

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

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

Northern Natural Gas Company

Docket No. RP07-425-000

ORDER ACCEPTING AND SUSPENDING TARIFF SHEETS AND
ESTABLISHING TECHNICAL CONFERENCE

(Issued May 31, 2007)

1. On May 1, 2007, Northern Natural Gas Company (Northern), pursuant to section 4 of the Natural Gas Act (NGA), submitted revised tariff sheets, listed in the Appendix,¹ proposing to incorporate gas quality specifications, and provisions allowing it to waive those specifications, in its FERC Gas Tariff. Northern proposes that the tariff sheets become effective June 1, 2007. For the reasons discussed below, the Commission accepts and suspends the tariff sheets, to become effective November 1, 2007, or an earlier date set by subsequent Commission order, and establishes a technical conference to address the issues raised.

Northern's Filing

2. Northern proposes new natural gas quality specifications in section 44 of its General Terms and Conditions (GT&C) to give it the authority, *when necessary*, to take action in the circumstance where gas quality could negatively affect Northern's facilities. Northern states that it designed the proposed changes to protect the integrity of Northern's operations and facilities, and to also protect Northern's downstream facilities, while maintaining significant flexibility in increasing access to natural gas supplies. Northern also proposes language that would allow it to grant a general waiver of its gas quality specifications under section 44(a) of its GT&C.

3. Northern claims that its current practice is to accept gas, when possible, to blend supplies of varying quality or to use other strategies to the extent it can implement these

¹ Original Sheet No. 281B contains existing verbatim language that was moved as a result of new language inserted on previous sheets.

actions in a manner consistent with safe and reliable operations. Northern states that it will make every effort to accept gas not in compliance with the specifications, whenever feasible.

Proposed Gas Quality Specifications

4. Northern's proposed gas quality specifications for each component are discussed below. Additionally, Natural proposes a safe harbor provision for two different gas quality components; (1) Cricondenthem Hydrocarbon Dew Point (CHDP) and, (2) Total Inerts.

A. Oxygen

5. Northern proposes that gas entering its system shall not contain more oxygen than ten (10) parts per million (ppm), or 0.001 percent by volume. Northern states that oxygen in very small quantities is corrosive to steel pipelines, especially when free water is present, as is particularly the case in Northern's storage fields. Northern also states that historical experience has shown very few instances where the oxygen has exceeded the proposed tariff limit. In those cases, incidental blending with supply near these points enabled the commingled gas stream to achieve levels below the proposed tariff specification.

B. Carbon Dioxide

6. In addition to its current carbon dioxide specification of less than or equal to 2 percent by volume, Northern proposes that gas received into a segment of the system designated for transport of *processed gas*, "processed gas segment," will not contain more than 1 percent carbon dioxide by volume, from April 1 to October 31, the time when Northern injects most of its firm contract volumes into storage. Northern proposes to post the receipt points that are included in parts of the system designated for transport of *unprocessed gas*, "unprocessed gas segments," so that shippers and receipt point operators can identify which points are subject to the applicable specification. Northern further states that the list of unprocessed gas segments in its filing may be revised from time to time based on changes to its system, and that prior to making a revision, Northern will provide at least 180 days notice by way of posting and by providing written notice to affected receipt point operators. Northern states that it may shorten such notice period to a reasonable period no less than 30 days in the event of facilities changes.

7. Northern explains that its carbon dioxide proposal addresses the increasing risk of corrosion to its storage facilities. In fact, Northern claims that the proposed limit of 1 percent is higher than what Northern considers ideal to minimize corrosion in its storage fields. Northern states that it selected this limit based on a threshold that is consistent with past historic levels of carbon dioxide at its storage fields, the needs of its

LNG facilities, and the needs of LNG facilities downstream of its delivery points, and to avoid the threshold that is so low that it would negatively impact available supply.

