

UNITED STATES OF AMERICA  
FEDERAL ENERGY REGULATORY COMMISSION

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

Norstar Operating, LLC v. Columbia Gas Transmission Corporation                      Docket No. RP06-231-002

Columbia Gas Transmission Corporation    Docket No. RP06-365-000

ORDER ON TECHNICAL CONFERENCE

(Issued March 16, 2007)

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1. This order addresses two related cases concerning gas quality and interchangeability specifications on Columbia Gas Transmission Corporation's (Columbia) system. In Docket No. RP06-231-002, the Commission addresses Columbia's filing to comply with the April 21, 2006 Order on complaint,<sup>1</sup> which directed Columbia to revise a tariff provision that the Commission held pursuant to NGA section 5 was unjust and unreasonable because it gave Columbia too much discretion to change its gas quality standards. In Docket No. RP06-365-000, the Commission addresses Columbia's section 4 filing to incorporate into its tariff the gas quality specifications from its meter set agreements (MSAs) as well as a number of proposals concerning gas quality made in comments or data responses in the docket. For the reasons discussed below, the Commission accepts in part and rejects in part Columbia's gas quality specification proposals.

## **I. Background**

### **A. Procedural History**

2. When natural gas suppliers seek to establish a new interconnection with Columbia in order to introduce gas supplies onto Columbia's system, Columbia enters into an interconnect agreement with the supplier. These agreements, to which Columbia refers as MSAs, establish the physical location, ownership, construction, and operation and maintenance requirements for the new receipt interconnect. Since 1991, Columbia has included most of its gas quality specifications in the MSAs, rather than in its tariff or its service agreements with its customers. The detailed gas quality specifications currently used in the MSAs have been in effect since 1996, with only minor revisions. Columbia has not filed either a form of MSA, or individual executed MSA agreements, with the Commission.

3. On February 22, 2006, Norstar Operating, LLC (Norstar) filed a complaint against Columbia in Docket No. RP06-231-000, alleging that Columbia violated its tariff and the NGA by refusing to accept deliveries of natural gas from a new oil well in Ohio.<sup>2</sup>

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<sup>1</sup> Norstar Operating LLC v. Columbia Gas Transmission Co., 115 FERC ¶ 61,094 (2006). Norstar Operating, LLC (Norstar) requested rehearing of the April 21, 2006 Order. On March 1, 2007, Norstar filed a notice withdrawing its complaint and request for rehearing because it has resolved its dispute with Columbia. Norstar also states in that filing that it affirmatively supports Columbia's proposals in Docket No. RP06-365-000.

<sup>2</sup> The new well is known as Metzger #1-26.

Norstar asserted that it met all the gas quality specifications in section 25 of Columbia's tariff but that Columbia rejected Norstar's gas on the grounds that it did not satisfy a four percent nitrogen content limitation set forth in Columbia's MSA. Norstar requested that the Commission direct Columbia to cease and desist from enforcing gas quality specifications through its MSAs and to require Columbia to accept gas from Norstar's well. Columbia responded that section 25.5(e) of its tariff gave Columbia the authority to include gas quality specifications, in addition to those listed in the tariff, in agreements with shippers, producers, or other parties if those restrictions are necessary to prevent injury to Columbia or to prevent interference with gas merchantability.

4. On April 21, 2006, the Commission issued an order<sup>3</sup> on Norstar's complaint. The Commission found that section 25.5(e) does permit Columbia to impose additional gas quality specifications, including the 4 percent nitrogen limitation, and to reflect such specifications in its executed MSAs. However, the Commission found, pursuant to NGA section 5, that section 25.5(e) of Columbia's tariff was unjust and unreasonable because it was too broad and gave the pipeline too much discretion to change gas quality standards without adequately protecting shippers. In addition, the Commission initiated an NGA section 5 proceeding to determine a just and reasonable tariff provision to replace section 25.5(e). The Commission stated that section 25.5(e) would remain in effect until Columbia filed a new section that the Commission found to be just and reasonable. The Commission also stated that if Columbia believed a 4 percent nitrogen limit is necessary, it must propose in its compliance filing to include such a specification in its tariff and explain the need for such provision as well as the need for any other revised gas quality provision it proposes.

5. On May 22, 2006, Columbia filed a revised tariff sheet<sup>4</sup> in the complaint proceeding to comply with the April 21 Order. That tariff sheet was limited to revising section 25.5(e). On the same day, Columbia also filed, in Docket No. RP06-365-000, pursuant to NGA section 4, revised tariff sheets<sup>5</sup> incorporating most, but not all, of the gas quality specifications from Columbia's MSA, including the 4 percent nitrogen limit.<sup>6</sup>

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<sup>3</sup> *Columbia Gas Transmission Corporation*, 115 FERC ¶ 61,094 (2006).

<sup>4</sup> Pro Forma Second Revised Sheet No. 407 to its FERC Gas Tariff, Second Revised Volume No. 1.

<sup>5</sup> Fourth Revised Sheet No. 406 and Third Revised Sheet No. 407 to its FERC Gas Tariff, Second Revised Volume No. 1.

<sup>6</sup> Columbia did not propose to incorporate into its tariff the specific Wobbe requirement contained in its MSA.

The section 4 filing also contained explanations for its proposed gas quality specifications and technical and engineering data meant to support the proposed specifications.

6. On June 21, 2006, the Commission issued an order<sup>7</sup> accepting and suspending Columbia's section 4 filing and establishing a technical conference to consider the issues. The Commission deferred consideration of the compliance filing in the complaint proceeding subject to the outcome of the technical conference.

7. On July 25, 2006, a technical conference was held to discuss the technical, engineering and operational issues raised by Columbia's proposed gas quality specifications and to address revised section 25.5(e) of Columbia's GT&C.

8. Subsequent to the July 25 technical conference, Columbia held several meetings with its customers and other interested parties and on October 6, 2006, Columbia filed a status report on the post-technical conference meetings. Columbia stated in the report that, as a result of the discussions with its customers, Columbia intended to propose various modifications to its May 22 filing. Columbia stated in its status report that, other than the specified modifications, its May 22, 2006 filing remained as proposed. Columbia also stated in the status report that it would defer placing the suspended tariff sheets into effect at the end of the suspension period for a period of 90 days, *i.e.* until February 20, 2007.

9. Initial comments on the technical conference were filed on October 13, 2006, and reply comments were filed on November 3, 2006. Columbia's initial comments described certain proposed changes in its May 22, 2006 section 4 proposal, but did not include proposed tariff language to implement those changes.

10. On November 9, 2006, Commission staff issued a data request to Columbia, requesting further engineering and technical information with regard to several of Columbia's proposed gas quality and interchangeability standards. In addition, staff requested that Columbia submit *pro forma* tariff sheets reflecting Columbia's proposed modifications to its May 22 filing. The staff data request required Columbia to file its response by November 23, 2006, and permitted other parties to file comments on the response within 14 days of its filing. Columbia filed a partial response on November 22, and completed its response on December 7. As permitted by staff, a number of parties filed comments on Columbia's responses on December 21. On January 12, 2007,

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<sup>7</sup> *Columbia Gas Transmission Corporation*, 115 FERC ¶ 61,352 (2006).

Columbia filed an answer to the comments of the other parties, and several parties filed answers to Columbia's answer on January 25 and 31, 2007. The Commission accepts all these pleadings since they have assisted us in deciding the issues in this case.

## **B. The Policy Statement on Natural Gas Quality and Interchangeability**

11. On June 15, 2006, the Commission issued a Policy Statement on Provisions Governing Natural Gas Quality and Interchangeability in Interstate Natural Gas Pipeline Company Tariffs (Policy Statement).<sup>8</sup> Gas quality, as discussed in the policy statement, is concerned with the impact of non-methane hydrocarbons on the safe and efficient operation of pipelines, distribution facilities, and end-user equipment. As used by the gas industry historically, "interchangeability" means the extent to which a substitute gas can safely and efficiently replace gas normally used by an end-use customer in a combustion application.

12. The Commission's policy embodies five principles: (1) only natural gas quality and interchangeability specifications contained in a Commission-approved gas tariff can be enforced; (2) pipeline tariff provisions on gas quality and interchangeability need to be flexible to allow pipelines to balance safety and reliability concerns with the importance of maximizing supply, as well as recognizing the evolving nature of the science underlying gas quality and interchangeability specifications; (3) pipelines and their customers should develop gas quality and interchangeability specifications based on technical requirements; (4) in negotiating technically based solutions, pipelines and their customers are strongly encouraged to use the Natural Gas Council Plus (NGC+) interim guidelines on gas quality and interchangeability filed with the Commission in two reports on February 28, 2005<sup>9</sup> as a common scientific reference point for resolving the issues; and, (5) to the extent pipelines and their customers cannot resolve disputes over gas quality and interchangeability, those disputes can be brought before the Commission to be resolved on a case-by-case basis, on a record of fact and technical review.

## **II. Discussion**

13. In these proceedings, Columbia generally proposes to include in its tariff the same gas quality and interchangeability specifications that have been in its MSAs since at least

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<sup>8</sup> 115 FERC ¶ 61,325 (2006).

<sup>9</sup> *Report on Liquid Hydrocarbon Drop Out in Natural Gas Infrastructure* (HDP Report) and *Report on Natural Gas Interchangeability and Non-Combustion End Use* (Interchangeability Report).

1996. As discussed below, the specifications in the MSAs appear to have worked well for all interested parties. Columbia has had minimal operational problems related to gas quality, and shippers have not complained about the quality of the gas they have been receiving. In addition, those specifications are generally consistent with the guidelines adopted in the Policy Statement. Accordingly, the Commission approves most of the gas quality and interchangeability specifications proposed by Columbia in its section 4 filing. However, the Commission finds that Columbia's proposed revision to section 25.5(e) to comply with the Complaint order still leaves it with too much discretion to change its gas quality standards without notice to its customers, and therefore the Commission requires further modifications to section 25.5(e).

14. Columbia's proposed tariff changes fall into four main categories: (1) receipt point specification to control gas quality, (2) receipt point specifications to control interchangeability, (3) delivery point specifications, and (4) tariff provisions giving Columbia the ability either to accept gas that does not meet the receipt point specification or reject gas that does meet those specifications. Below, we discuss each of these categories in turn.

**A. Gas Quality – Hydrocarbon Dewpoint**

15. Natural gas is composed of a number of hydrocarbon compounds, of varying molecular weight. As it is transported and distributed, unprocessed natural gas may experience changes in temperature and pressure which may cause the heavy hydrocarbons to condense into liquid form. When this happens, pipelines and other downstream equipment may experience inefficient operations and unsafe conditions. This problem is known as hydrocarbon liquid dropout, and the potential for this problem to occur can be measured in terms of the HDP of the gas stream in question. The HDP defines whether the natural gas stream in a pipeline consists of a single gas phase or two phases, gas and liquid.

16. HDP varies depending upon the temperature, pressure, and composition of a gas stream. These relationships can be illustrated with a graph where the temperature sufficient to maintain the gaseous phase of a particular gas stream is plotted as a function of increasing pressure levels, which results in a balloon-shaped curve. As pressure rises from zero, the temperature necessary to maintain the gaseous state rises. However, once

the pressure goes above a certain level, the temperature necessary to maintain the gaseous state starts to fall. The highest temperature on this curve is known as the cricondenthem HDP (CHDP) of the gas stream in question.<sup>10</sup>

17. The Policy Statement stated that pipeline tariffs should contain provisions that govern the quality of gas received for transportation when necessary to manage hydrocarbon drop out. The Commission encouraged pipelines adding such provisions to their tariffs to use one of the two methods found by the HDP Report to be valid—the CHDP method or the C6+ GPM method.<sup>11</sup> Appendix B of the HDP Report sets forth a nine-step process for determining a CHDP limit. This includes reviewing historical data for the composition, flowing gas temperature and pressure of gas deliveries from the pipeline, selecting a candidate CHDP limit, and then analyzing whether liquid drop out would occur under that limit. This analysis includes identifying the lowest temperature and highest coinciding pressure of flowing gas at places on the pipeline's system where pressure reductions occur and determining whether those pressure reductions would cause liquid dropout.

### **1. Columbia's Proposal**

18. Columbia proposed in its May 22 filing in Docket No. RP06-365-000 to adopt as section 25.5(h)<sup>12</sup> the provision from its existing standard MSA that gas tendered for delivery at receipt points shall not have a hydrocarbon dewpoint greater than 25°F at any operating pressure, *i.e.*, a cricondenthem HDP, in order to protect its system from hydrocarbon liquids fallout. Columbia states that it proposed a 25°F HDP because that HDP has been included in its MSAs<sup>13</sup> since 1996<sup>14</sup> and it has been able to successfully manage liquids fallout on its system at that level. Columbia further states that it did not

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<sup>10</sup> For a fuller explanation of the HDP of natural gas and the problem of liquid drop out, see *ANR Pipeline Co.*, 116 FERC ¶ 61,002 at P 3-6 and Appendix B (2006).

<sup>11</sup> The phrase C6+ GPM stands for hexanes and heavier hydrocarbons, as measured in gallons per thousand cubic feet of natural gas.

<sup>12</sup> See Fourth Revised Sheet No. 406 to its GT&C.

<sup>13</sup> Columbia included a representative MSA as Attachment A to its July 14, 2006, data response.

<sup>14</sup> See Columbia's July 14, 2006, data response to Data Request No. 4.

rely on engineering data or studies.<sup>15</sup> Columbia proposes, consistent with its present practice, that it may waive the HDP requirement for gas received on its system upstream of processing when it can safely do so. Columbia states that its hydrocarbon dewpoint requirement is more liberal than, or consistent with, various other pipelines.<sup>16</sup> Columbia provided a table comparing its proposed HDP with those of its interconnecting pipelines.<sup>17</sup>

19. Columbia submitted as support for its gas quality proposal the affidavit of Daniel Harris,<sup>18</sup> which addresses related engineering and technical data. Mr. Harris states, at paragraph 28 of his affidavit, that Columbia operates in a region of the country where cold winter temperatures are prevalent and fall below 25°F and the ambient air temperature, in turn, affects gas temperatures, especially at Columbia's above ground facilities. He further states that Columbia reduces pipeline pressure at various delivery points on its system, which can also result in lower gas temperatures.

20. Subsequent to discussions with its customers, Columbia modified its hydrocarbon dewpoint tariff proposal in its October 6, 2006 status report and now proposes a CHDP safe harbor of 15°F, with authority to post higher CHDP limits as operationally appropriate. Columbia provided revised hydrocarbon dewpoint tariff language in section 25.6 on Pro Forma Original Sheet No. 408 attached to its January 12, 2007 response to comments regarding the data responses. Section 25.6 provides that the 15°F safe harbor prohibits Columbia from refusing to accept gas with a CHDP equal to or less than 15°F. Section 25.6 states that Columbia, as operationally necessary, may establish and post on its EBB a limit on CHDP for receipts no lower than the Hydrocarbon Dewpoint Safe Harbor to prevent actual or anticipated hydrocarbon liquid fallout on its system, or to assure that gas will be accepted for delivery into interconnects with interstate or intrastate pipelines, end-users, and local distribution companies.

