U.S. DEPARTMENT OF TRANSPORTATION

PIPELINE AND HAZARDOUS MATERIALS SAFETY ADMINISTRATION (PHMSA)

Special Permit Analysis and Findings

Special Permit Information:

Docket Number: PHMSA-2008-0331

Requested By: Columbia Gas Transmission Company[1]

Date Requested: November 14, 2008

Code Sections: 49 CFR § 192.611

Purpose:

The Pipeline and Hazardous Materials Safety Administration (PHMSA) provides this information to describe the facts of the subject special permit application submitted by Columbia Gas Transmission Company (CGTC), to discuss any relevant public comments received with respect to the application, to present the engineering/safety analysis of the special permit application, and to make findings regarding whether the requested special permit should be granted and if so under what conditions.

Pipeline System Affected:

This special permit applies to six pipeline segments of the 30-inch SM-80 and 30-inch SM-80 Loop pipelines operated by CGTC in Cabell and Putnam Counties, West Virginia, where changes have occurred from an original Class 1 location to a Class 3 location or a Class 2[2] location to a Class 3 location. This special permit allows CGTC to continue to operate the six pipeline segments at their current maximum allowable operating pressure (MAOP) of 935 pounds per square inch gauge (psig) for 30-inch SM-80 pipeline and 935 psig for 30-inch SM-80 Loop pipeline.

This special permit applies to the ***special permit segment(s)*** defined as follows using the CGTC pipeline stationing (Sta.) references:

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[1] Columbia Gas Transmission Company (CGTC) is owned and operated by NiSource Gas Transmission and Storage (NGT&S).

[2] The Class 3 location *special permit segments* were originally a Class 1 location area that was upgraded to a Class 2 location in accordance with a § 192.611(a) hydrostatic test.

- ***Special Permit Segment 1:*** *30-inch SM-80* - 1,289[3] feet, Sta.1107+20 to Sta. 1120+12
- ***Special Permit Segment 2:*** *30-inch SM-80 Loop* - 814 feet, Sta.1085+15 to Sta. 1093+29
- ***Special Permit Segment 3:*** *30-inch SM-80* - 4,577 feet, Sta.1957+32 to Sta. 2003+09
- ***Special Permit Segment 4:*** *30-inch SM-80* - 182 feet, Sta.2530+34 to Sta. 2532+16
- ***Special Permit Segment 5:*** *30-inch SM-80* - 4,768 feet, Sta.2687+17 to Sta. 2734+85
- ***Special Permit Segment 6:*** *30-inch SM-80 Loop* - 5,049 feet, Sta.2762+58 to Sta. 2813+07

This special permit applies to the *special permit inspection area(s)* defined using the CGTC pipeline stationing (Sta.) references.

Special permit inspection area(s) - means the area(s) that extends 220 yards on each side of the pipeline centerline on each side of the right-of-way along the entire length of CGTC pipeline system (SM-80 and SM-80 Loop pipelines) as follows:

- *Special Permit Inspection Area 1: 30-inch SM-80* - Sta. 219+69 to Sta. 3030+88 (Total of 53.4 miles)
- *Special Permit Inspection Area 2: 30-inch SM-80 Loop* - Sta. 251+569 to Sta. 3094+43 (Total of 53.8 miles)

Note: The *special permit inspection areas* are along each pipeline (30-inch SM-80 and 30-inch SM-80 Loop) and include the *special permit segments*.

The *special permit inspection areas* are located in Wayne, Kanawha, Cabell and Putnam Counties, West Virginia.

The *special permit inspection areas* extends from approximately 16.8 miles upstream of the *special permit segments* to approximately 5.6 miles downstream of the *special permit segments*; a total of approximately 53.4 miles[4] on the 30-inch SM-80 pipeline and 53.8 miles on the 30-inch SM-80 Loop pipeline of *special permit inspection area(s).* The *special permit inspection areas* cover the entire pipeline mileage from the Ceredo Compressor Station located in Wayne County, WV, to the Lanham Compressor Station located near Rocky Fork, WV.

