

U.S. Department of Transportation
Research and Special Programs Administration

OCT 17 1997

Donald J. Stursma, PE
Supervisor, Engineering & Safety Section
Iowa Utilities Board
Lucas State Office Building
Des Moines, Iowa 50319

Dear Mr. Stursma:

We have reviewed the Iowa Utilities Board's order granting the MidAmerican Energy Company a waiver of the corrosion control standards in 49 CFR 192.463(a) and 192.465(d). The waiver, which applies to about a mile of steel gas main located in downtown Des Moines, permits continued operation of the main without cathodic protection while it is replaced with plastic pipe over a 3-year period.

The order describes the good safety record of the main and the difficulties of providing adequate cathodic protection. In addition, the order indicates that during the period of the waiver the company will increase its system monitoring by conducting quarterly leakage surveys as well as monthly odor level tests. The order also requires the company to submit to the Utilities Board quarterly reports of the monitoring and replacement programs. Under these circumstances, we have no objection to the waiver.

Sincerely,
Richard B. Felder
Associate Administrator for Pipeline Safety

U.S. Department of Transportation
Research and Special Programs Administration
400 Seventh Street, S.W.
Washington, D.C. 20590

September 22, 1997

Mr. Donald J. Stursma, P.E.
Supervisor, Engineering and Safety Section
Iowa Utilities Board
Lucas State Office Building
Des Moines, IA 50319

Dear Mr. Stursma:

The Office of Pipeline Safety has received and is processing your correspondence dated September 16, 1997, requesting a waiver from the requirements of 49 CFR 192.463(a) and 192.465(d), for a specific pipeline segment in Des Moines, Iowa.

We generally respond to correspondence within 30 days. However, if additional time is required, we will notify you as soon as possible. Thank you for your cooperation in pipeline safety matters.

Sincerely,
Jenny M. Donohue
Program Assistant
Office of Pipeline Safety

STATE OF IOWA
DEPARTMENT OF COMMERCE
Lucas State Office Building
Des Moines, Iowa 50319

September 16, 1997

File: OPS

Mr. Richard B. Felder Associate Administrator
U.S. Department of Transportation
Office of Pipeline Safety
400 Seventh St. SW, Room 2335
Washington, DC 20590

RE: Waiver of 49 CFR Part 192.463(a) and .465(d).

Dear Mr. Felder:

On September 10, 1997, the Iowa Utilities Board granted to MidAmerican Energy Company, an intrastate gas operator, a waiver from 49 CFR Part 192.463(a) and .465(d) for a specific pipeline segment in Des Moines, Iowa. This is the first waiver of Part 192 that Iowa has granted or been asked to grant.

As required by 49 U.S.C. 60118(d), enclosed are copies of the Board's order, and of the staff memorandum leading to its issuance. We understand that the waiver will not be effective for 60 days pending review of the Iowa action by the Office of Pipeline Safety.

If you have any questions, feel free to contact me at 515-281-5546.

Sincerely,
Donald J. Stursma, P.E.
Supervisor, Engineering & Safety Section
Iowa Utilities Board
Lucas State Office Building
Des Moines, Iowa 50319

STATE OF IOWA
DEPARTMENT OF COMMERCE
UTILITIES BOARD
IN RE: MIDAMERICAN ENERGY COMPANY
DOCKET NO. WRU-97-14-156

ORDER GRANTING WAIVER
(Issued September 10, 1997)

On June 8, 1997, MidAmerican Energy Company (MidAmerican) filed with the Utilities Board (Board) a request for waiver of IOWA ADMIN. CODE 199-19.5(2) (1997). Rule 19.5(2) incorporates by reference 49 C.F.R. Parts 192.463(a) and 192.465(d) which set forth federal safety standards regarding cathodic protection of natural gas pipelines to prevent corrosion. The Utilities Division, as a participant in the pipeline safety program under a certification pursuant to 49 U.S.C. § 60105 (1997), is required to adopt federal pipeline safety regulations.