21. Section 25.6(a) provides that Columbia may impose CHDP limits on its entire system, or on specified portions of its system, down to the safe harbor limit and will consider blending when posting a CHDP limit. Columbia states that its proposed 15°F

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<sup>15</sup> See Columbia's July 14, 2006 response to Data Request 2(a) and 2(b).

<sup>16</sup> See Columbia's May 22 filing at p. 8.

<sup>17</sup> See Data Request No. 3 response and Attachment B to Columbia's July 14, 2006 data response.

<sup>18</sup> See Exhibit 1 to the May 22, 2006, filing.

CHDP safe harbor provides a margin of safety that will permit Columbia to lower its CHDP requirement below the posted requirement of 25°F (but no lower than 15°F) if necessary due to operational circumstances without having to resort to issuance of an OFO. Columbia asserts that the Commission held that this margin of safety is an important component in determining a CHDP safe harbor.<sup>19</sup>

22. Section 25.6(b) requires Columbia to establish monitoring points on its system and to post a list of the monitoring points, and any changes thereto, on its EBB. Section 25.6(c) states that Columbia will provide as much notice of any revision to a CHDP limit as reasonably possible and will attempt to provide such notice at least ten (10) days prior to the effective date of the limitation. Section 25.6(d) requires Columbia to perform the CHDP calculations for section 25.6 using the Peng-Robinson equation of state and C6+ assumptions. Section 25.6(d) further requires Columbia to perform, upon a shipper's request and at the shipper's expense, a C9+ analysis at the shipper's receipt or delivery point, provided that Columbia will not be required to perform a C9+ analysis at any one receipt or delivery point more frequently than once every twelve months, unless a new source of supply has been added at that receipt point.

23. Columbia states at pages 15 through 17 of its Initial Comments that it intends to post a 25°F HDP on its electronic bulletin board (EBB) as a default requirement on its system but will not enforce that limit when it can safely do so in order to maximize gas supplies. Columbia relies on the NGC+ historical compositional data included in Attachment A to KeySpan's Initial Comments to support its 25°F CHDP and its 15°F CHDP safe harbor.<sup>20</sup> Columbia provided a summary chart of the weighted average and median CHDPs for the states it operates in, with the exception of New York.<sup>21</sup> The summary chart shows that the weighted average CHDP ranges from a low of 7.9°F in Ohio to a high of 28.8°F in New Jersey and the median CHDP ranges from a low of 11.4°F in Kentucky to a high of 25°F in Maryland.<sup>22</sup> Columbia also provided the detailed

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<sup>19</sup> See *Natural Gas Pipeline Company of America*, 116 FERC ¶ 61,262 (2006) (*Natural*) at P 74.

<sup>20</sup> See page 31 of Columbia's November 3, 2006 reply comments.

<sup>21</sup> Columbia states at footnote 94 of its November 3, 2006, Reply Comments that New York's CHDP data is substantially lower than the remaining states due to direct deliveries of low CHDP Canadian gas, e.g., Tennessee Gas Pipeline Company's interconnections with Canadian sourced gas at Shelton and Niagara.

<sup>22</sup> See page 32 of Columbia's November 3, 2006 reply comments.

NGC+ historical compositional data used to support its 15°F CHDP safe harbor as Attachment 1 to its November 22, 2006 data response. Columbia states that its long-standing operational CHDP requirement of 25°F is consistent with the historical gas compositions in its region.

## 2. Comments

24. Indicated Shippers argue that Columbia's data does not support a 15° F safe harbor. Indicated Shippers assert that they are puzzled that Columbia organized the CHDP information by state while proposing a single CHDP limit for its entire system. Indicated Shippers argue that five of the six median CHDP values and four of the six average CHDP values provided by Columbia exceed its proposed 15° F safe harbor. Indicated Shippers therefore assert that a 15°F safe harbor would expose a majority of Columbia's currently flowing gas to a violation of the pipeline's proposed CHDP specification. Indicated Shippers state that a 15°F safe harbor would therefore potentially require Columbia either to (1) grant a general but revocable CHDP waiver to a majority of its flowing gas, which would not provide regulatory certainty, or (2) require a majority of Columbia's gas either to be processed or shut-in in the absence of any realistic concern regarding hydrocarbon liquids drop-out, which would not satisfy the rational economic test required in, for example, *ANR Pipeline Company*.<sup>23</sup> Indicated Shippers allege that, consistent with the Policy Statement and the White Paper, the proposed CHDP safe harbor should be set at a level that is consistent with the CHDP levels of the majority of Columbia's current flowing gas. They point out that, according to Columbia's data response, the arithmetic average of the median values provided by Columbia is 18.5°F and the arithmetic average of the state-by-state values is 17.6°F, with averages as high as 22.9°F and 28.8°F. Indicated Shippers argue that Columbia has not alleged any hydrocarbon liquid drop-out problem at its current CHDP levels. Indicated Shippers further argue that, although the record is not sufficient to determine a safe harbor based on the White Paper methodology, a 25°F CHDP safe harbor, which Columbia proposed

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<sup>23</sup> *ANR Pipeline Co.*, 116 FERC ¶61,002 (2006), (*ANR*), at P 59-61 (processing can be expensive, potentially making it more efficient to address the special needs of a few downstream entities directly rather than requiring processing of all gas entering the upstream pipeline's system; processing all gas supplies to meet a least-common denominator CHDP standard would reduce total supplies available to the market; the worst case downstream scenario approach could decrease pipeline throughput, thereby reducing operational flexibility).

in its initial May 22 filing, appears a more appropriate safe harbor based on the CHDP levels of gas that Columbia reports it has been providing to its customers without incident.

25. KeySpan Delivery Companies (KeySpan) argue that the 15°F safe harbor is supported by substantial record evidence but will still result in hydrocarbon liquid dropout at KeySpan's city gates, although at a level that can be managed. KeySpan states that detailed support for Columbia's proposed 15°F safe harbor limit is found in the NGC+ historical compositional data which Columbia affirmatively adopted in this case and in the Wilson Affidavit attached to KeySpan's Initial Comments. KeySpan argues that the NGC+ compositional data (which include data from markets that are representative of the markets served by Columbia) demonstrate that the use of a 15°F safe harbor provision on the Columbia system will not result in any significant liquid drop out beyond historical deliveries in Columbia's markets under normal operating conditions.

26. Indicated Shippers argue in their January 5, 2007 response to KeySpan's comments that KeySpan's statement that "The data shown in Columbia's response to Data Request No. 4, Attachment 1, show that the CHDP associated with the majority of currently flowing gas under average, median and maximum conditions is not less than 15°F" supports Indicated Shippers' position that the CHDP of the majority of gas is higher than 15°F. Therefore Indicated Shippers argue that, based on Columbia's data, under its 15°F safe harbor proposal Columbia may refuse to accept the majority of the flowing gas. Indicated Shippers also argue that, contrary to KeySpan's assertions, nothing in the NGC+ White Paper explicitly calls for aggregation of CHDP data by state in developing appropriate CHDP limits. Indicated Shippers further state that the NGC+ White Paper provides that the pipeline in question defines an area for which the limit is to be applied. Indicated Shippers further argue that Columbia's use of state boundaries to differentiate aggregated data would contravene the White Paper process because Columbia (1) is proposing a single CHDP safe harbor limit to apply to its entire system, and (2) has a one-zone, reticulated system.

27. The Cities of Charlottesville and Richmond, Virginia, and the Easton Utilities Commission (Cities) state that the adoption of a 15°F CHDP limit is a major improvement over the HDP limit initially proposed in this proceeding. They assert, however, that Columbia should be required to collect and analyze the gas actually flowing on its system and to undertake the step-by-step analysis endorsed by the NGC+ White Paper to ensure that the 15°F CHDP limit affords protection from liquids fall out on Columbia's system and on the systems of downstream interconnected parties.

28. National Fuel Gas Distribution Corporation (National Fuel) argues that the 15°F CHDP limit does not guarantee that gas delivered by Columbia will have a CHDP of less than 15°F.

29. Public Service Company of North Carolina, Inc. (PSNC) argues that a 15°F CHDP limit has not been substantiated and would create an absolute right to inject gas which meets a 15°F HDP safe harbor even if the gas were demonstrated to cause a hydrocarbon liquid dropout on the Columbia system or on a system downstream of Columbia.

30. NiSource Distribution Companies (NiSource) support the proposed 15°F safe harbor but argue that Columbia should have detailed posting requirements.

31. Washington Gas Light Company (Washington Gas) argues, among other things, that Columbia should be required to follow the HDP White Paper process to develop a scientifically-supported CHDP standard.

32. ProLiance Energy, LLC (ProLiance) argues that any HDP safe harbor should not be set to a level which allows unnecessary hydrocarbon liquids into the interstate pipeline grid and which may unreasonably shift costs necessary to address the hydrocarbon liquid issue.

### **3. Commission Determination**

33. The Commission rejects as unsupported Columbia's request to incorporate a 15°F CHDP safe harbor into its tariff as proposed on Pro Forma Original Sheet No. 408. As explained below, Columbia has provided the Commission with virtually no system data to support its request. In fact, in its responses to Commission data requests, Columbia has stated that it does not collect, transmit, or retain the data necessary to monitor the CHDP levels on its system.<sup>24</sup> Moreover, Appendix B to the HDP Report sets forth a nine step analytical process for pipelines to establish a scientifically supported CHDP safe harbor. Columbia has presented no evidence to suggest that it has followed any of these steps. For example, Columbia provided no analysis of whether liquid drop out would occur at points on its system with pressure reductions, as recommended in Step 6 of the Appendix B analytical process.<sup>25</sup> Accordingly, based on the lack of system specific data and

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<sup>24</sup> See Columbia Gas' July 14, 2006 data response 2(d).

<sup>25</sup> Contrast *ANR Pipeline Co.*, 116 FERC ¶ 61,002 at P 91-92, *reh'g denied*, 117 FERC ¶ 61,286 at P 41-49 (2006) (*ANR*), and *Natural* at P 75-102, where the Commission approved safe harbor proposals based on detailed information provided by the pipelines concerning conditions on their own systems, including the potential for liquid drop out at specific points of pressure reduction.

Columbia's failure to follow the process set forth in the HDP Report, the Commission cannot accept and approve Columbia's newly proposed CHDP safe harbor level.

34. The Commission rejects Columbia's claim that the NGC+ state-by-state weighted average and median data from the states in which Columbia operates supports its proposed 15°F CHDP safe harbor provision. The NGC+ CHDP data are not in and of themselves determinative of the acceptability of any specific pipeline data. The NGC+ group established guidelines on how to quantify and evaluate CHDP levels. It did not establish data tables against which CHDP safe harbor proposals were to be evaluated. Further, the data compiled by the NGC+ group are comprised of state and regional averages. Columbia's system is reticulated with numerous segments, interconnections and operational complexities. Because Columbia has not provided any segment or operational specific data, the Commission has no way to judge the appropriateness of Columbia's state-by-state averages. The CHDP levels may vary on different pipeline segments within the same state. In fact, the CHDP levels constantly vary on the same pipeline and at different points on the same pipeline depending on the changing conditions as new receipts are introduced. Absent pipeline specific data, the aggregate NGC+ information does not support gas quality standards specific to Columbia's system. The Commission therefore rejects the argument that the NGC+ CHDP levels are a representative substitute for system data.

35. Faced with a complete lack of system data, the Commission must look to the historical operation of Columbia's system to determine an appropriate CHDP level for Columbia. Columbia states that it has been able to successfully operate and manage liquids fallout on its system with its MSA 25°F CHDP limit.<sup>26</sup> Columbia currently controls liquid drop-outs on its system through the use of drips, liquid shut-off devices and filter separators.<sup>27</sup> Columbia states that it also manages liquid hydrocarbon issues on its pipeline system by working with the upstream supplier to limit liquids into the system.<sup>28</sup> None of the parties have complained of, or provided evidence of, past operational issues with the 25°F CHDP MSA limit in place. Moreover, no other party has provided sufficient data to support a different CHDP limit appropriate for Columbia. Further, under its May 22 proposal, Columbia intended to post a 25 degree HDP "default" limit.

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<sup>26</sup> See Columbia's July 14, 2006, data request response to Data Request No. 2a.

<sup>27</sup> *Id.*, response to Data Request No. 2c.

<sup>28</sup> *Id.*, response to Data Request No. 2d.

36. Under the current 25°F CHDP MSA limit, Columbia is required to accept all gas with a CHDP of 25°F or less. The more restrictive 15°F safe harbor with a 25°F CHDP limit could result in shippers having to tender to Columbia gas of a materially different quality or risk having it rejected. Under the 15°F safe harbor proposal, Columbia could refuse to accept any gas with a CHDP between 15°F and 25°F by posting a limit lower than 25°F. Columbia does not have this option under its MSAs. Moreover, as discussed later in this order, the Commission is approving Columbia's proposed section 25.10 of its GT&C, under which Columbia can accept gas that does not conform to the gas quality provisions in section 25, including the CHDP 25°F maximum, where it can do so without adversely affecting its ability to provide service to its customers.

37. The Commission finds that the MSAs' 25°F CHDP limit is a term and condition of service that Columbia is already applying to its customers. This term and condition of service is just and reasonable, and it should be available to all open access shippers on a non-discriminatory and not unduly preferential basis.<sup>29</sup> Consistent with the Policy Statement, the Commission requires Columbia to file revised tariff sheets to put this term and condition in its tariff.<sup>30</sup> Based on the Commission's rejection of Columbia's 15 degree safe harbor, the Commission also rejects the other proposed provisions of section 25.6 because those provisions appear to relate to, or to work in conjunction with, the Hydrocarbon Dew Point Safe Harbor provision. The Commission's rejection of Columbia's proposed tariff provisions and our requirement to move the MSAs' CHDP limit into its tariff moots the parties' comments and recommended revisions to Columbia's proposed tariff changes.

38. The CHDP of a gas stream depends on many factors, as discussed above, and these factors may change over time. Columbia states that it will establish specific points to monitor the HDP levels on its system.<sup>31</sup> The appropriate CHDP level, or whether a safe harbor type provision is appropriate for Columbia's system, may change with time.

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<sup>29</sup> *Columbia Gas Transmission Corp.*, 97 FERC ¶ 61, 221 (2001).

<sup>30</sup> Policy Statement, P 29. This directive is also consistent with the Policy Statement's first general principle that only gas quality specifications contained in a Commission-approved gas tariff can be enforced. Policy Statement, P 2.

<sup>31</sup> See Columbia's December 7, 2006, data response to Data Request No. 6 and proposed section 25.6(b) of Pro Forma Original Sheet No. 8 contained in Attachment 2 to Columbia's December 7, 2006, data response. The construction and addition of CHDP monitoring equipment does not require Commission pre-approval, as they are auxiliary installations pursuant to section 2.55(a) of the Commission's regulations.

Furthermore, Columbia or a customer may believe a different level or a safe harbor is appropriate, especially after Columbia begins monitoring and posting the HDP levels on its system. In that case, similar to our ruling in *ANR*<sup>32</sup>, Columbia may file a revised CHDP level or safe harbor provision under section 4 of the NGA, or a customer may file a complaint under section 5 of the NGA.