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[3] This footage does not match stationing due to a station equation within the segment.
[4] 30-inch SM-80 pipeline is 0.4 miles shorter than 30-inch SM-80 Loop pipeline due to route variation in this area.

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The *special permit inspection areas* extends from approximately 16.8 miles upstream of the *special permit segments* to approximately 5.6 miles downstream of the *special permit segments*; a total of approximately 53.4[4] on the 30-inch SM-80 pipeline and 53.8 miles on the 30-inch SM-80 Loop pipeline of *special permit inspection area(s)*. The *special permit inspection areas* cover the entire pipeline mileage from the Ceredo Compressor Station located in Wayne County, WV, to the Lanham Compressor Station located near Rocky Fork, WV.

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[4] 30-inch SM-80 pipeline is 0.4 miles shorter than 30-inch SM-80 Loop pipeline due to route variation in this area.

Special Permit Request:

CGTC submitted an application to PHMSA on November 14, 2008, for a special permit seeking relief from the Federal pipeline safety regulations in 49 CFR § 192.611(a) for six segments on 30-inch SM-80 and 30-inch SM-80 Loop pipelines along CGTC's natural gas transmission pipeline system in West Virginia. The system is composed of two parallel pipelines in a common right-of-way: 30-inch SM-80 and 30-inch SM-80 Loop pipelines. This special permit allows CGTC to continue to operate the pipeline segments at their current maximum allowable operating pressure (MAOP) of 935 pounds per square inch gauge (psig) on the 30-inch SM-80 and 30-inch SM-80 Loop pipelines. The Federal pipeline safety regulations in 49 CFR § 192.611 require natural gas pipeline operators to confirm or revise the MAOP of a pipeline segment after a change in class location. A special permit would allow CGTC to continue to operate each of the six *special permit segments* on 30-inch SM-80 and 30-inch SM-80 Loop pipelines at its existing MAOP despite a change in class location.

In its application, CGTC suggested that the six *special permit segments* be included in two *special permit inspection areas*, i.e., a separate special permit inspection areas for the 30-inch SM-80 and 30-inch SM-80 Loop pipelines. These *special permit inspection areas* extends from approximately 16.8 miles upstream of the *special permit segments* to approximately 5.6 miles downstream of the *special permit segments*; a total of approximately 53.4 miles on the 30-inch SM-80 pipeline and 53.8 miles on the 30-inch SM-80 Loop pipeline.

Public Notice:

On January 23, 2009, PHMSA posted a notice of this special permit request in the Federal Register (74 FR 4298). PHMSA did not receive any comments for or against this special permit request as a result of this notice. The request letter, Federal Register notice and all other pertinent documents are available for review in Docket No. PHMSA-2008-0331 in the Federal Docket Management System (FDMS) located on the internet at www.Regulations.gov.

Analysis:

Background: On June 29, 2004, PHMSA published in the Federal Register (69 FR 38948) the criteria it uses for the consideration of class location change waivers, now being granted through a special permit. First, certain threshold requirements must be met for a pipeline section to be

further evaluated for a class location change special permit. Second, the age and manufacturing process of the pipe; system design and construction; environmental, operating and maintenance histories; and integrity management program (IMP) elements are evaluated as significant criteria. These significant criteria are presented in matrix form and can be reviewed in the FDMS, Docket Number PHMSA-RSPA-2004-17401. Third, such special permits will only then be granted when pipe conditions and active integrity management provides a level of safety greater than or equal to a pipe replacement or pressure reduction. As described later in this document, in addition to the technical review, PHMSA focused heavily on enforcement history in reviewing this application.

Threshold Requirements: Each of the threshold requirements published by PHMSA in the June 29, 2004, FR notice is discussed below in regards to the CGTC special permit petition.

