

127 FERC ¶ 61,045
UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Before Commissioners: Jon Wellinghoff, Chairman;
Suedeen G. Kelly, Marc Spitzer,
and Philip D. Moeller.

Williston Basin Interstate Pipeline Company

Docket No. CP08-158-000

ORDER ISSUING CERTIFICATE

(Issued April 16, 2009)

1. On April 18, 2008, Williston Basin Interstate Pipeline Company (Williston) submitted an application pursuant to section 7(c) of the Natural Gas Act (NGA) seeking to amend its existing certificate authorization in order to expand its Elk Basin Storage Reservoir, a natural gas underground storage facility located in Park County, Wyoming, and Carbon County, Montana.¹ Williston's proposal to enlarge the vertical and lateral boundaries of its underground storage reservoir and establish a buffer zone will add approximately 3,340 acres to its existing 1,556.47-acre storage facility. Williston claims that its operation of the storage facility and the capability of the underground reservoir to contain storage volumes are being compromised by nearby production activities. We will authorize Williston to expand its storage facility as requested, for the reasons discussed below.

Background

2. The lateral and vertical boundaries of the Elk Basin Storage Reservoir have remained unchanged since they were specified in the 1949 Order authorizing the facility.

¹ In 1949, the Billings Gas Company was authorized to construct and operate the Elk Basin facility (*Billings Gas Company*, 8 FPC 1166 (1949)); in 1951, the Billings Gas Company was acquired by Montana-Dakota Utilities Company (*Montana-Dakota Utilities Company and Billings*, 10 FPC 1002 (1951)); and in 1985, the Montana-Dakota Utilities Company was acquired by Williston (*Williston Basin Interstate Pipeline Company*, 30 FERC ¶ 61,143 (1985)).

Williston proposes the Commission expand these boundaries.² Williston states that in 2002, Howell Petroleum Corporation (Howell) and Anadarko Petroleum Corporation (Anadarko)³ placed wells in service located outside of, but close to, these boundaries. Williston asserts that Howell, by producing gas from areas near its storage reservoir, is inducing stored gas to migrate beyond the boundaries established in 1949. Williston claims that since the production wells went into service, it “has seen the loss of approximately 10 Bcf of its cushion gas from the Elk Basin Storage Reservoir, in contrast to no appreciable gas losses from the reservoir in the over 50 years of storage operations prior to that time.”⁴

3. Williston believes that Howell’s activities caused the pressure in its reservoir to decrease, and explains that in order to continue to maintain its capacity to make withdrawals of stored gas, it was necessary to seek Commission authorization to temporarily install and operate two compressor units.⁵ In the order authorizing the two compressor units, the Commission directed Williston to “file with the Commission, as soon as feasible, a permanent solution, including how it plans to prevent further gas migration from the Elk Basin Field.”⁶ Williston states that its request to enlarge the

² In 1985, when Williston acquired and received authority to operate the Elk Basin facility, the certificated capacity was set at 63.2 billion cubic feet (Bcf) at a maximum shut-in reservoir pressure of 1,027 psig measured at the wellhead. *Williston*, 30 FERC ¶ 61,143. In 1991, this capacity was confirmed. *Williston Basin Pipeline Company*, 57 FERC ¶ 61,301 (1991). In its application in this proceeding, Williston reports all pressures as the normalized bottom hole pressure, i.e., bottom hole pressure divided by the gas deviation factor (P/z), in which case the maximum shut-in reservoir pressure is 1257 psia.

³ Howell is a subsidiary of Anadarko; both companies are engaged in gas and oil exploration and production. Howell holds mineral rights both beyond the lateral boundaries and below the vertical boundaries of the Elk Basin Storage Reservoir. We will refer to the producing wells as Howell’s wells.

⁴ *Williston’s Application* at 4 (April 18, 2008).

⁵ *Williston Basin Interstate Pipeline Company*, 117 FERC ¶ 62,017 (2006).

⁶ *Id.*, see Ordering Paragraph (D) at 64,031. In addition to temporarily increasing compression, in 2008, we authorized Williston to lease, on a temporary basis, approximately 5 Bcf of gas to be used as cushion gas to maintain pressure sufficient to meet customer withdrawal requests for the winter of 2008-2009. See *Williston Basin Interstate Pipeline Company*, 125 FERC ¶ 61,117 (2008).

certificated boundaries of its Elk Basin facility in this proceeding is its proposed permanent solution.