## **B. Gas Interchangeability**

39. The Policy Statement encourages pipelines that wish to modify or add tariff provisions concerning interchangeability specifications to use the Interim Guidelines proposed in the Interchangeability Report.<sup>33</sup> Those guidelines are based on a range of plus or minus four percent of the Wobbe Number based on either local historical average gas or an established “adjustment or target” gas for the service territory at issue. The Interchangeability Report explained that “the interim guidelines focus on consistency with historical gases . . . since locally, historical gases represent the basis for field installation an adjustment of appliances.”<sup>34</sup> In addition to the basic guideline relying on the Wobbe Number of historical average gas, the Interchangeability Report recommended limiting: the maximum Wobbe Number to 1,400; the maximum heating value to 1,110 Btu/scf; maximum butanes+ to 1.5 mole percent; and maximum total inert gases to four mole percent. These interim guidelines also included a specific exception for service territories with demonstrated experience with gas supplies exceeding any of the above limits.<sup>35</sup>

40. Columbia has, pursuant to these guidelines, proposed to include in its tariff (1) a Wobbe Number with a maximum heating value limit, (2) an exception from the Wobbe Number/heating value limit for Appalachian suppliers, and (3) a maximum limit on total inert gases. In order to support these proposals, Columbia has provided daily measurements, for the past five years, concerning the composition of natural gas flowing through more than 130 gas chromatographs (“GC”) located throughout its system.<sup>36</sup>

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<sup>32</sup> See *ANR* 116 FERC at P 93.

<sup>33</sup> Policy Statement, 115 FERC ¶ 61,325 at P 37.

<sup>34</sup> Interchangeability Report at 25.

<sup>35</sup> Policy Statement, 115 FERC ¶ 61,325 at P 36.

<sup>36</sup> Columbia Initial Comments, Harris Affid. ¶ 7.

Columbia states that these measurements provide more than 29,000 data points for evaluation. The data (hereafter “GC data”) includes, among other things, the Wobbe Number, heating value, nitrogen, carbon dioxide, and oxygen content of the gas.

### 1. Wobbe and Heating Value

41. For the reasons discussed below, the Commission will approve Columbia’s proposed Wobbe Number of 1,350 plus or minus 4%, subject to a maximum of 1,400 and a maximum Btu limit of 1,110 Btu/scf and find these interchangeability specifications to be just and reasonable based upon the information in the record.

#### a. Columbia’s Proposal

42. Columbia’s MSAs require all gas to have a Wobbe Number of 1,300 plus or minus 6 percent.<sup>37</sup> Its MSAs do not include any maximum heating value.<sup>38</sup>

43. In its section 4 filing, Columbia did not propose to include either a Wobbe Number or a maximum heating value in its tariff. Columbia states that it did not propose a Wobbe Number because (1) very few pipelines have Wobbe specifications in their tariffs; and (2) Columbia believed that there was substantial regulatory uncertainty regarding the Wobbe Number.<sup>39</sup> However, Columbia now believes that the Commission’s Policy Statement decreased the uncertainty regarding the Wobbe Number by encouraging pipelines to use the NGC+ Interim Guidelines. Additionally, Columbia says that several parties have urged it to adopt a Wobbe specification. Therefore, Columbia proposes in its technical conference comments to require gas on its system to meet a Wobbe Number of 1,350 plus or minus 4 percent, subject to a maximum Wobbe Number of 1,400 and a maximum Heating Value Limit of 1,110 Btu/scf.<sup>40</sup> Columbia thus proposes a somewhat higher Wobbe Number than in its existing MSAs, but a tighter tolerance range.

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<sup>37</sup> Tariff Filing at p. 2, note 1; March 22, 2006 filing in RP06-231-000, Attachment 1, ¶ (f).

<sup>38</sup> The MSAs contained a minimum heating value requirement of 967 Btu/scf. This is the same minimum heat content as contained in Columbia’s currently effective tariff at Second Revised Volume No. 1, Third Revised Sheet No. 406, at section 25.4.

<sup>39</sup> Columbia Initial Comments at p. 7.

<sup>40</sup> Columbia Initial Comments at p. 8.

44. Columbia states that its proposed 1,350 Wobbe Number is consistent with the historical GC data for its system, because the average Wobbe Number for the over 29,000 data points in the GC data is about 1,350.<sup>41</sup> The plus or minus four percent tolerance range is the same tolerance range recommended by Interchangeability Report,<sup>42</sup> and results in a Wobbe Number range of 1,295 to 1,403.<sup>43</sup> Columbia notes that only 23, or 0.08 percent, of the data points are outside of this range. Columbia caps the permitted Wobbe Number range at 1,400 to remain consistent with the Interim Guidelines.<sup>44</sup>

45. Columbia states that its proposal to establish a 1,110 Btu/scf maximum heating value limit, as recommended by the Interim Guidelines, is also consistent with its historical experience. The GC data shows an average heating value of 1,036 Btu/scf with a range of 999 to 1,157 Btu/scf.<sup>45</sup> Only 21, or 0.07%, of the GC data points are above the 1,110 maximum heating value recommended by the Interim Guidelines.

46. As further discussed below, Columbia proposes to exempt Appalachian Basin supplies from its Wobbe proposal and states that its overall Wobbe proposal is expressly contingent upon an exception to Appalachian Basin gas supplies.<sup>46</sup>

#### **b. Comments**

47. Indicated Shippers and KeySpan both support Columbia's proposal. ConEd and O&R however, assert that Columbia's proposed plus or minus four percent tolerance range from the 1,350 Wobbe Number is too broad and should be narrowed to plus or minus two percent. They point out that, while the NGC+ Interim Guidelines include a tolerance range of plus or minus four percent, the NGC+ Work Group also recognized that gas supplies must "not unduly jeopardize the safety of or create utilization problems

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<sup>41</sup> Columbia proposes to round the actual calculated average of 1,349.34 up to reflect the 1,350 figure in its proposal. Harris Affid. ¶ 7.

<sup>42</sup> Columbia Initial Comments, Harris Affid. at P 7; Policy Statement at P 37.

<sup>43</sup> Columbia Initial Comments; Harris Affid, Attachment 1.

<sup>44</sup> Columbia Initial Comments, Harris Affid. ¶ 7.

<sup>45</sup> Columbia Initial Comments at p.9; Harris Affid. ¶ 8; Attachment 2.

<sup>46</sup> Columbia Initial Comments, Harris Affid. ¶ 11.

for end use equipment.”<sup>47</sup> ConEd and O&R contend that a plus or minus two percent tolerance range is necessary to ensure compatibility with the design requirements of dry low NOx gas turbines used in electric generators.<sup>48</sup>

48. In addition to its request for a tighter tolerance range for the Wobbe Number, ConEd and O&R also request that Columbia add a provision that the rate of change of Wobbe Number not vary more than plus or minus two percent in six minutes.<sup>49</sup> ConEd and O&R claim that such a provision is necessary to ensure that they can protect electrical generators using natural gas as their fuel supply for dry low-emissions gas turbines.<sup>50</sup>

49. Honeywell contends that Columbia’s proposed maximum 1,110 Btu/scf specification for heat content is too high. Honeywell argues that Columbia should adopt a maximum 1,050 Btu/scf limit for delivery points or alternatively a maximum 1,065 Btu/scf limit for receipt points. Honeywell claims that the higher limit proposed by Columbia could increase the costs of its ammonia production.<sup>51</sup> Honeywell states that its facilities, which were designed based upon the historical heat content of the gas at about 1,035 Btu/scf, become less efficient as the heat content of the gas increases. Honeywell claims that if it receives gas with a heat content of 1,050 Btu/scf or 1,065 Btu/scf, its production of ammonia will be reduced, resulting in a loss of revenue of \$3.6 million to \$7.2 million annually.<sup>52</sup>

**c. Commission Determination**

50. The Commission concludes that Columbia’s proposed 1,350 +/- 4% Wobbe Number and maximum heating value of 1,110 Btu/scf are properly supported by five

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<sup>47</sup> ConEd and O&R Initial Comments at pp. 5-6; Policy Statement at ¶ 17.

<sup>48</sup> ConEd and O&R Initial Comments at p. 6.

<sup>49</sup> ConEd Comments at p 6. The rate-of-change of the Wobbe number relates to how rapidly the mixture of gas constituents changes when two or more gas streams of different supply sources are mixed within the pipeline system.

<sup>50</sup> ConEd Comments at p. 6.

<sup>51</sup> Honeywell Comments at p. 12.

<sup>52</sup> Honeywell Comments at p. 11.

years of historical data, and are consistent with the Policy Statement and the Interim Guidelines. The minimum heating value of 967 Btu/scf will stay in effect unchanged.

51. The Policy Statement encourages pipelines proposing to add interchangeability provisions to their tariffs to use the interim guidelines proposed in the Interchangeability Report.<sup>53</sup> That report states that the Wobbe Number “provides the most efficient and robust single index and measure of gas interchangeability.”<sup>54</sup> The Interchangeability Report further recommends that, on an interim basis, pipelines base their interchangeability standards on their “historical gas supply characteristics to accommodate current end users and equipment requirements.”<sup>55</sup>

52. In this case, Columbia has followed these recommendations. Its proposed Wobbe Number of 1,350 is equal to its historic system average Wobbe Number, as shown by its GC data covering five years of historical data. Columbia’s proposed Wobbe tolerance range of plus or minus four percent is the same tolerance range recommended by the Interchangeability Report and is consistent with the GC data. That data shows that only 21 of over 29,000 data points, or 0.08 percent, fell outside that tolerance range. Therefore, based upon its historical GC data, Columbia has supported both the Wobbe Number of 1,350 and the tolerance range of +/- 4%.

53. The Commission rejects the proposal by ConEd and O&R to tighten the proposed tolerance range of the Wobbe Number from plus or minus four percent to plus or minus two percent. ConEd and O&R have not shown that such a tightening of Columbia’s tolerance range is necessary for the safe and efficient operation of gas turbines used in electric generators attached to their systems. Columbia’s existing MSAs contain a tolerance range of plus or minus six percent from a 1,300 Wobbe Number, thus permitting gas with Wobbe Numbers from 1,222 to 1,378 to be received onto Columbia’s system. The GC data for the last five years shows that, with those MSAs in effect, the Wobbe Number of gas flowing on Columbia’s system has averaged about 1,350, with over 99 percent of historical measurements falling within a range of 1,295 to 1,403. ConEd and O&R have made no allegation that the gas turbines of electric generators attached to their systems have experienced any operational problems while the Wobbe provisions of the MSAs have been in effect. Thus, it appears that existing gas flows on Columbia do not have any adverse effect on those gas turbines.

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<sup>53</sup> Policy Statement at P 37.

<sup>54</sup> Report at 18.

<sup>55</sup> Interchangeability Report at p. 23.

54. ConEd and O&R have not shown that Columbia's Wobbe proposal in this proceeding will cause any significant change in the Wobbe Number of gas flowing on Columbia's system, and thus have provided no reason to believe that Columbia's proposal should cause any more operational problems than have occurred in the past. As described above, Columbia is proposing only to transfer the Wobbe Number provisions from its MSAs to its tariff and adjust those provisions to more closely reflect the actual historical characteristics of the gas flowing on Columbia's system. As a result of Columbia's increase in the Wobbe Number and tightening of the tolerance range to plus or minus four percent, gas receipts onto its system will now be permitted to have a Wobbe Number ranging from 1,295 to the 1,400 cap. Thus, the low end of the permitted range will be more restrictive than the 1,222 Wobbe Number allowed under the MSAs, while the high end of the range will increase from 1,378 to 1,400. However, these changes in the permitted range should have little or no effect, since practically none of Columbia's historical measurements over the last five years have fallen outside the revised range.

55. The plus or minus two percent tolerance range proposed by ConEd and O&R would result in a permitted Wobbe Number range of 1,323 to 1,377. Columbia states that over seven percent of the daily Wobbe values in its GC data were outside this range. Thus, ConEd and O&R's proposal would have the net effect of potentially reducing gas supplies which have historically been available to markets on Columbia's system without causing problems in the operation of the gas turbines about which ConEd and O&R are concerned. This would be contrary to the Policy Statement's goal of maximizing the availability of supply, consistent with safety and reliability.<sup>56</sup>

56. For similar reasons, the Commission rejects the proposal by ConEd and O&R to add a provision that the rate of change of Wobbe Number not vary more than plus or minus two percent in six minutes. Columbia's MSAs did not include any such provision, and ConEd and O&R have not alleged that the absence of such a provision in the past caused any operational problems for the relevant gas turbines. Because Columbia's system is reticulated, the gas flows on various portions of its system could change based upon the season or market demands. As a result, a Wobbe rate-of-change for a receipt point in the proximity of either storage fields or other large gas receipts with other pipelines would have little impact, if any, on the Wobbe rate-of-change experienced by downstream customers. This is especially true for ConEd's electric generators which, according to Columbia, are on a portion of ConEd's system that is not directly or exclusively served by Columbia. Moreover, Columbia states that it would be

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<sup>56</sup> Policy Statement at P 30.

operationally difficult, if not impossible, for a pipeline to adhere to a six minute rate of change specification without restricting supply. The Commission accordingly finds ConEd and O&R's alternative proposals to be unsupported by the record evidence, and therefore rejected.

57. The Commission also rejects Honeywell's proposal to lower the maximum heating value from Columbia's proposed 1,110 Btu/scf to either 1,050 Btu/scf for delivery points or 1,065 Btu/scf for receipt points. Columbia's MSAs contained no maximum heating value limit. Honeywell has provided no explanation why the establishment of a 1,110 Btu/scf maximum heating value limit, where none existed before, should cause it to receive gas with a higher heating content than it has historically received. Columbia's GC data shows that the average historical heating value of gas flowing on its system has been 1,036 Btu/scf, without Columbia imposing any maximum limit on the heating value of the gas it will accept at its receipt points.<sup>57</sup> This is almost identical to the 1,035 Btu/scf level at which Honeywell says its equipment operates most efficiently. As Columbia states, imposing a 1,110 Btu/scf maximum limit on receipts into its system simply means that Columbia will no longer accept onto its system any gas with a heating content in excess of that level. It does not mean that all of the gas on its system will actually have a heating value of 1,110 Btu/scf.<sup>58</sup>

58. Moreover, Columbia states that, while historically it has provided gas to Honeywell with a heating content of the 1,035 Btu/scf it desires, almost 13 percent of the GC data points did show a heating value in excess of the 1,050 Btu/scf maximum proposed by Honeywell. Thus, Honeywell's proposal would potentially reduce the available supplies that Columbia has historically received into its system. In comparison, Columbia's maximum heating value limit of 1,110 Btu/scf would potentially exclude only about 20 out of over 29,000 GC data points.<sup>59</sup> Thus, the Commission concludes that Columbia has demonstrated that the proposed maximum heating value of 1,110 Btu/scf is supported by its historical GC data, will allow access to greater supplies and is consistent with both the Policy Statement and the Interim Guidelines.

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<sup>57</sup> Columbia Initial Comments, Harris Affid. at Attachment 2.

<sup>58</sup> Columbia Reply Comments at p. 30.

<sup>59</sup> Columbia Initial Comments, Harris Affid. at Attachment 2.

## 2. Appalachian Exception

59. As described above, the NGC+ White Paper interim interchangeability guidelines include a specific exception from the Wobbe Number and heating value limit for service territories with demonstrated experience with gas supplies exceeding any of the “additional parameters.”