1) No pipeline segments in a class location changing to Class 4 location will be considered. This special permit request is for six segments of the CGTC pipeline system where a class location change has occurred from Class 1 or 2 to Class 3 in the *special permit segments*. CGTC has met this requirement in its application submittals.
2) No bare pipe will be considered. The CGTC *special permit segments* are coated with coal tar. CGTC has met this requirement.
3) No pipe containing wrinkle bends will be considered. There are no wrinkle bends in the *special permit segments*. CGTC has met this requirement in its application submittals.
4) No pipe segments operating above 72% of the specified minimum yield strength (SMYS) will be considered for a Class 3 special permit. The *special permit segments* operate at or below 72% SMYS. CGTC has met this requirement in its application submittals.
5) Records must be produced that show a hydrostatic test to at least 1.25 x MAOP and 90% of SMYS. CGTC has met this requirement in its application submittals.
6) In-line inspection (ILI) must have been performed with no significant anomalies identified that indicate systemic problems. CGTC has met this requirement, but the special permit conditions will require additional ILI inspections and remediation.
7) Criteria for consideration of class location change waiver, now being granted through special permit, published by PHMSA in the Federal Register (69 FR 38948), define a *waiver inspection area (now a special permit inspection area)* as up to 25 miles of pipe either side of the *waiver segment (special permit segment)*. The *special permit inspection area* must be

inspected according to CGTC's integrity management program and periodically inspected with an in-line inspection technique. The portion of the *special permit inspection area* both upstream and downstream of the *special permit segments* is less than 25 miles long, but a total of approximately 53.4 miles or 53.8 miles will be in the *special permit inspection areas*. This special permit will be issued contingent upon CGTC's incorporation of all six *special permit segments* in its written integrity management program as *"covered segments"* in a *"high consequence area"* (HCA) per 49 CFR § 192.903. The special permit conditions will require ILI inspections and remediation on a 5 year calendar basis.

Criteria Matrix: The original and supplemental data submitted by CGTC for the six *special permit segments* have been compared to the class location change special permit criteria matrix. The six *special permit segments* fall in the probable acceptance column of the criteria matrix for all criteria except for:

a) Possible Acceptance: Pipe material (low or unknown toughness), pipe coating (coal tar), pipe manufacture (1954 and 1968 – SAW and 1969 - DSAW), depth of cover (28 inches minimum), cathodic protection and In-line Inspection (ILI) time frame.

b) Requires substantial justification - CGTC has not performed External Corrosion Direct Assessment (ECDA) or Stress Corrosion Cracking Direct Assessment (SCCDA) on its pipelines, and for some older lines and non-destructive testing records for girth welds are not available. Moreover, the enforcement history for Columbia Gulf indicates outstanding inspection findings from Corrective Action Orders (CAO) on its pipelines.

The data falls within the "probable acceptance" column of the criteria matrix for all criteria except for the following:

1) Pipe design and construction, including pipe manufacture, pipe material and pipe coating: 30-inch SM-80 and 30-inch SM-80 Loop pipelines were installed in 1954, 1968 and 1969, and consists of American Petroleum Institute Specification 5L, *Specification for Line Pipe* (API 5L), submerged arc welded (SAW), X-52 steel pipe manufactured by National Tube, submerged arc welded (SAW), X-65 steel pipe manufactured by Republic Steel and double submerged arc welded (DSAW), X-65 steel pipe manufactured by U.S. Steel. These pipes are of unknown toughness but CGTC has addressed this risk in their integrity management plan. Moreover, none of these pipes have any known systemic manufacturing issues. This

places all six *special permit segments* in the "possible acceptance" column of the criteria matrix

2) To address all coating, depth of cover, cathodic protection and ILI issues, this special permit will include conditions requiring CGTC to conduct remediation measures to ensure equivalent safety and operational integrity.

