BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

In the Matter of Liberty Utilities Verified Application for Approval of PVC Pipe Replacement Program and Recovery of Associated Costs Through ISRS Mechanism	))))	**File No. GO-2019-0091**

STAFF RECOMMENDATION

COMES NOW the Staff of the Missouri Public Service Commission ("Staff"), by and through undersigned counsel, and for its *Recommendation* states:

1. On September 28, 2018, Liberty Utilities (Midstates Natural Gas) Corp. d/b/a Liberty Utilities ("Liberty" or "Company") filed a verified application for approval of a PVC pipe replacement program and recovery of the associated costs through an ISRS mechanism ("Application").

2. On October 1, 2018, the Commission issued its Order Directing Notice and Setting an Intervention Date, in which any person wishing to intervene was ordered to file an application to intervene no later than October 31, 2018; no applications to intervene were filed.

3. On November 13, 2018, the Commission issued its Order Directing Filing of Staff Recommendation, in which Staff was ordered to review and file its recommendation regarding the Application no later than December 28, 2018.

4. On November 19, 2018, Staff filed a Request for Clarification and on November 21, 2018, the Commission ordered Liberty to respond to the Request for Clarification.

5. Liberty filed its Declaration in Response to Staff's Motion for Clarification on November 26, 2018, and made clear that the Company did not intend to pursue an ISRS filing or seek an increase in rates or charges in this proceeding.

6. On December 19, 2018, Staff filed a Motion for Extension of Time and a Commission order granting the request, allowing an extension until January 16, 2019, was entered on December 21, 2018.

7. Staff's *Recommendation*, filed concurrently as Appendix A, concludes in part that the Company need not obtain an Order from the Commission in order to replace the PVC pipe described in the Application.

8. To the extent Company seeks Commission approval of ISRS eligibility before filing an ISRS application, Staff cannot recommend such predetermination of eligible cost recovery through the ISRS mechanism.[1]

WHEREFORE, Staff respectfully submits its *Recommendation* for the Commission's consideration.

[1] *See* Matter of Mason-Cassilly, Inc., 23 Mo. P.S.C. (N.S.) 303 (Nov. 30, 1979) ("But it is the utility which bears the ultimate responsibility for quality and cost of service, and this Commission will not undertake to evaluate and thereupon essentially predetermine design characteristics and material selection for a respective utility. To do so would be to undertake management responsibilities."); In Re Missouri Gas Energy, 2001 WL 1149990 (May 29, 2001) ("The Staff stated in its memorandum that by approving one of the two proposals, the Commission would be preapproving the expenditures and thereby deeming them to be made in a prudent manner. Staff further indicated that by approving one of these proposals the Commission would be assuming the decision-making role that should be performed by MGE's management team."); In Re Middle Fork Water Co., 2007 WL 923935, at *5 (Mar. 20, 2007) ("[T]he Commission does not decide hypothetical issues and 'will not render an advisory opinion where there is no case in controversy'".).

Respectfully submitted,

/s/ Alexandra L. Klaus
Alexandra L. Klaus
Legal Counsel
Missouri Bar No. 67196
Attorney for the Staff of the
Missouri Public Service Commission
P.O. Box 360
Jefferson City, MO 65102
573-751-1854 (Voice)
573-751-9285 (Fax)
lexi.klaus@psc.mo.gov

CERTIFICATE OF SERVICE

I hereby certify that copies of the foregoing have been mailed, hand-delivered, transmitted by facsimile, or electronically mailed to all parties and/or counsel of record on this 8th day of January, 2019.

/s/ Alexandra L. Klaus

M E M O R A N D U M

TO: Missouri Public Service Commission Official Case File
Case No. GO-2019-0091

FROM: Kathleen A. McNelis, PE - Utility Regulatory Engineering Manager,
Safety Engineering Department

/s/ Jamie S. Myers 1/09/2019	/s/ Robert S. Berlin 1/09/2019
Commission Staff Division / Date	Staff Counsel's Office / Date

SUBJECT: Staff's Recommendation In the Matter of Liberty Utilities Application For Approval of PVC Pipe Replacement Program and Recovery of Associated Costs Through ISRS Mechanism

DATE: January 9, 2019

Background

Liberty Utilities ("Liberty") raised an issue in its most recent rate case proceeding, File No. GR-2018-0013, regarding replacement of the remaining Polyvinyl Chloride (PVC) pipes in its distribution system.[1] The parties agreed in Paragraph 17 of the Unanimous Stipulation and Agreement[2] approved by the Commission[3], that Liberty could file, within 3 months of the effective date of the order in the rate case, an application requesting that the Commission approve a safety-related replacement program for PVC pipes and may propose that such replacement costs be included in and recovered through the Company's ISRS mechanism. The Order Approving Stipulation and Agreement had an effective date of June 16, 2018.