In support of its request for waiver, MidAmerican stated the Utilities Division staff conducted a safety code compliance inspection of the pipeline in MidAmerican's Des Moines District in the fall of 1996. MidAmerican received an inspection report on December 9, 1996, from the Utilities Division showing nine zones of Gas pipeline with low cathodic protection. By letter dated January 9, 1997, MidAmerican stated five of the zones were corrected and a sixth would be corrected. MidAmerican asserted protection of zones 245, 246, and 247 was impractical and proposed replacing the current steel pipe with plastic pipe over a three-year period beginning in 1997. By letter dated April 16, 1997, Utilities Division staff contended MidAmerican's proposal to replace the pipe over a three-year period was unacceptable because the rule does not allow cathodic protection to lapse on pipe scheduled for replacement.

The 25 psig pipeline system in zones 245, 246, and 247 was installed in 1947 without cathodic protection. The pipe is a 12-inch diameter steel main with a thickness of 0.375", 0.385", and 0.398". In the early 1950s a committee representing major underground utilities in this area devised a rectifier-powered cathodic protection system for integrated corrosion control. By the 1980's, time and replacements had fragmented the system rendering continued use impractical and imprudent. In 1985 MidAmerican had adopted a specific plan to convert the system in these areas to sacrificial anode cathodic protection or to replace it with plastic pipe. The plan was implemented in 1987 and completed in 1993. As a result, only 5,259 feet of unprotected gas main out of the original 32,085 feet of unprotected main remains.

MidAmerican asserted the remaining unprotected main is the 12-inch Locust line. According to MidAmerican, cathodically protecting this pipe is impractical. The pipe is frequently bonded to other buried facilities (electric conduits, bridges, old street car rails) as part of the original protection system. These bonds now create shorts that drain off protective current. MidAmerican maintained the shorts are difficult to find and repair due to the volume of traffic on downtown Locust Street. MidAmerican contended recent testing reaffirms that upgrading the existing cathodic protection on the system is not a viable option. During the test, the increases to pipe-top-soil levels on the gas system were minimal and indicated the system would require large rectifiers and current output to achieve an adequate level of protection. MidAmerican asserted increases in current would not be practicable due to the interference corrosion that would affect other underground utilities.

MidAmerican stated it will continue to closely review leak trends during the replacement period of the pipe. The pipe has experienced very few corrosion leaks and none since 1993. The segment of pipe that will remain in service has had one reported leak during the last ten years. Exposed pipe condition reports have found little evidence of actual corrosion despite protection problems. MidAmerican will conduct quarterly leak surveys in Zones 245, 246, and 247. MidAmerican contended that all leaks found will be repaired according to MidAmerican's gas standards. In addition to distribution leak surveys, public building leak surveys will also be conducted in the zones on a quarterly basis. MidAmerican also asserted it will promptly correct any deficiencies detected during leak surveys and conduct a monthly odor level test at locations served by pipe in Zones 245, 246, and 247.

The Board may waive compliance with a federal safety standard if the waiver is not inconsistent with pipeline safety. 49 U.S.C. § 601118 (1997). The Board has reviewed MidAmerican's request for waiver and will grant it. Cathodic protection to normal standards for the pipe in Zones 245, 246, and 247 is impractical if not impossible. The inadequate cathodic protection does not result from disregard for regulatory requirements. MidAmerican has stated it will increase its monitoring to assure the public safety will not be compromised if the pipe is not cathodically protected pending replacement. Corrosion leaks are usually slow developing, and the evidence shows little corrosion is occurring, so

additional leak surveys will provide increased potential for finding new corrosion leakage before it can become a hazard. Under these circumstances, the Board finds waiver of IOWA ADMIN. CODE 199-19.5(2) appropriate and not inconsistent with pipeline safety. MidAmerican will be required to file quarterly reports on the progress of replacement and the results of the monitoring.