### a. Columbia’s Proposal

60. In section 25.5(h), Columbia proposes an exception to its proposed Wobbe Number and maximum heating value limit for Appalachian gas. Proposed section 25.5(h)(ii) reads as follows:

(ii) Exception: Appalachian Basin Gas may fall outside of the Wobbe Index and heating value limits set forth above as long as it does not unduly contribute to safety and utilization problems. For purposes of this subsection, “Appalachian Basin Gas” refers to natural gas produced in the states of Ohio, Kentucky, West Virginia, Virginia, Tennessee, Maryland, Pennsylvania, and New York.

61. Columbia states that the Appalachian Basin gas it receives often exceeds its proposed maximum 1,400 Wobbe Number and 1,110 Btu/scf maximum heating content. However, Columbia asserts that it has historically been able to accept this gas and deliver it to its customers in the Appalachian Basin with no known safety or utilization problems. As an example, Columbia has a GC monitor located at the inlet side of the Kenova processing plant, which processes about 130 MMcf/d of Appalachian Basin supply originating from eastern Kentucky and southern West Virginia. That data shows that the average Wobbe Number is 1,465 with a range of 1,439 to 1,481<sup>60</sup> and the average calculated heating value is 1,233 Btu/scf with a range of 1,177 to 1,258 Btu/scf.<sup>61</sup> However, Columbia states that it has made deliveries to market areas upstream of the Kenova plant, prior to processing, without problems.

### b. Comments

62. The associations representing Appalachian producers, the Independent Oil and Gas Association of West Virginia and the Ohio Oil and Gas Association, support

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<sup>60</sup> Columbia Initial Comments, Harris Affid. ¶9, Attachment 3.

<sup>61</sup> Columbia Initial Comments, Harris Affid. ¶ 9, Attachment 3.

Columbia's proposed exception to the Wobbe Index and heating value standards for Appalachian production. However, the Ohio Oil and Gas Association asserts that the exception should cover all composition limits, not just the Wobbe Number and heating value limits. Statoil argues that the exception for Appalachian Basin supplies should be extended to receipts in other areas that have been accepted historically with little or no impact on Columbia's system.

**c. Commission Determination**

63. The Commission finds that Columbia's proposed Appalachian Basin Gas exception is generally consistent with the provision of the NGC+ White Paper Interim Guidelines for exceptions to the interchangeability standards for service territories with demonstrated experience with gas supplies exceeding those standards. However, the Commission is concerned that Columbia's proposed tariff language does not define the gas eligible for the exception with sufficient specificity.

64. Proposed section 25.5(h)(ii) defines the "Appalachian Basin Gas" eligible for the exception as all natural gas produced in the states of Ohio, Kentucky, West Virginia, Virginia, Tennessee, Maryland, Pennsylvania, and New York. However, based on Columbia's testimony, it appears that service territories with demonstrated experience with gas supplies exceeding Columbia's proposed Wobbe and heating content limits are located on specific parts of Columbia's system defined by such parameters as the location of processing plants. For example, Columbia supported its proposal with evidence that the service territory upstream of the Kenova processing plant at the Kentucky-West Virginia-Ohio border has received such supplies without problem. Thus, it appears that Columbia may be able to identify specific parts of its system in the Appalachian region where the exception to the Wobbe and heating value limits would apply, and thus the Appalachian Basin exception can be more specific than just identifying all the states in the Appalachian region. Therefore, the Commission directs Columbia to narrowly tailor its Appalachian exception to indicate the portions of the system upstream of certain receipt points where the Wobbe and heating value limits would not apply. If Columbia is not able to perform an analysis for other parts of the system as it did for the portion upstream of Kenova, then Columbia should provide support showing why the Wobbe and heating value exception must apply to all states identified in the proposed exception.

65. The Commission rejects Statoil's request to broaden the exception beyond Appalachian supplies, because Columbia states that other areas of its system do not have experience with gas exceeding its proposed Wobbe Number and heating content limits.

### **3. Total Inerts – Nitrogen**

66. The NGC+ Interim Guidelines for interchangeability include a maximum limit on total inert gases of 4 percent, and Columbia's MSAs included such a limit. For the reasons discussed below, the Commission will approve Columbia's proposal to include this limit in its tariff.

#### **a. Columbia's Proposal**

67. Columbia has proposed, in section 25.5(e), that in order for gas to be accepted onto its system, it must have a 4.0 percent limit by volume of a combined total of carbon dioxide, nitrogen and inerts components, *e.g.*, helium, argon, neon. Columbia states that nitrogen and other inerts, which have no heating value, take up space in its pipeline and reduce the operational efficiency of the pipeline.<sup>62</sup>

68. Columbia states that its proposed 4.0 percent limit on total inerts is supported by its GC data.<sup>63</sup> Columbia says that the average total inerts content of the gas on its system is about 1.5 percent with a standard deviation of 0.75 percent. Columbia also says that less than 1 percent of the data points have total inerts that exceed the 4.0 percent total inert specification. Further, Columbia says that the average nitrogen content is about 0.8 percent with a standard deviation of 0.64 percent and less than 0.14 percent of data points for total nitrogen above the 4.0 percent limit.<sup>64</sup>

69. Columbia states that its proposed 4.0 percent limit on total inerts is consistent with the Interim Guidelines<sup>65</sup> and the standards of other pipelines.<sup>66</sup> Columbia states that its proposed limit can accommodate nitrogen levels up to 4.0 percent to the extent other inerts are minimized. Thus, Columbia's single 4 percent standard applicable to all inerts could permit acceptance of gas with a nitrogen content in excess of the maximum 3.0

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<sup>62</sup> Tariff Filing at p. 6.

<sup>63</sup> Tariff Filing, Harris Affid. at ¶ 19.

<sup>64</sup> Tariff Filing, Harris Affid. at ¶ 20.

<sup>65</sup> Interchangeability White Paper at p. 23.

<sup>66</sup> See, *e.g.*, Equitrans L.P. GT&C at section 4.1(v); Columbia Gulf Transmission Company GT&C at section 25.1(d); National Fuel Gas Supply Corporation GT&C 2.4; Tennessee Gas Pipeline Company GT&C at Article II, section 3(e).

percent nitrogen limit of various other pipelines, such as: Natural Gas Pipe Line Company of America (GT&C section 26.1(j)); ANR Pipeline Company (GT&C at section 13.2(h); and Florida Gas Transmission Company (GT&C at section 2.A.5).<sup>67</sup>

**b. Comments**

70. KeySpan and ConEd argue that Columbia should adopt a separate 2.0 percent maximum for nitrogen, rather than simply limiting total inerts to 4.0 percent. KeySpan and ConEd, which own LNG peak-shaving facilities, are concerned about the concentrations of nitrogen exceeding 2.0 percent. KeySpan claims that the LNG peak-shaving facilities in the Northeast Region have been designed and built based upon historical nitrogen levels which have ranged from about 0.1 percent to 2.0 percent.<sup>68</sup> KeySpan and ConEd contend that the ability of their liquefaction facilities to effectively refill LNG tanks in a timely manner will be seriously affected if the nitrogen concentrations were to increase.<sup>69</sup> Further, KeySpan contends that excess nitrogen may concentrate in the LNG tank system boil-off creating a low Btu gas that must be enriched or blended prior to reintroduction into the distribution system.<sup>70</sup>

71. Other parties claim that 4.0 percent limit on total inerts is too stringent. Indicated Shippers, Dominion and Statoil claim that the 4.0 percent limit on total inerts will hamper the importation of LNG and therefore request a higher limit of 5.0 percent for the total inerts.<sup>71</sup> Statoil states that nitrogen must be added to certain supplies of LNG in order to reduce its heating content to levels compatible with the U.S. domestic gas stream. Statoil also points out that Columbia's proposed 4.0 percent limit on total inerts is less than Dominion Cove Point's 5.0 percent limit on total inerts.<sup>72</sup>

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<sup>67</sup> Tariff Filing at p. 6.

<sup>68</sup> Wilson Affid. at ¶ 20.

<sup>69</sup> ConEd Initial Comments at p. 7.

<sup>70</sup> KeySpan Initial Comments at pp. 15-17; Wilson Affid. at ¶ 20.

<sup>71</sup> Indicated Shippers Initial Comments at pp. 39-40; Statoil Initial Comments at p. 6.

<sup>72</sup> Cove Point has a 4.0 percent limit on nitrogen and maximum of 5.0 percent for total inerts. *See Cove Point LNG Limited Partnership*, 102 FERC ¶ 61,227 at P 16, 27 (2003).

**c. Commission Determination**

72. The Commission approves Columbia's proposed 4.0 percent total inerts limit. Columbia's proposal is consistent with the Interim Guidelines and supported by its GC data showing that the average total inerts content of the gas on Columbia's system is 1.55 percent with a standard deviation of 0.75 percent.<sup>73</sup> The Commission concludes that Columbia has proposed a limit on inerts that will maximize supplies while allowing Columbia to maintain its current operational flexibility.

73. None of the parties requesting either a higher or a lower limit on either total inerts or nitrogen have supported their respective proposals with data or studies. ConEd and KeySpan focus their request for a separate 2.0 percent limit on nitrogen on the ground that nitrogen levels in excess of 2.0 percent could harm the operation of their LNG peak-shaving facilities. However, KeySpan and ConEd have provided no reason to believe that Columbia's 4.0 percent limit on total inerts, which has already been in effect pursuant to its MSAs, will cause the nitrogen content of the gas KeySpan and ConEd receive at their LNG peak-shaving facilities to exceed 2.0 percent or harm their LNG peak shaving facilities. They do not allege that they have had any problem with excess nitrogen while the 4.0 percent limit has been in effect. The 4.0 percent limit represents the maximum percentage of inerts that any natural gas received onto Columbia's system may contain. It is clear from the historical data presented by Columbia that most gas it receives will have a total inert content of significantly less than 4.0 percent and a total nitrogen content of significantly less than 2.0 percent. In fact, the system average level of inerts is only about 1.55 percent and of nitrogen is only 0.8 percent. This is well below the level that KeySpan and ConEd assert could cause problems.

74. The Commission also rejects the request of Indicated Shippers, Dominion and Statoil that the inerts limit be increased to five percent in order to allow Dominion Cove Point to inject more nitrogen into LNG supplies destined for Columbia so as to reduce their heating value to acceptable levels.

75. In response to the concerns of Indicated Shippers, Dominion and Statoil, Columbia states that gas that it receives from Dominion Cove Point contains nitrogen levels well below 2.0 percent, as verified by accessing Dominion Cove Point LNG's EBB.<sup>74</sup> This data suggests that Dominion Cove Point has no need to inject nitrogen in

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<sup>73</sup> Tariff Filing, Harris Aff at P 20.

<sup>74</sup> Columbia Reply Comments at p. 16, note 38.

excess of Columbia's proposed 4.0 limit, and Indicated Shippers, Dominion and Statoil have provided no studies to show otherwise. The Commission concludes that their concerns about impeding the flow of LNG are speculative and unsupported.

**C. Other Specifications**

**1. Carbon Dioxide**

76. For the reasons discussed below, the Commission approves Columbia's proposed 1.25 percent specification for carbon dioxide.

**a. Columbia's Proposal**

77. Columbia's MSAs provide that the gas shall not contain more than one and twenty-five hundredths percent (1.25 percent) by volume carbon dioxide. Columbia proposes to incorporate this requirement into its tariff. Columbia states that its GC data shows that Columbia's system has an average carbon dioxide content of 0.74 percent, with a standard deviation of 0.26 percent.<sup>75</sup> Columbia states that less than 0.4 percent of the GC data points fall outside of the proposed 1.25 percent carbon dioxide specification.<sup>76</sup>

78. Columbia explains that limiting carbon dioxide is necessary because carbon dioxide contributes to pipeline corrosion.<sup>77</sup> Columbia operates an extensive system of underground storage fields that can produce significant amounts of water during withdrawal that collects in the field well lines and header/gathering system.<sup>78</sup> Because of the presence of water, several gas constituents, namely sulfur, carbon dioxide, oxygen and microbes, can have a significant corrosive impact on the storage field piping. As an example, Columbia states that it has experienced an accelerated internal corrosion event, which occurred in a new pipe after only three years of service. While this example is not

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<sup>75</sup> Tariff Filing, Harris Affid. at ¶ 24.

<sup>76</sup> Tariff Filing, Harris Affid. at ¶ 24.

<sup>77</sup> Tariff Filing, Fultineer Affid. at ¶ 10-12.

<sup>78</sup> Storage fields, which were converted from aquifer-driven, or water-driven, producing reservoirs, will produce water in conjunction with the natural gas during the withdrawal cycle. Columbia's storage fields are predominantly aquifer-driven reservoirs.

typical, it demonstrates that under certain conditions in the storage fields, the combination of various corrosive constituents could lead to a public safety and pipeline integrity risk.<sup>79</sup>

79. Columbia also explains that high pressures, as found within Columbia's storage facilities, substantially increase the corrosive effects of carbon dioxide. Columbia claims that pressures of up to 2,350 psi are experienced within its storage field piping.<sup>80</sup> Because of these high pressures, Columbia claims that it necessary to restrict the level of carbon dioxide in order to ensure the integrity of its pipeline facilities.<sup>81</sup> Second, Columbia claims that higher levels of carbon dioxide present problems in the liquefaction process due to the formation of solids that can damage LNG facilities.<sup>82</sup> Columbia states that it currently operates a peak-shaving LNG facility on its system in Chesapeake, Virginia which is designed to accommodate levels of oxygen no greater than Columbia's proposed 1.25 percent specification.<sup>83</sup>

**b. Comments**

80. Indicated Shippers and Independent Producers Association of the Mountain States (IPAMS) contend that Columbia has not shown the need for a 1.25 percent limit on carbon dioxide. Indicated Shippers argue that the Commission should either reject Columbia's proposed carbon dioxide specification of 1.25 percent or require that Columbia provide additional non-privileged data to support the claim that Columbia is making sufficient efforts to remove water caused by its storage operations in order to prevent corrosion in the presence of a 2.0 percent level of carbon dioxide.<sup>84</sup> Indicated Shippers also request that the Commission require Columbia to allow parties discovery rights to seek additional information regarding Columbia's system.<sup>85</sup> IPAMS argues that

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<sup>79</sup> Tariff Filing, Fultineer Affid. at ¶ 6.

<sup>80</sup> Tariff Filing at p.7.

<sup>81</sup> Harris Affid. at ¶ 22.

<sup>82</sup> Harris Affid. at ¶ 23.

<sup>83</sup> Harris Affid. at ¶ 23.

<sup>84</sup> Indicated Shippers Comments at p. 12.

<sup>85</sup> Indicated Shippers Comments at p. 12.