On September 28, 2018, Liberty filed an application with the Missouri Public Service Commission requesting approval of a PVC pipe replacement program and recovery of the associated costs through its Infrastructure System Replacement Surcharge (ISRS). The Commission published notice of the application and set an October 31, 2018, deadline for interested persons to request intervention. No applications to intervene were filed.

The Commission directed its Staff to review and file a recommendation regarding Liberty's application no later than December 28, 2018. On December 19, 2018, Staff filed a motion

[1] GR-2018-0013, Direct testimony of Michael D. Beatty filed September 29, 2017 and Surrebuttal testimony of Michael D. Beatty filed May 9, 2018.

[2] GR-2018-0013, file date 5/24/2018.

[3] GR-2018-0013, file date 6/6/2018.

requesting an extension until January 16, 2019. This request was granted by a Commission Order Extending Time on December 21, 2018.

Staff Recommendation:

Based on Staff's analysis, the safety concerns discussed in Liberty's application can be addressed by: 1.) an alternative to replacing the pipe, or 2.) an existing pipeline safety regulation. Further, Liberty has indicated that it will replace the pipe in the absence of a Commission order. In response to a Staff data request[4] asking the Company to describe any potential detriments to public safety and the safety, integrity and reliability of the Company's system if the Commission does not order the requested PVC replacement program, the Company stated: "Liberty Utilities will always address any safety related conditions with respect to all facilities, including PVC Pipe, therefore the primary detriment from not approving the proposed replacement program would be financial in that certain efficiencies would be lost."

Staff therefore does not find any safety related reason to recommend that the Commission order replacement of Liberty's PVC pipe.

Basis for Recommendation:

Liberty described several safety concerns in its application.[5] However, Liberty also points out that past Commission orders and regulations requiring replacement programs "…were a response to the occurrence of serious natural gas incidents that resulted in a loss of life, serious injuries and/or significant property damage."[6] In this case, there has been no incident or precipitating event other than the filing of this Application that caused Staff to consider an order to replace PVC pipe. Instead, Liberty is seeking a Commission order to replace its PVC pipe so that it may recover costs through ISRS.

In order to evaluate the safety concerns raised by Liberty in its application in the absence of an incident or other precipitating event, Staff needed to develop a basis to recommend either for or against a Commission order to replace the PVC pipe. To do this, Staff considered what criteria it would use if there had been a safety-related precipitating event.

- First, there needs to be a safety concern related to the PVC pipe. In the absence of such concern, there is no need to recommend replacement of the pipe.

[4] Staff Data Request No. 0006.

[5] Paragraphs 11-14 of the Application.

[6] Paragraph 8 of the Application.

- Second, if there is an alternative way to address the safety concern that does not involve pipe replacement, it would be premature to recommend in favor of pipe replacement without a thorough evaluation of the alternative.

- Finally, if there is an existing pipeline safety regulation that already addresses the safety concern, it is not necessary for the Commission to order Liberty to replace the pipe.

Therefore, Staff would only recommend in favor of the Commission ordering Liberty to replace its PVC pipe for safety reasons if the following conditions are met:

> Condition 1: Evidence presented by Liberty of a pipeline safety concern that could only be addressed by replacement of the pipe;[7] and
>
> Condition 2: No existing pipeline safety regulations address Liberty's identified safety concerns.

Staff Conclusions:

1. Condition 1: Safety Concerns identified by Liberty:
    - Age of PVC Pipe (Paragraph 11 of Application)
    - Ability to Readily Locate PVC Pipe When Third Parties are Excavating Nearby (Paragraph 12 of Application)
    - Ability to Maintain PVC Pipe in Safe Condition due to lack of materials (Paragraph 13 of Application)
    - Brittle Failure of PVC Pipe (Paragraph 14 of Application)

    Staff does not consider the age of pipe alone to be a safety related concern, provided that the pipe has been maintained in accordance with applicable pipeline safety regulations and is in good condition.

