



U.S. Department  
of Transportation  
Pipeline and Hazardous Materials  
Safety Administration

**MAR - 5 2009**

1200 New Jersey Ave., SE  
Washington, DC 20590

Mr. Paul N. Preketes  
Senior Vice President of Energy Delivery  
Consumers Energy Company  
One Energy Plaza  
Jackson, MI 49201

**Re: CPF No. 3-1999-1001 (formerly 39101)**

Dear Mr. Preketes:

Enclosed is the Final Order issued in the above-referenced case. It makes findings of violation and reduces several of the allegations to warning items. This enforcement action is now closed. Your receipt of the Final Order constitutes service of that document under 49 C.F.R. § 190.5.

Thank you for your cooperation in this matter.

Sincerely,

Jeffrey D. Wiese  
Associate Administrator  
for Pipeline Safety

Enclosure

cc: Ivan Huntoon, Director, Central Region, PHMSA

**CERTIFIED MAIL – RETURN RECEIPT REQUESTED [7005 0390 0005 6163 2584]**

**U.S. DEPARTMENT OF TRANSPORTATION  
PIPELINE AND HAZARDOUS MATERIALS SAFETY ADMINISTRATION  
OFFICE OF PIPELINE SAFETY  
WASHINGTON, D.C. 20590**

<b>In the Matter of</b>	)	
	)	
<b>Consumers Energy Company (f/k/a Michigan Gas Storage Company),</b>	)	<b>CPF No. 3-1999-1001 (formerly 39101)</b>
	)	
<b>Respondent.</b>	)	

**FINAL ORDER**

On June 6-10, 1997, pursuant to 49 U.S.C. § 60117, a representative of the Michigan Public Service Commission, as agent for the Pipeline and Hazardous Materials Safety Administration (PHMSA), Office of Pipeline Safety (OPS), conducted an on-site pipeline safety inspection of the natural gas storage facilities and records of Michigan Gas Storage Company (Michigan Gas or Respondent) in Winterfield, Cranberry Lake, and Riverside, Michigan.<sup>1</sup>

On September 19-20, 1997, PHMSA performed additional inspections following a failure of system piping that occurred at the Winterfield facility. As a result of the inspections, the Director, Central Region, PHMSA (Director), issued to Respondent, by letter dated February 16, 1999, a Notice of Probable Violation and Proposed Civil Penalty (Notice). In accordance with 49 C.F.R. § 190.207, the Notice proposed finding that Respondent had committed certain violations of 49 C.F.R. Part 192 and proposed assessing a civil penalty of \$10,000 for the alleged violations. The Notice also proposed finding that Respondent had committed certain other probable violations of 49 C.F.R. Part 192 and warning Respondent to take appropriate corrective action to address them or be subject to future enforcement action.

Michigan Gas responded to the Notice by letter dated March 12, 1999 (Response). Respondent contested the allegations and requested a hearing, which was held on September 8, 1999, in Kansas City, Missouri. Ms. Astrid Lopez-Goldberg, Esq., Office of Chief Counsel, PHMSA, served as the presiding official. After the hearing, Respondent provided additional information for the record on September 23, 1999, October 15, 1999, and November 4, 1999.

---

<sup>1</sup> On or around November 8, 2002, Michigan Gas Storage Company transferred its assets to its parent company, Consumers Energy Company, which currently operates the facilities that are the subject of this Final Order and provides electric and natural gas service to over 6 million customers in Michigan.

## FINDINGS OF VIOLATION

The Notice alleged that Respondent violated 49 C.F.R. Part 192, as follows:

**Item 1:** The Notice alleged that Respondent violated 49 C.F.R. § 192.475(a), which states:

**§ 192.475 Internal corrosion control: General.**

(a) Corrosive gas may not be transported by pipeline, unless the corrosive effect of the gas on the pipeline has been investigated and steps have been taken to minimize internal corrosion....

Specifically, the Notice alleged that Respondent transported corrosive gas through the piping in its storage field facilities but failed to investigate the corrosive effect(s) of the gas and to take steps necessary to minimize internal corrosion. The Notice alleged that these conditions were evidenced by several documented internal corrosion leaks that occurred at the company's facilities between 1991 and 1997.

In its Response and at the hearing, Michigan Gas noted that the phrase "corrosive gas" was not defined in the pipeline safety regulations and argued that the company did not transport corrosive gas and therefore was not in violation of § 192.475(a).