Columbia has failed to differentiate its system from that of other storage operators with high carbon dioxide specifications in order to justify a more stringent specification.<sup>86</sup>

81. Indicated Shippers and IPAMS also argue that Columbia's carbon dioxide specification will interfere with the flow of gas from other pipelines onto Columbia. Specifically, IPAMS states that if Columbia's 1.25 percent carbon dioxide specification is accepted by the Commission, it would be inconsistent with the 2.0 percent carbon dioxide specification common among most interstate pipelines. IPAMS claims that this inconsistency will make it difficult, if not impossible, for sellers to commit to long-term sales agreements where the delivery point is into Columbia's pipeline system. IPAMS contends that the seller of the gas runs the risk of default because Columbia's 1.25 percent carbon dioxide specification may prevent the seller from delivering the gas into Columbia's system for delivery to the buyer if the carbon dioxide content exceeds 1.25 percent.<sup>87</sup>

82. Indicated Shippers and IPAMS similarly argue that Columbia's proposed carbon dioxide limit will interfere with the construction and delivery of gas from the Rockies Express East Project (REX-East) which they say will have a carbon dioxide limit of 2.0 percent.<sup>88</sup> IPAMS claims that when it queried the pipelines in the Rocky Mountain Region, a majority of the interstate pipelines had carbon dioxide concentrations above Columbia's proposed 1.25 percent specification.<sup>89</sup> Thus, the parties conclude that Columbia's proposed carbon dioxide level will either: (1) preclude an interconnection with REX-East; or (2) require special equipment be installed in order to remove carbon dioxide.

83. IPAMS states that it would support a 2.0 percent carbon dioxide specification on Columbia's system.<sup>90</sup> IPAMS claims that the 2.0 percent specification would match

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<sup>86</sup> IPAMS Initial Comments at pp. 1-2.

<sup>87</sup> IPAMS Initial Comments at pp. 2-4.

<sup>88</sup> Indicated Shippers Initial Comments at pp. 14-18; IPAMS Initial Comments at pp. 4-6.

<sup>89</sup> IPAMS examined the Informational Postings of interstate pipelines electronic bulletin boards for gas day data of July 25, 2006, the date of the technical conference in this proceeding. IPAMS Initial Comments at p.5.

<sup>90</sup> IPAMS Initial Comments at p. 7.

REX-East and would not isolate Columbia's shippers and customers from accessing gas supplies from the Rockies or the interstate pipeline grid.<sup>91</sup>

84. ConEd, in contrast, argues that Columbia's carbon dioxide specification should be lowered to 1.0 percent in order to avoid operational concerns with its LNG peaking facilities.<sup>92</sup> ConEd says that Policy Statement recognizes that lower limits for gas specifications might be necessary in order to address concerns of LNG peak-shaving liquefaction plants.<sup>93</sup> As a result, ConEd advocates a 1 percent limit on carbon dioxide on Columbia's system.<sup>94</sup> ConEd requests that the Commission find that Columbia has not demonstrated that its proposed 1.25 percent limit on carbon dioxide is just or reasonable.

**c. Commission Determination**

85. The Commission finds that Columbia has met its burden of proof that its proposed 1.25 percent carbon dioxide limit specification is supported by the technical data in the record of this proceeding. The GC data shows that the concentration of carbon dioxide on Columbia's system averaged 0.74 percent with a standard deviation of 0.26 percent. The GC data also shows that only about 120 data points, or about 0.4 percent, were in excess of Columbia's 1.25 percent carbon dioxide limit specification. This data clearly shows that Columbia's proposed 1.25 percent carbon dioxide limit, which Columbia has successfully used in its MSAs for more than the last 10 years, is consistent with Columbia's historical operations.

86. The Commission rejects the arguments of Indicated Shippers and IPAMS that Columbia has not shown a need to limit carbon dioxide. Columbia has provided evidence that such a limit is necessary in order to mitigate the corrosive effects that this gas constituent has on pipeline facilities when in the presence of water. Columbia explains that its storage fields, which naturally produce water during the withdrawal cycles,<sup>95</sup> create an environment where carbon dioxide can react with water to form

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<sup>91</sup> IPAMS Initial Comments at p. 7.

<sup>92</sup> ConEd Initial Comments at p. 7.

<sup>93</sup> ConEd Initial Comments at p.7; Interchangeability White Paper at p. 23, Recommendation 10.

<sup>94</sup> ConEd Initial Comments at p. 7.

<sup>95</sup> Columbia Initial Comments at p. 20.

carbonic acid. Carbonic acid will increase the probability of internal pipe corrosion. Columbia also explains that the potential of internal corrosion is a function of more than just the concentration of the gas constituent, carbon dioxide, but also includes the physical layout of the facilities, operation of the facilities, quality of the gas stream (or other potential gas components that contribute to corrosion) and the flow dynamics of the pipeline. With its system containing 36 storage fields spanning four states, which consist of over 3,500 wells and over 1,160 miles of various diameter pipelines operating at pressures up to 2,350 psig,<sup>96</sup> Columbia must closely monitor the potential gas constituents, one of which is carbon dioxide, in order to maintain operations and to protect the integrity of the pipeline system.<sup>97</sup>

87. The potential exists for these corrosive constituents, such as carbon dioxide, to enter Columbia's storage facilities where, in the presence of water, can form carbonic acid and contribute to internal corrosion. During the past two years, Columbia provided four examples of internal corrosion leaks in its storage facilities where carbon dioxide was a contributing factor.<sup>98</sup> This is why, Columbia explains, it has incorporated the 1.25 percent limit on carbon dioxide from its MSA into its Tariff Filing in order to control the corrosive constituents before they enter Columbia's system. The Commission agrees with Columbia that it would not be prudent to limit Columbia's ability to continue managing internal corrosion and increase its risk through approval of a higher carbon dioxide specification than that proposed by Columbia. Moreover, as Columbia points out, higher levels of carbon dioxide would present problems for the operation of its peak-shaving LNG facility in Chesapeake, Virginia which is designed to accommodate levels of oxygen no greater than Columbia's proposed 1.25 percent specification.<sup>99</sup>

88. Therefore, the Commission agrees that Columbia must manage the potential corrosive gas constituents through the use of its tariff. Thus, the Commission finds that

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<sup>96</sup> Tariff Filing, Affid. Harris at P7.

<sup>97</sup> Tariff Filing, Affid. Harris at P8.

<sup>98</sup> During a one year period, starting in July 2004 and ending in September 2005, Columbia experienced four separate internal pipe leaks in the Ripley, Pavonia and Benton Fields which were attributed, in part or directly to carbon dioxide.

Columbia's July 14 2006 response to Data Request No. 5(d).

<sup>99</sup> Harris Affid. at ¶ 23. Oxygen is discussed later in this order.

using the 1.25 percent limit on carbon dioxide will provide Columbia with the tools necessary to protect the integrity of its pipe and maintain service to its customers.

89. The Commission also rejects Indicated Shippers' request that the Commission require Columbia to provide non-privileged data to support Columbia's claim that it is making sufficient efforts to remove water from its storage facilities. In addition to the historical GC data that supports Columbia's proposed 1.25 percent limit on carbon dioxide, Columbia has provided details of the water removal devices that it has within each of its storage facilities. These systems include pipeline drips, filter separators, slug catchers and/or pigging facilities.<sup>100</sup> Also, Columbia hired a consultant, Mr. Bruce Cookingham of CC Technologies, Inc., to review and provide assistance to Columbia in evaluating and improving its internal corrosion and water management program.<sup>101</sup> In his Affidavit, Mr. Cookingham states that Columbia "aggressively employs operational pigging, drip blowing, and pipeline sweeping in an effort to remove water and limit corrosion."<sup>102</sup> Mr. Cookingham concludes that Columbia, is taking the appropriate steps to minimize the potential of internal corrosion.<sup>103</sup>

90. Indicated Shippers has not refuted the use of Columbia's mitigation methods nor has Indicated Shippers proposed detailed plans as to how Columbia might improve upon these mitigation measures. Based upon the lack of evidence provided by Indicated Shippers, the Commission finds that Indicated Shippers has not met its burden of proof to show that (1) Columbia is not adequately addressing the corrosion on its facilities caused by carbon dioxide or (2) a higher limit on carbon dioxide is just and reasonable.

91. The Commission also rejects IPAMS' claim that Columbia has not explained why its storage system requires a 1.25 percent carbon dioxide limit, when other storage operators have higher carbon dioxide limits. In its Initial Comments, Columbia provided evidence, through Mr. Harris, detailing how Columbia's storage system is different or "unique" when compared with other storage operators, including those in the same

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<sup>100</sup> Columbia's July 14, 2006 Response to Data Request No. 5(c).

<sup>101</sup> Columbia's Initial Comments at p. 20; Cookingham Affid. at ¶ 6.

<sup>102</sup> Columbia's Initial Comments at p. 20; Cookingham Affid. at ¶ 6.

<sup>103</sup> Columbia's Initial Comments at p. 20; Cookingham Affid. at ¶ 6.

geographic region as Columbia.<sup>104</sup> Using data compiled by the AGA,<sup>105</sup> Columbia compared the characteristics of its storage facilities with ten other storage operators.<sup>106</sup> The data shows that Columbia's storage facilities consist of some of the oldest facilities and the highest miles of pipeline per storage field. IPAMS has not refuted these facts. Therefore, the Commission finds that IPAMS' claim is unsupported.

92. Indicated Shippers' and IPAMS' claim that Columbia's proposed 1.25 percent limit on carbon dioxide will impede markets is also without merit. Columbia's 1.25 percent carbon dioxide limit has been in effect for about 10 years through its MSAs. Yet neither IPAMS nor Indicated Shippers has provided any evidence that the fact Columbia's limit is lower than that of other interconnecting pipelines has adversely affected long-term contracting or the flow of gas from other pipelines onto Columbia.

93. The historical GC data provided by Columbia show that the average carbon dioxide concentration of the gas on its system is 0.74 percent.<sup>107</sup> The Commission agrees with Columbia that this clearly demonstrates that Columbia was able to accommodate gas, with varying gas specifications, and has not impeded the flow of gas on its system to date and should not in the future.<sup>108</sup> With no evidence to support their claims, the Commission rejects Indicated Shippers' and IPAMS' argument that Columbia's proposed 1.25 percent limit on carbon dioxide will impede market development and gas flow between interstate pipelines.

94. The Commission also finds that Indicated Shippers' and IPAMS' assertion that Columbia's carbon dioxide specification will impede the flow of gas supplies from the

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<sup>104</sup> Tariff Filing at p.19.

<sup>105</sup> Columbia Initial Comments, Exhibit B (Source – AGA's 2004 Survey of Underground Storage Operators").

<sup>106</sup> Columbia Initial Comments, Exhibit B.

<sup>107</sup> Columbia Reply Comments at p. 13; Tariff Filing, Harris Affid. at ¶ 24.

<sup>108</sup> Columbia Reply Comments at pp. 13-14.

planned REX-East project is speculative. To date, no certificate application for the REX-East project has been filed with the Commission.<sup>109</sup> The Commission concludes that concerns regarding carbon dioxide concentrations in the Rockies gas raised by Indicated Shippers and IPAMS are speculative and unsupported in the record of this proceeding.

95. ConEd and O&R's request to have the Commission require Columbia to reduce the proposed 1.25 percent carbon dioxide limit to 1.0 percent is also denied. ConEd and O&R assert that their LNG peak shaving plant would experience operational difficulties, if it receives gas with a carbon dioxide in excess of 1.0 percent. However, there is nothing to indicate that Columbia's proposal will cause the peak shaving plant to receive gas with carbon dioxide content in excess of 1.0 percent. The 1.25 percent limit, which has already been in effect for a number of years through the MSAs, is only an upper limit on the carbon dioxide content of the gas that Columbia will accept onto its system. It does not mean that all gas flowing on Columbia's system will have that level of carbon dioxide content. In fact, the GC data shows that over the last five years while that limit has been in effect the concentration of carbon dioxide on Columbia's system averaged only 0.74 percent with a standard deviation of 0.26 percent. This is well within the range that ConEd and O&R say is acceptable for their peak shaving plant. Moreover, they do not allege that there have been any operational problems at the peak shaving plant. For the future, ConEd and O&R state they will receive a significant portion of their gas from Millenium Pipeline Company, L.P. which will share certain facilities with Columbia and they may receive a substantial portion of their gas from Columbia. Thus, whether and how much gas they will receive from Columbia is uncertain.

96. The Commission concludes that Columbia's proposed carbon dioxide standard is reasonable.

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<sup>109</sup> On September 21, 2006, the Commission issued a Preliminary Determination on non-environmental issues in Docket No. CP06-354-000 "Rockies Express West Project. On November 22, 2006, the Commission issued an Order Granting Rehearing in Docket No. CP06-354-001. Rockies Express is a Delaware limited liability company that is wholly owned by West2East Pipeline LLC (West2East). West2East is currently owned 51 percent by a subsidiary of Kinder Morgan Energy Partners, L.P (Kinder Morgan), 25 percent by a subsidiary of Sempra Energy, and 24 percent by a subsidiary of ConocoPhillips.

## 2. Oxygen

### a. Columbia's Proposal

97. Columbia proposes to adopt as section 25.5(g), the existing specification in the MSAs, that gas contain less than two one hundredths percent (0.02 percent) by volume of oxygen.<sup>110</sup> Columbia states the 0.02 percent limit is necessary because, like sulfur and carbon dioxide, oxygen contributes to corrosion.

98. Columbia states that its GC data shows that the average oxygen content on its system is about 0.007 percent with a standard deviation of 0.007 percent. This is below the proposed 0.02 percent maximum level and is more lenient than the 0.01 percent standard that several pipelines now impose.<sup>111</sup>

### b. Comments

99. Indicated Shippers claims that Columbia has not supported its proposed 0.02 percent limit on oxygen.<sup>112</sup> Indicated Shippers contends that Columbia's oxygen content is more restrictive than employed by most pipelines, asserting that 21 out of 25 pipelines with oxygen limits in their tariff have limits of 0.2 percent or higher.<sup>113</sup> Indicated Shippers claim that Columbia has not demonstrated that oxygen levels above the proposed limit of 0.02 percent will cause an increase in corrosion. Indicated Shippers contend that Columbia has based the 0.02 percent oxygen level on the basis of historical gas composition and a generality that more oxygen will cause corrosion.<sup>114</sup> Indicated Shippers claim that Columbia has not provided satisfactory explanation regarding its operations and effort to dry its system through water removal.<sup>115</sup> Indicated Shippers allege that Columbia has not provided other technical data needed to evaluate Columbia's

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<sup>110</sup> Tariff Filing at p. 7.

<sup>111</sup> Columbia cites, for example; Natural GT&C at section 26.1(a); Entrega Gas Pipeline LLC GT&C at section 5.2(d); Colorado Interstate Gas Company at section 9.1(a)(iii). Tariff Filing, Harris Affid. at ¶ 27.

<sup>112</sup> Indicated Shippers Initial Comments at p. 24.

<sup>113</sup> Indicated Shippers Initial Comments, Appendix B.

<sup>114</sup> Indicated Shippers Initial Comments at p. 29.

