

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

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

Northern Natural Gas Company

Docket No. CP07-107-000

ORDER ISSUING CERTIFICATE

(Issued October 30, 2008)

1. On March 16, 2007, Northern Natural Gas Company (Northern) filed an application pursuant to section 7 of the Natural Gas Act (NGA) for a certificate of public convenience and necessity to expand the certificated boundary of its Cunningham Storage Field (Cunningham). For the reasons discussed below, we will grant Northern certificate authority for a portion of the proposed expansion area.

I. Background and Proposal

2. Northern was granted certificate authorization in 1978 to develop and operate the Cunningham storage facility in Pratt and Kingman Counties, Kansas.¹ Currently, Cunningham encompasses approximately 26,240 acres in the Viola formation and the underlying Simpson formation. The storage facility has 81 wells, including 52 injection/withdrawal wells, 28 observation wells, and a water disposal well; pipelines interconnecting the wells; and compression facilities. In 1978, when Northern was originally authorized to develop the Cunningham Storage Field, the available information suggested that the Viola formation was an isolated reservoir. In 1996, after information came to light showing that the Viola formation was in communication with the underlying Simpson formation, the Commission granted Northern certificate authority to also use the Simpson formation for gas storage.²

¹ The original 1978 certificate authorizing construction of the Cunningham Storage Field was granted by an unpublished letter order. *See Northern Natural Gas Company*, 77 FERC ¶ 61,069, at 61,297 (1996).

² *Id.* at 61,298. *See also* Application, Exhibit Z at 2.

3. Northern states that in October 2002 it filed a lawsuit against Trans Pacific Oil Corporation (Trans Pac) in Federal District Court based on its belief that two oil production wells operated by Trans Pac were producing storage gas that migrated from the Cunningham Storage Field. The two Trans Pac wells are part of the Park well leases, which are located outside of, but close to, the northern boundary of Northern's certificated storage area. Historically, Kansas state law would not have recognized Northern's right to compensation for storage gas that had migrated to an area in which someone else owned the natural gas rights. However, effective July 1, 1993, Kansas abolished this long-standing "rule of capture" and created a new rule providing that gas injected into an underground natural gas storage facility shall be treated as the property of the operator of the storage facility, even if it has migrated out of the storage area into an area where someone else has the right to produce native gas.³

4. In June 2005, the court ruled in favor of Trans Pac, following a jury finding that Northern had not proven by a preponderance of the evidence that its storage gas had migrated to the area of the Park well leases after July 1, 1993, the effective date of K.S.A. § 55-1210 abolishing the rule of capture in Kansas. The U.S. Court of Appeals for the Tenth Circuit affirmed the jury verdict.⁴

II. Description of Proposal

5. In order to re-establish the integrity of its storage facility, Northern proposes to expand the north certificated storage boundary of the Cunningham Storage Field to encompass approximately 4,800 additional acres (the "Extension Area") of the Viola formation and underlying Simpson formation. Northern states that it is not proposing any change to the certificated capacity, injection or withdrawal rates, or the construction of any new facilities.

³ See Kan. Stat. Ann. § 55-1210. Kan. Stat. Ann. § 55-1210(a) states that "[a]ll natural gas which has previously been reduced to possession, and which is subsequently injected into underground storage fields, sands, reservoirs and facilities, whether such storage rights were acquired by eminent domain or otherwise, shall at all times be the property of the injector, such injector's heirs, successors or assigns, whether owned by the injector or stored under contract."

⁴ *Northern Natural Gas Company v. Trans Pacific Oil Corporation*, 248 Fed. Appx. 882; 2007 U.S. App. LEXIS 22443 (Opinion filed September 19, 2007).

6. Northern states that its understanding of the containment mechanism at the Cunningham Storage Field has evolved throughout the operational history of the field. Northern initially considered the Viola and Simpson formations to be structurally raised and bounded by two faults running southwest to northeast, which Northern believed prevented the gas from migrating. However, Northern states that, as described in a previous proceeding in which Northern was authorized to construct two natural gas recovery withdrawal wells,⁵ gas sampling analysis, pressure and flow testing, and seismic work within the certificated boundaries of the field show that storage gas is migrating away from the field.

7. Northern states that in 2006 it employed a new team of technical experts to completely review and study the reservoir characteristics and gas migration mechanisms of the Cunningham Storage Field, including the data obtained from the two new recovery wells and two new observation wells that are located north of the northern fault. Northern avers that technical evaluation demonstrates that the northern fault never has been sealing, and, consequently, storage gas migrates across a broad area to the north beyond the current certificated boundary. Northern attests that the recovery wells constructed in 2005/2006 have captured large volumes of migrating storage gas, but have not totally controlled that migration. Northern avers that, as a result, migrating storage gas continues to reach, and is being produced by, Trans Pac's Park wells just beyond the northern certificated boundary of the Cunningham Storage Field.

