



U.S. Department
of Transportation

Pipeline and Hazardous Materials
Safety Administration

1200 New Jersey Ave., SE
Washington, DC 20590

'JUL 16 2010

Mr. David Chittick
Director, Pipeline Engineering
TransCanada Pipelines Limited
450 – 1st Street, S.W.
Calgary, Alberta, Canada T2P 5H1

Docket No. PHMSA-2009-0055

Dear Mr. Chittick:

On February 6, 2009, TransCanada Pipelines Limited, operator of the American Natural Resources Pipeline (TCPL-ANR) wrote to the Pipeline and Hazardous Materials Safety Administration (PHMSA) requesting a special permit to waive compliance from PHMSA's pipeline safety regulation in 49 CFR § 192.611 for four (4) segments of the TCPL-ANR natural gas transmission pipeline system located in St. Martin Parish, Louisiana. The regulation requires confirmation or revision of the maximum allowable operating pressure (MAOP) for a pipeline segment where the class location has changed. If granted, the special permit would have allowed TCPL-ANR to continue to operate four (4) segments of the 20-inch Line 716 pipeline located in St. Martin Parish, Louisiana at their current MAOP of 1,050 pounds per square inch gauge (psig).

PHMSA is denying the special permit request due to Line 716 pipeline gas quality issues from gas supplies, the 1983 internal leak due to internal corrosion and the presence of pre-1970 EFW pipe in the Class 3 location *special permit segments*. The reasons for this denial are more fully described in the special permit analysis and findings document enclosed with this letter. This document and all other pertinent documents are available for review in Docket No. PHMSA-2009-0055 in the Federal Docket Management System (FDMS) located on the internet at www.Regulations.gov. PHMSA is granting TCPL-ANR until September 30, 2011, to complete pipe replacements to comply with the requirements of § 192.611.

My staff would be pleased to discuss this denial or any other regulatory matter with you. John Gale, Director of Regulations (202-366-4046), may be contacted on regulatory matters and Alan Mayberry, Deputy Associate Administrator for Pipeline Safety (202-366-5124), may be contacted on technical matters specific to this special permit request.

Sincerely,

Jeffrey D. Wiese
Associate Administrator for Pipeline Safety

Enclosure: Special Permit Analysis and Findings

U.S. DEPARTMENT OF TRANSPORTATION
PIPELINE AND HAZARDOUS MATERIALS SAFETY ADMINISTRATION (PHMSA)

Special Permit Analysis and Findings

Special Permit Information:

Docket Number: PHMSA-2009-0055
Pipeline Operator: TransCanada Pipelines Limited - American Natural
Resource (TCPL-ANR)
Date Requested: February 6, 2009
Code Section(s): 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 TransCanada Pipelines Limited, operator of American Natural Resources¹ (TCPL-ANR), 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 application applies to four (4) *special permit segments* along the TCPL-ANR system of natural gas pipelines. These four (4) *special permit segments* are on the 20-inch Line 716 pipeline located in St. Martin Parish, Louisiana. The class locations along the pipeline *special permit segments* have changed from an original Class 1 Location to a Class 3² Location. This special permit application applies to the *special permit segments* and *special permit inspection area* defined using the TCPL-ANR Survey Station Numbers (including Mile Post) references as follows:

¹ American Natural Resources is owned and operated by TransCanada Pipelines Limited.

² This Class 3 location *special permit segment* was originally a Class 1 location that was upgraded to Class 2 location in accordance with § 192.611 (a) hydrostatic test.

St. Martin Parish, Louisiana

- ***Special permit segment 1*** – approximately 553 feet of 20-inch Line 716 located downstream of Valve 6 (end of line) from Survey Station Number 628+29 feet to Survey Station Number 633+82 feet in St. Martin Parish, Louisiana, Mileposts 58.90 to 58.80.
- ***Special permit segment 2*** - approximately 1,042 feet of 20-inch Line 716 located from Survey Station Number 634+62 feet to Survey Station Number 644+86 feet in St. Martin Parish, Louisiana, Mile Posts 58.78 to 58.59.
- ***Special permit segment 3*** - approximately 63 feet of 20-inch Line 716 located from Survey Station Number 656+30 feet to Survey Station Number 656+93 feet in St. Martin Parish, Louisiana, Mile Posts 58.37 to 58.36.
- ***Special permit segment 4*** - approximately 817 feet of 20-inch Line 716 located from Survey Station Number 703+51 feet to Survey Station Number 711+68 feet in St. Martin Parish, Louisiana, Mile Posts 57.48 to 57.32.

