

MISSOURI PUBLIC SERVICE COMMISSION

STAFF'S GAS INCIDENT REPORT

426 East Fair Street
Independence, MO
August 26, 2024



Spire Missouri, Inc.
Case No. GS-2025-0068

*Industry Analysis Division
Safety Engineering Department
October 3, 2025 - Jefferson City, Missouri*

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SPIRE MISSOURI, INC.
CASE NO. GS-2025-0068**

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I. EXECUTIVE SUMMARY

On August 16, 2024, JJC Underground (“the Excavator”) requested marking of buried utility locations through Missouri 811 for an area extending along South Hocker Avenue in Independence, Missouri (See Figure 1 in Appendix B). On August 20, 2024, the Status History section of the Missouri 811 ticket shows an update to the ticket indicating that Spire Missouri, Inc. (“Spire”)’s facilities were marked.

On August 26, 2024, the Excavator was using directional drilling equipment to install telecommunication facilities along the west side of South Hocker Avenue near the intersection of East Fair Street. Based on the markings provided by ** [REDACTED] **, Spire’s Contract Locator, on August 20, 2024, Spire’s gas facilities in this area were anticipated to be parallel with and approximately 6 feet to the east of the bore direction. At approximately 5:45 p.m.,¹ the bore head on the horizontal directional drilling equipment damaged Spire’s four-inch plastic main. At approximately 5:51 p.m., the first responding fire department unit arrived on scene. Fire department personnel received no response from knocking on door of the residence at 426 East Fair Street. At approximately 5:55 p.m., Spire personnel began arriving on site and performed monitoring to determine the extent of gas migration.

Natural gas released from the four-inch plastic main migrated into 426 East Fair Street and ignited, causing an explosion and fire. Excavation work performed following the explosion exposed a damaged sewer lateral to 426 East Fair Street, approximately 10 feet to the north of the

¹ Unless otherwise specified, all times referenced in this report are Central Daylight Time.

location where the natural gas was being released from the four-inch gas main. Although Staff was not able to determine when or how this sewer lateral was damaged,² it is considered to be a likely conduit for the natural gas to have migrated into the residence at 426 East Fair Street.

There were no injuries or fatalities as a result of this incident. Property damages include damages to the residence at 426 East Fair Street and Spire facilities. Spire estimated that the property damage from the incident is \$117,291.

As a result of this investigation, Staff found sufficient facts and information³ exist to assert the following violations of Commission Rules:

1. Spire's failure to locate its underground facilities within the "approximate location"⁴ as required by Section 319.030, of the Revised Statutes of Missouri ("RSMo"), was a violation of 20 CSR 4240-40.030(12)(I)1. (See Section III.D – *Damage Prevention Program* of this report).
2. Spire's Contract Locator's failure to follow Spire's manual of written procedures for conducting operations and maintenance activities and for emergency response was a violation of 20 CSR 4240-40.030(12)(C)1. (See Section III.D – *Damage Prevention Program* of this report).

² Spire commented in its review of Staff's Draft Appendix A that **

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³ Prior to finalizing this report, Staff provided a copy of the factual basis for its analysis to Spire to provide an opportunity to correct any factual inaccuracies and to identify confidential content. A copy of the information edited to address Spire's comments is provided in Appendix A.

⁴ Approximate location is defined in Section 319.015, RSMo, as a strip of land not wider than the width of the underground facility plus two feet on either side thereof. In situations where reinforced concrete, multiplicity of adjacent facilities or other unusual specified conditions interfere with location attempts, the owner or operator shall designate to the best of his or her ability an approximate location of greater width.

3. Spire's failure to ensure that all work completed on its pipelines by its contractor complies with 20 CSR 4240-40.030 was a violation of 20 CSR 4240-40.030(12)(B)3. (See Section III.H. - *Oversight of Contractors* of this report).