4. Williston insists that studies demonstrate that while the physical capacity of its underground reservoir is the same as when it was certificated, the geological and stratigraphic extent of the reservoir is larger. Further, Williston contends these studies show the Howell wells, while outside the present certificated boundaries of the storage facility, are nevertheless in pressure communication with the storage reservoir, and that such communication may be natural and/or mechanical. Finally, Williston states that studies show a portion of the gas being withdrawn from the Howell wells is Williston's storage gas.⁷

Notice and Interventions

5. Notice of Williston's request to amend its certificate authorization was published in the *Federal Register* on May 8, 2008.⁸ Timely, unopposed motions to intervene were filed by Encore Acquisition Company jointly with Encore Energy Partners Operating LLC (Encore) and Howell.⁹

Motion for Evidentiary Hearing

6. Encore requests the Commission initiate a full evidentiary hearing to address issues related to expanding the certificated boundaries of Williston's storage facility. An evidentiary trial-type hearing is necessary only where material issues of fact are in dispute that cannot be resolved on the basis of the written record.¹⁰ The issues identified

⁷ Williston has sought damages for this alleged loss of gas from Howell and Anadarko in court proceedings. See *Williston v. An Exclusive Gas Storage Leasehold and Easement in the Cloverly Formation*, 524 F.3d 1090 (9th Cir. 2008) (the court dismissed Williston's claims) and the ongoing proceeding *Howell v. Williston v. Anadarko*, District Court for the Fifth Judicial District within and for Park County, Wyoming, Civil Action No. 24024. The parties' judicial proceedings on the matter of damages are ongoing.

⁸ 73 Fed. Reg. 26096 (2008).

⁹ Timely, unopposed motions to intervene are automatically granted by operation of Rule 214 of the Commission's regulations. 18 C.F.R. § 214 (2008).

¹⁰ See, e.g., *Southern Union Gas Co. v. FERC*, 840 F.2d 964, 970 (D.C. Cir. 1988); *Cerro Wire & Cable Co. v. FERC*, 677 F.2d 124 (D.C. Cir. 1982); and *Citizens for Allegan County, Inc. v. FPC*, 414 F.2d 1125, 1128 (D.C. Cir. 1969).

by Encore are addressed below, and we find they can be resolved on the basis of the existing record in this proceeding. Consequently, we find no need for a full evidentiary hearing.

Protests

7. Encore, Howell, E.E. Lonabaugh, and James Wilson submitted protests, contending that Williston's proposal would interfere with their ability to realize the value of the mineral holdings on property that would be absorbed by the expanded boundaries. We address the issues raised in the protests in the following discussion section.

8. Williston submitted an answer to Encore's and to Howell's protest. Howell supplemented its protest. Williston responded, seeking to exclude any supplemental filings on the grounds such material was irrelevant and would delay this proceeding. Howell replied, challenging certain of Williston's representations, asserting the relevancy of its submissions, and presenting further supplements to its protest. Williston responds by urging that Howell's supplementary filings be excluded, on the grounds that they are duplicative of previously-submitted materials. Howell claims that Williston's reply inappropriately introduces testimony from state court proceedings, a claim that Williston denies.

9. While section 385.213(a)(2) of our Rules of Practice and Procedure does not permit answers to protests, or answers to answers, we may waive this rule for good cause shown. We do so in this instance to help clarify the issues under consideration. For the same reason, we will accept Howell's and Williston's submissions, since we find the additional material provided and the companies' accompanying discussion will assist us in our decision making, but not unfairly prejudice any party or cause undue delay to this proceeding.

Discussion

10. Because Williston's Elk Basin Storage Reservoir is used for jurisdictional natural gas services in interstate commerce, the facilities and their operation are subject to the Commission's jurisdiction under NGA section 7. Therefore, Williston's request to expand the certificated boundaries of its Elk Basin facility requires Commission authorization and approval.

