request, as well as its September 8, 2008 data response, the Commission is not persuaded that maintaining the integrity of the North Welda storage field requires expanding the certificated boundary of the North Welda storage field laterally to encompass an approximately 1,240 additional acres, including the 544 acres Southern Star has already acquired. Granting Southern Star such certificate authority would enable it exercise the right of eminent domain to obtain two separate parcels of land it does not currently own, 616 acres to the northeast and 80 acres to the southeast border of North Welda.

16. In its rehearing request, Southern Star attempts to justify its assertion that storage gas has migrated to the proposed expansion area by restating excerpts from the NSA report, included as Exhibit Z-1 of its application. In referring to one such excerpt, Southern Star suggests that the NSA report concluded, based on chemical composition analyses of gas samples from Benjamin-Knight Lease wells (in the southwest quadrant of Section 14) and a B&B Lease well (in the northeast quadrant of Section 22), that the gas from these wells is " 'likely storage gas.' " ⁷ However, while Section 3.5 of the NSA report indicates that some production well operators may have made comments to the effect that gas from two Benjamin-Knight Lease wells and one B&B Lease well was "likely storage gas," ⁸ Section 3.5 of the NSA also states that "[t]he comparative gas composition data appear to indicate that the Benjamin Knight lease wells and the B&B lease well producing from the Squirrel Sandstone contain relatively small, if any

⁷ NSA report, Section 3.5 Gas Composition Analysis, at 6.

⁸ As noted above, Southern Star's rehearing request includes an affidavit from the previous operator of the Benjamin-Knight Lease, Mr. Claron Benjamin, in which Mr. Benjamin states that he believes the source of the gas from some of the wells in that lease is Southern Star's North Welda storage field. *See* Southern Star's request for rehearing at Attachment B. However, the affidavit does not indicate the basis for this belief on Mr. Benjamin's part. As discussed herein, NSA's report finds, based on gas compositional analysis, that gas analyzed from the Benjamin-Knight Lease "contain[s] relatively small, if any concentrations of storage gas." NSA report, Section 3.5 Gas Composition Analysis, at 6.

concentrations of storage gas.”⁹ This finding in the NSA report provides scant support for Southern Star’s request for certificate authority to expand North Welda’s boundaries laterally to encompass additional acreage. Southern Star provided no new data on gas compositional analysis from these wells to support its assertions.

17. On rehearing, Southern Star cites excerpts from data responses it filed before the July 16 Order was issued to assert that it believes storage gas is present in the proposed expansion area. The Commission has already considered all of this information relating to the composition of gas from a number of oil production wells in the proposed lateral expansion area and found that there is insufficient evidence to support a finding that any of the gas is migrated storage gas, as opposed to native gas.¹⁰ Further, the July 16 Order described the geological features that make it unlikely that storage gas could migrate laterally along the path asserted by Southern Star without evidence of some gas presence in the oil wells along the path.¹¹ Indeed, the report prepared by Southern Star’s own consultant, NSA, included numerous statements testifying to unlikely lateral or horizontal migration of gas beyond the currently certificated boundary of the North Welda storage area.¹²

18. The wells that the July 16 Order certificated for use in Southern Star’s gas recovery plan did not include Squirrel Well #6. On rehearing, Southern Star states that based upon preliminary flow tests, it estimates that Squirrel Well #6, which it has already acquired, will produce approximately 142 Mcf/d of natural gas. It further states that this gas can and should be captured and re-injected into the Colony storage formation.¹³ Southern Star emphasizes that it now owns any gas that can be produced from Squirrel Well #6, regardless of whether it is migrated storage gas or native gas.

19. Commission staff issued a data request on September 2, 2008, asking Southern Star to explain how gas could migrate to Squirrel Well #6 when Squirrel Wells #3, #4 and #5, approved for gas recovery use in the July 16 Order, should capture a large quantity of any storage gas that may migrate in a northerly direction in the Squirrel Sandstone. Staff also calculated that, based upon NSA’s estimate of 15 million cubic feet

⁹ *Id.*

¹⁰ July 16 Order, 124 FERC ¶ 61,042 at P 39-50.

¹¹ *Id.* at P 32-35 and 45.

¹² *Id.* at P 36.

¹³ Southern Star’s request for rehearing at 7.

(MMcf) of gas-in-place that could lie in the mapped Squirrel reservoir outside the storage boundary, production of the 15 MMcf of gas would take approximately 106 days at a flow rate from Squirrel Well #6 of 142 Mcf/d.