C. Heating Value

8. Northern proposes a new gas quality specification for gas received into a processed gas segment; the heating value cannot exceed 1100 Btu/ft³. Northern maintains this limit conforms to the Interchangeability White Paper because higher Btu gas, especially where lower Btu gas has historically been transported, can result in combustion stability issues, significant measurement errors, and detonation problems on reciprocating engines. Northern states that its primary reason to adopt this provision, in addition to its existing minimum limit of 950 Btu/ft³, is to set a maximum limit that is compatible with the Interchangeability White Paper high consequence area (HCA)² analysis. Northern also states that to the extent that the heating value does not impact operations, Northern will continue to accept gas that does not meet these specifications.

9. Northern states that its proposed heating value is intended to conform to the Interchangeability White Paper recommendation of 1110 Btu; however the recommendation did not take into account the standard radius of impact formula used for HCA analysis, which is based on the heating value content being no greater than 1100 Btu/ft³.³ Northern states that it is recommending 1100 Btu as being reasonably close to the recommendation, while accommodating the HCA analysis process currently in use by Northern. Northern states that over the last five years, Northern's flow-weighted average of the higher heating value in Northern's Market Area is 1009 Btu/scf with a standard deviation of 7 Btu/scf, and that these statistics are based on more than 33,400 data points.

10. Northern claims that control equipment at several of its compression facilities will require modifications to accommodate a Btu of 1100, and that these modifications are required to protect these engines from detonation. Northern states that in order to maximize available supplies, it must implement control upgrades in conjunction with planned hardware installation and replacement. Northern expects that the incremental cost to safely operate up to 1100 Btu will be nominal if the transition occurs over several years.

² Northern states that it is also subject to 49 CFR 192, Subpart O, which provides that Northern must develop integrity management programs for its gas transmission pipelines located where a leak or rupture could do the most harm.

³ TTO Number 13, Integrity Management Program Delivery Order DTRS56-02-D-70036, "Potential Impact Radius Formulae for Flammable Gases Other than Natural Gas Subject to 49 CFR 192."

11. Northern clarifies in Section 1 of its GT&C the definitions of Dekatherm and Total or Gross Heating Value, specifically that Btu is calculated on a *higher heating value* basis. Northern states that lower heating values are less accurate because they ignore the energy in the water vapor formed by the combustion of hydrogen in the fuel, and that this water vapor represents about 10 percent of the energy content.

D. Gas Temperature

12. Northern proposes to adopt a provision that the gas temperature at all receipt points shall be at least 35 °F. Northern states that temperatures below freezing result in “frost balls” on the piping, and frost balls can interfere with control valve operation and induce frost heaving. Northern also states that temperatures below zero degrees Fahrenheit on steel pipe with limited ductility can cause brittle failures, and that extreme temperature changes induce thermal stresses on the piping.

13. Northern also states that a gas temperature of 35 °F can cause water condensation on the exterior surface of the piping, leading to paint degradation and rusting. Northern claims that it will have to repaint its facilities more frequently than if it required a higher minimum temperature. Northern believes that it can tolerate this lower temperature, given the trade-off of additional painting maintenance compared to the fuel and associated emissions encountered by the interconnecting party to maintain a higher delivery temperature. Northern also believes that all of its existing receipt points currently meet this proposed provision or will be subject to a general waiver of this specification, and therefore supplies received from existing interconnects will not be impacted by this provision.

E. Cricondetherm Hydrocarbon Dew Point (CHDP)

14. Northern proposes to post on its web-site a currently applicable specification for CHDP for all gas received on its system designated for the transport of processed gas. Northern states that this posted specification will vary and depends on system conditions and weather, but may not fall below the safe harbor of 5 °F.

15. Northern states that the assumed composition of C6+ for CHDP calculations, also known as the “carbon split,” will be 48 percent C6, 35 percent C7, 15 percent C8, and 2 percent C9.⁴ Northern states that if a receipt point operator or shipper does not agree with the assumed composition, it may elect to provide extended analysis at its own cost at intervals that are no less frequent than once per quarter, consistent with HDP White Paper recommendations.