11. There is an inherent uncertainty regarding the performance of an underground reservoir; its actual boundaries depend on characteristics that can generally be confirmed only after the facility has commenced operation. Thus, it is not unusual to find that when a storage facility commences operation, the initially designated boundaries of the underground reservoir do not confine gas volumes as anticipated. Similarly, after years of reliable operation, the equilibrium of a previously stable storage reservoir can shift, due to varying causes, permitting gas that had been reliably contained to escape

confinement. In such cases, to ensure the integrity of the storage reservoir and the efficient operation of the storage facility, we typically either revise a storage facility's certificated boundaries to conform to the enlarged contours of the actual underground reservoir or alter the operating parameters of the storage facility to prevent gas from migrating beyond the facility's certificated boundaries.¹¹ We find cause to do so in this case, as discussed below.

12. To determine whether to issue or amend an NGA section 7 certificate authorization, the Commission considers whether a proposal meets the criteria set forth in our policy statement on new facilities.¹² The Certificate Policy Statement sets forth criteria used by the Commission for determining whether a proposal will serve the public interest by considering the need for a proposed project and balancing the proposal's public benefits against its potential adverse impacts. Our goal in evaluating applications for new projects is to give appropriate consideration to the enhancement of competitive service alternatives, the possibility of overbuilding, subsidization by existing customers, the applicant's responsibility for unsubscribed capacity, avoidance of unnecessary disruptions to the environment, and avoidance of the unnecessary exercise of eminent domain.

13. The threshold requirement is that the applicant be prepared to financially support the proposed project without relying on existing customers to subsidize a project that does not serve them. In this case, we find that Williston's proposal is designed to improve existing service for existing customers. The Certificate Policy Statement notes that projects designed to improve service for existing customers – by replacing existing capacity, by providing flexibility, or by improving reliability (as proposed in the instant

¹¹ See, e.g., *Dominion Transmission, Inc. (Dominion)*, order denying reh'g, 100 FERC ¶ 61,168 (2002). In *Dominion*, the Commission authorized an expansion of the certificated boundaries of one of Dominion's gas storage fields to include an additional 3,063 acres because the reservoir had expanded over time, allowing cushion and working gas to migrate beyond the originally certificated boundaries, resulting in the extraction of storage gas by nearby oil wells. Other remedies to prevent migration may include reducing a facility's operating pressure or recapturing and recycling storage gas. See, e.g., *Equitrans, L.P.*, 119 FERC ¶ 61,287 (2007), in which the Commission set maximum inventory and pressure parameters at levels to ensure the integrity of storage reservoirs and minimize gas migration.

¹² *Certification of New Interstate Natural Gas Pipeline Facilities* (Certificate Policy Statement), 88 FERC ¶ 61,227 (1999), *Clarified*, 90 FERC ¶ 61,128 and 92 FERC ¶ 61,094 (2000) (clarifying statement of policy).

proceeding) – are for the benefit of existing customers, and thus do not constitute a subsidy.¹³

14. The next step is to determine whether the applicant has made efforts to eliminate or minimize any adverse effects the new project might have on its current customers, existing pipelines in the market and their captive customers, or landowners and communities affected by the location of the new facilities. If residual adverse effects on these interest groups are identified after efforts have been made to minimize them, we evaluate the project by balancing the public benefits to be achieved against the residual adverse effects. This is essentially an economic test. Only when the benefits outweigh the adverse effects on the economic interests will the Commission proceed to complete the environmental analysis where other interests are considered. Because Williston's proposed action does not involve any ground disturbance or construction of facilities, no environmental impact would result from this project. Therefore, we find that approval of this proposal will not constitute a major federal action significantly affecting the quality of the human environment.

15. We do not expect revising the boundaries and establishing a buffer zone as requested to have a significant adverse impact on customers,¹⁴ competitors, landowners, or communities. To the extent affected property owners' interests are adversely impacted, they will be able to obtain compensation from Williston, either through negotiation or as the result of a court proceeding. We do not anticipate the new boundary and buffer to impose onerous restrictions on current land use rights, with the prominent exception of property on which there are gas or oil production wells, that by their operation compromise the integrity of Williston's Elk Basin Storage Reservoir. Any wells extracting gas or oil from areas that fall within the enlarged facility's boundaries will be required to cease production, and Williston will be required to provide compensation that reflects the lost rights to produce any native gas or oil.¹⁵ The

¹³ See 88 FERC ¶ 61,227 at 61,747, n.12 (1999).