The Board's participation in the federal pipeline safety program requires the Board to give notice and opportunity for written comments and a hearing before granting a waiver. The Board does not ordinarily publish notice of waiver requests and finds it unnecessary in this proceeding.

Although the Board has authority to waive compliance with a federal safety standard, the waiver is subject to review by the federal Office of Pipeline Safety (OPS). The Board must submit a copy of its order at least 60 days before the waiver can become effective pursuant to 49 U.S.C. § 60118(d) (1997). If OPS makes a written objection before the effective date, the waiver is stayed. Therefore, MidAmerican's request for waiver of IOWA ADMIN. CODE 199-19.5(2) will be effective not less than 60 days after submission to OPS.

IT IS THEREFORE ORDERED:

1. The request for waiver filed by MidAmerican Energy Company on June 8, 1997, is granted to the extent discussed in the body of this order.
2. MidAmerican Energy Company shall file quarterly reports with the Utilities Board regarding the status of pipe replacement and monitoring.

UTILITIES BOARD

Dated at Des Moines, Iowa, this 10th day of September, 1997.

DEPARTMENT OF COMMERCE UTILITIES DIVISION
Bureau of Rate & Safety Evaluation

FILE #: WRU-97-14-156
COMPANY: MidAmerican Energy FILE DATE/DUE DATE: N/A
MEMO DATE: June 23, 1997
TO: UTILITIES BOARD
FROM: Donald J. Stursma
RE: Request for Waiver of Corrosion Control Regulations for Three Years Pending Pipe Replacement

II. Discussion: In 199 IAC 19.5(2), the Board has adopted by reference the federal pipeline safety standards of 49 CFR Part192. Those standards include the following corrosion control requirements for steel pipe:

192.463 External corrosion control: Cathodic protection.

(a) Each cathodic protection system required by this subpart must provide a level of cathodic protection that complies with one or more of the applicable criteria of contained in Exhibit D of this part. If none of these criteria is applicable, the cathodic protection system must provide a level of cathodic protection at least equal to that provided by compliance with one or more of these criteria.

192.463 External corrosion control: Monitoring.

(d) Each operator shall take prompt remedial action to correct any deficiencies indicated by the monitoring.

Cathodic protection is accomplished by sending a trickle of electrical current through the ground to the pipe, which disrupts the electrochemical corrosion process. Other regulations require the adequacy of the protection be checked at least annually. "Prompt" remedial action is not defined in the rules but correction prior to the next annual check is generally accepted; See the "Proposed Decision and Order" in Docket No. PSA-92-1.

In the fall of 1996, Board Inspector Jeff O'Neal performed a safety code compliance inspection of the MidAmerican Energy Des Moines District. His December 2, 1996, report found nine zones where cathodic protection had been low for over a year, which were cited as Probable Violations of 49 CFR 192.465(d). The report was mailed to MidAmerican under cover letter dated December 9, 1996.

MidAmerican responded by letter dated January 9, 1997, stating that five of these zones had been corrected and a sixth would be corrected. MidAmerican concluded that protection of the other three zones - Zones 245, 246, and 247 - was impractical and proposed replacing the present steel pipe with plastic pipe over a three year period beginning in 1997.

By letter dated April 16, 1997, Board staff responded that this was unacceptable. The standards make no provision for allowing protection to lapse on pipe awaiting replacement; in fact, a utility was fined by the Board for doing just that in Docket No. PSA-92-1. Staff was further concerned that the readings were very low and had already been low for several years (see petition Exhibit B, which shows Zones 245 and 256 down since at least 1990), and corrosion could be occurring. As these zones are on Locust Street through downtown Des Moines from 18th St. to E 1st., a leak could have major safety consequences.