St. Martin, St. Landry and Iberia Parishes, Louisiana

Special permit inspection area is the area that extends 220 yards on each side of the pipe centerline along the entire length of the 20-inch Line 716 pipeline from Station 0+00 0 of Valve 6 (end of line) in St. Landry Parish, Louisiana to 29,914 ft downstream of Valve 4 in Iberia Parish, Louisiana. The *special permit inspection area* is located in St. Landry, St. Martin, and Iberia Parishes, Louisiana. The *special permit inspection area* extends approximately 11.90 miles upstream of the *special permit segment 1* to approximately 25 miles downstream of the *special permit segment 4*; (Milepost 70.80 to 32.31). The total length of the *special permit inspection area* including the four *special permit segments* is approximately 38.48 miles.

Note: The *special permit inspection area* includes the four (4) *special permit segments*.

Special Permit Request

TCPL-ANR submitted an application to PHMSA on February 6, 2009, for a special permit seeking relief from the Federal pipeline safety regulations in 49 CFR § 192.611(a) for four segments of the TCPL-ANR natural gas transmission 20-inch Line 716 pipeline where a change has occurred from a original Class 1 location to a Class 3 location in St. Martin, St. Landry and

Iberia Parishes, Louisiana. The special permit would have allowed TCPL-ANR to continue to operate the pipeline segments at their current maximum allowable operating pressure (MAOP) of 1,050 pounds per square inch gauge (psig), respectively. The Federal pipeline safety regulations in 49 CFR § 192.611(a) require natural gas pipeline operators to confirm or revise the MAOP of a pipeline segment after a change in class location.

Public Notice:

On April 28, 2009, PHMSA posted a notice of this special permit request in the Federal Register (74 FR 19264). PHMSA did not receive any comments for or against this special permit request. The request letter, Federal Register notice, and all other pertinent documents are available for review in Docket No. PHMSA-2009-0055 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 referred to as a special permit. Certain threshold requirements must be met for a pipeline section to be further evaluated for a class location change special permit. The age and manufacturing process of the pipe, system design and construction, environmental, operating and maintenance histories, and integrity management program elements are evaluated as significant criteria. These significant criteria are presented in matrix form and can be reviewed in the FDMS, Docket No. PHMSA-RSPA-2004-17401. 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.

Threshold Requirements: Each of the threshold requirements published by PHMSA in the June 29, 2004, FR notice is discussed below in regards to the TCPL-ANR 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 PHMSA 2009-0055 segments of TCPL-ANR pipeline where a class location change has occurred from Class 1 to Class 3.

- b. Requires substantial justification - pipe manufacture, pipe girth weld, and ILI inspections

The data findings below fall within the “probable acceptance” or the “requires substantial justification” column of the criteria matrix:

- 1) Pipe coating, leaks & failures, and depth of cover: The 20-inch pipe is coated with Koppers XXH enamel and primer and felt wrap. TCPL-ANR would be required to remediate this coating in the special permit segment by conducting Direct Current Voltage Gradient (DCVG) survey or an Alternating Current Voltage Gradient (ACVG) survey, and close interval surveys (CIS) and remediate poor quality coating. The pipeline did have a leak in 1983 due to internal corrosion caused by chlorines (salt) and water in the gas stream. Since 1995 TCPL-ANR has cleaned with scraper pigs this section of pipeline over 97 times to remove deleterious gas stream constituents from the *special permit inspection area*. Depth of cover was not confirmed by TCPL-ANR, so if a *special permit* was issued the conditions would require a survey and remediation of shallow areas.
- 2) Pipe manufacture, pipe girth weld, and ILI inspections: 20-inch Line 716 pipeline was installed in 1964 and consists of American Petroleum Institute Specification 5LX, *Specification for Line Pipe* (API 5LX), electric flash welded (EFW), X-52 steel pipe manufactured by A.O Smith. Pipe with EFW seams normally have systemic manufacturing issues. TCPL-ANR has tested this pipeline to 99.2% SMYS test levels, 1449 psig. TCPL-ANR reports no hydrostatic test and no in service leaks or failures on this 20-inch pipeline in the special permit inspection area due to selective seam corrosion. However, this type of weld seam pipe has been known for systemic manufacturing issues resulting in weld seam failure. This will place the *special permit segments* in the “requires substantial justification” column of the criteria matrix would place all *special permit segments* in the “requires substantial justification” column of the criteria matrix.

To further address these pipe manufacture, girth weld and internal corrosion issues, an operator of pipe such as the pipe involved in this application would have to meet conditions requiring TCPL-ANR to treat all *special permit segments* as “covered segments” in an HCA per 49 CFR § 192.903. TCPL-ANR did not have records to substantiate girth weld quality.

To address lack of ILI Tool inspections, a *special permit inspection area* would need to require be the 20-inch Line 716 pipeline to be inspected according to TCPL-ANR's integrity management program and periodically inspected with an in-line inspection technique. Any special permit issued would need to be contingent upon TCPL-ANR incorporation of each of the *special permit segments* in its written integrity management program as a "covered segment" in a "high consequence area" (HCA) in accordance with 49 CFR § 192.903.