¹⁴ Williston provided no cost information in its filing, stating that it was not contemplating the construction of any new facilities in conjunction with its proposal. We note, however, that that does not mean Williston may not incur perhaps significant expense in acquiring the property rights necessary for its proposed storage field boundary expansion. As indicated, since the purpose of this project is solely to improve the reliability of existing customers' storage service, in a future rate case Williston will be allowed to roll in the reasonable costs incurred to do so. No existing storage customer filed to intervene or protest Williston's proposal.

¹⁵ We note that although Williston will acquire rights to wells within the enlarged boundaries, and may make use of these existing wells as storage field observation wells,

(continued...)

protesting parties in this case represent property owners likely to suffer damages as a result of the cessation of production; these parties argue the adverse effects on their economic interests outweigh the benefits of expanding the certificated boundaries of Williston's Elk Basin storage facility.

James B. Wilson

16. Mr. Wilson states his family holds a mineral lease on land near the Elk Basin facility and receives revenue from gas and oil produced from that property. Mr. Wilson states that there is a pending proceeding in a Wyoming court¹⁶ to determine the ownership of gas produced from property outside Elk Basin's current certificated boundaries, and asks the Commission to withhold any decision on Williston's petition until the conclusion of that ongoing proceeding.

Commission Response

17. Given that our decision in this NGA section 7 certificate proceeding can be reached independent of the outcome of the ongoing judicial proceedings, we find no cause to delay action on Williston's request. Ownership of the gas currently being produced from the area outside of the current certificated boundaries of the Elk Basin storage facility is not determinative of the issue before the Commission – that is, whether or not the public interest requires that those boundaries be expanded. The Commission's authorization for Williston to expand the Elk Basin storage facility's certificated boundaries will have no bearing on issues in the pending litigation relating to present and past production activities outside the current certificated boundaries, as those issues will be decided as a matter of Wyoming state law.

E.E. Lonabaugh

18. E.E. Lonabaugh observes that devices and methods for the secondary recovery of gas and oil have improved since the Elk Basin storage facility was placed in service almost 50 years ago, and in view of this, requests that the Commission "enter into a study, in part, concerning a further secondary recovery of gas and oil in the area involved in this proceeding."¹⁷ In the event this study demonstrates that it is feasible to recover additional native gas or oil in the area at issue without compromising Williston's storage

it cannot convert these wells to injection or withdraw wells without further amendment to its certificate authority.

¹⁶ See note 7.

¹⁷ E.E. Lonabaugh's Protest at 2 (July 1, 2008).

operations, E.E. Lonabaugh asks the Commission to weigh Williston's request against the waste that will occur if such available mineral resources remain in place.

Commission Response

19. We are attentive to the nation's need for additional supplies of gas and oil, and thus the potential detriment of leaving recoverable resources in place. However, we also must consider the nation's need to be able to make effective use of gas that has been previously produced by storing it to have it readily available to meet peaks in market demand. We thus weigh the potential benefit of extracting native gas and oil from wells in proximity to Williston's underground reservoir against the potential for these wells to disrupt Williston's ability to reliably cycle gas in and out of its reservoir. The record in this proceeding is insufficiently detailed for us to reach a determination regarding the volumes of potentially recoverable native gas and oil in the Cloverly, Morrison, and Sundance formations. However, the record does show that prior to the Howell wells, the Morrison and Sundance formations were considered to be commercially unproductive, as those formations exhibited poor or no production from wells that penetrated those formations. There is little evidence that extensive quantities of native gas are present. Rather, the more likely scenario is migrating storage gas commingled with whatever amount of native gas may be present. However, we do find that the wells in proximity to Williston's Elk Basin storage facility are withdrawing volumes from and affecting pressures in areas that are in communication with Williston's reservoir, and are thereby compromising Williston's ability to operate its storage facility. We conclude that there is more support for a finding that the public interest is better served by ensuring the Elk Basin Storage Reservoir will function as intended than by ensuring that wells near the facility's existing boundaries are able to continue production.

20. To the extent that these volumes serve to support Williston's storage services, these volumes should be added to the cushion gas volume already included as part of the storage facility, though there is no record evidence of extensive producible native hydrocarbons that may remain in the ground as a result of expanding the boundaries of the underground reservoir. The value of any such remaining volumes will presumably be the principle focus of an eminent domain action in which a court determines the compensation due to those presently holding the property interests giving them the right to produce these volumes.