8. Northern explains that its consultant's recommended containment plan requires the acquisition of additional land outside of the existing certificated storage boundary to the north. Northern further asserts that the proposed 4,800-acre extension area represents the minimum acreage necessary to effectively implement the containment plan. Northern avers that the containment plan represents a reasoned approach to managing the migration of storage gas at the Cunningham field, by first gaining control over the Extension Area, then conducting and analyzing seismic work, seeking approval for and constructing appropriate facilities, and evaluating the effectiveness of the withdrawal system using updated reservoir simulation modeling. Because further testing and evaluation is needed, this application does not seek construction authority for any recovery wells or other facilities that may be needed to implement the final containment plan.

9. Northern states that it has acquired some storage leases for a limited portion of the area needed to extend the Cunningham Storage Field's northern boundary as

⁵ *Northern Natural Gas Company*, 112 FERC ¶ 61,291 (2005).

proposed. Northern requests that the Commission grant certificate authority to extend the boundaries of the storage area so that, if issues arise during negotiations that cannot be settled voluntarily, Northern can rely on its certificate authority to obtain the necessary property rights through eminent domain. Northern states that the acquisition costs of obtaining the additional storage leases are indeterminable at this time since annual lease payments and/or other compensation will be determined through negotiation or through eminent domain proceedings.

III. Notice, Interventions and Protest

10. Notice of Northern's application in Docket No. CP07-107-000 was published in the *Federal Register* on March 27, 2007.⁶ Timely, unopposed motions to intervene were filed by MidAmerican Energy Company; Calvin D. Glenn; the Kansas Corporation Commission (KCC); the Northern Municipal Distributors Group, jointly with the Midwest Region Task Force Association (Distributors Group); and SEMCO Energy Gas Company. These timely, unopposed motions to intervene are granted by operation of Rule 214 of the Commission's Rules of Practice and Procedure.⁷ Trans Pac Group and Park Landowners and the Wyatt Family Trust filed late motions to intervene. We will grant their late intervention.

11. Trans Pac filed its protest in this proceeding on August 17, 2007. Trans Pac raises collateral estoppel and arguments based on similar legal theories as to why the Commission cannot grant Northern's request to expand its certificated storage area boundaries. These arguments are based on the outcome of previous litigation in which Northern was not able to convince the jury that gas had migrated from its storage facility and had been produced by Trans Pac after July 1, 1993, when Kansas state law was changed to eliminate the "rule of capture" and recognize that migrated storage gas continues to be the property of the storage operator.⁸

12. Trans Pac's legal arguments fail for the same reason that they were rejected by the federal courts when Trans Pac sought to have Northern enjoined from filing its application with the Commission for authorization to expand its certificated

⁶ 72 Fed. Reg. 14,272 (2007).

⁷ 18 C.F.R. § 385.214(c)(1) (2008).

⁸ See *supra* note 3.

storage boundary.⁹ As explained by the Tenth Circuit, aside from the fact that the federal district court lacked subject matter jurisdiction to grant such an injunction, “the ultimate issue before FERC – whether or not Northern is entitled to a certificate of public convenience and necessity – is different from the ultimate issue that was before the jury here.”¹⁰ The Commission reaches the same conclusion. Northern’s claim for damages in the court proceeding depended on its convincing the jury that Trans Pac was producing gas that migrated out of Northern’s storage field after July 1, 1993, when the rule of capture was abolished. In this proceeding, the issue is whether the public convenience and necessity require approval of Northern’s request for certificate authority to expand the certificated boundaries of its storage field because its storage gas has migrated. The intent of this proceeding is to delineate boundaries sufficient to enable Northern to reestablish the integrity of its storage field. To the extent we can determine that storage gas has migrated beyond the borders of the reservoir, it is irrelevant when such migration began or whether Northern is entitled under state law to damages for storage gas produced by Trans Pac.

13. Trans Pac also presents evidence in an attempt to refute Northern’s claim that Trans Pac’s wells are producing migrated storage gas. Trans Pac requests a trial-type hearing on these issues of fact. The Commission finds that Trans Pac’s request for a trial-type, evidentiary hearing should be denied. Courts have found that an agency has broad discretion to determine its procedure¹¹ and that the term “hearing” is malleable.¹² The parties to this docket have received a form of paper

⁹ The district court ruled that it lacked subject matter jurisdiction to enjoin Northern from proceeding before the Commission with the instant application. This ruling was affirmed by Tenth Circuit. *Northern Natural Gas Company v. Trans Pacific Oil Corporation*, 529 F.3d 1248 (10th Cir. 2008).

¹⁰ *Northern Natural Gas Company*, 529 F. 3d at 1251.

¹¹ See *Vermont Yankee Nuclear Power Corp. v. Natural Resources Defense Council*, 435 U.S. 519, 524-25, 98 S. Ct. 1197, 55 L. Ed. 2d 460 (1978) (agencies have broad discretion over the formulation of their procedures); *Michigan Public Power Agency v. FERC*, 963 F.2d 1574, 1578-79 (D.C. Cir. 1992) (the Commission has discretion to mold its procedures to the exigencies of the particular case).