⁴ Northern supports its “carbon split” with point data in its filing by averaging several points on its system where the composition of C6+ was known.

16. Northern states that its proposal will help to prevent hydrocarbons from condensing in the pipeline, and also states that free liquids can cause the loss of service at delivery facilities. Northern proposes that it will not refuse gas that has a dew point less than or equal to 5 degrees Fahrenheit, otherwise known as a safe harbor limit. Northern states that in February 2007, it encountered several significant operational issues in the Market Area caused by condensate in regulator controlled piping, compression fuel systems, and measurement equipment. Northern further states that the safe harbor value was determined based on operational experience where hydrocarbon condensate was found at multiple locations in its Market Area and an analysis using "Appendix B" of the HDP White Paper.

F. Butanes and Heavier Hydrocarbons

17. Northern proposes that for all gas received into the system designated for the transport of processed gas, the gas must contain less than 1.5 percent of butanes and heavier hydrocarbons, such as pentane, hexane, heptane, octane, nonane, and decane. Northern states that it takes this proposed limit directly from the Interchangeability Work Group recommendations.

G. Total Inerts

18. Northern proposes to post on its web-site currently applicable specifications for total inerts for all gas received on the system designated for the transportation of processed gas. Northern states that the posted specifications for total inerts (the total combined carbon dioxide, nitrogen, helium, oxygen, and any other diluents) may not be less than the safe harbor of 3 percent if Northern receives the gas upstream of its Beaver compressor station or less than the safe harbor of 4 percent if Northern receives the gas downstream of the Beaver compressor station. Northern also proposes to post information on its web-site so that shippers and receipt point operators can identify which points are subject to the applicable specifications, and such information would be revised from time to time, based on changes to Northern's system.

19. Northern states that higher concentrations of inert gases increase fuel usage and reduce available pipeline capacity. Northern states that the 3 percent provision is consistent with interconnecting pipelines that deliver gas to the California markets, supporting applicability to the area south of the Beaver compressor station. Northern states that occasionally, customers cannot ship gas on pipelines interconnecting in the Permian Area as a result of inert gases in Northern's pipeline exceeding the tariff limits of the interconnecting pipelines. Northern further states that its proposal as a safe harbor provision will allow Northern to take immediate steps that will allow shippers to comply with the specifications of the interconnecting pipelines' inert specifications. Northern anticipates that the majority of current gas receipts will blend to meet this provision, with the exception of the area south of the Beaver compressor station, which as mentioned

above, conforms to the NGC+ recommendation that total inerts not exceed 4 percent. Northern also states that it based its Market Area sustainable pipeline capacity model on a total inert gas composition of 4.1 percent and assumes that carbon dioxide does not exceed 2 percent.

H. Wobbe Number

20. Northern proposes that for all gas received on its process gas segment, the Wobbe Index will not be less than 1,245 or greater than 1,365. Northern states that it based the specified values on averages from historical data, and that the range proposed by Northern, plus or minus 4.6 percent, is greater than the plus or minus 4.0 percent recommended by the NGC+. Northern asserts that it selected this slightly higher range based on the fact that, historically, the Wobbe Index value has varied in its Market Area throughout its history.

I. Hazardous Substances

21. Northern proposes to adopt a new provision that gas will not contain any toxic, hazardous materials or substances, or any deleterious material potentially harmful to persons or to the environment including, but not limited to, polychlorinated biphenyls (PCBs) and substances requiring investigation, remediation or removal under law, regulation, rule or order in effect from time to time. Northern states that its proposal protects its system from contamination of toxic substances. Northern believes that existing supply sources meet this provision.

General Waiver of Gas Quality Specification, Notice, and Allocations

22. Northern proposes to add a general waiver provision that allows it to accept gas that does not conform to the tariff quality specifications. Northern offers to condition this waiver upon the determination that: (1) the gas will not interfere with Northern's ability to maintain an acceptable gas quality in its pipeline through prudent and safe operation of its system; (2) the gas does not affect Northern's ability to provide service to its customers; and (3) the gas does not adversely affect Northern's ability to deliver gas at its delivery points.