    The ability to readily locate pipe in advance of excavation is a safety concern, however in its application Liberty mentions an alternative to pipe replacement to address this concern (exposing pipe and placement of markers).

    The ability to maintain pipe in safe condition is a safety concern, however in its application Liberty mentions an alternative to replacing the pipe (a repair fitting).

[7] Staff has not given consideration to the cost effectiveness of alternative means to address safety concerns.

Brittle failure of pipe is a safety concern; however Liberty has not provided evidence of this type of failure on its PVC pipe. Staff has therefore considered this as a potential threat in its analysis.

2. Condition 2: Existing Pipeline Safety Regulations:

4 CSR 240-40.030(17) addresses all of the safety concerns identified by Liberty. Since August 2, 2011, each natural gas distribution operator has been required to implement a Distribution Integrity Management Program (DIMP). 4 CSR 240-40.030(17) requires among other things that an operator identify the characteristics of the pipeline, consider past design, operation and maintenance information, identify threats (existing and potential), evaluate and rank risks, identify and implement measures to address risk, measure performance, monitor results and effectiveness, and perform periodic evaluations and improvements. 4 CSR 240-40.030(17)(D)2. specifically requires that the threats (existing and potential) of natural forces, excavation damage and material and joint failures be considered. This regulation addresses Liberty's concerns related to:

- Age of PVC Pipe,
- Ability to Readily Locate PVC Pipe When Third Parties are Excavating Nearby,
- Ability to Maintain PVC Pipe in Safe Condition, and
- Brittle Failure of PVC Pipe.

Staff's conclusion is that each safety concern Liberty mentions in its application is already addressed by an existing pipeline safety regulation, therefore no Commission order is necessary.

Staff Analysis of Liberty Identified Safety Concerns:

In its application, Liberty identified certain safety concerns regarding its PVC pipelines. A summary of Staff's analysis of these safety concerns is provided as follows:

1. Safety Concern: Age of PVC Pipe.

In paragraph 11 of its application, Liberty states:

> There are multiple, safety-related justifications for systematically replacing such PVC pipe over a reasonable period of time. First, the PVC piping was installed in Liberty Utilities' natural gas distribution systems in Missouri in the late 60's and so much of it is already a half century or

> more old. While age is not necessarily a determining factor in whether specific facilities need to be replaced, it is worthwhile noting that these are not new facilities.

Staff Analysis: Age of PVC pipe does not meet the criteria used in Staff's evaluation because the age of pipe is not necessarily a safety concern; provided that the pipe is in good condition. If the pipe is not in good condition, existing pipeline safety regulations require the removal of plastic pipe when the serviceability is impaired by a leak, imperfection or damage.[8]

2. Safety Concern: Ability to Readily Locate PVC Pipe When Third Parties are Excavating Nearby.

In paragraph 12 of its application, Liberty states:

> Second, approximately 40% of the installed PVC piping is un-locatable because it was either installed without tracer wire or was installed with galvanized tracer wire or other wire that has since corroded away. Obviously, this raises serious concerns regarding the ability to locate such facilities when third parties are excavating nearby. Since third party damage is already the largest single cause of natural gas incidents, this inability to readily locate the Company's underground piping is particularly concerning. The Company does utilize Electronic Marker System Ball Markers and other related technology to provide repeatable locating once the non-locatable PVC is exposed and verified.

Staff Analysis: While the ability to locate pipe in advance of excavation is a safety concern, it does not meet Staff's criteria for recommending that the Commission order a replacement program because this concern is addressed by existing pipeline safety regulations and Liberty has identified an alternative to replacement of the pipe.