II. PURPOSE AND SCOPE OF STAFF'S INVESTIGATION

The purpose and scope of Staff's investigation was to:

- Identify the probable cause(s) of the incident,
- Investigate, analyze and determine if there have been violations of Commission Rules related to:
 - o Incident Reporting Requirements in 20 CSR 4240-40.020;
 - o Missouri Pipeline Safety Standards in 20 CSR 4240-40.030, including but not limited to the operator's⁵ damage prevention program and actions required by its damage prevention program, emergency response, and failure investigation; and
 - o Drug and Alcohol Testing requirements in 20 CSR 4240-40.080.
- Make recommendations, as applicable to Spire, with an objective of minimizing the possibility of recurrence.

III. STAFF ANALYSIS OF INCIDENT

A. Incident Description and Emergency Response

On August 16, 2024, the Excavator notified Missouri 811 of planned excavation work to begin on August 21, 2024, in an area along South Hocker Avenue between East 23rd Street South and East Fair Street in Independence, Missouri. The ticket the Excavator submitted to

⁵ "Operator" is defined in 20 CSR 4240-40.030(1)(B)26 as "a person who engages in the transportation of gas." "Person" is defined in 20 CSR 4240-40.030(1)(B)27 as "any individual, firm, joint venture, partnership, corporation, association, county, state, municipality, political subdivision, cooperative association, or joint stock association, and including any trustee, receiver, assignee, or personal representative of them." Transportation of gas is defined in 20 CSR 4240-40.030(1)(B)41 as "the gathering, transmission, or distribution of gas by pipeline or the storage of gas in Missouri."

Missouri 811 requested an area to be marked that extended 30-feet on either side of South Hocker Avenue from the intersection of East 23rd Street South and South Hocker Avenue south for 595 feet, including and extending past the intersection of South Hocker Avenue and East Fair Street.⁶

The Status History section of the Missouri 811 ticket⁷ shows that the ticket was updated to show Spire facilities had been marked at approximately 4:45 p.m. on August 20, 2024. Spire's facilities in the area include a four-inch plastic main ** [REDACTED] [REDACTED] ** and a two-inch plastic main ** [REDACTED] [REDACTED] **. Confidential Figure 2 in Appendix B shows a screenshot of Spire's mapping system and displays the pipeline system layout in the area of damage on the date of the incident. A diagram indicating Spire's facilities in the area of the damage and Spire's markings⁸ is included as Confidential Figure 3 in Appendix B. Spire stated that the markings provided by Spire's Contract Locator in the area of damage were, at the closest, offset by at least three feet from the edge of Spire's actual facilities, and nearest to the damage were offset six feet.⁹ Confidential Figures 2 and 3 provided by Spire show Spire's facilities in the area of damage include a section of main that ** [REDACTED]

[REDACTED]

[REDACTED] **.

On August 26, 2024, the Excavator, utilizing directional drilling equipment, was working to install telecommunication equipment on behalf of Google Fiber from the north to the south

⁶ Missouri 811 Ticket No. 242291655 and Spire response to Staff Data Request 0003 and Spire Attachment 3.

⁷ Missouri 811 Ticket No. 242291655.

⁸ Spire response to Staff Data Request 0001.7 and Spire Attachment 1.7.

⁹ Spire response to Staff Data Request 0001.7.

along the west side of South Hocker Avenue, parallel and west of Spire's Contract Locator markings. Figure 4 in Appendix B is a Staff photograph showing the directional drilling equipment set up to drill south along the west side of South Hocker Avenue. At approximately 5:45 p.m., the bore head on the horizontal directional drilling equipment damaged Spire's four-inch plastic main. Confidential Figure 5 in Appendix B is a Spire photograph showing the damage to the pipeline facility. Natural gas released from the four-inch plastic main migrated into 426 East Fair Street; the natural gas subsequently ignited causing an explosion and fire. The Maximum Allowable Operating Pressure (MAOP)¹⁰ of the damaged four-inch main was ** [REDACTED] **. At the time of the incident, Spire estimated the pressure in the pipeline at this location to be ** [REDACTED] **. ¹¹

Spire and the Independence Fire Department were notified shortly after the damage occurred. Spire's first responder arrived on-site at 5:55 p.m. and began investigating the damage by bar holing and taking gas readings in the area both at the site of damage and at nearby structures and manholes.¹² Spire's Construction and Maintenance Crew arrived on-site at 6:18 p.m. and

¹⁰ 20 CSR 4240-40.030(1)(B) defines Maximum Allowable Operating Pressure as the maximum pressure at which a pipeline or segment of a pipeline may be operated under this rule.