23. Northern states that any general waivers granted will be subject to suspension, to the extent necessary to ensure the operational integrity of Northern's system, to enable Northern to meet its firm service obligations, to facilitate the flow of gas during times of emergency and/or periods of force majeure, or because of changed circumstances such as a deviation from the historical gas composition or volume at a receipt point. Northern further states that the duration of the suspension may vary depending on the specific circumstances and conditions presented. Northern states that receipt of gas not in compliance with a posted specification may be suspended, and the suspension may be

effective immediately with notice. Northern's gas quality proposal, specifically the CHDP and total inerts, provides a posted specification on the applicable levels for gas that it is accepting on its system. Northern states that it may immediately suspend receipt of gas that exceeds a safe harbor criterion by revising its posting.

24. Northern also states that for specifications set forth in the tariff (except the gas quality parameters with a safe harbor; CHDP and Total Inerts), Northern may suspend receipt of gas upon at least thirty days notice to the affected receipt point operator(s). Northern states that the notice it provides will include the reason(s) for its refusal to accept the gas and shall become effective on the first day of the calendar month. Northern states that it will also post a notice on its web-site that identifies receipt point(s) where it refuses to accept gas, and if the gas becomes compliant (prior to or during the suspension period) with the cited specification, Northern will revoke the notice of suspension. Northern also states that it may, for good cause shown, extend the effective date of the suspension.

25. Northern finally states that it shall determine the priority for allocating or curtailing gas not in compliance with any gas quality specification based on the scheduling priorities set forth in Section 29 of its tariff, except that within each category or service, Northern shall allocate or curtail gas in order of the amount by which the gas deviates from the specification, so that Northern will remove gas least compliant, first, and gas most compliant removed last, within each category. Northern also states that the duration of the allocation or curtailment may vary depending on the specific circumstances and conditions presented.

Public Notice, Interventions and Protests

26. Public notice of Northern's filing was issued on May 3, 2007. Interventions and protests were due May 14, 2007, as provided in section 154.210 of the Commission's regulations (18 C.F.R. § 154.210 (2006)). Pursuant to Rule 214 (18 C.F.R. § 385.214 (2006)), all timely filed motions to intervene and any motions to intervene out-of-time filed before the issuance date of this order are granted. Granting late intervention at this stage of the proceeding will not disrupt the proceeding or place additional burdens on existing parties. Northern Illinois Gas (Nicor Gas), filed comments in support of Northern's filing concerning the carbon dioxide and oxygen levels, and adverse comments concerning the lack of references to delivery points, the maximum Btu level, and Btu variability, which is an interchangeability issue which Northern did not address in its filing.

27. Several other intervenors filed protests against Northern's proposed gas quality provisions, interchangeability provisions, and the general waiver provision in its tariff filing. LLOG Exploration Company, LLC (LLOG) protests the provision in its tariff regarding the ability of Northern to revise the process gas segments it delineated in its

tariff, and also protests the oxygen, Btu, temperature, and butanes and other heavy hydrocarbons limits in Northern's tariff. Further, LLOG protests the CHDP safe harbor in its proposal. CenterPoint Energy Minnesota Gas (CenterPoint) generally supports the filing, but protests the Wobbe index range and the waiver notice that Northern applied in its tariff regarding the long period that Northern must wait before it can suspend the general waiver and decline non-specification gas.

28. Golden Spread Electric Cooperative, Inc., and GS Electric Generating Cooperative, Inc. (collectively named the Generators), each an operator of gas-fired generation plants in Texas and Oklahoma, protest the sulfur gas quality specification in Northern's tariff, a provision that is not being revised in the instant filing. The Generators also protest the Wobbe Index range as being inconsistent with the Interchangeability White Paper.