3) Direct Assessment (ECDA & SCCDA): CGTC has not completed an external direct assessment (ECDA) or a stress corrosion cracking assessment (SCCDA) of *the special permit segments*. This places both *special permit segments* in the "requires substantial justification" column of the criteria matrix. To address these issues, this special permit will be conditioned upon CGTC completing a Direct Current Voltage Gradient (DCVG) survey or an Alternating Current Voltage Gradient (ACVG) survey; a close interval survey (CIS); and a SCCDA along 30-inch SM-80 and 30-inch SM-80 Loop pipelines not later than one year after the grant of this special permit.

PHMSA has determined that imposing the special permit conditions will ensure equivalent safety for these areas.

Operational Integrity Compliance: PHMSA has reviewed this special permit request to ensure that integrity threats to the pipeline in the *special permit segments* and *special permit inspection areas* are addressed in the operator's operations and management plan (O&M Plan). CGTC must have a systematic program to review and remediate pipeline safety concerns. Additional operational integrity review and remediation requirements will be required by this special permit for this special permit segment class location change. The pipeline operational integrity requirements are to ensure that the operator has an ongoing program to locate and remediate safety threats. Some of these threats to integrity and safety are the pipe coating quality, cathodic protection effectiveness, operations damage prevention program for third party damage, weld seam and girth weld integrity, anomalies in the pipe steel, and material and structures either along or near the pipeline that could cause the cathodic protection system to be ineffective. PHMSA carefully designed a comprehensive set of conditions that CGTC would be required to meet in order for the special permit to be granted. Among other things, the conditions include:

- A close interval survey to determine the effectiveness of the cathodic protection system must be performed within the *special permit segments* and *special permit inspection area* and all areas with inadequate cathodic protection must be remediated.
- A coating survey to determine the quality of the pipe coating must be conducted and in-effective coating areas must be remediated within the *special permit segments.*
- Stress corrosion cracking surveys on the pipeline will be required to ensure that the pipe steel is not cracking due to the effects of high and near neutral pH SCC within the *special permit segments* and *special permit inspection areas.*
- The latest methods of damage prevention must be incorporated by the operator, such as the best practices of the Common Ground Alliance (CGA) within the *special permit inspection areas.*
- Interference currents from electric transmission lines and other interfering structures in the *special permit segments* and *special permit inspection areas* must be identified, controlled and mitigated by conducting surveys and installing grounding systems where required.
- An analysis of pipeline field coated girth welds that could have shielding coatings that could cause corrosion of the pipe steel, must be undertaken in the *special permit segments* and *special permit inspection areas* and in-line inspection logs, that indicate 30% or greater wall loss corrosion indications on shielding or unknown coatings must be exposed and evaluated.
- Anomalies and dents on the pipeline must be repaired based upon the special permit repair criteria.
- Girth welds in the *special permit segments* must have had a non destructive test plan during construction, or a quality review and remediation program must be implemented by the pipeline operator.
- All shorted casing (either metallic or electrolytic) at road crossings and railroad crossings in the *special permit segments* and *special permit inspection areas* must be cleared to prevent corrosion.

- Pipeline longitudinal seams within the *special permit segments* and *special permit inspection areas* must have an engineering analysis to determine if there are any threats and remediated if integrity threats are determined.
- Periodic close interval surveys and in-line inspection surveys (pipeline internal surveys to determine corrosion in the pipeline) must be performed on the *special permit segments* and *special permit inspection areas* at the applicable reassessment intervals.
- Training of Senior Executive Management (Executive Vice President and Group CEO, Vice President of Operations and Vice President of Engineering), Engineering and Operations Managers and Supervisors, and Technical Personnel (Engineers and Operations Technicians) in natural gas pipeline integrity management, corrosion control, and anomaly evaluation, validation and repairs to meet Part 192 and these special permit conditions.
- CGTC must maintain an open and transparent relationship with PHMSA to ensure effective implementation of special permit conditions and must make records and other applicable information available to PHMSA upon request. CGTC must fully execute the special permit conditions and proactively respond to findings encountered throughout implementation.

The special permit will contain numerous conditions to ensure CGTC meets or exceeds the threshold requirements with equivalent safety and to ensure that granting the special permit will not be inconsistent with safety.