¹¹ Spire response to Staff Data Request 0011.

¹² Spire's response to Staff Data Request 0001.17 stated, "5:55 p.m., [Spire first responder] made contact with [the Excavator] foreman and Fire Department on site. The Fire Department communicated to [Spire first responder] that no one was inside the residence at 426 East Fair Street • ~6:00 p.m. to 6:18 p.m. – [Spire first responder] placed a bar hole and confirmed readings over the main at the site of damage. He then placed a bar hole at east foundation wall nearest the damage and got no readings. He then proceeded to place bar holes south of the damage site, near the stop sign. Then a bar hole at the north side, and then across the Street towards the east. • 6:18 p.m., C&M crew arrived. [Spire first responder] let [the C&M] crew know where his bar hole with the highest reading was located. This was the bar hole at the area of the damage. • 6:18 p.m. to 6:51 p.m., [Spire first responder] then checked neighboring homes to determine which homes were going to have gas outages. [Spire first responder] verified that no meter set was present at 502 East Fair Street. As [Spire first responder] was going to each home, he was checking for gas readings in the manholes, all manholes [Spire first responder] verified were zero percent readings." Spire's Attachment 4, the Independence Fire Department report, said, "Upon arrival we made contact with the boring crew. [The Excavator]. The foreman (entered in the report) stated that they were drilling and struck a line underground. Natural gas was noticeable in the air. The strike was on the north west corner of East Fair and South Hocker. P4 knocked on the door fo (sic) the house on the NW corner and no one answered the door. The initial Spire rep showed up shortly after. He located the leak source and said he had a dig crew enroute. The dig crew arrived and began working on uncovering the line."

worked to excavate the damage.¹³ At approximately 6:50 p.m. the home at 426 East Fair Street exploded and caught fire. After this occurred, Spire personnel took action to ensure there were no injuries before continuing their work to isolate the damage and repair the pipeline. Spire's excavation additionally uncovered an east-west sewer lateral to 426 East Fair Street approximately 10 feet north of the damage to Spire's facilities that appeared to have sustained damage.¹⁴ Spire repaired the damaged segment of main by installing a new section of pipe to replace the damaged portion, and joining the new section of pipe to the existing four-inch main. The repair work was completed at approximately 2:00 a.m. After repairing the natural gas main, Spire personnel backfilled the excavation in the area of damage and Spire personnel left the site.¹⁵

A summary of events is provided in Table 1:

TABLE 1: SUMMARY OF EVENTS	
Date and Time	Activity
8/16/2024; 11:28 a.m.	The Excavator notified Missouri 811 that it planned to excavate an area along South Hocker Avenue between East 23 rd Street South and East Fair Street in Independence, Missouri, beginning on August 21, 2024. ¹⁶
8/20/2024; 4:45 p.m.	Missouri 811 ticket updated to indicate Spire facilities were marked the location of Spire's underground facilities in the area to be excavated by painting. ¹⁷
8/26/2024; approximately 5:45 p.m.	The Excavator struck the pipeline with bore head of the horizontal directional drilling equipment. ¹⁸

¹³ Spire response to Staff Data Request 0001 and 0001.17 and Spire Attachment 0001A.

¹⁴ Spire response to Staff Data Request 0017 and Spire Attachment 17D.

¹⁵ Spire response to Staff Data Request 0001 and Spire Attachment 0001A.

¹⁶ Spire response to Staff Data Request 0003 and Spire Attachment 3.

¹⁷ Missouri 811 Ticket No. 242291655 and Spire responses to Staff Data Requests 0001 and 0015 and Spire Attachments 1A and 15.

¹⁸ Spire responses to Staff Data Requests 0001, 0004, 0005, and 0020 and Spire Attachments 0001A, 4, 5, and 20.