¹² *Cent. Me. Power Co. v. FERC*, 252 F.3d 34, 46 (1st Cir. 2001).

hearing that courts agree is now quite common in utility regulation.¹³ The Commission routinely decides complex and controversial cases on the basis of the record in a paper hearing when it is sufficient to resolve all issues of material fact.¹⁴ We find that we are able to do so here. Trans Pac's and Northern's factual disputes are addressed below.

IV. Discussion

14. Since Northern seeks certificate authority to enlarge its Cunningham facility used for the storage of natural gas in interstate commerce subject to the jurisdiction of the Commission, the proposal is subject to the requirements of subsections (c) and (e) of section 7 of the NGA.

15. The Commission's Certificate Policy Statement provides guidance as to how we will evaluate proposals for certificating new construction.¹⁵ The Certificate Policy Statement established criteria for determining whether there is a need for a proposed project and whether the proposed project will serve the public interest. The Certificate Policy Statement explains that in deciding whether to authorize the construction of major new pipeline facilities, we balance the public benefits against the potential adverse consequences. Our goal is to give appropriate consideration to the enhancement of competitive transportation alternatives, the possibility of overbuilding, subsidization by existing customers, the applicant's responsibility for unsubscribed capacity, the avoidance of unnecessary disruptions of the environment, and the unneeded exercise of eminent domain in evaluating new pipeline construction.

16. Under this policy, the threshold requirement for pipelines proposing new projects is that the pipeline must be prepared to financially support the project without relying on subsidization from its existing customers. The next step is to determine whether the applicant has made efforts to eliminate or minimize any adverse effects the project might have on the applicant's existing customers, existing pipelines in the market and their captive customers, or landowners and

¹³ See *Town of Norwood v. FERC*, 202 F.3d 392, 404 (1st Cir.), *cert denied*, 531 U.S. 818, 121 S. Ct. 57, 148 L. Ed. 2d 24 (2000).

¹⁴ See *Sound Energy Solutions*, 107 FERC ¶ 61,263, at P 78 (2004).

¹⁵ *Certification of New Interstate Natural Gas Pipeline Facilities*, 88 FERC ¶ 61,227 (1999), *order on clarification*, 90 FERC ¶ 61,128, *order on clarification*, 92 FERC ¶ 61,094 (2000) (Certificate Policy Statement).

communities affected by the applicant's proposal. If residual adverse effects on these interest groups are identified after efforts have been made to minimize them, we will evaluate the project by balancing the evidence of 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 economic interests will we proceed to complete the environmental analysis where other interests are considered.

17. Northern states that the acquisition costs associated with obtaining the additional leases it seeks are indeterminable at this time. Northern further states that annual lease payments and other compensation will be determined through negotiation or through eminent domain proceedings. Northern is proposing to expand Cunningham's boundaries in order to prevent further migration of stored gas from the Cunningham field. As discussed below, we find that it is necessary to expand the certificated boundary of the Cunningham Storage Field. This authorization will ensure that Northern will be able to bring an end to production activities that are extracting migrated storage gas and protect the integrity of the Cunningham storage reservoir. As discussed below, the Commission is granting the certificate authority requested by Northern only to the extent the record supports a finding that storage gas is migrating into the proposed expansion area.

18. In view of these considerations, the Commission finds that expansion of the Cunningham Storage Field's certificated boundary, as approved by this order, will improve service for Northern's existing customers by increasing the reliability of its storage services. Under the Certificate Policy Statement, requiring existing customers to pay the reasonable costs incurred to improve the reliability of existing services is not a subsidy.¹⁶ Therefore, it is appropriate to grant a presumption that Northern will be permitted to roll in the costs associated with expanding the boundaries of its storage field as part of its storage function cost of service in its next general section 4 rate proceeding, absent a significant change in circumstances.

19. Northern's proposal will not have an adverse impact on other pipelines or their customers. Additionally, Northern does not propose the construction of any facilities at this time. Thus, surface and subsurface impacts to landowners will be minimal. Further, as discussed below, the Commission has weighed the interests of Trans Pac and the Park Landowners and limited the certificate authority granted by this order so that Northern will only be able to invoke eminent domain to

¹⁶ Certificate Policy Statement, 88 FERC at 61,746, and *Southern Star Central Gas Pipeline, Inc.*, 115 FERC ¶ 61,219 (2006).

acquire those property interests that are necessary, as supported by engineering and geologic data in the record, for Northern to protect the integrity of the Cunningham Storage Field. The Commission finds that the benefits of expanding the certificated boundary of Northern's Cunningham Storage Field, to the extent approved by this order, outweigh any potential adverse impacts to the landowners and holders of other property interests that are affected.

20. In view of the above considerations, the Commission finds that expansion of the Cunningham Storage Field approved by this order is consistent with the Certificate Policy Statement and satisfies the public convenience and necessity standard in section 7 of the NGA.

V. Engineering – Geology

21. As stated above, the Commission grants jurisdictional storage field operators additional certificate authority to revise the boundaries of storage fields when the applicants 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.¹⁷ In deciding whether the public convenience and necessity require 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.¹⁸

22. The Commission's staff analyzed engineering and geologic data submitted by both Northern and Trans Pac to assess Northern's request to enlarge its storage boundary due to alleged gas migration, and also to assess whether Northern's estimations of the reservoir and protective boundary are reasonable. As discussed below, staff determined, based on the record in this proceeding, that the natural gas found in Trans Pac's Park A-1 and Park 1 production wells consists primarily

¹⁷ See *Williams Natural Gas Pipelines Central, Inc.*, 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).

