



U.S. Department
of Transportation

**Pipeline and
Hazardous Materials Safety
Administration**

8701 South Gessner, Suite 1110
Houston, TX 77074

**NOTICE OF PROBABLE VIOLATION
and
PROPOSED CIVIL PENALTY**

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

February 12, 2009

Mr. Victor Gaglio
Senior Vice President Operations and Engineering
Columbia Gulf Transmission Company
1700 MacCorkle Avenue SE
Charleston, WV 25314

CPF 4-2009-1005

Dear Mr. Gaglio:

From December 14, 2007 through April, 2008, representatives of the Pipeline and Hazardous Materials Safety Administration (PHMSA) Southwest Region, pursuant to Chapter 601 of 49 United States Code, conducted an investigation of a Columbia Gulf Transmission Company (Columbia Gulf) incident that occurred on December 14, 2007 near Delhi, LA Line 100. The incident involved the failure of Line 100 near the Interstate 20 highway crossing, and is one of three parallel pipelines operated by Columbia Gulf at this location.

As a result of the investigation, it appears that you have committed probable violations of the Pipeline Safety Regulations, Title 49, Code of Federal Regulations. The probable violations are:

1. 192.605 Procedural manual for operations, maintenance, and emergencies.

(a) *General.* Each operator shall prepare and follow for each pipeline, a manual of written procedures for conducting operations and maintenance activities and for emergency response. For transmission lines, the manual must also include procedures for handling abnormal operations. This manual must be reviewed and updated by the operator at intervals not exceeding 15 months, but at least one each calendar year. This manual must be prepared before operations of a pipeline system commence. Appropriate parts of the manual must be kept at locations where operations and maintenance activities are conducted.

(e) *Surveillance, emergency response, and accident investigation.* The procedures required by §§192.613(a), 192.615, and 192.617 must be included in the manual

required by paragraph (a) of this section

192.617 Investigation of Failures.

Each operator shall establish procedures for analyzing accidents and failures, including the selection of samples of the failed facility or equipment for laboratory examination, where appropriate, for the purpose of determining the causes of the failure and minimizing the possibility of a recurrence.

Columbia Gulf did not follow its procedures for Incident Evaluation & Investigation or take appropriate actions by using the information from analyzing prior accidents to minimize the possibility of a recurrence as required by §192.605 (a) and (e) and §192.617. The Operator's Incident Evaluation & Investigation procedure outlines a twelve point process "necessary for a thorough incident investigation." Item 12 of that process states that the Operator shall "Make recommendations to reduce the likelihood of the reoccurrence of an incident," and "Assign someone to act upon the recommendation(s) and track the progress."

On December 14, 2007, the Columbia Gulf 30-inch gas pipeline failed just south of the Interstate 20 highway crossing near Delhi, LA. This failure resulted in an explosion and fire, fatal injuries to a member of the public and nonfatal injuries to another person, both traveling east on Interstate 20 when the incident occurred. The incident also caused damage to private property and resulted in the temporary closure of Interstate 20. The cause of the failure was determined by metallurgical analysis to be external corrosion. A review of Columbia Gulf records indicates that the operator experienced at least three prior failures that were caused or contributed to by similar occurrences of external corrosion.

While at the site just after the December 14 incident, the PHMSA Southwest Region inspector requested internal incident investigation reports or any other available information that was required to be prepared by the operator after each of the prior incidents. Columbia Gulf initially told PHMSA that they did not have any additional information other than the PHMSA 7000 reports submitted to the agency pursuant to Part 191. PHMSA made several additional informal requests for the information but was told each time that no internal accident investigation information or reports had been found.

The PHMSA Southwest region then initiated a formal Request for Specific Information (RSI) dated January 29, 2008 that asked the Operator to "Provide copies of internal company investigations of any incidents involving external corrosion or atmospheric corrosion as the cause of failure for the years 2000 to present." Columbia Gulf responded to the RSI with documents dated March 14, 2007, that included information for four similar incidents, including the December 14, 2007 failure.

The earliest incident included in the response occurred on September 29, 2000 on Line 200 approximately 2 miles downstream of Delhi Station. The description in the documentation indicates the pipeline ruptured and caught fire approximately ¼ mile north of Interstate 20. This location is very close to the December 14, 2007 incident site. The cause of the September 29, 2000 failure was determined by metallurgical evaluation to be external corrosion. The cause of the external corrosion was not specifically determined, but the metallurgist speculated that microbiological induced corrosion (MIC) may have been the cause. However, based on the records provided, Columbia Gulf did not perform MIC testing as part of the failure investigation.

Also, based on the RSI, Columbia Gulf records do not show that it performed any other MIC testing or any other investigation of external corrosion to determine if a similar problem may have existed elsewhere on the pipeline system for the purpose of preventing recurrence as required by §192.605 (a) and (e) and §192.617.