TABLE 1: SUMMARY OF EVENTS

Date and Time	Activity
8/26/2024; 5:49 p.m.	Spire Dispatch was notified of a hit service line at 426 East Fair Street ¹⁹
8/26/2024; 5:51 p.m.	Independence Fire Department arrived on-site, knocked at 426 East Fair Street and no one answered the door. ²⁰
8/26/2024; 5:52 p.m.	Excavator notification to Missouri 811 of damage to gas line. ²¹
8/26/2024; 5:55 p.m.	Spire first responder arrived on-site, shortly after he made contact with the Independence Fire Department who communicated that no one was inside the residence at 426 East Fair Street ²²
8/26/2024; 6:00-6:18 p.m.	Spire first responder performed bar hole tests ²³ around the area of the damage, including tests registering gas-in-air readings over the main at the site of damage and no gas-in-air readings near the foundation wall nearest the damage. ²⁴
8/26/2024; 6:18 p.m.	Spire Construction and Maintenance Crew ("C&M Crew") arrived and began excavation work where the Spire first responder had obtained the highest gas-in-air concentration measurement. ²⁵
8/26/2024; 6:18-6:51 p.m.	Spire First Responder checked surrounding area including checking manholes; all readings in manholes registered no gas-in-air. ²⁶
8/26/2024; 6:50 p.m.	Spire C&M Crew identified the damage was to a four-inch plastic main. ²⁷
8/26/2024; approximately 6:50 p.m.	The home at 426 East Fair Street exploded and caught fire. ²⁸

¹⁹ Spire response to Staff Data Request 0001 and Spire Attachment 0001A.

²⁰ Spire response to Staff Data Request 0001 and 0004 and Spire Attachments 1 and 4.

²¹ Missouri 811 Ticket No. 242394398.

²² Spire response to Staff Data Request 0001 and Spire Attachment 0001A.

²³ A bar hole test is a check of the subsurface atmosphere using a bar hole plunger to make a small hole which is checked using a gas detection instrument capable of determining gas-in-air concentration levels.

²⁴ Spire response to Staff Data Request 0001.17.

²⁵ Spire response to Staff Data Request 0001 and 0001.17 and Spire Attachment 0001A.

²⁶ Spire response to Staff Data Request 0001.17.

²⁷ Spire response to Staff Data Request 0001 and Spire Attachment 0001A.

²⁸ Spire response to Staff Data Request 0001 and 0004 and Spire Attachment 1A and 4.

TABLE 1: SUMMARY OF EVENTS

Date and Time	Activity
8/26/2024; approximately 6:51 p.m.	Spire and Independence Fire Department began evacuations of the area following the explosion. ²⁹
8/26/2024; approximately 6:50-6:55 p.m.	Spire performed safety checks to ensure there were no injuries. ³⁰
8/26/2024; 7:49 p.m.	The main was squeezed-off, ³¹ eliminating gas flow to the damaged portion of the pipeline. ³²
8/26/2024; 11:30 p.m. to 8/27/2024; 2:00 a.m.	Damaged portion of pipeline removed and repairs were made by installing a new section of pipe to replace the damaged portion, and joining to the existing four-inch main. ³³
8/26/2024; 11:30 p.m. to 8/27/2024; 2:45 a.m.	Spire utilized “purgers” ³⁴ to ventilate the natural gas in the area. ³⁵

1. Regulatory Requirements:

20 CSR 4240-40.030(12)(J) Emergency Plans requires that:

1. Each operator shall establish written procedures to minimize the hazard resulting from a gas pipeline emergency. At a minimum, the procedures must provide for:

A. Receiving, identifying, and classifying notices of events which require immediate response by the operator;

B. Establishing and maintaining adequate means of communication with appropriate fire, police, and other public officials;

²⁹ Spire responses to Staff Data Request 0004 and 0020.6 and Spire Attachment 4.

³⁰ Spire response to Staff Data Request 0001 and Spire Attachment 0001A.

³¹ A squeeze-off of pipe utilizes a clamping tool to constrict the pipe so that natural gas can no longer freely flow past the tool.