The damage prevention program requirements in the Missouri pipeline safety regulations, 4 CSR 240-40.030(12)(I), require among other things that an operator "provide for temporary marking of buried pipelines in the area of excavation activity before, as far as practical, the

[8] 4 CSR 240-40.030(13)(AA) states: "Each leak, imperfection or damage that impairs the serviceability of a plastic pipe must be removed, except that heat fusion patching saddles may be used to repair holes that have been tapped into the main for service installations, and full-encirclement heat fusion couplings may be used to repair and reinforce butt fusion joints. These patching saddles and couplings shall not be used for the repair of any imperfections or third-party damage sustained by the plastic pipe." Because PVC pipe is not joined by heat fusion, the exceptions related to repair by heat fusion patching saddles and full-encirclement heat fusion couplings do not apply to PVC pipe.

activity begins."[9] Therefore, existing pipeline safety regulations require that Liberty must take actions to ensure that it can locate all of its buried pipelines.

Existing pipeline safety regulations also require each operator of a natural gas distribution system to have and implement a Distribution Integrity Management Program (DIMP). The required elements of a DIMP include among other things identifying the characteristics of the pipeline,[10] consideration of past design, operation and maintenance information,[11] identification of threats (existing and potential),[12] evaluation and ranking of risk,[13] identification and implementation of measures to address risk,[14] measurement of performance, monitoring of results and effectiveness[15] and periodic evaluation and improvement.[16] Evaluation of the risks associated with excavation damage to pipelines is specifically required.[17] If the threat of third-party excavation damage to PVC pipe is an immediate safety concern, existing pipeline safety regulations already provide for implementation of additional measures to address the risks.

Additionally, information provided in paragraph 12 of Liberty's application indicates that there is at least one alternative to address this concern that does not require replacement of the pipe (exposing pipe and placement of markers).

Staff also considered if Liberty's statement regarding the approximately 40% of its installed PVC piping being un-locatable represented a probable violation of pipeline safety regulations requiring installation of corrosion resistant tracer wire with plastic pipe.[18] Based on Liberty's statement in paragraph 11 of its application that its PVC pipe was installed in the late 1960s, this pipe was likely installed before the effective dates that pipeline safety regulations required installation of tracer wire[19] with new plastic main lines being readied for service after March 12, 1971.[20] The requirement to install tracer wire with plastic service lines first

[9] 4 CSR 240-40.030(12)(I)3.G.

[10] 4 CSR 240-40.030(17)(D)1.A.

[11] 4 CSR 240-40.030(17)(D)1.B.

[12] 4 CSR 240-40.030(17)(D)2.

[13] 4 CSR 240-40.030(17)(D)3.

[14] 4 CSR 240-40.030(17)(D)4.

[15] 4 CSR 240-40.030(17)(D)5.

[16] 4 CSR 240-40.030(17)(D)6.

[17] 4 CSR 240-40.030(17)(D)2. and 3.

[18] 4 CSR 240-40.030(7)(K)5 requires that plastic pipe that is not encased must have an electrically conductive wire or other means of locating the pipe while it is underground. Tracer wire may not be wrapped around the pipe and contact with the pipe must be minimized but is not prohibited. Tracer wire or other metallic elements installed for pipe locating purposes must be resistant to corrosion damage, either by use of coated copper wire or other means.

[19] 49 CFR 192.13, adopted as 4 CSR 240-40.030(1)(G).

[20] 49 CFR 192.321(e), adopted as 4 CSR 240-40.030(7)(K)5.

became effective in Missouri in 1998.[21] The requirement for tracer wire to be corrosion resistant (effective September 15, 2003) became effective after Missouri pipeline safety regulations were amended to restrict the use of PVC pipe to repair existing facilities constructed of the same material and fittings, valves, or other appurtenances attached to the pipe (effective December 15, 1989).[22] The absence of tracer wire on the PVC pipe in Liberty's system is therefore not evidence of a probable violation of 4 CSR 240-40.030(7)(K)5, since the requirement to install corrosion resistant tracer wire with plastic pipe was not retroactive[23] to existing plastic pipe.

3. Safety Concern: Ability to Maintain PVC Pipe in Safe Condition.

In paragraph 13 of its application, Liberty states:

> Third, it is increasingly difficult to maintain PVC piping in a safe condition. Currently there is no PVC pipe or PVC glue manufactured today that is rated for use in a natural gas distribution system. The Company has been able to source a repair fitting from Continental Industries of Tulsa Oklahoma. The Scope® Expandable Repair Joint is available in a Polyethylene pipe to PVC design.