The proposed *special permit segments* on the 20-inch Line 716 pipeline have had internal corrosion issues due to poor gas quality, poor pigging practices, and have EFW weld seams. These proposed *special permit segments* are located in densely populated areas, which are new Class 3 location population areas defined by § 192.5(a)(1), (a)(2) and (b)(3) – Class Locations as follows;

(a) This section classifies pipeline locations for purposes of this part. The following criteria apply to classifications under this section.

(1) A "class location unit" is an onshore area that extends 220 yards (200 meters) on either side of the centerline of any continuous 1-mile (1.6 kilometers) length of pipeline.

(2) Each separate dwelling unit in a multiple dwelling unit building is counted as a separate building intended for human occupancy.

(b) (3) A Class 3 location is:

(i) Any class location unit that has 46 or more buildings intended for human occupancy; or

(ii) An area where the pipeline lies within 100 yards (91 meters) of either a building or a small, well-defined outside area (such as a playground, recreation area, outdoor theater, or other place of public assembly) that is occupied by 20 or more persons on at least 5 days a week for 10 weeks in any 12-month period. (The days and weeks need not be consecutive.)

To further address these pipe design and construction issues, an operator of pipe such as the pipe involved in this application would have to meet conditions requiring TCPL-ANR to treat all *special permit segments* as "covered segments" in an HCA per 49 CFR § 192.903. A stress corrosion cracking direct assessment (SCCDA) of the 20-inch Line 716 pipeline would also be required along the entire length of the *special permit inspection area* according to the requirements of 49 CFR § 192.929.

PHMSA has determined that a special permit, even with conditions, that would allow TCPL-ANR to leave the existing 20-inch Line 716 pipeline in service will not ensure equivalent safety based upon the 49 CFR § 192.611 regulations for Class 3 location areas due to Line 716 pipeline gas quality issues from gas supplies, the 1983 internal leak due to internal corrosion and the presence of pre-1970 EFW pipe in the Class 3 location *special permit segments*.

Findings:

Based on the information submitted by TCPL-ANR and PHMSA's analysis of the technical, operational, and safety issues, and given the additional measures required and conditions that would be imposed, PHMSA finds that granting this special permit to TCPL-ANR to operate four (4) *special permit segments* of the 20-inch Line 716 pipeline, a natural gas transmission pipeline, at the current MAOP of 1080 psig where a change in class location has occurred from an original Class 1 location to a Class 3 location would be inconsistent with pipeline safety.

The failure risks of vintage seam pipe longitudinal welds (EFW and LF-ERW pipe) are documented in the "Integrity of Vintage Pipelines" prepared by the Interstate Natural Gas Association of America (INGAA) dated October, 2004 (Vintage Pipe Report). The Vintage Pipe Report documents several integrity and performance history reasons to be concerned with LF-ERW and/or EFW pipe due to:

- Lack of fusion and oxides along the weld seam bond line, due to poor process controls,
- Stitched seam welds, which are alternating from complete and incompletely fused or partially fused areas, due to uneven heating,
- Hook cracks near the weld seam bond line caused by inclusions in the steel,
- Excessive trim or grooving (wall thickness reduction), and
- Arc burns resulting from poor or intermittent welding electrode contact.

PHMSA is advancing Research & Development to review the service history of LF-ERW (including EFW) longitudinal seam pipe and will also review integrity management/inspection tools to detect integrity issues with these pipe seams. This is a follow-up to a National Transportation Safety Board (NTSB) recommendation on the subject. Following NTSB's investigation of the Dixie Pipeline failure in 2007, NTSB developed safety recommendations to

PHMSA focused on preventing failures in LF- ERW pipe. Until PHMSA is satisfied that the inherent integrity risks associated with this type pipe seam can be reliably managed, PHMSA will not issue special permits to allow operation of LF-ERW, EFW, or other pipe with a history of pipe seam integrity issues for original Class 1 location pipe installed in a sparsely populated area to be upgraded through a special permit process to operate in a densely populated Class 3 location.

The risks posed by these pipe seam characteristics and the lack of documentation are not acceptable in a populated Class 3 location. The applicant has not described a plan or the use of technology to remediate these pipelines that would mitigate the safety risks in a Class 3 location consistent with replacing the pipe with modern steel pipe, external coatings, field welding, girth weld non-destructive testing, and in-place hydrostatic testing methods.

Based on the information submitted by TCPL-ANR and PHMSA's analysis of the technical, operational, and safety issues, PHMSA finds that granting this special permit to TCPL-ANR to operate segments of its natural gas transmission pipelines now in Class 3 locations, at the current MAOP, would be inconsistent with pipeline safety.

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Completed in Washington DC on: _____

Prepared By: PHMSA – Engineering and Emergency Support