¹⁸ *ANR Pipeline Company*, 76 FERC ¶ 61,263, at 62,346 (1996).

of Northern's migrated storage gas, but that some native natural gas also may be present in those wells.¹⁹

23. The geologic and engineering data presented by Northern addresses only part of the proposed expansion area, and provides no evidence for the rest of this area. Thus, the Commission is authorizing Northern to expand the boundary of its storage field into only part of the approximately 4,800 acres proposed in its application.

VI. Gas Migration Mechanisms

24. A basic understanding of the geology and the theoretical gas migration pathway in Cunningham's currently certificated boundary and proposed expansion area is essential in evaluating the gas migration issues presented in this proceeding. Cunningham's storage reservoir, a former gas production reservoir, is comprised of the Viola formation and the hydraulically connected and underlying Simpson formation. The Kinderhook Shale serves as the cap rock²⁰ that overlies the Viola formation.

25. Northern contends that natural gas migrates laterally to the north through a non-sealing fault. Northern states that the reservoir pressure in the Cunningham field was reduced as natural gas was produced, and a higher pressure aquifer that surrounds Cunningham enabled groundwater to flow to the lower pressure Cunningham storage reservoir. Northern also states that native hydrocarbons located north of the certificated boundary in the Park lease structure were pulled by fluid expansion and pressure depletion into Cunningham. Northern states that the pressure decline created permeable gas-saturated pathways to the north of the fault.

26. Northern has presented evidence demonstrating that when storage injections began into Cunningham around 1978 and storage reservoir pressures increased, the result was gas movement out of the Cunningham storage reservoir via the non-sealing fault. Northern states that the migrating storage gas created highly permeable gas-saturated pathways until the field stabilized around 1984 and

¹⁹ The Park A-1 well and the Park 1 well are on leases occupying 320 out of the 4,800 acres included in Northern's proposed extension area.

²⁰ A cap rock is a relatively impermeable rock that forms a barrier or seal around reservoir rock so that fluids cannot migrate beyond the reservoir.

remained stabilized until around 1996.²¹ Northern estimates that approximately 17-18 Bcf of natural gas migrated prior to stabilization. Northern states that production from the Park leases began in 1989 and that Nash Oil & Gas, Inc. (Nash) began producing from nearby wells around 1995.²² In all, Northern estimates that approximately 6 Bcf of storage gas migrated from Cunningham between the years 1995-1996 and 2006-2007.²³

27. Trans Pac contends that its experts who evaluated Northern's theoretical gas migration determined that a pathway does not exist. Trans Pac submitted, as Attachment C of its protest, a report by Michael Crouch, Consulting Geophysicist, who stated that the "Park gas unit is on the downthrow²⁴ side of the fault and appears to be geophysical[ly] isolated from the gas storage unit."

28. Trans Pac also provided, as Attachment D of its protest, an analysis by Lee Keeling and Associates, Inc. (LKA) of reports prepared for Northern regarding the litigation between Trans Pac and Northern, as well as an independent analysis by LKA of the same issue.²⁵ The LKA report states in its review of expert analysis performed on behalf of Northern by Netherland Sewell & Associates, Inc. (NSAI), that the

report also indicates that it might be possible for gas to migrate from the facility in what is termed a 'Simpson-to-Viola pathway.' This pathway would occur where the Simpson zone in the storage reservoir on the

²¹ Staff analyzed Northern's Exhibit Z that provided pressure vs. inventory curves from the years 1980 to 1998 and found that this information supports Northern's assertion of gas loss and stabilization.

²² The Nash wells are located approximately four miles from the Northern Boundary of the Cunningham Storage Field, but outside and to the north of Northern's proposed expansion area.

²³ Exhibit 57 of Exhibit Z indicates an approximate gas loss of 6 Bcf.

²⁴ Downthrow is that side of a fault that has moved downward relative to the other side.

²⁵ Analysis Regarding Park Field Production of Native Hydrocarbons and Technical Review of NSAI Geologic and Field Studies for Northern Natural Gas v. Trans Pacific Oil Corporation, et. al. Case No. 02-1418-JTM. (March 17, 2004).

upthrow side of the fault would be in contact with the downthrow Viola outside the storage reservoir. The preliminary LKA cross-sections indicate there may be what is referred to as the ‘Simpson-to-Viola pathway,’ but has found no evidence to support a ‘Viola-to-Viola pathway.’