Encore

21. Encore asserts Williston has not presented engineering and geologic data sufficient to show that the physical boundaries of the underground reservoir extend beyond the certificated boundaries. If Williston does make such a showing, Encore argues the Commission should weigh the benefit to Williston of expanding Elk Basin's boundaries against the harm of depriving the public of the gas and oil that would be lost as a result. Encore suggests that Williston's recent actions to increase pressure in the storage

reservoir may have induced gas to move beyond the reservoir's established boundaries, and urges the Commission to require Williston to take all feasible actions within its existing boundaries to prevent the migration of gas from its field.

Commission Response

22. As discussed below, we find the record in this proceeding demonstrates that the physical boundaries of the underground reservoir are greater than the current certificated boundaries; consequently, producing wells located near the existing boundaries of the Elk Basin facility are interfering with Williston's ability to operate the facility, which we find justifies the expansion of the boundaries of the facility. As noted, there is no record evidence of extensive producible reserves within the expanded storage zones. Thus, we find the unquantified public detriment of leaving any such gas and oil in place is outweighed by the public benefit of restoring Williston's ability to reliably inject, store, and withdraw gas supplies at its long-existing storage facility. We adopt Encore's proposal in that we stress to Williston that it cannot take any actions inconsistent with its certificate authorization that might cause storage gas to migrate beyond the certificated boundaries of the underground reservoir.

Howell

23. Howell has five wells located beyond the current surface and subsurface boundaries of the Elk Basin facility that would come within the proposed expanded boundaries. Howell maintains its wells are extracting native gas that is geochemically distinct from the previously-produced volumes of gas that have been injected into the Elk Basin reservoir.

24. Howell states that Williston acknowledges its storage gas has migrated into areas beyond the current certificated lateral and vertical boundaries. Howell estimates that approximately 40 percent of the gas-filled pore space used by Williston to support its storage operations is outside of the facility's certificated boundaries. Howell contends that Williston itself has documented an apparent loss of 2 Bcf of gas in 1982, which Howell attributes to actions taken to increase the Elk Basin's reservoir's maximum operating pressure from 673 psia in 1980 to 1249 psia in 1982 in order to increase working gas volumes. Howell believes this boost in pressure created a breach into the Sundance formation (located below the Cloverly formation), a formation with at least eight billion cubic feet of native gas in place at the time of the breach, thereby increasing the volume of native gas and, for practical purposes, the total capacity of the storage facility by the same amount.

25. Howell questions Williston's statement that it is unaware of any application to any federal, state, or other regulatory body that will be necessary to effectuate or supplement its requested expansion. Howell contends that Williston's proposed acquisition of Cloverly formation rights beyond the existing certificated boundaries would include

federal land administered by the U.S. Department of the Interior's Bureau of Land Management (BLM), which may require that Williston obtain BLM authorization to acquire the existing gas and oil producing rights and to use federal lands for underground storage purposes. Further, Howell notes that the Sundance formation, which Williston seeks to include within its expanded boundaries, holds substantial quantities of native gas and is part of the federal Elk Basin gas and oil producing unit formed in 1946; it is covered in a BLM-approved Participating Area formed in 2002, with the federal government receiving royalties from this unitized formation.

Commission Response

26. Williston's Elk Basin storage facility is located on the northwest flank of the Big Horn Basin, where there is a large gas and oil field from which significant volumes of gas and oil have been produced since 1915. There are multiple gas and oil bearing formations. Williston's Elk Basin storage reservoir is in the Cloverly formation (also known as the Greybull or Lakota formation). Williston's gas storage reservoir was a gas production field from 1920 until it was converted to a storage facility in 1949. The Cloverly formation contains three productive intervals, the Greybull A, B, and C. It is an anticline formation with two peak features separated by a shallow saddle and is highly fractured and faulted. The northeast-southwest trending faults, with some northwest-southeast faults, transect the Cloverly formation, as well as the Morrison and Sundance formations that are located below the Cloverly formation. Fault displacements range from minor displacements to hundreds of feet. The Elk Basin storage facility is bounded on the east by a major thrust fault. Over its combined 80-plus years as both a production field and a storage field, the Elk Basin's hysteresis curve – or pressure (P/z) versus gas volume – shows the straight-line behavior of a closed, contained system, with the minor fluctuations being within measuring accuracy.