Past Enforcement History – 2000 through 2009

The enforcement history is an important reflection of how Columbia Gas has been observed to follow pipeline safety regulations and was a major area of focus for the review of this application. A review of PHMSA enforcement actions against CGTC and Columbia Gulf from 2000 through 2009 shows the following enforcement actions against the companies. The existence of these actions requires substantial justification pursuant to the Class Location Special Permit Criteria as confidence is necessary that conditions contained in a special permit would be closely followed. CGTC and Columbia Gulf are owned and operated by NiSource Gas Transmission and Storage (NGT&S).

Below is a listing of PHMSA closed enforcement matters of all types in all PHMSA Regions for Columbia Gulf and Columbia Gas from 2000 through 2009:

- Letters - of Concern or Warning - 30 matters
- Notices – of Amendment or of Probable Violation – 20 matters
- Fines - $1,221,000 collected, additional penalties have been proposed

The preceding enforcement history summary reveals a number of compliance issues, including pipeline maintenance issues.

PHMSA initially was inclined to deny this special permit application based on the enforcement history issue. PHMSA notified CGTC senior management of the agency's enforcement history concerns prior to taking final action to deny the special permit application. CGTC acknowledged performance issues and requested a meeting with PHMSA to explain improvements the company had made to its pipeline safety programs that were designed to improve compliance with the regulations. In a meeting with PHMSA on July 28, 2009, CGTC senior management gave a presentation entitled "Integrity Management Improvements," which described changes made by CGTC to improve compliance with pipeline safety regulations. In an August 27, 2009 meeting with PHMSA, CGTC presented its "Special Permit Management Plan," which described an organizational structure and plan to manage special permit compliance. The presentations from the meetings listed above are posted on the docket.

In analyzing whether or not to grant a special permit, PHMSA considered the organizational, management and procedural changes described by CGTC. PHMSA believes that some of these changes are positive and necessary for pipeline safety and will incorporate additional conditions into the special permit to capture the company's commitments. These additional conditions will require CGTC (NGT&S) Executive Management, Mid-Level Management and Technical Support Personnel to make improvements in integrity management, training, and operating procedures. The additional conditions include:

- CGTC (NGT&S) must complete the training of Senior Executive Management (Executive Vice President/Group CEO, Vice President of Operations and Vice President of Engineering), Engineering and Operations Managers and Supervisors, and Technical Personnel (Engineers and Operations Technicians) in natural gas

pipeline integrity management, corrosion control, anomaly evaluation, validation and repairs to meet § 192 and the special permit conditions. CGTC Senior Executive Management Level Commitment to: Execution of Special Permit Requirements for Class Location Changes in accordance with letter from Mr. Chris Helms, Executive Vice President and Group CEO, of NGT&S (CGTC) to PHMSA dated September 21, 2009.

- CGTC (NGT&S) must maintain a transparent relationship with PHMSA to ensure implementation of all conditions.
- CGTC 's Executive Vice President/Group CEO will require letters of commitment from responsible employees throughout CGTC (NGT&S) requiring that these individuals commit in writing to specific special permit conditions, to reinforce and demonstrate the full commitment to compliance with the special permit throughout the organization.

PHMSA has determined that imposing the special permit conditions summarized in this document will ensure that granting the special permit will not be inconsistent with safety.

Findings:

Based on the information submitted by CGTC and PHMSA's analysis of technical, operational and safety issues, and given the conditions that will be imposed in the special permit, PHMSA finds that granting this special permit to CGTC to operate *special permit segments* of the 30-inch SM-80 and 30-inch SM-80 Loop natural gas transmission pipelines, at the current MAOP of 935 psig, where a change in class location has occurred from an original Class 1 location to a Class 3 location would be consistent with pipeline safety.

APR 1 3 2010

Completed in Washington DC on: _____

Prepared by: PHMSA – Engineering and Emergency Support