29. Staff’s analysis of the LKA cross-sections confirms that the “Simpson-to-Viola pathway” could exist. The Commission concluded in a previous proceeding that the Simpson formation and the Viola formation function as a single reservoir: “the evidence suggests clearly that communication between the Viola and the Simpson formations does indeed exist.”²⁶ Since there is communication between the Viola and the Simpson formations within the Cunningham storage reservoir, the composition of the stored gas would be largely indistinguishable between the two formations. Trans Pac’s consultants have provided engineering and/or geologic data that supports the Simpson-to-Viola pathway.²⁷ It is therefore reasonable to conclude that storage gas from Cunningham could migrate from the Simpson formation on the upthrow side of the fault, to the Viola formation on the downthrow side of the fault.

VII. Gas Compositional Analysis

30. Typically, natural gas that is native to gas producing formations, including crude oil production formations with associated gas, has a different chemical composition when compared to stored natural gas. For example, storage gas might have a higher methane content and contain predictable minor amounts of other gases because storage gas comprises various native gases that have been processed into marketable, pipeline quality gas.²⁸

31. A key “tracer” element that occurs naturally in native gas in the vicinity of Cunningham is helium. During WWII, helium was produced in and around the Cunningham field; thus, helium concentrations in native gas would typically be higher than helium concentrations found in storage gas, which has relatively low helium concentrations. Accordingly, over time, if a well that once produced

²⁶ *Northern Natural Gas Company*, 77 FERC ¶ 61,069, at 61,300 (1996).

²⁷ Trans Pac August 17, 2007 Protest, Attachment D.

²⁸ *Southern Star Central Gas Pipeline, Inc.*, 123 FERC ¶ 61,123 (2008).

native gas began producing migrated storage gas, the helium concentrations would logically be expected to decrease.

32. Northern presented data showing average methane and helium concentrations from native Viola gas and storage gas. Northern calculated an average methane concentration of 67 percent and an average helium concentration of 0.95 percent for native Viola gas. For storage gas it calculated an average methane concentration of 87 percent and an average helium concentration of 0.09 percent.²⁹ Northern also submitted gas compositional analyses for gas samples collected from wells Park 1 in 1987 and 1998, and Park 1A in 1988 and 1998.³⁰ In addition, Northern provided exhibits depicting concentration results from these years for helium and C1/C2+,³¹ as those results compared to the representative concentrations in native Viola gas and storage gas.³²

33. Exhibits B-21a and B-21b in Exhibit Z of Northern's application, depicting compositional analyses for wells Park 1 and Park 1A, respectively, show that helium concentrations decreased in the Park 1 and Park 1A wells from levels in the 1980s to 1998, such that the later analyses show helium concentrations in those wells that fall within Northern's 2006 storage gas helium concentration range of approximately 0.09 percent to 0.45 percent.³³ Additionally, the C1/C2+ value in

²⁹ Appendix B, Section 3.4, Exhibit Z of Northern's application.

³⁰ The 1987, 1988 and 1998 samples were collected and analyzed by Trans Pac and provided to Northern.

³¹ Appendix B, Exhibit Z refers to the C1/C2+ as the "hydrocarbon ratio," which is the ratio of methane to other hydrocarbons and used in the geochemical fingerprint for the gas composition assessment.

³² Northern's Native Viola Gas representation contained results from three wells within a 16.5-mile diameter surrounding Cunningham that Northern called the "Area of Interest" (AOI). Northern's Storage Gas representation included gas compositional analyses conducted in 2006 from numerous wells within its storage reservoir and north of the non-sealing fault, but south of the northern certificated boundary.

³³ Northern has presented information to support its claim that the helium concentration from observation well 25-11 of 0.45 percent is a naturally occurring, near-fault anomaly. Helium concentrations from the other samples of 2006 storage gas were below 0.3 percent. The helium concentrations in the Park 1 and 1A wells approach the overall concentration of helium in the storage gas in the
(continued...)

the Park 1 and 1A wells increased from lower levels in the 1980s to higher levels in 1998, moving further away from the native Viola gas range and closer to that of Northern's 2006 storage gas C1/C2+ values.³⁴ The data suggests that while the gas from the Park 1 and Park 1A wells contained more storage gas in 1998 than in the 1980s, some native gas concentrations were still likely present in 1998 in the Park 1 and 1A wells.

34. Since Northern's Exhibits B-21a and B-21b compare data from gas taken from the Park wells in 1987, 1988, and 1998 to data from Northern's storage gas taken in 2006, staff requested that Northern and Trans Pac capture a current sample of gas from the Park wells and analyze it. Since the Park wells were last sampled in 1998, staff's objective was to gather current gas compositional data from the Park wells to determine if their composition continued the trend toward that of Northern's 2006 storage gas.

35. Staff requested that Trans Pac and Northern each collect and analyze gas samples from the Park 1 and Park 1A wells. Staff specifically asked that Trans Pac and Northern document chain-of-custody and Quality Assurance/Quality Control procedures for their gas analyses and to provide results for the items as identified on Exhibits B-12a and B-12b of Appendix B in Volume III (Appendix B) of Northern's March 16, 2007 application. Trans Pac and Northern collected gas samples from Park 1 and Park 1A wells on December 28, 2007, and both filed their results on January 22, 2008.