Part 192 of title 49, Code of Federal Regulations, was established pursuant to the Natural Gas Pipeline Safety Act of 1968 (Pub. L. 90-481)(Act). The purpose of the Act and the regulations promulgated thereunder is to provide adequate protection against risks to life, property, and the environment that are posed by the transportation and storage of natural gas. The regulations cover the design, construction, operation, maintenance, and emergency response requirements for gas pipeline and storage facilities. A major goal of the operating and maintenance regulations is to ensure that pipeline operators prevent and control corrosion in their pipeline systems, one of the major causes of pipeline failures. Operators transporting natural gas are obligated to recognize and address corrosion and to prevent corrosion-related leaks and failures on their pipelines.

The phrase "corrosive gas," as used in § 192.475(a), must be construed in a manner that gives effect to the purpose and intent of the Part 192 regulations. The intent of this particular regulation is to ensure that hazardous leaks of natural gas caused by internal corrosion are prevented. To accomplish this, pipeline operators are required to monitor their pipelines wherever known causes of internal corrosion are present and to take appropriate actions to minimize the corrosion in a manner that prevents leaks and other hazards. Known causes of internal corrosion include certain constituents such as carbon dioxide (CO<sub>2</sub>), hydrogen sulfide, and certain microbes and bacteria that, in the presence of water, can corrode the internal surface of the pipe.<sup>2</sup> Other factors can also increase corrosion, such as low spots and locations where the gas stream does not have sufficient velocity to carry away condensates. Any time that internal corrosion is directly observed on the inside of a pipeline, such as in connection with performing

---

<sup>2</sup> See OPS-1 (Guide material 192.475 Internal corrosion control: general) submitted at the September 8, 1999 hearing.

leak repairs, an operator has conclusive evidence that elements known to cause such corrosion are present.

In this case, Respondent's facilities receive natural gas containing up to 2% CO<sub>2</sub> and then inject the gas into natural underground storage formations. These natural underground formations contain connate water absorbed from the formations, depending upon pressure and temperature conditions. When the gas is withdrawn from the formations, free water can condense within the piping due to the pressure and temperature drops that occur during withdrawal. CO<sub>2</sub> dissolves in the water to form carbonic acid. It is well documented that carbonic acid is corrosive to steel. Because such elements that are known to cause internal corrosion were present in the gas being transported by Respondent, I find that for purposes of § 192.475(a), Michigan Gas knew or should have known that it was transporting corrosive gas through the piping in its storage field facilities.

In addition, the operating history of these facilities served to corroborate the corrosive nature of the gas being transported. There were numerous instances where internal corrosion had in fact occurred on Respondent's facilities between 1991 and 1997, as evidenced by at least 13 leaks that had to be repaired by Michigan Gas. In addition to the 13 leaks, internal corrosion was found in numerous other instances, such as during component installations. Respondent failed to investigate the effects of the corrosive gas on the pipeline and take steps to minimize internal corrosion. Accordingly, after considering all the evidence and the legal issues presented, I find that Respondent violated 49 C.F.R. § 192.475(a) by transporting corrosive gas through the piping in its storage field facilities while failing to investigate and take the steps necessary to minimize internal corrosion.

**Item 2:** The Notice alleged that Respondent violated 49 C.F.R. § 192.475(b), which states:

**§ 192.475 Internal corrosion control: General.**

(a) . . . .

(b) Whenever any pipe is removed from a pipeline for any reason, the internal surface must be inspected for evidence of corrosion. If internal corrosion is found—

(1) The adjacent pipe must be investigated to determine the extent of internal corrosion;

(2) Replacement must be made to the extent required by the applicable paragraphs of §§192.485, 192.487, or 192.489; and

(3) Steps must be taken to minimize the internal corrosion.

Specifically, the Notice alleged that despite the known presence of internal corrosion in the storage field piping, Respondent failed to take steps necessary to minimize internal corrosion during the 1991-1997 period.

In its Response and at the hearing, Respondent contended that it had taken certain actions to address internal corrosion at its facilities. These included the blending of gas with other gas having a lower CO<sub>2</sub> content, the use of corrosion coupons, the installation of drip logs, internal inspections that utilized smart pigs, the metallurgical analysis and replacement of corroded pipe,

and the use of inhibitors, well corrosion logs, and liquid separation and dehydration equipment.