Staff Analysis: Since Liberty has been able to secure a source for repair fittings, it appears that there is a means to repair the pipe that does not require replacement. Staff therefore does not view this as sufficient reason to recommend that the Commission order Liberty to replace its PVC pipe. Further, existing pipeline safety regulations require the removal of plastic pipe when the serviceability is impaired by a leak, imperfection or damage.[24]

4. Brittle Failure of PVC Pipe.

In paragraph 14 of its application, Liberty states:

---

[21] Initially required by 4 CSR 240-40.030(8)(M)6. in 1998, then amended to (8)(G)7. after amendments to federal regulation 49 CFR 192 required installation of tracer wire with plastic services.

[22] 4 CSR 240-40.030(2)(B)4. states that: "Only of steel or polyethylene for pipe for the underground construction of pipelines, except that other previously qualified materials may be used for A. Repair of existing facilities constructed of the same material; and B. Fittings, valves, or other appurtenances attached to the pipe."

[23] 4 CSR 240-40.030(1)(G)4.

[24] 4 CSR 240-40.030(13)(AA) states: "Each leak, imperfection or damage that impairs the serviceability of a plastic pipe must be removed, except that heat fusion patching saddles may be used to repair holes that have been tapped into the main for service installations, and full-encirclement heat fusion couplings may be used to repair and reinforce butt fusion joints. These patching saddles and couplings shall not be used for the repair of any imperfections or third-party damage sustained by the plastic pipe." Because PVC pipe is not joined by heat fusion, the exceptions related to repair by heat fusion patching saddles and full-encirclement heat fusion couplings do not apply to PVC pipe.

> Fourth, the chemical composition of PVC pipe has resulted in becoming unacceptably brittle over time. This has a number of detrimental safety implications. For example, while polyethylene ("PE") pipe can be safely squeezed off to stop the flow of natural gas, the brittleness of PVC piping means that it can only be squeezed off under emergency conditions and then with limited success. Because of the brittleness of PVC piping, it also is more susceptible to breakage due to natural forces, including earth movement and tree root growth that stresses the pipe and induces brittle cracking.

Staff Analysis: For this analysis, Staff reviewed three aspects of Liberty's statement: A). Support for the statement that the pipe has become unacceptably brittle over time, B). The safety concern related to stopping the flow of gas under emergency conditions, and C). The safety concern regarding susceptibility to breakage due to natural forces.

A. Data Supporting Pipe Brittleness

While brittle failure of pipe is a safety concern, Liberty has not provided any data to support that the PVC pipe in its system has become unacceptably brittle over time. To support its concern regarding PVC pipe brittleness, Liberty quoted text from a preamble to a federal Pipeline and Hazardous Materials Safety Administration (PHMSA) rulemaking in paragraph 15 of its application. The text cited by Liberty was contained in a May 21, 2015 notice of proposed rulemaking (NPRM) published in the Federal Register[25] in what is known as the "Plastic Pipe Rule":

> …PHMSA is also looking to address some issues surrounding PVC pipe and components used for repair situations. Historically, PVC pipe and components have technically been allowed by code, including for repair, but industry has slowly been phasing out the installation and use of PVC piping, including for repair, in favor of other newer and better-performing plastic materials. PVC components are still used to a larger extent, however, as they are not as susceptible to the same issues of brittle-like cracking as PVC piping. To align with this shift, PHMSA is proposing to add a new § 192.59(e) to explicitly prohibit the use of PVC pipe for new installations after the effective date of the rule, including for repairs. This new requirement would not prevent the use of previously installed PVC pipe, nor would it preclude the use of PVC components for the repair of existing PVC pipe...

[25] Link to federal register: https://www.federalregister.gov/documents/2015/05/21/2015-12113/pipeline-safety-plastic-pipe-rule.

In paragraph 16 of its application, Liberty states that "[a]lthough PHMSA has not yet completely banned the use of PVC for future installations, its statements certainly illuminate the ongoing concerns by both industry and safety officials regarding its continued use."