36. Northern's filing described the sampling event and included chain-of-custody documentation, detailed field notes, photographs and a description of the sampling protocols published by Isotech Laboratories, the analytical lab, as well as provided the analytical results. Trans Pac's filing indicated that its collection of samples was witnessed and documented by personnel and consultants of both Northern and Trans Pac. Trans Pac also indicated that the on-site sampling methodology and time for both companies was identical. However, Trans Pac's filing included only the analytical results and did not document chain-of-custody and other quality control procedures, as requested by staff. In addition, whereas Northern hired an independent third-party to collect samples and deliver them to

1980s and 1990s, which ranges from 0.06 percent to 0.16 percent with an average of 0.09 percent (as stated in Section 3.4 of Appendix B of Exhibit Z of Northern's application).

³⁴ Northern's 2006 storage gas C1/C2+ values ranged from approximately 14 to 21.

the lab for testing, Trans Pac had its own employee collect samples and deliver them to an intermediary, who then shipped the samples to the lab.³⁵

37. Northern states that the sampling began at the Park 1A well and proceeded to the Park 1 well, and that the Trans Pac representative collected a single gas sample from each well in between the two samples collected by Northern's sampler. Northern's field notes also confirm that Trans Pac did not collect duplicate samples.

38. Collection of duplicate samples from a single sample point, as conducted by Northern for each of the two Park wells, is a standard quality control procedure done to ensure that the sampling procedures are of high integrity. If the sampling and analytical procedures are consistent, the analytical results from the duplicate samples should be very close in concentration, which was the case for the samples and duplicates presented by Northern.

39. The duplicate samples collected by Northern for each well returned nearly identical analytical results, signifying consistent sample collection techniques. Similar analytical results should have been produced by the single samples collected by Trans Pac for each well between the collection of Northern's two samples for each well, if proper sampling protocols were undertaken and appropriate laboratory quality control procedures were followed by Trans Pac and its analytical laboratory.

³⁵ Northern's February 8, 2008 Data Request Response 1. The Commission also notes that the affidavit submitted of Trans Pac's employee, Mr. Lance Fellhoelter, states that because GLM, Inc. - the firm retained by Trans Pac to ensure sample bottle delivery to Measurement Solutions, Inc., Tran's Pac's lab - was closed when he arrived there to deliver the samples in the afternoon of December 28, 2007, Mr. Fellhoelter did not actually deliver the samples to GLM, Inc. until January 2, 2008. Declaration of Lance L. Fellhoelter, dated February 12, 2008. Gary L. Maier, owner of GLM, Inc., stated that he received the sample containers from Mr. Fellhoelter on January 2, 2008, and subsequently shipped the containers to Measurement Solutions, Inc. on January 7, 2008. Declaration of Gary L. Maier, dated February 13, 2008.

40. The following table highlights some of the analytical results presented by Northern and Trans Pac.³⁶

	Park 1A (Northern)	Park 1A Duplicate (Northern)	<i>Park 1A</i> <i>(Trans</i> <i>Pac)</i>	Park 1 (Northern)	Park 1 Duplicate (Northern)	<i>Park 1</i> <i>(Trans</i> <i>Pac)</i>	OB- 13-31	OB- 18-21
Methane	90.62	90.91	<i>63.96</i>	89.30	89.78	<i>59.35</i>	89.10	91.11
BTU	1049	1038	<i>1222</i>	1063	1041	<i>1177</i>	1013	1055
Helium	0.07	0.07	<i>1.77</i>	0.09	0.09	<i>5.58</i>	0.10	0.06
Oxygen	0.01	0.01	<i>0.53</i>	0.01	0.00	<i>0.93</i>	0.01	0.01
Nitrogen	3.64	3.63	<i>8.99</i>	4.19	4.16	<i>10.04</i>	5.42	3.10

41. The table shows significant compositional disparities between Northern's samples and Trans Pac's samples. In view of these disparities, the Commission's staff issued an additional data request on January 29, 2008, in order to gather further information about the sampling events that occurred on December 28, 2007. In that data request, both Northern and Trans Pac were asked for additional details about how their samples were collected and for an explanation for the disparities shown above.

42. In response to the data request, Northern alleged that there were deficiencies in how Trans Pac conducted its sampling, citing the possibility that Trans Pac's sampling bottles were not clean, had been contaminated, or had been subject to irregular preparation. Also, Northern said that Trans Pac failed to attach a coil to the outlet valve of the sampling bottle, thereby making it possible that condensation formed during purging entered the sampling bottle, which would have caused an inaccurate and unreliable sample. Northern also cited the failure of Trans Pac to take duplicate samples, which, asserts Northern, is standard industry practice to establish quality control. Further, Northern cited the failure of Trans Pac to provide chain-of-custody records.

43. In its response, Trans Pac indicated that Mr. Lance Fellhoelter obtained the gas cylinders from Mr. Gary Maier of GLM, Inc. Mr. Fellhoelter kept the cylinders in his possession until the samples were collected. Fellhoelter then

³⁶ After collecting duplicate samples from each of the two Park wells, Northern's sampling team also collected samples from wells 18-21 and 13-31 located near Cunningham's northern certificated boundary.

returned the cylinders to Maier, who then forwarded the cylinders to the lab, Measurement Solutions, Inc., which subsequently analyzed the samples and sent the results to GLM, Inc. Trans Pac's response includes declarations from Mr. Fellhoelter and Mr. Maier to verify the control of the samples and that they did not do anything to pollute or alter the samples in the cylinders.