³² Spire response to Staff Data Request 0001 and Spire Attachment 0001A.

³³ Spire response to Staff Data Request 0001.19.

³⁴ A “purger” in this context is a device that can create a vacuum effect that can be used to evacuate natural gas from underground structures such as bar holes or manholes.

³⁵ Spire responses to Staff Data Requests 0013.2 and 0001.19.

C. Responding promptly and effectively to a notice of each type of emergency, including the following:

- (I) Gas detected inside or near a building;
- (II) Fire located near or directly involving a pipeline facility;
- (III) Explosion occurring near or directly involving a pipeline facility; and
- (IV) Natural disaster;

D. Making available personnel, equipment, tools, and materials, as needed at the scene of an emergency;

E. Taking actions directed toward protecting people first and then property;

F. Causing an emergency shutdown and pressure reduction in any section of the operator's pipeline system necessary to minimize hazards to life or property;

G. Making safe any actual or potential hazard to life or property;

H. Notifying appropriate fire, police, and other public officials of gas pipeline emergencies and coordinating with them both planned responses and actual responses during an emergency;

I. Safely restoring any service outage;

J. Beginning action under subsection (12)(L) (192.617), if applicable, as soon after the end of the emergency as possible;

K. Actions required to be taken by a controller during an emergency in accordance with subsection (12)(T); and

L. Each operator must develop written rupture identification procedures to evaluate and identify whether a notification of potential rupture, as defined in subsection (1)(B), is an actual rupture event or a non-rupture event. These procedures must, at a minimum, specify the sources of information, operational factors, and other criteria that operator personnel use to evaluate a notification of potential rupture and identify an actual rupture. For operators installing valves in accordance with paragraph (4)(U)4., paragraph (4)(U)5., or that are subject to the requirements in subsection (12)(X), those procedures must provide for rupture identification as soon as practicable.

2. Spire Actions to Comply with 20 CSR 4240-40.030(12)(J)1.:

Spire provided a copy of its plan, Emergency Plan Standard Operating Procedure (SOP) 220.D.7, Reissue Date 11/14/2023 (Emergency Plan) that was effective at the time of the incident.³⁶

The damage to Spire's pipeline occurred at approximately 5:45 p.m. on August 26, 2024. Spire received notification of the damage at approximately 5:49 p.m., and Spire's first responder arrived on-site at approximately 5:55 p.m. Spire's first responder took actions to ensure that no one was in the home near to where the damage occurred and to investigate where damage occurred by bar holing and taking gas readings in the area both at the site of damage and at nearby structures and manholes.³⁷

Spire's C&M Crew began work to expose the damage to Spire's pipeline at approximately 6:18 p.m. At approximately 6:50 p.m. the home at 426 East Fair Street exploded and caught fire. After this occurred, Spire personnel ensured that there were no injuries before continuing their work to isolate the damage and repair the pipeline. Spire's excavation additionally uncovered an

³⁶ Spire response to Staff Data Request 0012 and Spire Attachment 12.

³⁷ Spire's response to Staff Data Request 0001.17 stated, "5:55 p.m., [Spire first responder] made contact with [the Excavator] foreman and Fire Department on site. The Fire Department communicated to [Spire first responder] that no one was inside the residence at 426 East Fair Street • ~6:00 p.m. to 6:18 p.m. – [Spire first responder] placed a bar hole and confirmed readings over the main at the site of damage. He then placed a bar hole at east foundation wall nearest the damage and got no readings. He then proceeded to place bar holes south of the damage site, near the stop sign. Then a bar hole at the north side, and then across the Street towards the east. • 6:18 p.m., C&M crew arrived. [Spire first responder] let [the C&M] crew know where his bar hole with the highest reading was located. This was the bar hole at the area of the damage. • 6:18 p.m. to 6:51 p.m., [Spire first responder] then checked neighboring homes to determine which homes were going to have gas outages. [Spire first responder] verified that no meter set was present at 502 East Fair Street. As [Spire first responder] was going to each home, he was checking for gas readings in the manholes, all manholes [Spire first responder] verified were zero percent readings." Spire's Attachment 4, the Independence Fire Department report, said, "Upon arrival we made contact with the boring crew. [The Excavator]. The foreman (entered in the report) stated that they were drilling and struck a line underground. Natural gas was noticeable in the air. The strike was on the north west corner of East Fair and South Hocker. P4 knocked on the door fo (sic) the house on the NW corner and no one answered the door. The initial Spire rep showed up shortly after. He located the leak source and said he had a dig crew enroute. The dig crew arrived and began working on uncovering the line."