The only item found in the documents provided by Columbia Gulf that resembles a "recommendation" is a statement in the 2000 incident report that states "Smart pig line from Delhi to Inverness, Miss.", and "Also install rectifier in area of rupture." Absent from the documentation are any specific recommendations for determining if similar external corrosion or MIC conditions may exist on segments of the pipeline system (other than Delhi to Inverness) or to implement other forms of continuing surveillance.

Following the incident that occurred on September 29, 2000, another incident occurred on August 3, 2001 on Line 100 in a cased highway crossing near Rayne, LA. Columbia Gulf records indicate that external corrosion under a casing spacer ring was the probable cause of the failure. A recommended action was to replace the pipe through the casing; however no recommendation was made to investigate other casings to minimize the possibility of recurrence elsewhere on the Columbia Gulf system. Columbia Gulf records indicate that an ILI was performed on the Rayne to Alexandria, LA segment of Line 100 in August 1994, approximately seven years prior to the 2001 failure. Despite the failure in 2001, Columbia Gulf did not perform another ILI until November 2005, and there is no indication that any other type of investigation of casings was performed for the purpose of preventing recurrence as required by §192.605 (a) and (e) and §192.617.

It should also be noted that the Columbia Gulf records show the cathodic protection pipe-to-soil reading at the leak site at the time of the August 3, 2001 incident was 818 mV, which is below the 850 mV protection criterion required by Part 192 (see § 192.463). While not a likely contributor to the August 3, 2001 failure due to the location of the corrosion being within the casing, the reading should have prompted further investigation and corrective actions. However, there are no recommendations found in the Columbia Gulf documents for actions to correct deficiencies in the cathodic protection system, investigate other locations on the pipeline system for similar cathodic protection deficiencies, or investigate potential coating problems.

A third incident occurred on Columbia Gulf's pipeline system on September 13, 2006. The incident occurred on Line 100 at the Highway 80 crossing near Delhi, LA. According to the RSPA 7100.2 report filed by Columbia Gulf, the cause of the failure was determined to be corrosion of the carrier pipe inside the cased crossing due to coating failure. Despite the official conclusion, the field inspection reports completed by the operator indicate there was no coating damage. Also, no recommendations were found for investigating other areas of the system for the purpose of preventing recurrence as required by §192.605 (a) and (e) and §192.617.

As noted above, the most recent Line 100 incident occurred on December 14, 2007 and resulted in an explosion, fatal injuries to a member of the public, nonfatal injuries to another member of the public, the closure of Interstate 20 for several hours, and damage to private property. This incident was also determined to be caused by corrosion of the carrier pipe inside the cased Interstate 20 crossing. Columbia Gulf's failure to comply with the provisions of §192.605 (a), (e), and §192.617 and its own procedures for failure investigations following the prior incidents resulted in measures not being taken that possibly could have averted the incident that occurred on December 14, 2007.

2. 192.605 Procedural manual for operations, maintenance, and emergencies.

(a) *General.* Each operator shall prepare and follow for each pipeline, a manual of written procedures for conducting operations and maintenance activities and for emergency response. For transmission lines, the manual must also include procedures for handling abnormal operations. This manual must be reviewed and updated by the operator at intervals not exceeding 15 months, but at least one each calendar year. This manual must be prepared before operations of a pipeline system commence. Appropriate parts of the manual must be kept at locations where operations and maintenance activities are conducted.

(e) *Surveillance, emergency response, and accident investigation.* The procedures required by §§192.613(a), 192.615, and 192.617 must be included in the manual required by paragraph (a) of this section

192.613 Continuing surveillance.

(a) Each operator shall have a procedure for continuing surveillance of its facilities to determine and take appropriate action concerning changes in class location, failures, leakage history, corrosion, substantial changes in cathodic protection requirements, and other unusual operating and maintenance conditions.

(b) If a segment of pipeline is determined to be in unsatisfactory condition but no immediate hazard exists, the operator shall initiate a program to recondition or phase out the segment involved, or, if the segment cannot be reconditioned or phased out, reduce the maximum allowable operating pressure in accordance with §192.619 (a) and (b).

Columbia Gulf did not define and implement a specific program of continuing surveillance to detect the possibility that similar types of failures could occur at cased crossings, given the failures that occurred in 2000, 2001, 2006, and 2007, as required by §192.605 (a) and (e) and §192.613. The prior failures on the Columbia Gulf system required the operator to perform additional surveillance to detect conditions that could be a warning for other similar types of potential failures on the pipeline system. Based on a review of the prior incidents, it appears likely that coating damage from the casing spacer rings may have resulted in the onset of corrosion that caused at least two, and possibly three, of the prior failures. However, based on the information provided by the Operator as a result of the RSI, there is no evidence that continuing surveillance was specifically performed to determine the probability that other cased crossings may have had the same type of damage, corrosion, and risk of failure.