27. In 2002, Howell commenced production from what are now five wells. Two wells, located within Williston's boundaries, penetrate Williston's storage reservoir's Cloverly formation, and are completed in the Morrison and Sundance formations below the Cloverly formation. Three wells are located just beyond the Elk Basin facility's southern boundary and draw gas from within the Cloverly formation and the lower Morrison and Sundance formations. Williston states that the storage reservoir's pressure no longer reaches the level expected based on the volume of gas injected into the field, an indication of gas loss or migration. Williston estimates that approximately 10 Bcf of gas has been lost or has migrated from its storage reservoir, and attributes this to Howell's production activities.¹⁸

¹⁸ As noted above, Williston has sought to recover damages from Howell, and litigation is ongoing on this matter.

28. Neither Williston nor the Commission has access to the original 1949 certificated boundary map for the storage facility. However, the current certificated parameters of Elk Basin are:

Total Capacity	63.2 Bcf
Maximum Pressure (P/z)	1,257 psia
Acreage	1,556 acres
I/W Wells	7
Storage formation	Cloverly (Greybull)
Caprock	Dakota

29. Williston and Howell filed separate engineering studies that examine the reservoir volume, geology, and fluid characteristics of the Elk Basin storage facility and surrounding formations.¹⁹ The stated purpose of these studies was to establish whether gas being extracted by Howell's wells included gas injected by Williston into the Elk Basin storage reservoir. While the studies do not definitively resolve the question of the nature of the gas being produced by Howell, they are in accord in concluding that (1) the physical dimensions of the Elk Basin underground reservoir exceed the original certificated boundaries, and (2) the current certificated boundaries need to be extended to protect the integrity of the storage field.

Physical Dimensions of the Underground Reservoir

30. During Elk Basin's 27 years of operation as a natural gas producing field, prior to being converted to a storage facility, an estimated 51.4 Bcf of native gas was extracted. A plot of pressure (P/z) versus gas volume over the production years shows the characteristic straight-line behavior of a closed, volumetric reservoir. This characteristic is continued on the pressure-volume plot for the storage operations between 1949 and 2001. Fluctuations above and below the line are minor, most likely due to accuracy and resolution of the measuring devices, and not to a sudden expansion due to Williston's increasing the reservoir pressure back to its original reservoir pressure. Disregarding present certificated boundaries, and based on graphical extrapolation and material

¹⁹ Both Williston and Howell request privileged and confidential treatment for these studies pursuant to section 388.112 of the Commission's regulations, on the grounds that they contain statements, rebuttals, and other information that each party has presented in the pending court proceeding.

balance calculations, the volume of gas currently in the Elk Basin reservoir is estimated to be within the range of 60 Bcf and 64 Bcf, which corresponds to the certificated maximum volume of 63.2 Bcf.

31. If a volumetric system is indeed closed, the volume of gas in the system can also be estimated from a calculation based on areal extent, formation thickness, porosity, gas saturation, reservoir pressure, temperature, and real gas z-factor. However, using the current certificated acreage of the storage facility and the average thickness and porosity of the Cloverly formation, the volume of gas within the current certificated boundaries of the Elk Basin storage reservoir is estimated at only 36.8 Bcf, or about 60 percent of the certificated maximum volume. Estimating the areal extent of the Cloverly formation from the structure map results in a larger volume, but still lower than the maximum certificated storage volumes. Further, Williston, in its volumetric study, states that the 51.4 Bcf of gas produced during Elk Basin's 27-year producing period is more than the net pore volume (which is the product of area, thickness, and porosity) of the Cloverly formation, indicating that Cloverly was in communication with at least one other zone. Howell disagrees with how Williston determined the area, thickness, and porosity and presents an alternative study.

32. We find the hysteresis graph for the Elk Basin reservoir, of which the current certificated storage area is only a portion, is consistent with the behavior of a closed, contained reservoir – until 2002. Therefore, we conclude that the original dimensions (area and thickness) of the storage reservoir were incorrectly certificated. To determine the areal and vertical dimensions, the areal and vertical integrity of the field must be examined.