29. The Rockies Express Shippers⁵ protest the gas quality specifications in Northern's tariff as unsubstantiated, unjust and unreasonable. Integrys Energy Services, Inc. (Integrys) generally protests Northern's filing, and notes that some of the issues were the subject of Northern's last rate case, and states that Northern must show why circumstances have changed that necessitates modifying the gas quality revisions.

30. Walter Oil & Gas Corporation (Walter) protests Northern's filing with respect to the ability of Northern to revise its processed gas segments that Northern delineated in its tariff provision, and also the gas quality provisions. Madison Gas and Electric Company (MGE) filed comments in support of Northern's filing insofar that Northern bases its gas quality provisions on sound technical, engineering and scientific considerations. Mewbourne Oil Company (Mewbourne) protests Northern's carbon dioxide provision, and the Wobbe Index provision, and also requests that the Commission require Northern to curtail all off-specification gas by degree of failure to meet specification.

31. Aquila Networks (Aquila) protests Northern's filing because Northern did not address gas quality specifications for delivery points. Aquila also protests Northern's maximum Btu limit, and the CHDP safe harbor provision. Wyoming Pipeline Authority (WPA) and protests Northern's carbon dioxide provision. WPA states that the Commission rejected Northern's proposal in Docket RP004-155-000, where it stated that Northern had failed to provide sufficient evidence to support its carbon dioxide limit.⁶

32. DCP Midstream, LP (DCP) protests the oxygen, carbon dioxide and total inerts provision in Northern's filing as overly restrictive. Colorado Interstate Gas Company

⁵ Rockies Express Shippers is made up Ultra Resources, Inc., and Sempra Rockies Marketing, LLC.

⁶ *Northern Natural Gas Company*, 108 FERC ¶ 61,083 at P 8.

(CIG), an interconnecting pipeline, comments on Northern's filing and notes that there is a marked contrast between its own gas quality provisions and Northern's provisions. El Paso Natural Gas Company (El Paso), another interconnecting pipeline, comments on Northern's filing in the same manner as CIG. The Independent Petroleum Association of Mountain States (IPAMS) protests Northern's filing regarding the carbon dioxide specification as overly restrictive.⁷

33. Daystar Production, Inc. (Daystar) requests that the Commission summarily reject Northern's filing because of the lack of standards governing re-directing qualifying gas to a non-qualifying segment, resulting in abandonment of interstate transportation service and the exclusion of supply from the market. Daystar argues that a section 4 filing is neither the appropriate policy vehicle for developing the kind of factual and analytic record necessary to inform the Commission's decision-making, nor is it a legally acceptable procedure for creating a program that contemplates a pipeline's discretionary operational decisions that will result from the interstate market.

34. Lumen Midstream Partnership, LLC (Lumen) generally opposes the gas quality specifications and the general waiver provision, but more specifically protests Northern's classification of certain pipeline segments as processed gas segments. Targa Midstream Services Limited Partnership and Targa Texas Field Services LP (collectively called Targa) submitted adverse comments in regards the blanket waiver authority and the total inerts standard. Indicated Shippers⁸ request that the Commission summarily reject Northern's filing and protests the gas quality and general waiver provisions in the filing.

35. Xcel Energy Services Inc., Northern States Power Company-Minnesota, Northern States Power Company-Wisconsin, and Southwestern Public Service Company (collectively named Xcel) protests Northern's gas quality provisions, in particular, the carbon dioxide, oxygen, Wobbe Index, sulfur, and heating value definition. However, Xcel supports Northern's filing regarding its CHDP limit, and butanes and heavy hydrocarbons provisions. Joint Protestors⁹ protest Northern's filing regarding the gas

⁷ IPAMS incorporates the substance of WPA's protest.

⁸ Indicated Shippers is made up of the following companies: Anadarko Petroleum Corporation, BP America Production Company, BP Energy Company, Chevron U.S.A. Inc., Marathon Oil Company, ExxonMobil Gas & Power Marketing Company, a division of Exxon Mobil Corporation, Occidental Energy Marketing, Inc., Occidental Permian Ltd., and Coral Energy Resources, L.P.