Item 7 of the PHMSA RSI required Columbia Gulf to "Provide written procedures that were in place prior to the December 14, 2007 incident for continuing surveillance as required by 49 CFR 192.613, and provide any records of actions or surveillance performed under this section for the years 2000 to present." According to the Operator's procedures submitted in response to this request, "Facility patrols are used to observe surface conditions on and adjacent to the right-of-way for the general conditions, indications of leaks, encroachments, and other factors affecting the safety and operations of the pipelines and pipeline facilities." The Operator's procedures specify that facility patrols in Class 1 and 2 locations will be performed once per calendar year not to exceed 15 months, and twice per calendar year not to exceed 7 ½ months for road and railroad crossings. These are the maximum intervals for patrolling transmission lines allowed by Part 192 (see § 192.705); however, the Operator has failed to show the methods and frequency of patrolling used on the Columbia Gulf system as a component of continuing surveillance were

defined based on consideration of the elements described in § 192.613(a), particularly the previous failures that occurred on the pipeline system.

The Columbia Gulf procedures also specify leak surveys will be performed once per calendar year not to exceed 15 months. While leak detection surveys can be an important component of a continuing surveillance program when designed according to the risk of failure, the Columbia Gulf procedures only reflect the minimum requirements for leakage surveys in Part 192 (see § 192.706) and fail to consider the specific risks posed by the Operator's pipeline system in the establishment of leak detection as a component of continuing surveillance in accordance with §192.613. In addition, the Operator allows leak surveys for Class 1 and 2 locations to be performed without gas detection equipment. Given the mode of the previous failures, it is unlikely that a simple visual inspection of the right-of-way would provide adequate warning of the likelihood of an impending external corrosion failure, because the failures occurred in casings where the visual signs on the right-of-way for early detection of a small corrosion related leak would have been very subtle. While the Columbia Gulf procedures identify an exclusion to performing non-instrumented leak detection surveys in Class 1 and 2 locations, the procedures also require the Operator to first deem the segment to be an "active corrosion zone." Despite the prior failures, the records submitted by the Operator do not indicate the operator ever deemed pipeline segments in Class 1 and 2 locations to have active corrosion, thereby resulting in no required instrumented leak surveys being performed along the pipeline right-of-way pursuant to the Operator's procedures.

Columbia Gulf procedures also specify that instrumented surveys will be performed on shorted casings. Records submitted by the Operator in response to the RSI indicate that instrumented surveys were performed on shorted casing vents for some pipeline segments while *all* casing vents were surveyed on other segments. There was no explanation offered for the inconsistency in Columbia Gulf's survey practice. Consequently, there does not seem to be a systematic program of consistent, system-wide instrumented surveys making up a continuing surveillance program designed to warn of impending failures due to external corrosion in casings. Furthermore, the instrumented surveys that were performed were ineffective in detecting the leak that led to the December 14, 2007 Interstate 20 incident.

Despite the inadequacy of the Columbia Gulf surveys, Exhibit 7 of Columbia Gulf's response to the RSI states "Columbia Gulf also has implemented a program of monitoring casing vents with leakage detection equipment over and above the current Part 192 patrolling requirements." The Columbia Gulf procedures specify instrumented surveys of *shorted* casings will be performed according to the schedule for 49 CFR 192.705. However, Part 192 requires electrical isolation for each buried or submerged pipeline, so there are no specific patrolling requirements defined for shorted casings. In certain circumstances, programs using frequent surveillance of shorted casings have been allowed by PHMSA until the short is cleared or the casing remediated or removed; but a procedure calling for instrumented surveys of shorted casing vents cannot be considered to exceed basic Part 192 requirements. Furthermore, as noted, the instrumented surveys were ineffective in detecting the leak that led to the 2007 incident.

In response to that incident, PHMSA issued to Columbia Gulf a Corrective Action Order (CAO) on December 19, 2007. The CAO required Columbia Gulf to formulate and submit to PHMSA a Remedial Work Plan. One assessment made by the Operator within the plan states, "The most accurate and reliable method of determining the condition of the carrier pipe within a casing is to perform an inline inspection." Columbia Gulf records indicate an ILI was performed on the pipeline segment from Delhi Station to the Mississippi River in 1996. The 1996 ILI apparently indicated corrosion on the segment but according to Columbia Gulf personnel, no indications of

corrosion were excavated or repaired at that time. Despite the indications of corrosion in the ILI, subsequent failures on both Lines 100 and 200, and the Operator's conclusion that it is the "most accurate and reliable method of determining the condition of the carrier pipe within a casing," Columbia Gulf did not re-inspect the Delhi to Mississippi River pipeline segment using ILI until after the Interstate 20 failure in December 2007. Based on the Operator's own assessment, the use of ILI would certainly seem to be a critical component in a continuing surveillance program for this pipeline system.