44. As described by Trans Pac, it had its own employee collect single samples, and then several days passed before the samples were delivered to the lab. The results obtained and submitted by Trans Pac vary significantly from those obtained and submitted by Natural. Trans Pac contends that disparities such as those between the results of its samples and Northern's samples are not uncommon.³⁷ However, based on the record before us - including, as discussed above, evidence that Northern relied on an independent gas sampler and duplicate samples to show that recent data from the Park wells was consistent with a demonstrated trend toward Northern's storage gas -, the Commission places more weight on Northern's sampling results. The Commission finds that the lab results submitted by Trans Pac, based on single samples taken at the same time as Northern's, do not provide sufficient evidence to counter the evidence submitted by Northern demonstrating a trend of increasing amounts of migrated storage gas in the vicinity of the Park wells.

45. Northern also provided Exhibits B-19a(1) and B-19a(2) for wells Park 1A and Park 1 in its January 22, 2008 filing, which compared, respectively, the same items as included in Exhibits B-21a and B-21b in Northern's application. Data points were also included for Cunningham observation wells 18-21 and 13-31. Exhibits B-19a(1) and B-19a(2) show that the helium concentration in the Park 1A and Park 1 wells has further decreased from the 1998 level and very closely aligns to that of Northern's 2006 storage gas analysis. Further, the C1/C2+ ratio has increased from 1998 to 2007 in gas from the Park 1A and Park 1 wells and also very closely aligns with the results of Northern's 2006 Cunningham storage gas analysis. Thus, the Commission concludes that gas from the Park 1A and Park 1 wells is primarily comprised of storage gas.

³⁷ Trans Pac February 14, 2008 Data Request Response at 5. For example, Trans Pac states that a sample collected by one sampler from a well and sent to a lab indicated a helium percentage of 0.10 percent and that a sample collected by another sampler from the same well on the same day and sent to different lab indicated a helium percentage of 0.85 percent.

VIII. Extent of Storage Gas Migration

46. In deciding whether the public convenience and necessity require 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. The engineering and geological data presented in this proceeding demonstrates that storage gas from Cunningham has migrated to the Park wells that are located immediately north of Northern's certificated boundary in S14, T27S, R11W in Pratt County, Kansas.

47. Exhibits B-19a(1) and B-19a(2) show that the helium concentration and C1/C2+ ratio from Northern's observation wells 13-31 and 18-21, located adjacent to and within Cunningham's currently-certificated boundary, very closely resemble Northern's 2006 Cunningham storage gas composition, as well as the gas composition of the 2007 samples from the Park well.³⁸ Thus, we are satisfied that storage gas has migrated to these two wells. Well 13-31 is located at the northern certificated boundary in S13, T27S, R11W in Pratt County, Kansas, and well 18-21 is located at the northern certificated boundary in S18, T27S, R10W in Kingman County, Kansas.

48. Based upon our finding that storage gas has migrated to Northern's wells 13-31, 18-21 and the Park wells, we are satisfied that Northern has demonstrated that storage gas has migrated into at least the southernmost part of the proposed 4,800-acre extension area it seeks to acquire.

49. However, Northern has presented no geologic and engineering data that demonstrates that storage gas is present in any other wells in the proposed extension area. Northern desires to acquire the entire 4,800 acres to implement its Containment Plan as detailed in Appendix D of Exhibit Z of its application. Briefly, the Containment Plan includes procedures for collecting additional seismic data to define the reservoir in the extension area, design of a gas recovery and recycle system, submission of an application to the Commission for the recovery and recycle system, and system installation and system evaluation.

50. Northern does not need NGA section 7(c) authorization in order to conduct seismic testing. Additionally, while Northern has presented gas compositional

³⁸ Northern also presented bottom hole and wellhead pressure data that demonstrates communication between the Cunningham storage reservoir and wells 13-31 and 18-21 (Exhibits 58 and 59 of Exhibit Z of Northern's application).

data from the Nash Area wells that indicate that those wells could be producing storage gas, Northern has not definitively identified the reservoir from which the Nash Area wells produce gas. Northern states only that it *believes* that the production is through an unknown interval which it believes to be the Viola formation.³⁹ Without additional engineering and geologic information, the Commission cannot appropriately define what may be the expanded boundaries of the storage formation beyond the southernmost portion of the proposed extension area.

51. Thus, the record evidence only supports expanding the boundaries of the Cunningham Storage Field into the southernmost portion of the proposed extension area, where storage gas has clearly migrated. No other wells producing gas are present in the remaining portion of the extension area.