<sup>115</sup> Indicated Shippers Initial Comments at p. 30.

need for its proposed oxygen limit. Indicated Shippers also contend that Columbia's proposed standard will impede the flow of gas from other pipelines onto Columbia. Indicated Shippers claim that Columbia has received historical gas supplies in excess of Columbia's proposed 0.02 percent level. Indicated Shippers concludes that the imposition of this limit would impede the transport of those historic supplies.<sup>116</sup>

100. Indicated Shippers also claim that Columbia's proposed oxygen specification could impede LNG sources by potentially limiting one of the methods that LNG terminals use to produce nitrogen for injection into the re-vaporized LNG for the purpose of reducing the Wobbe Number.<sup>117</sup> Indicated Shippers says that nitrogen is produced by separating air into oxygen and nitrogen. There are two principal methods of air separation; cryogenic and membrane generation. The cryogenic process cools the air to cryogenic temperatures and then separates the gases through distillation by successive condensation and evaporation cycles. The membrane process uses canisters with special filters that retain nitrogen while letting oxygen and other components out. Indicated Shippers claim that Columbia's 0.02 percent oxygen limit could limit the use of the membrane generation method, which is less costly than the cryogenic process. That is because the nitrogen produced through the membrane process will contain some residual levels of oxygen. Because of the residual amounts of oxygen retained by the membrane process, Indicated Shippers claims that the resulting re-vaporized LNG may not always meet Columbia's strict 0.02 percent oxygen limit. Thus, Indicated Shippers conclude that Columbia's 0.02 percent oxygen limit may impede access to supplies of LNG.<sup>118</sup>

**c. Commission Determination**

101. The Commission finds that Columbia has met its burden of showing that its proposed 0.02 percent oxygen limit is reasonable. Columbia's proposal represents a continuation of the existing 0.02 percent oxygen limit in Columbia's MSAs. The GC data shows that the historical concentration of oxygen on Columbia's system is 0.0075 percent, with a standard deviation of 0.0072 percent.<sup>119</sup> Thus, the limit is consistent with historical gas flows on Columbia's system.

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<sup>116</sup> Indicated Shippers Initial Comments at pp. 25-26.

<sup>117</sup> Indicated Shippers Initial Comments at p. 26.

<sup>118</sup> Indicated Shippers Initial Comments at p. 28.

<sup>119</sup> Tariff Filing; Harris Affid. at ¶ 26.

102. The Commission finds that Columbia has justified the need to control oxygen in order to prevent internal corrosion on its pipeline system in each storage field, because oxygen causes corrosion in the presence of water. The Commission rejects Indicated Shippers' contention that Columbia has failed to properly manage and remove naturally occurring water on its system. The Commission has already concluded in the section on carbon dioxide that Columbia is taking prudent measures to control the water production at its storage fields; and therefore, Indicated Shippers' claim is without merit.

103. In arguing that Columbia has not justified the need for a 0.02 percent oxygen limit to prevent corrosion, Indicated Shippers rely in part on a Pipeline Research Council International ("PRCI").<sup>120</sup> However, the Commission finds that the PRCI report provides additional support for Columbia's proposed oxygen limit.<sup>121</sup> Specifically, the PRCI report discusses a decision tree that should be considered when determining whether or not the pipeline should accept gas based upon a corrosion perspective.<sup>122</sup> When evaluating the corrosive component, such as oxygen, the pipeline has to consider whether or not the receipts are located near storage or production fields as these locations will have an increased probability of the presence of water.<sup>123</sup> This is the case for Columbia's system. The PRCI report also states that the "(i)nternal corrosion studies indicate that the O<sub>2</sub> content has to be controlled to be less than 100 ppmv (preferably 10 ppmv) to ensure that severe localized corrosion does not occur."<sup>124</sup> The PRCI report's recommendation of 100 ppmv is much lower than Columbia's proposed 0.02 percent, or 200 ppmv, specification in this proceeding.

104. Indicated Shippers' claim that Columbia's oxygen specification will impede the transport of historical supplies is also without merit. Columbia's GC data shows that

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<sup>120</sup> Pipeline Research Council International, Inc., "Guidelines/Quality Standards for Transportation of Gas Containing Mixed Corrosive Constituents," PR-015-031131, at pp. 6 and 17.

<sup>121</sup> Columbia notes that Transwestern pipeline Company LLC ("Transwestern") filed a copy of the PRCI report in support of its proposal to adopt a 0.01 percent (100 ppmv) oxygen specification. *See* Transwestern's section 4 filing in Docket No. RP06-614-000, dated September 29, 2006, Exhibit No. TW-3.

<sup>122</sup> PRCI report, at page no. v.

<sup>123</sup> PRCI report, at page no. v.

<sup>124</sup> PRCI report, at page no. v.

only three percent of the data points indicated oxygen in excess of the 0.02 percent limit, and Indicated Shippers have provided no evidence of Columbia refusing to receive a significant amount of gas due to excess oxygen during the over ten years this limit has already been in effect.

105. Indicated Shippers' claim that Columbia's proposed oxygen limit will impede LNG supplies is also without merit. Indicated Shippers is concerned that the limit will prevent LNG suppliers from using the membrane generation method of obtaining nitrogen for injection into the LNG to reduce its heating content. This position is speculative and not supported in the record in this proceeding.

106. Currently, only Dominion Cove Point LNG delivers re-vaporized LNG into Columbia's system. The method of producing nitrogen utilized by the Dominion Cove Point LNG terminal is cryogenic generation. This process, as described by Indicated Shippers, will not cause any difficulty in meeting Columbia's oxygen limit of 0.02 percent. The other LNG facility, Crown Landing, L.L.C., which could possibly provide re-vaporized LNG into Columbia's pipeline system, has also proposed to use a cryogenic process.<sup>125</sup> Further, Indicated Shippers has not provided evidence to support that either Crown Landing, L.L.C. or any other proposed LNG terminal will use any other method of producing nitrogen other than cryogenic generation. Therefore, the Commission concludes that Indicated Shippers claim that Columbia's proposed 0.02 percent limit on oxygen will impede the transport of re-vaporized LNG is speculative and without merit.

### **3. Sulfur**

#### **a. Proposal**

107. Section 25.5(c) of Columbia's tariff currently provides that gas shall not contain more than 20 grains of total sulfur per one hundred standard cubic feet (gr/100 scf). However, its MSAs have limited sulfur to 2 gr/100 scf. Columbia proposes to revise its tariff to limit sulfur to 2 gr/100 scf, consistent with the MSAs. Columbia states that it is proposing a stricter sulfur requirement in order to protect its system from corrosion.

108. Columbia's GC data shows that the average sulfur content for gas flowing on its system is approximately 0.22 gr/100 scf with a standard deviation of 0.20 gr/100 scf for these locations. Columbia asserts that this data explains why Columbia has had almost

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<sup>125</sup> Crown Landing, LLC, in Docket No. CP04-411.

no instances of gas failing to conform to the 2 gr/100 scf total sulfur requirement in the MSAs. Columbia argues that its proposed 2 gr/100 scf total sulfur standard is consistent with several other pipelines.<sup>126</sup>

**b. Comments**

109. Indicated Shippers oppose Columbia's proposal to reduce its sulfur limit from 20 gr/100 scf to 2 gr/100 scf and assert that Columbia's proposed sulfur limit departs significantly from the "Contract Limits" set forth in the table in the affidavit of Columbia's witness, Mr. Fultineer, which shows a range of 5-20 gr/100 scf. Indicated Shippers state that Mr. Fultineer does not explain why Columbia's proposed standard is well below the low end of the range of limits for the contracts in the table. Indicated Shippers assert that none of the other pipelines cited by Columbia as having sulfur limits similar to its proposed limit are interconnected with Columbia or located in the same general region. Indicated Shippers argue that several pipelines that are interconnected with Columbia's system have tariff sulfur standards that are more flexible than Columbia's proposed standard. Indicated Shippers assert that Equitrans L.P. (Equitrans) and Texas Eastern Transmission, LP (Texas Eastern) have a sulfur limit of ten grains and Dominion Transmission Inc. (DTI) has a sulfur limit of 20 gr/100 scf. Indicated Shippers argue that Columbia's proposed 2 gr/100 scf sulfur limit raises serious concerns that the quality of the gas transported in interconnected pipeline systems would be incompatible with Columbia's proposed specification. Indicated Shippers state that Columbia does not indicate how it would deal with gas that contains a sulfur content beyond the proposed level.

110. Various customers of Columbia seek an even lower sulfur limit. ConEd and O&R argue that the 2 gr/100 scf would allow a significant increase in the sulfur levels of gas delivered to them and that EPA regulations, on which most Clean Air Act permits are based, define "natural gas" as having sulfur levels of 0.5 gr/100 scf. ConEd and O&R further argue that, in their service territory, at least one permit presumes that sulfur levels are 0.09 gr/100 scf, which is consistent with historical levels.

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<sup>126</sup> Columbia states that Natural Gas Pipeline Company of America has a one-half (1/2) gr/100 scf total sulfur requirement in section 26.1(d) of the GT&C of its tariff. TransColorado Gas Transmission Company has a three-quarter (3/4) gr/100 scf total sulfur requirement in section 11.4 of the GT&C of its tariff. Section 5.14 of the GT&C of Northern Border Pipeline Company's tariff and section 25.3(g) of the GT&C of Crossroads' tariff both use a 2 gr/100 scf total sulfur requirement.

111. Honeywell states that, if deliveries of gas to Honeywell contain sulfur exceeding 0.38 gr/100 scf, its ammonia plant would be above its permit level. It asserts that Columbia should be required to set a maximum sulfur delivery point standard level and to monitor sulfur at least monthly, if not daily, rather than on a quarterly basis.

112. KeySpan argues that Columbia's proposed 2 gr/100 scf receipt point limit on total sulfur in section 25.5(d) is too high given Columbia's system average sulfur content of .22 gr/100 scf and should be lowered to 0.5 gr/100 scf. KeySpan states that Columbia's own data shows that overall sulfur levels on Columbia's system are often undetectable and could therefore be safely lowered to 0.5 gr/100 scf. KeySpan asserts that the potential downstream cost impact of excessive sulfur levels in gas delivered by Columbia is significant. KeySpan argues that permitting sulfur levels to increase to as much as 2 gr/100 scf would increase SO<sub>2</sub> emissions by more than nine times the amount associated with 0.5gr/100 scf and increase KeySpan's emissions-related costs by more than \$96,000 annually. KeySpan also argues that Indicated Shippers' comments fail to account for downstream impacts.

**c. Commission Determination**

113. We will accept Columbia's proposal to replace its current 20 gr/100 scf tariff limit on sulfur with its existing MSA 2 gr/100 scf limit. The data shows that the average sulfur content for the spot samples taken at various points on Columbia's system is approximately 0.22 gr/100 scf, which is much lower than the proposed limit. Furthermore, Columbia states that it has had almost no instances of gas failing to meet the existing 2 gr/100 scf MSA limit on its system. Columbia provided, as Attachment E to its July 14, 2006, data request response, the sulfur content of its samples taken from May 24, 1999 through May 17, 2006. Review of this detailed data shows that the sulfur content of the samples only exceeded 2 gr/100 scf twice during that seven year period.<sup>127</sup> Although Columbia's current tariff provides for a sulfur limit of 20 gr/100 scf, Columbia has been operating its system with the more restrictive 2 gr/100 scf in its MSAs since, according to Mr. Daniel Harris, approximately 1996<sup>128</sup> and has not experienced problems on its system at that level.

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<sup>127</sup> The sulfur content was 2.39 gr/100 scf on August 13, 2002 and 4.14 gr/100 scf on July 19, 2004.

<sup>128</sup> See paragraph 9 of Mr. Harris' affidavit submitted as Exhibit 1 to Columbia's May 22, 2006 filing.

114. We will not require Columbia to retain the existing 20 gr/100 scf tariff limit, as proposed by Indicated Shippers. The total sulfur graph in Attachment 1 to Mr. Harris' Affidavit shows that almost no gas in Columbia's existing supply has a sulfur content in excess of 2 gr/100 scf. Furthermore, as Columbia points out, Indicated Shippers have not presented any data or evidence to demonstrate that total sulfur levels on pipelines interconnected to Columbia will fail to meet Columbia's 2 gr/100 scf specification.

115. We also reject the requests by various Columbia customers that the sulfur limit be reduced to a level between 0.38 and 0.5 gr/ 100 scf. The proposed 2 gr/100 scf limit has been in effect in the MSAs for a number of years without any evidence that it has caused any of the various problems about which the customers express concern. The average sulfur content of gas flowing on Columbia's system has been 0.38 gr/100 scf, a level which the customers all say meets their needs. Finally, we reject Honeywell's proposal to require Columbia to monitor its sulfur content on a daily or monthly, rather than quarterly, basis. Attachment E to Columbia's July 14, 2006, data request response and Columbia's December 7, 2006, response to Data Request No. 3 show that Columbia currently monitors sulfur on a quarterly basis. Honeywell has not provided any evidence showing that quarterly monitoring of the sulfur content has resulted in, or will result in, any damage.

#### **4. Flowing Gas Temperature Proposal**

116. Columbia initially proposed to adopt the provision from its MSA that gas shall have a flowing temperature of no greater than 100°F. However, Columbia stated in its October 6, 2006 status report that, as a result of its discussions with its customers and other parties, it will increase its proposed maximum temperature from 100°F to 120°F. There is no opposition to Columbia's revised proposal and accordingly it is accepted.

#### **5. Water**

117. Columbia proposes to adopt as section 25.5(b) its MSA provision that gas not contain more than seven pounds of water vapor per million cubic feet of gas at standard conditions.

118. ConEd and O&R assert that Columbia's proposed water specification is not sufficient to ensure proper operation of ConEd's LNG peak-shaving plant. They contend that the plant would experience operational difficulties if the gas it receives has water in excess of six pounds per million cubic feet of gas. However, as with the other proposed standards to which ConEd and O&R have objected, Columbia's proposed water standard has been in effect for a number of years, and ConEd and O&R do not allege that their

peak shaving plant has had any operational problems due to receiving gas with excess water. Therefore, the Commission finds that Columbia's proposed specifications for water are just and reasonable.

**D. Delivery Point Standards**

**1. Columbia's Proposal**

119. Columbia's existing tariff section 25.5<sup>129</sup> contains six standards that apply to both gas that is received by the pipeline and gas that is delivered by the pipeline. The first standard states that gas received and delivered "shall be commercially free from particulates or other solid or liquid matter which might interfere with its merchantability or cause injury to or interference with proper operation of the lines, regulators, meters and other equipment of Transporter."<sup>130</sup> The second provides that gas delivered shall not contain more than 0.25 grains of hydrogen sulfide per 100 cubic feet of gas. The third provides that the gas delivered shall not contain more than twenty grains of total sulfur per 100 cubic feet.

120. The fourth standard states that when odorized gas is delivered the quality and specifications of the gas shall be determined prior to the addition of the malodorant and with allowance for changes to the gas due to the malodorant. The fifth states that Columbia may refuse to accept gas or may impose additional gas quality specifications and restrictions to limit elements or compounds that, among other things, may interfere with the merchantability of the delivered gas. The sixth states that Columbia may impose restrictions on the temperature of flowing gas or on the Utilization Factor of the gas if it determines that they are necessary to, among other things, insure the merchantability of the delivered gas.

121. In its May 22 Filing at issue here, Columbia revised section 25.5 to make section 25.5 applicable only to gas received by the pipeline and inapplicable to gas delivered by

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<sup>129</sup> Columbia Gas Transmission Corporation, FERC Gas Tariff, Second Revised Volume No. 1, Third Revised Sheet No. 406; First Revised Sheet No. 407.