Subsequent to the filing of Liberty's application, the Plastic Pipe Rule has been published as a final rule, with an effective date of January 22, 2019.[26] In the preamble to the final rule, PHMSA stated that it did not prohibit the use of PVC pipe for new installations:

> PHMSA has removed the restrictions on PVC pipe after considering the public comments and the recommendations of the GPAC. PHMSA notes that the use of PVC pipe has decreased since the mid-1980s without regulatory intervention due, in large part, to operator preferences. Gas distribution annual reports also show operators are phasing-out this material in the absence of a regulatory restriction.

Staff does not find the information provided by Liberty in its application to be convincing evidence that Liberty's PVC pipe has become "unacceptably brittle over time".

Staff notes that since December 15, 1989, Missouri pipeline safety regulations[27] have restricted the use of PVC pipe (a "previously qualified material") for natural gas use as follows:

> 4 CSR 240-40.030(2) Materials: …
>
> (B) General. (192.53)
> Materials for pipe and components must be—
>
> ……
>
> 4. Only of steel or polyethylene for pipe for the underground construction of pipelines, except that other previously qualified materials may be used for—
>
> A. Repair of existing facilities constructed of the same material; and
>
> B. Fittings, valves, or other appurtenances attached to the pipe.
>
> 5. Other piping materials may be used with approval of the commission.

However, 4 CSR 240-40.030(2)(B) does not require the removal of existing PVC pipe.

[26] https://www.federalregister.gov/documents/2018/11/20/2018-24925/pipeline-safety-plastic-pipe-rule.

[27] 4 CSR 240-40.030(2)(B), effective date of 12/15/1989.

B. Stopping the Flow of Gas in Emergency Conditions

With respect to Liberty's concern regarding stopping the flow of gas in emergency conditions, since March 13, 1971,[28] pipeline safety regulations have required that valves be installed in each high pressure distribution system, spaced so as to reduce the time to shut down a section of main in an emergency.[29] Stopping the flow of gas using valves would be an alternative to squeezing off the pipe. In the event there are not sufficient valves currently installed in the legacy piping system, additional valves could be installed as needed to address the concern with squeezing off pipe.

Additionally, the final Plastic Pipe Rule[30] adds standards incorporated by reference to 49 CFR 192.7 for PVC pipe and solvent cement:

- ASTM F2817-10, "Standard Specification for Poly (Vinyl Chloride) (PVC) Gas Pressure Pipe and Fittings for Maintenance or repair; and
- ASTM D2564-12 "Standard Specification for Solvent Cements for Poly (Vinyl Chloride) (PVC) Plastic Piping Systems".

These may facilitate Liberty's ability to find additional sources of materials.

C. Natural Force Damage

With respect to the susceptibility of PVC pipe to breakage due to natural forces, existing pipeline safety regulations require natural gas pipeline operators to identify the characteristics of the pipeline, consider past design, operation and maintenance information, identify threats (existing and potential), evaluate and rank risks and identify and implement measures to address risk.[31] Evaluation of the risks associated with natural forces damages to pipelines is specifically required.[32] If the threat of natural forces

[28] The Natural Gas Pipeline Safety Act was enacted on August 12, 1968. It required the Secretary of Transportation to adopt, within 3 months, the then existing State safety standards for gas pipelines as interim regulations and to establish within 24 months, minimum Federal safety standards. The interim standards were issued on November 7, 1968, as Part 190 of Title 49 of the Code of Federal Regulations and became effective on December 13, 1968. With the adoption of these minimum Federal standards in Part 192, the interim standards are no longer necessary. Therefore, the interim standards are revoked on the date that Part 192 becomes effective, except for those provisions applicable to design, installation, construction, initial inspection, and initial testing of new pipelines which will remain in effect until March 13, 1971.

[29] 4 CSR 240-40.030(4)(V)1.

[30] https://www.federalregister.gov/documents/2018/11/20/2018-24925/pipeline-safety-plastic-pipe-rule.

[31] 4 CSR 240-40.030(17)(D).

[32] 4 CSR 240-40.030(17)(D) 2. and 3.

damages to PVC pipe is an immediate safety concern that needs to be addressed by additional measures to reduce risks, existing pipeline safety regulations already provide for implementation of measures to address the risks.