⁹ The Joint Protestors are made up of Connect Energy Services, LLC, Enbridge Marketing (U.S.) L.P., Enbridge Pipelines (Texas Gathering) L.P., EnCana Marketing (USA) Inc., PVR Midstream LLC, Tenaska Marketing Ventures (Tenaska), and Yates Petroleum Corporation.

quality provisions and the provision in its tariff regarding Northern's ability to revise the process gas segments it delineated in its tariff. Joint Protestors also request that the Commission summarily reject Northern's proposed provisions setting the carbon dioxide and oxygen limits and protests the allocation and curtailment standards Northern will apply to non-compliant gas supplies.

36. Virginia Power Energy Marketing, Inc. (Virginia Power) protests the carbon dioxide provision in Northern's filing as being overly stringent. The Metropolitan Utilities District of Omaha (MUD) filed comments in support of Northern's carbon dioxide and total inerts provision.

Discussion

37. The Commission has reviewed Northern's filing as well as the protests in the proceeding and finds that Northern's proposed gas quality specifications raise numerous technical, engineering and operational issues which will be best addressed at a technical conference. At the technical conference, the Staff and the parties will have the opportunity to further discuss Northern's justification and support for the proposed gas quality specifications.

38. Northern should be prepared to address all concerns raised by the parties and to provide additional technical, engineering and operational support for its proposed gas quality specifications, as appropriate. Consistent with the Commission's Natural Gas Interchangeability Policy Statement in PL04-3-000, Northern should be prepared to explain how its proposal differs from the NGC+ interim guidelines.¹⁰ In addition, any party proposing alternatives to Northern's proposal should also be prepared to support the adequacy of its position with appropriate technical, engineering and operational information. Finally, based upon its analysis of the information provided in this proceeding, the Commission Staff may issue data requests prior to the technical conference, and/or a notice of the technical conference containing questions that need to be addressed by Northern or other parties at the conference.

Suspension

39. Based on a review of the filing, the Commission finds that the proposed tariff sheets have not been shown to be just and reasonable, and may be unjust, unreasonable, unduly discriminatory, or otherwise unlawful. Accordingly, the Commission will accept the tariff sheets for filing, and suspend their effectiveness for the period set forth below, subject to the conditions in this order.

¹⁰ Policy Statement at P 34 and 37.

40. The Commission's policy regarding tariff filing suspensions is that filings generally should be suspended for the maximum period permitted by statute where preliminary study leads the Commission to believe that the filing may be unjust, unreasonable, or that it may be inconsistent with other statutory standards. *See, Great Lakes Gas Transmission Co.*, 12 FERC ¶ 61,293 (1980) (five-month suspension). It is recognized, however, that shorter suspensions may be warranted in circumstances where suspension for the maximum period may lead to harsh and inequitable results. *See, Valley Gas Transmission, Inc.*, 12 FERC ¶ 61,197 (1980) (minimum suspension). Such circumstances do not exist here. Therefore, the Commission will accept and suspend the proposed tariff sheets until November 1, 2007, or an earlier date set by subsequent Commission order, subject to the outcome of the technical conference established herein and further orders of the Commission.

The Commission orders:

(A) The tariff sheets listed in the Appendix are accepted and suspended to become effective November 1, 2007, or an earlier date set by a subsequent Commission order, and subject to the outcome of the technical conference established below.

(B) The Commission's staff is directed to convene a technical conference to address the issues raised by Northern's filing and report the results of the conference to the Commission within 120 days of the date of this order.

By the Commission. Commissioner Moeller not participating.

(S E A L)

Kimberly D. Bose,
Secretary.

Appendix

Northern Natural Gas Company
FERC Gas Tariff, Fifth Revised Volume No. 1
Tariff Sheets conditionally accepted effective November 1, 2007

Fourth Revised Sheet No. 203

Third Revised Sheet No. 206A

Sixth Revised Sheet No. 281

Original Sheet No. 281A

Original Sheet No. 281B