52. Therefore, the Commission authorizes the expansion of Northern's certificated boundary to include the Viola formation and underlying Simpson formation in the following sections of Pratt and Kingman Counties, Kansas: the northern ½-section13, T27S, R11W; the western ½-section14, T27S, R11W; the NE ¼-section14, T27S, R11W; the eastern ½-section15, T27S, R11W; and the NE ¼-section22, T27S, R11W, all in Pratt County, Kansas; and the NW ¼-section18, T27S, R10W; and the southern ½-Section7, T27S, R10W in Kingman County, Kansas. Certificate authorization for Northern to include these areas of the Viola and Simpson formations within the certificated boundaries of its storage facility will increase the certificated area by approximately 1,760 acres, increasing the currently certificated area encompassing approximately 26,240 acres to approximately 28,000 acres.⁴⁰ We emphasize, however, that Northern has not proposed to use any of the expansion area for the injection of storage gas and this order provides no authorization for such activities.

³⁹ Application, Exhibit Z at 19-20.

⁴⁰ The Commission does not authorize expansion to include the Viola and Simpson formation in sections or portions of sections 1, 2, 3, 10, 11, and 12, T27S, R11W in Pratt County, Kansas or the southern ½-section 6 and the northern ½-section 7, T27S, R10W in Kingman County, Kansas, as proposed by Northern, since there is insufficient record evidence to support a finding that storage gas is migrating into those areas.

IX. Environmental

53. On August 15, 2007, we issued a *Notice of Intent to Prepare an Environmental Assessment for the Proposed Cunningham Storage Boundary Extension Project and Request for Comments on Environmental Issues* (NOI). The NOI was published in the *Federal Register* on August 22, 2007, and comments were requested by September 17, 2007.⁴¹ We received one comment letter from a landowner who became concerned about potential groundwater contamination following Northern's landowner inquiry into whether gaseous odors had been noticed. The inquiry was an element of Northern's safety measures to determine the presence of any wells in the area that had not been identified through historical records. The comment was addressed in the staff's environmental assessment (EA). No indication of groundwater contamination or gas leakage was reported.

54. Our staff prepared an EA for Northern's proposal. The EA, which was issued and placed in the record on October 23, 2007, addresses geology, soils, water resources, fisheries, wetlands, vegetation, wildlife, threatened and endangered species, cultural resources, land use, visual resources, air quality, noise, and alternatives.

55. Based on the discussion in the EA, we conclude that if undertaken in accordance with Northern's application, approval of this proposal would not constitute a major federal action significantly affecting the quality of the human environment.

56. Any state or local permits issued with respect to the expansion of Northern's Cunningham Storage Field as authorized herein must be consistent with the conditions of the certificate authority granted by this order. The Commission encourages cooperation between jurisdictional natural gas companies and local authorities. However, this does not mean that state and local agencies, through application of state or local laws, may prohibit or unreasonably delay a project approved by this Commission.⁴²

⁴¹ 72 Fed. Reg. 46,989 (2007).

⁴² See, e.g., *Schneidewind v. ANR Pipeline Co.*, 485 U.S. 293 (1988); *National Fuel Gas Supply v. Public Service Commission*, 894 F.2d 571 (2d Cir. 1990); and *Iroquois Gas Transmission System, L.P., et al.*, 52 FERC ¶ 61,091 (1990) and 59 FERC ¶ 61,094 (1992).

57. For the reasons discussed above, and with the conditions imposed by this order, the Commission concludes that the public convenience and necessity require certificate authorization for Northern to expand the certificated boundary of the Cunningham Storage Field to include a portion of the proposed expansion area, as discussed herein.

58. The Commission, on its own motion, received and made a part of the record all evidence, including the application, as supplemented, and exhibits thereto, submitted in this proceeding and upon consideration of the record,

The Commission orders:

(A) A certificate of public convenience and necessity pursuant to NGA section 7(c) is issued to Northern in Docket No. CP07-107-000 authorizing the expansion of Northern's certificated boundary to include, and Northern's acquisition of all property interests in, the Viola and Simpson formation in the following sections of Pratt and Kingman Counties, Kansas: the northern ½-section13, T27s, R11w; the western ½-section14, T27s, R11w; the NE ¼-section14, T27s, R11w; the eastern ½-section15, T27s, R11w; and the NE ¼-section22, T27s, R11w, all in Pratt County, Kansas; and the NW ¼-Section18, T27s, R10w; and the southern ½-section7, T27s, R10w in Kingman County, Kansas.

(B) The certificate issued in Ordering Paragraph (A) is conditioned on Northern's:

(1) injecting no gas for storage into the Viola or Simpson formations north of the non-sealing fault;

(2) complying with all regulations under the NGA including, but not limited to, paragraphs (a), (c), (e) and (f) of section 157.20 of the Commission's regulations.

(C) When Northern files under section 4 of the NGA to recover the costs of the expansion as authorized herein, there shall be a presumption of rolled-in rate treatment for such costs, absent a significant change in circumstances.

(D) Northern shall notify the Commission's environmental staff by telephone, e-mail, and/or facsimile of any environmental noncompliance identified by other federal, state, or local agencies on the same day that such agency notifies

Northern. Northern shall file written confirmation of such notification with the Secretary of the Commission within 24 hours.

By the Commission.

(S E A L)

Kimberly D. Bose,
Secretary.