However, it is clear from the record that internal corrosion continued to develop undetected, particularly due to Respondent's inadequate placement and number of coupon sites in its storage field facilities. Moreover, Respondent did not take most of the steps that were necessary to mitigate the internal corrosion until after the failures that occurred in September 1997.

Accordingly, after considering all the evidence and the legal issues presented, I find that Respondent violated 49 C.F.R. § 192.475(b) by failing to take the steps necessary to minimize internal corrosion on the piping in its facilities during the 1991-1997 period.

These findings of violation will be considered prior offenses in any subsequent enforcement action taken against Respondent.

### ASSESSMENT OF PENALTY

Under 49 U.S.C. § 60122, Respondent is subject to a civil penalty not to exceed \$25,000 per violation for each day of the violation, up to a maximum of \$500,000 for any related series of violations.<sup>3</sup>

49 U.S.C. § 60122 and 49 C.F.R. § 190.225 require that, in determining the amount of the civil penalty, I consider the following criteria: the nature, circumstances, and gravity of the violation, including adverse impact on the environment; the degree of Respondent's culpability; the history of Respondent's prior offenses; the Respondent's ability to pay the penalty and any effect that the penalty may have on its ability to continue doing business; and the good faith of Respondent in attempting to comply with the pipeline safety regulations. In addition, I may consider the economic benefit gained from the violation without any reduction because of subsequent damages, and such other matters as justice may require.

The Notice proposed a total civil penalty of \$10,000 for the violations. As discussed in the Findings section above, pipeline operators are obligated to control corrosion in a manner that prevents leaks and failures. When known causes of corrosion are present, monitoring is critical to an operator's ability to understand whether corrosion is occurring and the rate at which it is occurring. When such monitoring indicates the presence of corrosion, a thorough program of remedial action must be promptly developed and implemented. In its Response and at the hearing, Respondent contended that in the absence of a definition of the term "corrosive gas," it was reasonable for Michigan Gas to operate under the premise that the gas it was transporting was not corrosive.

---

<sup>3</sup> The Pipeline Safety Improvement Act of 2002, Pub. L. 107-355, § 8(b)(1), 116 Stat. 2992, increased the civil penalty liability for violating a pipeline safety standard to \$100,000 per violation for each day of the violation, up to a maximum of \$1,000,000 for any related series of violations.

For the reasons discussed above, however, we find this argument unpersuasive and have determined that a finding of violation is warranted. Nevertheless, it appears that this is the first administrative pipeline enforcement case to address corrosive gas in the context of connate water and natural underground storage formations. In determining the amount of the civil penalty, 49 U.S.C. § 60122 and 49 C.F.R. § 190.225 provide that I may also consider such other matters as justice requires. In consideration of the age and history of this case, I conclude that the proposed penalty is inappropriate. Accordingly, the proposed penalty amount of \$10,000 is hereby withdrawn.

### WARNING ITEMS

With respect to Items 3, 4, and 5, the Notice alleged probable violations of Part 192 but did not propose a civil penalty or compliance order for these items. Therefore, these are considered to be warning items. The warnings were for:

49 C.F.R. § 192.477 (Notice Item 3) — Respondent's alleged failure to check the coupons two times per calendar year, or within the required 7½-month interval, during the 1996-1997 period;

49 C.F.R. § 192.603(b) (Notice Item 4) — Respondent's alleged failure to maintain records documenting the cause of the August 23, 1991, leak at the Winterfield storage facility; and

49 C.F.R. § 192.605 (Notice Item 5) — Respondent's alleged failure to establish a written corrosion control procedure setting forth coupon intervals and evaluation criteria.

In its Response and at the hearing, Respondent presented information showing that it had initiated certain actions to address the cited items. Having considered such information, I find, pursuant to 49 C.F.R. § 190.205, that probable violations of 49 C.F.R. § 192.477 (Notice Item 3), 49 C.F.R. § 192.603(b) (Notice Item 4), and 49 C.F.R. § 192.605 (Notice Item 5) have occurred and Respondent is hereby advised to correct such conditions. In the event that a violation for any of these items is found in a subsequent inspection, Respondent may be subject to future enforcement action.

The terms and conditions of this Final Order shall be effective upon receipt.

*William H. Auto*  
*Gen*

---

Jeffrey D. Wiese  
Associate Administrator  
for Pipeline Safety

**MAR - 5 2009**

---

Date Issued