east-west sewer lateral to 426 East Fair Street approximately 10 feet north of the damage to Spire's facilities that appeared to have sustained damage.³⁸ After repairing the pipeline, Spire personnel backfilled the excavation before leaving the site.

3. Staff Analysis:

Spire's written Emergency Plan meets the minimum requirements of 20 CSR 4240-40.030(12)(J)1. Staff notes that Spire checked sewer manholes in the area and obtained no indications of natural gas prior to the explosion. As Spire's first responder obtained no readings indicating the presence of natural gas near the structure wall at 426 East Fair Street prior to the explosion, Staff believes a likely path for natural gas to have migrated into the home was through the ground to a conduit entering the structure, such as the nearby damaged sewer lateral. Staff's analysis of the events shows that after receiving notification of damage, Spire took prompt action under its Emergency Plan's processes to respond to the scene and Spire's first responder's and C&M Crew's actions were taken with the priority of protecting life and property.

4. Violations:

Staff found no violations with regards to the Emergency Plan requirements found in 20 CSR 4240-40.030(12)(J)1.

5. Staff Recommendations:

Staff has no recommendations with regards to Spire's emergency response to this incident.

³⁸ Spire response to Staff Data Request 0017 and Spire Attachment 17D.

B. Investigation of Failures and Incidents

1. Regulatory Requirements and Applicable Commission Orders:

Commission Rule 20 CSR 4240-40.030(12)(L)2. requires in part that each operator must develop, implement, and incorporate lessons learned from a post-failure or incident review into its written procedures, including personnel training and qualification programs, and design, construction, testing, maintenance, operations, and emergency procedure manuals and specifications.

Paragraph 9 of the Stipulation and Agreement³⁹ approved by the Commission⁴⁰ in Case No. GC-2022-0087 requires:

Spire agrees to implement a root cause analysis procedure to investigate failures resulting in certain consequences by April 15, 2022. Such consequences will include but not be limited to the following: A reportable incident resulting in:

- a. Death
- b. An Injury beyond basic first aid
- c. Property Damage in excess of \$50,000
- d. An Overpressurization of the system
- e. An unintended outage of 100+ customers

The procedure will address how to determine the predominant reason(s) that the event occurred, and to identify where a change in behavior would reasonably be expected to lead to a change in the outcome, i.e. avoidance of the event. The root cause analysis may be conducted as part of an attorney-client privileged or work product protected incident review.

³⁹ Case No. GC-2022-0087, Item 13, file date January 20, 2022.

⁴⁰ Case No. GC-2022-0087, Item 14, effective date March 4, 2022.

2. Spire Actions to Comply with 20 CSR 4240-40.030(12)(L) and Applicable Commission Orders:

Spire provided its written procedure to investigate and analyze incidents that was in place on August 26, 2024, Investigation of Incidents Standard Operating Procedure (SOP) 220.O.1.⁴¹

Spire's procedure requires **

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Additionally, Spire's procedure requires that **

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Spire provided its November 7, 2024, Post Incident Review (PIR) for the August 26, 2024, incident,⁴² which included a narrative of the incident, the results of Spire's procedure effectiveness review, and corrective action items to be taken by Spire. A copy of the Confidential PIR is provided as Confidential Appendix C to this Report. Spire provided the results of its root cause analysis (RCA) of the incident;⁴³ a copy is provided as Confidential Appendix C to this Report.