5. Existing Commission Orders that Address the Identified Safety Concerns.

In paragraph 7 of its application, Liberty states:

> Over the past three decades, this Commission has authorized or affirmatively mandated a number of programs designed to replace natural gas distribution facilities that pose a risk to public safety. These have included more generally-applicable programs aimed at replacing aging facilities such as those set forth in the Commission's rules relating to cast iron and bare steel facilities. They have also included programs approved for specific gas utilities with unique safety-related issues, such as the direct buried, soft-copper service line replacement program authorized for Laclede Gas Company years ago.

In Paragraph 8 of its application, Liberty states:

> Unfortunately, all of these programs share a common origin, namely, they, or the regulations that mandated them, were a response to the occurrence of serious natural gas incidents that resulted in a loss of life, serious injuries and/or significant property damage….

Staff notes that in addition to the mandated replacement programs for certain metallic materials identified by Liberty in its application, the Commission has also ordered certain limited scope plastic pipe replacements following incidents, including:

- Following a June 18, 2003, incident in which an employee of the Ozark Empire Fairgrounds was killed,[33] the Commission ordered[34] City Utilities of Springfield to replace certain polyethylene (PE) plastic pipe.[35] Staff's investigation into this incident determined that the leak was the result of

[33] Case No. GS-2004-0040.

[34] Case No. GS-2004-0257.

[35] The primary focus of the replacement program is on "high pressure" DuPont Aldyl A® polyethylene piping that was manufactured before 1985 that is installed in a rock backfill. DuPont Aldyl A® operating at other pressures and manufactured at a later time may also be included in the required replaced mileage under circumstances specified in the Case.

rock impingement on this plastic pipe that caused the pipe to fail.[36] This was not PVC pipe, but a different plastic material.

- Following an August 29, 1991, incident in Madison, Missouri, that involved the failure of a PVC service line, the Commission ordered replacement of sections of PVC pipe that had been bent during installation to accomplish a change in direction.[37] Staff's investigation in this case determined that the cause had been a combination of the installation method (stresses resulting from bending of the PVC pipe during installation) and ground movement. The Commission did not order the replacement of all PVC pipe as a result of this incident, only PVC that had been bent to achieve a change of direction.

6. Liberty intends to replace the PVC in the absence of a Commission order.

Information provided by Liberty in response to a Staff data request indicates that Liberty intends to replace the PVC pipe[38] whether or not the Commission orders it to do so; however the replacement under ISRS would be more efficient and cost effective and performed annually as opposed to every 3rd or 4th year:

> Liberty Utilities will always address any safety related conditions with respect to all facilities, including PVC Pipe, therefore the primary detriment from not approving the proposed replacement program would be financial in that certain efficiencies would lost. Liberty Utilities believes it is more efficient and cost effective to replace PVC pipe annually, using the ISRS, based on a competitive bidding process, with a multi-year replacement process, instead of a larger PVC pipe replacement every 3rd to 4th year.

Liberty's anticipated schedule for completion of replacements in the absence of a Commission Order is 28 years.[39]

Since the pipe will be replaced in the absence of a Commission order, no order is needed to address the safety concerns identified by Liberty in its application.

---

[36] Case No. GS-2004-0040.

[37] Case Nos. GS-92-33 and GC-92-166.

[38] Response to Staff Data Request No. 0006.

[39] Response to Staff Data Request No. 0008.

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter of Liberty Utilities Verified Application For Approval of PVC Pipe Replacement Program and Recovery of Associated Costs Through ISRS Mechanism	))))	Case No. GO-2019-0091

AFFIDAVIT OF KATHLEEN A. McNELIS, PE

STATE OF MISSOURI	)	
	)	ss.
COUNTY OF COLE	)	

COMES NOW KATHLEEN A. McNELIS, PE and on her oath declares that she is of sound mind and lawful age; that she contributed to the foregoing Staff Recommendation in Memorandum form; and that the same is true and correct according to her best knowledge and belief.

Further the Affiant sayeth not.

KATHLEEN A. McNELIS, PE

JURAT

Subscribed and sworn before me, a duly constituted and authorized Notary Public, in and for the County of Cole, State of Missouri, at my office in Jefferson City, on this 9th day of January 2019.

D. SUZIE MANKIN
Notary Public - Notary Seal
State of Missouri
Commissioned for Cole County
My Commission Expires: December 12, 2020
Commission Number: 12412070

Notary Public