On June 8, 1997, MidAmerican filed a "Request for Waiver of the state and federal rules cited in the first paragraph. It states that the pipe in question is a 12 inch diameter steel main operated at 25 psig originally installed in 1947 without cathodic protection. In the early 1950's, a committee of all the Des Moines major underground utilities devised a rectifier-powered cathodic protection system which tied together all the major downtown utilities for integrated corrosion control.* By the 1980's, however, time and replacements had fragmented the system rendering continuing use impractical and imprudent. From 1987 to 1993 MidAmerican worked to independently protect its pipe with anodes**, or replaced it.

Today, out of the original 32,085 feet of unprotected pipe in these zones, only 5,259 feet remains. It appears cathodically protecting this pipe is impractical. It is frequently bonded to other buried facilities (electrical conduits, bridges, old streetcar rails) as part of the original protection system; bonds which now create shorts that drain off protective current. Shorts can be notoriously difficult to find and eliminate under the best of circumstances; attempting to locate and repair them on busy downtown Locust Street promises substantial difficulty, plus the public inconvenience of the excavations needed. A test of restoring rectifier protection found little gain; voltages potentially detrimental to other buried utilities would be needed for significant results.

The waiver request essentially contends it would be impractical to cathodically protect this line pending replacement. In exchange, to insure that the lack of protection does not compromise public safety, MidAmerican proposes to:

1. Closely review leak trends. This pipe has a surprisingly good corrosion leak history; one in 1993 in Zone 247, and only one leak in the last 10 years on pipe that will remain in service after June 30, 1997. Exposed pipe condition reports have found little evidence of actual corrosion despite protection problems.
2. Conduct quarterly leak surveys, including public buildings. This goes beyond the required annual surveys.
3. Prompt correction of any deficiencies detected through the above monitoring.
4. Monthly odor testing to insure that if a leak does occur the odor of gas is readily detectable.

Staff supports the granting of the requested waiver. Cathodic protection to normal standards for the pipe in these zones is impractical if not impossible. Until the pipe can be replaced, MidAmerican will increase its monitoring to assure the public safety will not be compromised if the pipe is not cathodically protected. Corrosion leaks are usually slow developing, and the evidence shows little corrosion is occurring, so increased leak surveys offer increased potential for finding any new corrosion leakage before it can become a hazard. The case differs from Docket No. PSA-92-1 in that the inadequate cathodic protection does not result from disregard for regulatory requirements, and compensating safety precautions would be taken. In these circumstances a waiver appears appropriate. However, staff recommends that MidAmerican be directed to file quarterly reports on the progress of replacement and the findings of the monitoring.

Because the waiver would be of federal regulations, some extra steps are necessary. Federal law Section 60118(d) grants states authority to waive federal safety rules, but subject to federal review and veto. The state action must be submitted to the Office of Pipeline Safety (OPS) for review. OPS approval is not required but the state action is stayed if OPS makes written objection within 60 days. Therefore the effective date of the waiver cannot be sooner than 60 days from the date it is submitted for OPS review.

In "Guidelines for States Participating in the Pipeline Safety Program," but not by law or regulation, OPS anticipate states will give notice and opportunity for comment and hearing on waiver requests, unless the state "finds that notice is impractical, unnecessary, or not in the public interest." Iowa does not normally publish notice of rule waiver requests, not does it seem necessary in this instance. This should be noted in the order granting the waiver.

* The rectifier may have replaced an earlier system using the direct current off the electric streetcar system, which was grounded through the rails. Even if this story is not true, the system is remarkable, as the science of cathodic protection was in its infancy in the 50's.

** Anodes are metals which, when properly connected to the pipe, create protective current through the same electrochemical reactions that power batteries. Rectifiers are powered by an outside current source.

- II. Action Proposed: Direct General Counsel to draft an order for the Board's consideration granting a waiver from the usual corrosion control requirements in exchange for increased monitoring and pipe replacement within three years; requiring quarterly reports to the Board on the status of pipe replacement and monitoring; finding notice is unnecessary; and setting an effective date not less than 60 days from when submitted for OPS review.

ACTION APPROVED

UTILITIES BOARD