20. In response, Southern Star states that the area northeast of the currently certificated boundary “is an area of uncharacteristically well-developed Squirrel Sandstone with a more permeable deposition and homogeneous sand lenses.”¹⁴ It further asserts that storage gas will migrate to Squirrel Well #6 from, specifically, the eastern half of Section 27 within the existing certificated boundary and that a recovery rate of 142 Mcf/d will be possible from Squirrel Well #6.¹⁵

21. Southern Star’s asserted migration pathway through the eastern half of Section 27 is not supported by any new data to demonstrate Southern Star’s assertion that the eastern half of Section 27 contains the geological characteristics that would be necessary for gas to migrate horizontally through the Upper Squirrel Sandstone along the theoretical pathway through Sections 22, 15 and 14 where Squirrel Well #6 is located. In fact, in its October 30, 2007 data response, Southern Star stated that, “Southern Star believes that Storage Gas is currently moving from the Section 27 area (Lytle Lease/Squirrel #5 area) through the Rogers and Benjamin leases in Sections 15 & 22 and ultimately accumulating in the Benjamin Knight lease in Section 14. Southern Star is optimistic that recovery operations in the Lytle Lease/Squirrel #5 area will mitigate this movement of storage gas in the Squirrel Sands.”¹⁶

22. Thus, Southern Star’s has submitted contradictory statements regarding its theory of gas migration in Section 27 and the ability, or lack thereof, of Squirrel Well #5 to effectively capture any storage gas that has migrated upwardly from the Colony Sand and, as Southern Star avers, through Sections 22 and 15 and into Section 14 where Squirrel Well #6 is located. In its October 30, 2007 data response, Southern Star stated that it was “optimistic” that Squirrel Well #5 will effectively mitigate gas migration in Section 27. However, in its September 8, 2008 data response Southern Star now avers that it believes that storage gas is migrating to the “east half of Section 27” and that “the east half of Section 27 is not controlled by the pathway intercepted by Squirrel Wells #3, #4 and #5.” Southern Star offers no explanation – or new engineering or geologic data –

¹⁴ September 8, 2008 data response No. 3.

¹⁵ September 8, 2008 data response No. 4. Additionally, Squirrel Wells #3, #4, and #5 are located in the west-central portion of Section 27 near the northern boundary of Section 27 and Southern Star asserts would recover storage gas from the Squirrel Sands near these wells.

¹⁶ October 30, 2007 data response No. 3, in Docket No. CP07-89-000.

detailing the purported migration path which would allow storage gas to migrate through the eastern half of Section 27 and into Squirrel Well #6 without being captured by Squirrel Well #5.

23. While Southern Star has not presented data to demonstrate that storage gas has migrated to an area around Squirrel Well #6, Southern Star already owns Squirrel Well #6 and the leases in the proposed expansion area that would enable Southern Star to connect Squirrel Well #6 to the gas recovery system approved in the July 16 Order.

24. Southern Star asserts that if it “is allowed to attach Squirrel Well #6 to the gas recovery system, it will produce the gas and, regardless of whether the gas is storage gas or native gas, return that gas to the storage reservoir.”¹⁷ In its rehearing request, Southern Star estimates that if Squirrel Well #6 produces gas at a rate of 142 Mcf/d, the annual value of the gas would be \$518,300.¹⁸ A staff data request asked Southern Star why the production gas from Squirrel Well #6 could not be treated as a commodity and simply attached as additional supply to Southern Star’s system.¹⁹ Southern Star replied that it could be treated as additional supply and that it could sell the gas to any shipper and retain the value in excess of the cost of producing the gas. While Southern Star strongly believes the gas in Squirrel Well #6 to be storage gas, it states that “if it is not storage gas, Southern Star is proposing to give its storage customers the value of the gas in excess of the cost of returning the gas to the storage field.”²⁰

25. Since Southern Star has not presented data to demonstrate that storage gas is migrating to the area around Squirrel Well #6, the Commission will not certificate Squirrel Well #6 as for use in the migrated gas recovery plan and as part of the storage facility. However, Southern Star already owns the well and, as an open-access service provider under Subpart G of Part 284 of the Commission’s regulations, may sell any gas produced by Squirrel Well #6 in accordance with the provisions of Subpart J of Part 284. Since the Commission has determined that there is insufficient evidence to find that any of the gas produced by Squirrel Well #6 is migrated storage gas, all gas produced by the

¹⁷ Southern Star’s request for rehearing at 8.

¹⁸ Southern Star assumed a \$10.00 per Mcf gas price in its calculation.

¹⁹ September 8, 2008 data response No. 10.

²⁰ *Id.*

well is presumably native gas. Gas production activities are exempt from the NGA and the Commission's jurisdiction. However, Southern Star must account separately for any costs and revenues associated with Squirrel Well #6.²¹

The Commission orders:

Southern Star's request for rehearing is denied.

By the Commission.

(S E A L)

Nathaniel J. Davis, Sr.,
Deputy Secretary.

²¹ If Southern Star decides to construct facilities so that gas produced from Squirrel Well #6 can be injected into North Welda to replace lost gas, the facilities may qualify as gathering facilities. The NGA also exempts gathering activities and facilities from the Commission's jurisdiction. However, if gas produced by Squirrel Well #6 is used to replace migrated storage gas, rate related issues with regards to the recovery of the costs of the gas, must be addressed in one of Southern Star's section 4 rate proceedings.