Another important component of a comprehensive continuing surveillance program given the prior incidents was the inspection of casing seals and additional scrutiny of records to determine locations with similar casing spacers and pipeline coating. The onset of corrosion of the carrier pipe in a casing is likely preceded or accompanied by the presence of electrolyte (water) in the casing and a determination of casing seal failure would have provided an indication of a higher risk of the presence of electrolyte and the likelihood of corrosion. However, there is no indication from the information provided by the Operator that any inspection of the casing seals or evaluation casing records was ever performed.

The Operator failed to implement an acceptable program of continuing surveillance based on prior pipeline failures and evidence of corrosion as required by §192.613, and §192.605 (a) and (e), despite multiple failures. While information provided by the Operator indicates some instrumented surveys were performed in various locations on the pipeline system, these surveys do not specifically address continuing surveillance requirements that are expected to detect and prevent similar failures.

3. 192.605 Procedural manual for operations, maintenance, and emergencies.

- (a) General. Each operator shall prepare and follow for each pipeline, a manual of written procedures for conducting operations and maintenance activities and for emergency response. For transmission lines, the manual must also include procedures for handling abnormal operations. This manual must be reviewed and updated by the operator at intervals not exceeding 15 months, but at least one each calendar year. This manual must be prepared before operations of a pipeline system commence. Appropriate parts of the manual must be kept at locations where operations and maintenance activities are conducted.

The Operator failed to follow its procedures for investigation of shorted casings. The Columbia Gulf procedure 70.01.01 titled "External Corrosion Control," dated 03/05/2007 states, "As a general rule, if the potential difference between the casing and the pipeline is over 100 mV, the casing should be considered to be not shorted." The same procedure also states, "If the status of the casing is unknown, it shall be treated as a shorted casing."

According to Columbia Gulf records, the last annual potential survey of the Line 100 Interstate 20 crossing prior to the December 14, 2007 incident was performed on June 27, 2007. The readings taken at this time show the pipe-to-soil potential to be -979 mV and the casing-to-soil potential to be -879 mV. Based on the Columbia Gulf requirement stated above, the Operator should have performed additional testing to determine if the casing was metallicly shorted.

Other Columbia Gulf documents provided by Columbia Gulf state the requirement in a slightly different manner. Remediation plan documents dated 2/12/2008 titled "Columbia Gulf - External Corrosion Control Program Summary - Mainlines 100, 200, and 300" state the following: "If the potential difference between the casing and the pipeline is over 100 mV, the casing is not

considered metallically shorted. Conversely, if the potential difference between a casing and the pipeline [is] 100 mV or less, the casing is considered as metallically shorted until further testing is completed to determine the status (clear or metallic shorted)." This version of the procedure would also deem the casing to be shorted and require additional investigation to be performed. Columbia Gulf did not perform an investigation to determine if the casing was metallically shorted.

Proposed Civil Penalty

Under 49 United States Code, § 60122, you are subject to a civil penalty not to exceed \$100,000 for each violation for each day the violation persists up to a maximum of \$1,000,000 for any related series of violations. The Compliance Officer has reviewed the circumstances and supporting documentation involved in the above probable violation(s) and has recommended that you be preliminarily assessed a civil penalty of \$1,555,000 as follows:

<u>Item number</u>	<u>PENALTY</u>
1	\$760,000
2	\$35,000
3	\$760,000

Response to this Notice

Enclosed as part of this Notice is a document entitled Response Options for Pipeline Operators in Compliance Proceedings. Please refer to this document and note the response options. Be advised that all material you submit in response to this enforcement action is subject to being made publicly available. If you believe that any portion of your responsive material qualifies for confidential treatment under 5 U.S.C. 552(b), along with the complete original document you must provide a second copy of the document with the portions you believe qualify for confidential treatment redacted and an explanation of why you believe the redacted information qualifies for confidential treatment under 5 U.S.C. 552(b). If you do not respond within 30 days of receipt of this Notice, this constitutes a waiver of your right to contest the allegations in this Notice and authorizes the Associate Administrator for Pipeline Safety to find facts as alleged in this Notice without further notice to you and to issue a Final Order.

In your correspondence on this matter, please refer to **CPF 4-2009-1005** and for each document you submit, please provide a copy in electronic format whenever possible.

Sincerely,



R. M. Seeley
Director, Southwest
Pipeline and Hazardous
Materials Safety Administration

Enclosure: *Response Options for Pipeline Operators in Compliance Proceedings*