<sup>130</sup> *Id.*, Third Revised Sheet No. 406.

the pipeline. Columbia also proposed new section 25.6, Quality Standards for Gas Delivered by Transporter, for gas delivered by the pipeline. Section 25.6 was similar to existing section 25.5 (a). Section 25.6 provided:

All gas delivered to Shipper hereunder shall be commercially free (at prevailing pressure and temperatures in Transporter's Pipeline) from objectionable particulates or other solid or liquid matter that might interfere with its merchantability or cause injury to or interference with proper operation of the lines, regulators, meters and other gas handling equipment through which it flows.<sup>131</sup>

122. Columbia asserted that this proposed new provision is nearly identical to that approved by the Commission for Crossroads Pipeline Company ("Crossroads") and that its proposal is even more protective of shippers than the Crossroads provision because it adds that the quality of gas cannot interfere with its "merchantability" as a criterion for delivered gas.<sup>132</sup>

123. Columbia also asserts the *Policy Statement* supports its proposed tariff language when it states that a tariff should include the natural gas quality specifications for gas that the pipeline will deliver to its customers.<sup>133</sup> Columbia contends the *Policy Statement* uses the term "gas quality" to refer to "the impact of non-methane hydrocarbons on the safe and efficient operation of pipelines, distribution facilities and end-user equipment."<sup>134</sup> Columbia asserts the *Policy Statement* expressly does not cover other materials commonly found in natural gas, such as water, sand, sulfur compounds, oxygen, carbon monoxide, carbon dioxide, nitrogen, helium and other materials.<sup>135</sup> Thus, Columbia asserts any attempt to use the *Policy Statement* to argue for delivery point specifications for these constituents is erroneous.<sup>136</sup>

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<sup>131</sup> MARKED VERSION, Sheet No. 407.

<sup>132</sup> See May 22 filing at 9, Columbia Answer at 18.

<sup>133</sup> Columbia, Reply comments at 36.

<sup>134</sup> Policy Statement. at P 5.

<sup>135</sup> *Id.* at P 5 n.4.

<sup>136</sup> Columbia, Reply Comments at 36.

124. Subsequently, in a status report filed October 6, 2006, Columbia proposed to eliminate the merchantability term from proposed section 25.6.<sup>137</sup> Ultimately, in its December 7, 2006 data response filing, Columbia submitted pro forma tariff sheets proposing its quality standards for gas delivered as section 25.7 with the merchantability provision deleted as follows:

All gas delivered to Shipper hereunder shall be commercially free (at prevailing pressure and temperatures in Transporter's Pipeline) from objectionable particulates or other solid or liquid matter which might ~~interfere with its merchantability~~ or cause injury to or interference with proper operation of the lines, regulators, meters and other gas handling equipment through which it flows.<sup>138</sup>

125. In its Initial Comments, Columbia states it made the change to remove the merchantability language because of the concerns of some parties regarding unquantified general merchantability standards.<sup>139</sup> It also states that removal of its merchantability language is consistent with the *Policy Statement* in which the Commission stated it would not require such provisions.<sup>140</sup> Columbia states that the *Policy Statement* provides that pipeline tariff provisions that contain detailed technical specifications for gas quality and interchangeability may be sufficient without the addition of a general merchantability provision. Columbia states it meets this standard. Columbia states that its proposal also conforms to the *Policy Statement*<sup>141</sup> because it provides gas quality specifications for gas that it will deliver to its customers, *i.e.*, that the gas delivered shall be commercially free

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<sup>137</sup>According to Columbia's Initial Comments at p.24, the proposal would be revised as follows:

All gas delivered to Shipper hereunder shall be commercially free (at prevailing pressure and temperatures in Transporter's Pipeline) from objectionable particulates or other solid or liquid matter that might interfere with ~~its merchantability~~ or cause injury to or interference with proper operation of the lines, regulators, meters and other gas handling equipment through which it flows.

<sup>138</sup> Pro Forma Original Sheet No. 408.

<sup>139</sup> Columbia, Initial Comments at p.24.

<sup>140</sup> Policy Statement at P 43.

<sup>141</sup> *Id.* at 35.

at prevailing pressure and temperature in its pipeline from objectionable particulates or other solid or liquid matter that might interfere with or cause injury or interference with proper operation of lines regulators, meters and other gas handling equipment through which it flows.<sup>142</sup> Columbia also states that the concern that it will deliver unmerchantable gas to its customers is obviated provided that Columbia abides by the gas quality specifications it proposes on gas receipts and grants waivers consistent with proposed section 25.9.

## 2. Comments

126. Numerous Parties protested Columbia's proposal to make the specified standards contained in section 25.5 applicable to only receipts and objected to the language proposed in new section 25.6. KeySpan claims that Columbia needs to adopt more detailed delivery point specifications, or at a minimum retain its merchantability clause.<sup>143</sup> Honeywell argues that the Commission should order Columbia to modify its proposal by providing for full delivery point standards.

127. The Cities argue that Columbia should adopt more detailed delivery point specifications as recently required in the Commission's Policy Statement.<sup>144</sup>

128. Several LDCs and end users object to Columbia's proposal to remove "merchantability" from its existing tariff language.<sup>145</sup> They state the merchantability

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<sup>142</sup> Hydrocarbon liquid drop out falls under this tariff provision. In response to Honeywell's concern, Columbia also submits that this language applies to dust, gum, gum forming constituents, paraffin and other particulates. However, Columbia asserts, total sulfur is not covered by the Policy Statement and thus would not be included in the scope of section 25.6, now section 25.7.

<sup>143</sup> KeySpan Reply Comments at 5-7. May 22 Filing, MARKED VERSION, Sheet No. 407.

<sup>144</sup> Cities Reply Comments at 3, *citing Policy Statement* at P 35 (stating that "the tariff should state the natural gas quality specifications for gas that the pipeline will deliver to its customers.").

<sup>145</sup> *See, e.g.* Initial Comments of KeySpan Delivery Companies at 9, Initial Comments of NiSource Distribution Companies at 3, Initial Comments of Washington Gas Light Company at 4, Initial Comments of the Cities of Charlottesville and Richmond Virginia and the City of East Maryland ("Cities") at 15, Initial Comments of PSEG Energy Resources & Trade LLC ("PSEG") at 2.

commitment to customers is of paramount importance and Columbia has not presented a justification for changing this existing tariff provision.

129. KeySpan asserts that the Commission should direct Columbia either to have gas delivery specifications or to maintain the merchantability provision. KeySpan and WGL both assert that Columbia's tariff should define merchantability in order to protect their system and the systems of other downstream entities. WGL proposes that Columbia's language should make clear that the gas delivered by the pipeline will not harm shippers' systems. Public Service Company of North Carolina contends that the Commission should require Columbia to file comprehensive delivery point standards, akin to the specified standards applicable to receipts.

130. BG&E and KeySpan express their concern that Columbia's standards not compromise their ability to operate LNG peak shaving plants, and BG&E states that if it is required to undergo changes to its peak shaving facility or otherwise incurs damages due to deliveries of poor quality LNG via Columbia, then BG&E should be compensated through a tariff surcharge.

131. Several parties support, at least in part, Columbia's proposal regarding delivery point standards and removal of its merchantability language. Dominion Cove Point LNG, LP and Dominion Transmission, Inc ("Dominion"), for example, assert that because pipelines no longer own the gas they transport for shippers, the pipelines rely on those shippers to tender gas that conforms to the applicable receipt point standards, and thus can only deliver conforming gas at downstream points to the extent that they receive such gas from its shippers. According to Dominion, requiring pipelines to adopt delivery point specifications would need to be coupled with corresponding OFO authority to ensure compliance at the receipt end. Dominion further states that the need for new sources of gas supply will likely require gas that may have different characteristics from historical supply. Accordingly, leaving this new supply to challenges that it is not "merchantable" because it may differ from historical supply will discourage infrastructure and new supply development.<sup>146</sup>

132. Indicated Shippers support the removal of the term merchantability from new section 25.6 of Columbia's tariff and object to the term remaining in existing language in what is now section 25.8.<sup>147</sup> Indicated Shippers also take issue with KeySpan's proposal that Columbia must either adopt specific numerical delivery point standards or a clearly

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<sup>146</sup> Dominion, Reply Comments at p. 6-7.

<sup>147</sup> Indicated Shippers, Initial Comments at p. 45.

defined merchantability provision. They assert that because gas in Columbia's system is used, transported and stored in different ways it is difficult to clearly define merchantability. They argue that the Commission has already determined that quality specifications should not be designed on a "lowest common denominator" basis, and thus that the Commission should not allow the development of delivery point specifications to result in tighter receipt point standards.<sup>148</sup>

### 3. Commission Decision

133. The Commission rejects as unsupported and unjust and unreasonable Columbia's proposed delivery standard provision. Columbia's sole argument in its May 22 filing for the adoption of section 25.6 is that it is "nearly identical" to a provision accepted by the Commission for Crossroads. Columbia provided virtually no empirical data to support its vague and broad delivery point provision. While Columbia may be correct that proposed section 25.6 is "substantially similar" to the provision approved by the Commission for Crossroads, Columbia submits no information as to why that provision is just and reasonable for Columbia's system. As explained in the Policy Statement, "the appropriate gas quality specifications for different pipelines may vary depending on a number of factors, including pipeline configuration, geographic location of the pipeline, access to and location of processing facilities, flowing gas temperatures and pressures, average ambient ground temperatures and source of gas supply."<sup>149</sup> Columbia makes no effort to compare its system to Crossroads in a manner that would support the adoption of similar quality standards for the two systems. Absent such a showing the Commission cannot find that Columbia's provision is just and reasonable based on the claim that the language of the provisions is similar.<sup>150</sup>

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<sup>148</sup> Indicated Shippers, Reply Comments at p. 12-13, *citing ANR*, 116 FERC ¶ 61,002 (2006) at P 59.

<sup>149</sup> Policy Statement at P 35.

<sup>150</sup> In its June 14, 2006, Answer, Columbia makes a similar argument, claiming that "numerous other interstate pipelines impose the gas quality specifications in their tariff only on the gas received by the pipeline and not on the gas delivered to shippers... [and] these pipelines have a provision in their tariffs similar to that which Columbia proposes in section 25.6." Answer at 18-19. Again, this argument fails based on the lack of any showing of the similarity of the necessary gas quality specifications of those pipelines to Columbia.

134. Accordingly, based on the Commission's rejection of proposed section 25.6, Columbia is directed to retain the existing provisions of section 25.5 relating to gas delivered by the pipeline consistent with the discussion above, with one exception. As discussed above, the Commission has accepted Columbia's proposal to replace its current 20 gr/100 scf tariff limit on sulfur with its existing MSA 2 gr/100 scf limit. Accordingly, consistent with that determination, the Commission directs Columbia to apply that standard to deliveries as well. As noted elsewhere in this order with regard to the MSAs, Columbia's existing standards have allowed Columbia to operate its system with a minimum of gas quality related operational problems and corresponding lack of shipper complaints as to the quality of gas that they have been receiving.

135. As part of the directive to retain existing section 25.5 as relates to deliverability standards, Columbia is also ordered to retain the existing merchantability language and make it applicable to those delivery standards. The Commission finds that Columbia's arguments to remove that clause from proposed section 25.6 lack merit, and that Columbia's reliance on the Policy Statement to support its request is misplaced. While the Policy Statement states that the Commission will not require the inclusion of merchantability clauses, Columbia has such a term in its existing tariff and has not made a compelling argument that removal of that clause is just and reasonable.

136. The Commission further denies BG&E's requests for a surcharge to compensate BG&E for any potential future changes to its facilities or damages incurred as a result of Columbia's delivery of "poor" LNG.<sup>151</sup> The Commission finds that BG&E's request for a surcharge is unsupported by any evidence, lacks merit and is speculative at best.

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<sup>151</sup> Further, the Commission finds that KeySpan's arguments regarding the potential effect of Columbia's quality standards on KeySpan's LNG peak shaving facilities are without merit. KeySpan's arguments to this effect are undermined by the fact that KeySpan's facilities are not directly connected to Columbia's system.

**E. Waivers****1. General Waiver Authority**

137. Columbia proposes to include in section 25.10 of its tariff procedures for granting waivers of its gas quality specifications. Proposed section 25.10 reads as follows:

**25.10 Waiver.**

(a) Transporter, in its reasonable discretion and judgment, exercised on a not unduly *discriminatory*<sup>152</sup> basis, may accept gas that does not conform to the quality specifications in section 25, provided that Transporter determines that such acceptance will not interfere with its ability to:

(1) maintain an acceptable gas quality in its pipeline through prudent and safe operation of Transporter's pipeline system and any related storage facility; (2) ensure that such gas does not affect Transporter's ability to provide service to its customers consistent with the applicable Rate Schedule and these General Terms and Conditions; and (3) ensure that such gas does not adversely affect Transporter's ability to deliver gas at its delivery points. All requests for waiver subsequent to the effective date of this section 25.10 shall be submitted to Transporter in writing. Transporter will post any waivers granted pursuant to this section on its EBB.

(b) All waivers granted pursuant to this section shall be subject to suspension, to the extent necessary to (i) ensure the operational integrity of Transporter's system, (ii) enable Transporter to meet its firm service obligations, (iii) facilitate the flow of natural gas during times of emergency and/or periods of force majeure, or (iv) for failure to comply with specifications for which the waiver was granted, such as a deviation from the historical composition or volume. The duration of suspension shall vary depending on the specific circumstances and conditions presented. Notice of suspension shall be posted on Transporter's EBB and shall be immediately effective. The notice shall provide the ground(s) for such suspension.

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<sup>152</sup> In its January 12, 2007 response Columbia recognized that it incorrectly omitted the word *discriminatory* in proposed section 25.10.

(c) All waivers granted pursuant to this section shall be subject to revocation to the extent required to reflect significant changes in historic operating conditions on Transporter's system. To the extent possible, Transporter will provide Shipper with thirty (30) days prior written notice of revocation, and will post the notice of such revocation on Transporter's EBB. The notice shall provide the ground(s) for such revocation.

(d) All disputes concerning the grant, denial, suspension or revocation of waivers pursuant to this section shall initially be presented to Transporter in accordance with the Complaint Resolution Procedure set forth in section 30 of the General Terms and Conditions of this Tariff.

138. Columbia states that, consistent with the Policy Statement, this proposal provides it with flexibility to transport out-of-spec gas when it can do so without jeopardizing system operations.<sup>153</sup> Columbia also stated that its proposal is consistent with the Complaint order's suggestion that Columbia include a waiver mechanism in its tariff. Columbia asserts that the Commission has required virtually identical waiver language in a recent case.<sup>154</sup>

**a. Comments**

139. In their initial comments, no party opposed Columbia's request for waiver authority. Several parties, however, have raised questions regarding the mechanics of Columbia's waiver process or otherwise seek modification to Columbia's proposal. National Fuel, PSNC, and ConEd are concerned that Columbia will not take into account the impact of a waiver on gas delivered to its customers.

140. Cities urge the Commission to require Columbia to modify its proposed waiver provision to add a fourth prerequisite that specifically requires Columbia to evaluate and determine prior to granting the waiver that such waiver will not affect the merchantability of gas or otherwise harm the facilities or operations of interconnected downstream entities such as LDCs and end users. Cities and Honeywell also argue that shippers and customers should have a right to review all waiver proposals and participate in the waiver process.

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<sup>153</sup> Policy Statement at P 30.

<sup>154</sup> Citing, *El Paso Natural Gas Company*, 114 FERC ¶ 61,305 (2006).