In its PIR, Spire identified six corrective action items to be completed by Spire (Action Numbers 1-6 in Confidential Table 2 of this Report). Spire further identified two possible corrective action items to be considered by Spire (Action numbers 7-8 in Confidential Table 2 of this Report) in its RCA.⁴⁴

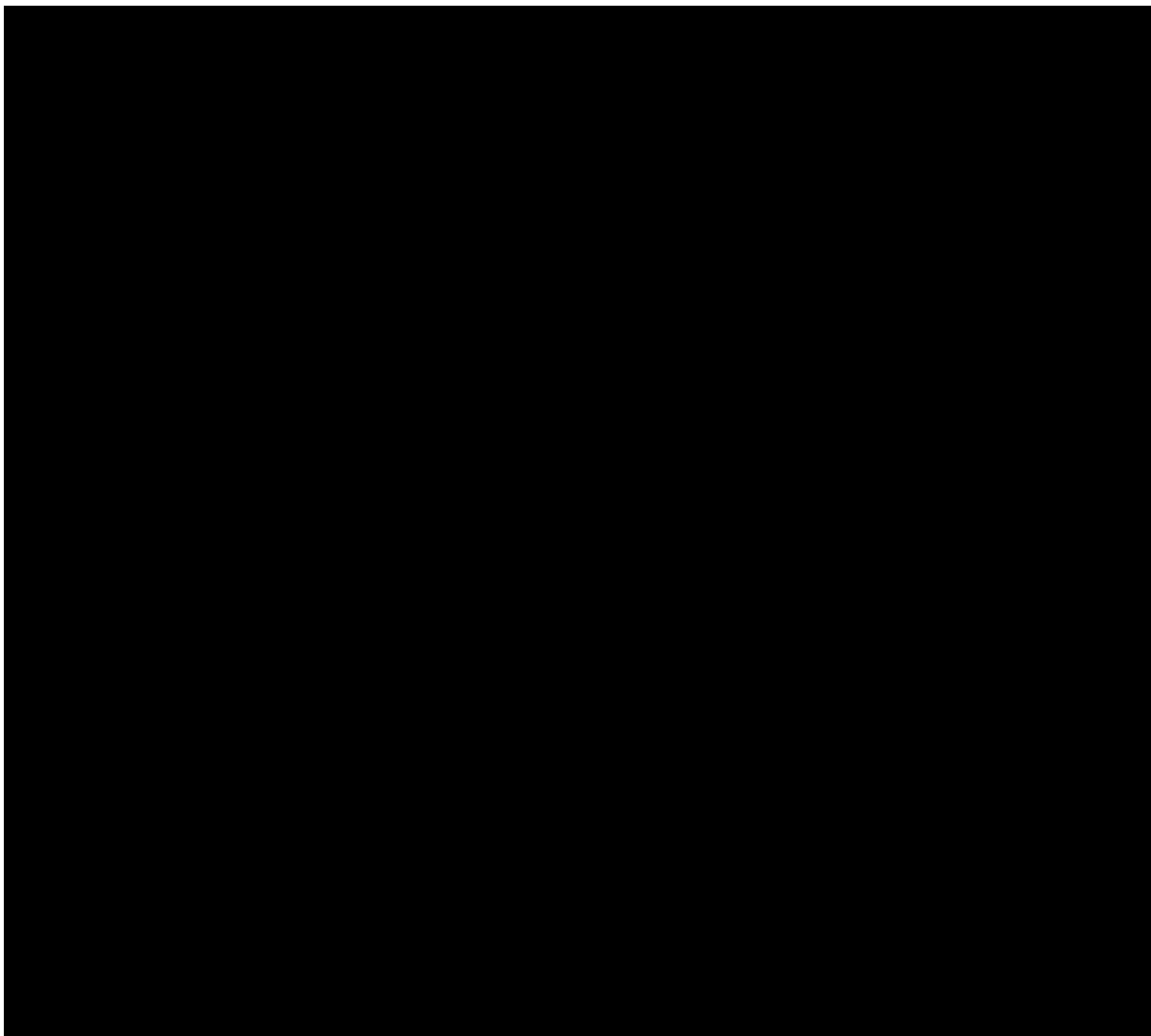
⁴¹ Spire response to Staff Data Request 0001.30 and Spire Attachment 1.30.