Integrity of the Underground Reservoir

33. Regarding the areal integrity of the field, Williston states that updated interpretation of the geology indicates that, instead of a single peak anticline formation, the Cloverly formation has a shallow saddle where the certificated southern boundary of Williston's Elk Basin storage facility is located, with a secondary anticline peak south of that where the Howell wells are extracting gas. Howell well 31-4, which is completed in the Cloverly formation, shows evidence of pressure support on a graph of gas rate versus cumulative production with small cyclical increases that appear to be slightly offset to the storage cycle. This indicates that the certificated southern boundary of the storage area in the Cloverly formation is in pressure communication with the adjacent area of the Cloverly formation. Therefore, the area of the Cloverly formation that extends beyond the current southern boundary of the certificated storage area that is in pressure communication should be included within the certificated boundaries of the underground reservoir in order to ensure that gas will be contained within the reservoir's revised lateral boundaries.

34. The vertical integrity of the storage field is more difficult to determine. Williston and Howell each conducted studies and analyses of the geology of the Cloverly, Morrison, and Sundance formations. They agree that the Elk Basin storage facility is located in a highly fractured and faulted area.²⁰ While neither party can demonstrate whether the Howell wells completed in the Morrison or Sundance formations are extracting storage gas, they concur that it is probable that the Morrison and Sundance formations are in communication with the overlying Cloverly formation through fractures, fault facies, or behind casing.

35. During the 87 years of development of the Elk Basin field, over 765 wells have been drilled through the Morrison and Sundance formations.²¹ Neither formation proved to be commercially productive until the Howell wells were drilled in 2002. The Howell wells 31-1 and 31-2, located south of the current certificated boundary of Williston's storage facility and completed in the Morrison and Sundance formations, show evidence of pressure support: the cyclical change in rate corresponds to, but is slightly offset from, the storage field pressure cycle. The Howell wells 19-1 and 19-5, which reach through the certificated storage reservoir in the Cloverly formation to the underlying Morrison and Sundance formations, show evidence of pressure support and communication with the certificated storage area: the gas rate increases over time instead of declining, and the gas rate increases and decreases as the storage area's pressure increases and decreases. In view of this, we believe that the Morrison and Sundance formations are, with varying degrees, in communication with the certificated storage reservoir in the overlying Cloverly formation. We find this poses a threat to the integrity of Williston's Elk Basin storage facility and operations; therefore, the Morrison and Sundance formations must be included as part of Williston's certificated underground storage reservoir.

Fluid Characteristics

36. Although we are convinced that operation of the Howell wells threatens the integrity of Williston's storage facility's operations, we are not able to fully assess the validity of Williston's claim that gas produced by the Howell wells between 2002 and 2008 includes Williston's storage gas. Ideally, comparing the composition of the gas produced by the Howell wells to the gas brought up from the Elk Basin Storage Reservoir by Williston's own storage withdrawal wells would show that over time the Howell gas either remained distinctly different from Elk Basin storage volumes or was trending

²⁰ The Elk Basin field is the larger producing area, of which the Elk Basin storage reservoir is a part.

²¹ There are 636 wells that penetrate the Elk Basin storage reservoir.

towards a greater similarity with the composition of gas withdrawn from the Elk Basin reservoir.

37. Howell presents a fluid composition study that compares the aggregate gas composition of the Howell wells between 2006 and 2008 with the aggregate gas composition of the Elk Basin storage reservoir during the same time, and concludes that the separate gas samples are different. However, Howell appears to have included the composition of storage gas volumes injected into the Elk Basin reservoir, which may skew the results. This is because the composition of gas injected into a storage reservoir can be expected to be different from the composition of gas withdrawn from the storage reservoir, as over time the gas stored underground mixes any native gas with gas injected from various sources. Williston presents data that shows the composition of gas withdrawn from its wells is similar to gas produced by Howell's wells. Williston's data demonstrates that over time the composition of the gas being produced by the Howell wells is becoming like that of the storage gas withdrawn from Williston's underground reservoir in the mid- to late-1990s. Because of the time that it takes for gas to migrate from the storage field to the Howell wells, gas that began migrating from the storage field in the mid- to late-1990s is showing up in increasing concentration in the gas now being produced by the Howell wells. We do not have data on the composition of the gas that Howell has been producing at regular intervals over time. Thus, we cannot determine whether Howell has been extracting storage gas since it initiated production in 2002; however, we are confident that some portion of Howell's most recent production includes volumes of gas injected by Williston into its underground storage reservoir.