141. As its proposed tariff language states, Columbia states that it will take into account the impact on its ability to deliver gas to its customers when granting a waiver. However, Columbia urges the Commission to reject Cities' request that Columbia take into account the operations of downstream entities when granting a waiver. Columbia contends that it cannot be held responsible for what occurs on the downstream systems of its customers after it delivers gas. Columbia states that it does not control, or even know, how its shippers operate their downstream facilities. Columbia argues that the Commission has never imposed such a broad duty on interstate pipelines and should not do so now. Columbia also opposes Cities' and Honeywell's suggestion that shippers have an active role in the waiver process (other than for their own gas supply). Columbia submits that information regarding new gas volumes and shippers is commercially sensitive information and Columbia does not believe it would be appropriate to share this information with third parties.

142. KeySpan proposes several modifications to Columbia's proposed tariff language in section 25.10. First, KeySpan states that Columbia has omitted the adjective "adequate" as a modifier to the phrase "service to customers" and has omitted the word "discriminatory" after "unduly" in section 25.10(a). KeySpan further requests that Columbia be required to adopt additional language at the end of section 25.10(a) that would require it to post specific information on its EBB for waivers it grants. Honeywell requests that Columbia be required to add a fourth factor to section 25.10(a) requiring Columbia to protect an existing customer's use of natural gas from being adversely affected or its equipment from being damaged when it grants a waiver.

143. Columbia agrees with KeySpan that the omission of "discriminatory" after "unduly" and before "basis" in section 25.10(a) was a typographical error and will make this correction in its compliance filing. Columbia, however, disagrees that the modifier "adequate" is necessary. Columbia adopted substantially the same waiver language the Commission required in *El Paso Natural Gas Co.*, 114 FERC ¶ 61,305 (2006). This language does not include the modifier "adequate." Columbia further opposes this change on grounds that its subjectivity creates ambiguity.

144. As for KeySpan's additional proposed language, Columbia does not believe that it is necessary to specify the precise information Columbia will post on its EBB in its tariff. Columbia will post some, or most, of this information when it grants a waiver. In some cases, however, Columbia states that it may not have all this information readily available and Columbia does not want its flexibility to grant a waiver to be limited or to run the risk of non-compliance with its tariff.

145. Likewise, Columbia asserts that Honeywell cites to no authority requiring that when a pipeline grants a waiver it must consider a customer's existing use of natural gas and whether a customer's equipment might be damaged. Columbia states that its waiver

provision as proposed in section 25.10(a) is subject to the General Terms and Conditions in its tariff. Thus, Columbia states any waiver is subject to compliance with Columbia's proposed delivered gas quality standards in section 25.7. Columbia believes that this provision provides its customers with sufficient protection from objectionable solids and liquids in gas delivered by Columbia. Columbia submits that Honeywell's alternative language is overly broad and vague and would make Columbia responsible for how its customers operate their downstream facilities. Thus, Columbia argues that the Commission should reject Honeywell's fourth waiver factor as contrary to its policy and not just and reasonable.

**b. Commission Determination**

146. The Commission approves Columbia's proposed section 25.10, which addresses the procedures under which Columbia will grant, suspend or revoke a waiver of its proposed gas quality standards. In the Policy Statement,<sup>155</sup> the Commission stated, "[I]t is appropriate to allow pipelines to exercise their discretion to waive strict gas quality limits when operating conditions allow, and to enforce such limits when operating conditions require stricter measures, as long as it is done in a not unduly discriminatory manner. . . . This is consistent with the Commission's policy of minimizing any unnecessary restrictions on the supplies available to the national gas market." Columbia's waiver proposal is consistent with this policy.

147. Columbia's shippers are also protected because the tariff also requires Columbia to act in a not unduly discriminatory basis and to post the waivers on its EBB. In addition, Columbia provides further protections by setting forth procedures for when waivers may be suspended or revoked, and dispute resolution. Contrary to the assertions of various commenters, the Commission does not find that other factors need to be considered when granting waivers or that Columbia should be required to provide more detailed information when it grants waivers. The Commission concludes that, consistent with Commission policy, the proposed waiver provisions provide Columbia the flexibility to transport gas that is out of specification when it is consistent with safe and reliable operations.

**2. Exercise of Section 25.10 Authority to Waive Total Inerts and Carbon Dioxide Limits**

148. Columbia states that it intends to immediately exercise its waiver authority under section 25.10 to waive both the four percent total inerts limit and the 1.25 percent carbon

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<sup>155</sup> Policy Statement at P 41.

dioxide limits at existing receipt points, where receipts have exceeded those limits. Columbia states that it will post this waiver on its EBB, consistent with the procedures set forth in section 25.10. Columbia states that only those receipt points where the representative GC gas chromatograph analysis statistically indicates non-conformance with Columbia's proposed gas specifications will be covered.

149. Columbia maintains that its waiver proposal is not unduly discriminatory or preferential because it is based on valid operational concerns. Columbia explains that the receipt meters that are currently attached to Columbia's system have not caused any significant (*i.e.*, unmanageable) operational or safety problems and no party has claimed otherwise. In the absence of a valid operational or safety concern, Columbia submits that it is entirely reasonable to permit existing gas receipt meters to continue to flow with gas quality defined by assignment to an existing GC. Columbia asserts that if its initial waiver proposal is not approved, Columbia presumably would be required to shut-in hundreds of receipt points until it can determine the exact gas composition for each receipt point. Moreover, even if the receipts are not shut-in while this analysis is undertaken, Columbia contends that it would be required to undertake an extremely labor intensive, time-consuming, and expensive process when no operational reason has been identified for doing so. Finally, Columbia states that it has developed a process whereby it can determine the exact volumes and assign gas composition values to all of its existing receipt points.

**a. Comments**

150. No party opposes Columbia's waiver request. However, Statoil requests that the Commission require Columbia to include language in its tariff describing the waiver. Columbia disagrees with Statoil that it needs to provide more detail in its tariff with respect to its planned initial waiver. Columbia states that it explained how its initial waiver will work in great detail in its data response. Columbia states that its planned initial waiver is subject to the provisions of section 25.10 in the same manner as any other waiver. Columbia states that sees no more reason to include the details of its initial waiver in its tariff than it does to include the details for any subsequent waivers. Columbia states that it will post the details of the initial waiver on its EBB, thus ensuring Statoil's concerns regarding transparency or non-discriminatory treatment are alleviated.

**b. Commission Determination**

151. The Commission approves Columbia's proposed waiver as consistent with section 25.10 of its tariff approved in the preceding section. The Commission finds that the proposed initial waiver is appropriate for a number of reasons. Columbia has adequately explained that the existing non-conforming receipt points have not caused any significant operational or safety problems. As the Commission has encouraged,

Columbia is attempting to maximize the amount of gas to flow that does not compromise safety or reliability. Because the initial waiver is being given on a receipt point basis, there does not appear to be a potential for discrimination between existing and new shippers because new shippers at a non-conforming point should be able to take advantage of the waiver. The waiver is appropriate because Columbia is trying to honor its existing commitments by allowing gas to flow at historic volumes and composition. Columbia's system is adequately protected because, to the extent there is a change in the circumstances which permitted Columbia to grant the waiver, it has the ability to modify or evoke the waiver consistent with the procedures in proposed section 25.10. Finally, Columbia's intention to post the initial waiver on its electronic bulletin board (EBB) will ensure transparency and that Columbia is acting in a non-discriminatory manner. Accordingly, there is no need for Columbia to include a provision in its tariff setting forth this particular waiver.

**F. May 22, 2006 Compliance Filing—Docket No. RP06-231-002**

152. In the Complaint Order, the Commission found that section 25.5(e) of Columbia's tariff is unjust and unreasonable because it is too broad, too vague and gives the pipeline too much discretion. The Commission required Columbia to revise this section. Existing section 25.5(e) provides:

Transporter may refuse to accept gas or may impose additional gas quality specifications and restrictions if Transporter, in its reasonable judgment, determines that harm to Transporter's facilities or operations could reasonably be expected to occur if it receives gas that fails to meet such additional specifications and restrictions. Transporter reserves the right to refuse to execute any agreement which does not contain the gas quality specifications and restrictions deemed reasonable and necessary by Transporter, and Transporter reserves the right to refuse to accept or continue to accept gas that fails to meet such additional specifications and restrictions. Such additional specifications and restrictions may be imposed to limit the concentrations of elements or compounds that Transporter determines, in its reasonable judgment, may be corrosive or toxic in nature, may represent an environmental hazard, may interfere with the merchantability of the gas, or may cause injury to or interference with proper operation of the lines, regulators, meters and other equipment of Transporter.

## 1. Proposal

153. In its May 22, 2006 filing in Docket No. RP06-231-002, Columbia revised section 25.5(e) to read as follows:

Should the gas received by Transporter from any source ever fail to meet the above specifications [in the filing these specifications were (a) dust and gum; (b) water vapor, (c) hydrogen sulfide, and (d) sulfur] then Transporter may elect to either continue to receive gas or refuse to take all or any portion of such gas until the gas is brought into conformity with these specifications. Transporter reserves the right to impose revised and/or further quality specifications at any time should Transporter, in its sole discretion, deem it necessary to protect the safety and/or integrity of its pipeline system, operations, merchantability of the gas, or deliveries to other customers.<sup>156</sup>

154. In its May 22, 2006 section 4 filing in Docket No. RP06-365-000, Columbia continued the existing section 25.5(e) in effect, pending action on the instant section 5 compliance filing, but renumbered it as section 25.8(a).<sup>157</sup> In its December 7, 2006 filing in Docket Nos. RP06-365-000 and RP06-231-002, Columbia again repeated the existing section 25.5(e) without change, this time as section 25.9.<sup>158</sup>

## 2. Comments

155. As noted in the order establishing the technical conference,<sup>159</sup> a number of parties filed comments or protests on revised section 25.5(e) in Columbia's May 22, 2006 filing in Docket No. RP06-231-002. The protesters asserted that Columbia's revised tariff provision is still too broad and vague and should be rejected as unjust and unreasonable. They also contended that revised section 25.5(e) gives Columbia discretion to accept gas

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<sup>156</sup> MARKED VERSION Sheet No. 407, May 22, 2006 Filing (Docket No. RP06-231-002).

<sup>157</sup> MARKED VERSION Sheet No. 407, May 22, 2006 Filing (Docket No. RP06-365-000).

<sup>158</sup> Pro Forma Original Sheet Nos. 407 and 408, December 7, 2006 Filing (Docket Nos. RP06-365-000 and RP06-231-002).

<sup>159</sup> 115 FERC ¶ 61,351 at P 11.

that does not conform to its gas quality specifications or to add additional gas quality specifications without any assurance that such actions will be done on a nondiscriminatory basis.

156. In their Initial Comments following the technical conference, several parties commented on the revised section 25.5(e). The Cities question the appropriateness of and object to the open-ended right in revised section 25.5(e) to receive gas that does not comport with the tariff's quality specifications. They assert that any determination to accept non-conforming gas must be made with a view of the potentially harmful impacts on Columbia's system and also on downstream systems and uses of the gas delivered by Columbia. Cities also assert that the general right for Columbia to accept non-conforming gas in revised section 25.5(e) is linked with the proposed waiver provision that establishes objective guidelines that apply to the waiver determination (now section 25.10).<sup>160</sup>

157. Indicated Shippers comment that the last sentence of revised section 25.5(e) would reserve to Columbia the right to impose revised or further quality specifications contrary to the NGA and the Complaint Order. Indicated Shippers assert that all of these provisions are too broad and vague and give Columbia too much discretion. Indicated Shippers also protest that revised section 25.5(e) does not require Columbia to waive the quality specifications on a non-discriminatory basis.

158. In its Reply Comments<sup>161</sup> Columbia states that its revised section 25.5(e) in its May 22, 2006 compliance filing is not overly broad. It states that the Commission's Complaint Order recognized that gas quality standards must provide substantial flexibility for a pipeline to act in a timely manner to protect its operational integrity and minimize equipment damage.<sup>162</sup> It asserts that its proposed tariff provision is nearly identical to the provision accepted by the Commission for Crossroads Pipeline Company.<sup>163</sup> It states that any action under this tariff provision would be temporary and that it would not use this provision to establish new off-tariff gas quality requirements. Columbia also asserts that the non-conforming gas it accepts that does not meet its gas quality specifications would be subject to the waiver language of its tariff.

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<sup>160</sup> Columbia Gas, December 7, 2006 Filing, Pro Forma Original Sheet No. 409.

<sup>161</sup> Columbia Gas, Reply Comments of November 3, 2006 at p. 42.

<sup>162</sup> *Citing* Complaint Order at P 20.

<sup>163</sup> *Citing* section 25.4(a) of Crossroads' General Terms and Conditions.

### 3. Commission Determination

159. The Commission accepts Columbia's proposed revision of section 25.5(e) in its May 22, 2006 compliance filing in Docket No. RP06-231-002, subject to modifications. First, Columbia must renumber this section so that it fits in with the other gas quality sections the Commission is accepting in this order in a reasonable manner.<sup>164</sup> Second, Columbia must either remove or revise the proposed provision to reserve the right to impose revised or further quality specifications. This provision is virtually the same as the provisions that the Commission found to be unjust and unreasonable in the Complaint Order and is unjust and unreasonable for the same reasons. The sentence that must be removed or revised is:

Transporter reserves the right to impose revised and/or further quality specifications at any time should Transporter, in its sole discretion, deem it necessary to protect the safety and/or integrity of its pipeline system, operations, merchantability of the gas, or deliveries to other customers.

160. If Columbia chooses to revise this provision, it must do so by including language in the tariff provision stating that the right the pipeline is reserving is the right to impose other quality specifications by filing proposed specifications with the Commission under section 4 of the NGA.

161. Finally, the Commission finds that the provision in revised section 25.5(e) giving Columbia discretion to accept gas that does not conform to its gas quality specifications must reference and be subject to the waiver provisions in proposed section 25.10.<sup>165</sup> Columbia itself states that non-conforming gas it accepts under proposed section 25.5(e) would be subject to the waiver language of its tariff. Section 25.10<sup>166</sup> provides that waiver shall be on a not unduly discriminatory basis and sets out criteria that must be satisfied to grant a waiver and procedures for implementing a waiver. In addition, in

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<sup>164</sup> The revised tariff provision, as modified consistent with this order, will replace proposed sections 25.8(a) and 25.9 in Columbia's section 4 filing in Docket No. RP06-365 in their entirety. These sections are identical to the provision that the Commission found to be unjust and unreasonable in the Complaint Order.

<sup>165</sup> Columbia, December 7, 2006 Filing, Pro Forma Original Sheet No. 409.

<sup>166</sup> *Id.*

revised section 25.5(e), Columbia must set out the specifications to which that section applies. Consequently, the Commission finds that the provision of proposed section 25.5(e) specified below must be modified as shown (with additions in underline and deletions in strikeout):

Should the gas received by Transporter from any source ever fail to meet the above specifications in sections [provide sections] then Transporter may elect to either continue to receive gas pursuant to the waiver procedures of section 25.10 or refuse to take all or any portion of such gas until the gas is brought into conformity with these specifications in sections [provide sections].The Commission orders:

Within 30 days of the date of this order, Columbia is directed to make a compliance filing in Docket Nos. RP06-365-000 and RP06-231-000 consistent with the discussion above.

By the Commission.

( S E A L )

Philis J. Posey,  
Acting Secretary.