Conclusions

38. The Elk Basin Storage Reservoir has been in operation as a storage facility for almost 60 years. Prior to the operation of the Howell wells, Williston had not modified the certificated parameters of the facility because, for over 50 years the field exhibited the predictable, reliable operating characteristics consistent with a closed, contained system. However, when the Howell wells began operating in 2002, it became apparent that they were affecting the operation of the storage facility. Updated geological interpretation shows that the current certificated boundaries of the storage facility do not encompass the physical dimensions of the underground storage reservoir and that storage volumes therefore are moving beyond the current certificate boundaries. Analysis of the characteristics of the underground storage reservoir, and comparison of the composition of gas produced by Howell and storage gas withdrawn by Williston, demonstrate that (1) the underground storage reservoir is in communication with areas that are outside the current certificated storage facility's boundaries, both laterally and vertically, and (2) gas injected into the current storage reservoir will eventually, if it has not already, expand into areas from which the Howell wells now extract gas. Accordingly, to protect the integrity of the Elk Basin Storage Reservoir and to establish a buffer zone, the boundaries of the storage facility should be increased to include the Cloverly, Morrison, and

Sundance formations, as indicated on the proposed revised boundary map in the application. The certificated maximum inventory, maximum pressure, and deliverability will remain the same.

39. Howell maintains that the expanded boundaries of the underground reservoir will take in portions of the Cloverly and Sundance formations that are subject to BLM authority. To the extent this is the case, Williston may need to obtain certain mineral rights from BLM to be able to undertake its expansion. We find no cause to withhold our authorization until there is a favorable resolution of the issue of BLM's jurisdiction, since our action here does not impact BLM's authority to act as it sees fit. We recognize that the certificate authorization granted by this order will not enable Williston to invoke eminent domain to obtain rights to property interests held by BLM or mineral leases subject to its control. However, BLM has not commented in this proceeding, and Howell's arguments regarding what BLM may or may not be willing to agree to are purely speculative.

40. Howell faults Williston for not estimating its cost to acquire property rights necessary for its proposed expansion. However, we note that any such estimate would necessarily be speculative, since a reliable estimate of acquisition costs will not be available until eminent domain proceedings are concluded. We find we are able to reach a decision on the merits without relying on an estimate of prospective costs to acquire the necessary property rights.

41. Howell points out that the cost of expanding the storage facility could result in an increase in storage customers' rates. We acknowledge this potential, and as discussed above, because expanding the Elk Basin facility is to ensure Williston can continue to meet its existing service obligations to its customers – and not to add new services or increase the facility's capacity or deliverability – costs of the expansion may be allocated to Williston's existing customers in a future section 4 rate proceeding.²² In that future rate proceeding, Williston's customers will have the opportunity to examine the prudence of the level of costs Williston seeks to recover through its rates.

42. At a hearing held on April 16, 2009, the Commission on its own motion received and made part of the record all evidence, including the application and exhibits thereto, submitted in support of the authorization sought herein, and upon consideration of the record,

²² See *supra* note 14.

The Commission orders:

(A) Williston is granted a certificate of public convenience and necessity to increase the certificated boundaries of the Elk Basin Storage Reservoir to add approximately 3,340 acres by enlarging the lateral boundaries of the Cloverly formation, and including the underlying area of the Morrison and Sundance formations, and establishing a buffer zone, as described in the application and this order.

(B) The certificate granted by Ordering Paragraph (A) is subject to Williston's compliance with section 157.20(a) and (e) of the Commission's Regulations.

(C) The protests are denied, for the reasons discussed in this order.

(D) Encore's request for a full evidentiary hearing is denied.

(E) Williston is required to file with the Commission annual inventory reports for the Elk Basin, and include updated hysteresis curves. These reports are to be filed for three years after the date of this order.

(F) Williston is required to operate Elk Basin in such a manner as to prevent/minimize gas migration. Williston is required to monitor the Morrison and Sundance formations to ensure storage gas is not continuing to migrate.

By the Commission.

(S E A L)

Nathaniel J. Davis, Sr.,
Deputy Secretary.