⁴² Spire response to Staff Data Request 0001 and Spire Attachment 1A.

⁴³ Spire Attachment 1B in response to Staff Data Request 0001.

⁴⁴ Spire Attachment 1.30 in response to Staff Data Request 0001.30.

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⁴⁶ In Spire's response to Staff Data Request 0001.2, Spire clarified that the "three strike rule for locators" is applied when a locator incurs three preventable damages within a rolling twelve-month period. When this happens, the operator is disqualified, making them ineligible to locate Spire facilities. They remain ineligible until one of the three strikes "falls off," after which they must re-qualify before they can locate Spire facilities again. In its confidential response to Staff Data Request 0001.16, Spire stated that **

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Spire indicated that corrective action items 1, 2, 3, 5, and 6 from Confidential Table 2 were completed on August 27, 2024, August 27, 2024, April 24, 2025, May 13, 2025, and March 3, 2025, respectively and provided details on its completion. Spire indicated that corrective action items 4 and 8 from Table 2 are in progress. Spire indicated that corrective action item 7 from Table 2 is no longer being considered as a corrective action item by Spire because:

** [REDACTED]

[REDACTED]

[REDACTED] **⁴⁷

3. Staff Analysis:

Spire's investigation of the August 26, 2024 incident in Independence, Missouri, appears to have met the minimum requirements of 20 CSR 4240-40.030(12)(L)2. and the Commission approved Stipulation and Agreement in Case No. GC-2022-0087. Staff find's Spire's justification for not implementing the potential corrective action item 7 in Table 2 to be reasonable since Spire clarified⁴⁸ that each Contract Locator employee is ** [REDACTED]

[REDACTED] **. Staff notes that while some of the corrective action items that Spire identified as a result of its investigation have been completed, two corrective action items identified by Spire are either still in progress or Staff has not been provided with documentation showing progress towards completion.

⁴⁷ Spire Attachment 1.30 in response to Staff Data Request 0001.30, as edited based on comments provided by Spire in its review of Staff's Draft Appendix A.

⁴⁸ Spire's response to Staff Data Request 0001.16.

4. Violations:

Although Staff has identified no violation of 20 CSR 4240-40.030(12)(L)2. regarding the investigation of this incident, Staff has a recommendation for Spire regarding implementation of corrective actions.

5. Staff Recommendations:

Staff recommends that Spire provide quarterly updates to the Commission regarding the status of implementation for corrective action items 4 and 8 in Confidential Table 2 of this report until the corrective action items have been completed satisfactorily. If either of the two identified corrective action items is no longer considered to be necessary by Spire, the reason(s) should be explained in the quarterly updates.

C. **Incident Reporting Requirements**

1. Regulatory Requirements and Applicable Commission Orders:

20 CSR 4240-40.020(3)(A) requires that at the earliest practicable moment following discovery, but no later than one (1) hour after confirmed discovery,⁴⁹ each operator shall give notice, in accordance with subsection (3)(B), of each federal incident as defined in section (2).⁵⁰

20 CSR 4240-40.020(3)(B) requires that each notice required by subsection (3)(A) must be made to the NRC.⁵¹

⁴⁹ 20 CSR 4240-40.020(2)(C) (defining "confirmed discovery" to mean when it can be reasonably determined, based on information available to the operator at the time a reportable event has occurred, even if only based on a preliminary evaluation.).

⁵⁰ Staff notes that while this incident was initially believed to meet federal reporting criteria, but was later determined based on actual cost of property damage not to be.

⁵¹ The NRC abbreviation represents the federal National Response Center which is operated by the United States Environmental Protection Agency in cooperation with the United States Coast Guard.

20 CSR 4240-40.020(3)(C) requires that within forty-eight (48) hours after the confirmed discovery of an incident,⁵² to the extent practicable, an operator must revise or confirm its initial telephonic notice required in subsection (3)(B) with an estimate of the amount of gas released, an estimate of the number of fatalities and injuries, and all other significant facts that are known by the operator that are relevant to the cause of the incident or extent of the damages. If there are no changes or revisions to the initial report, the operator must confirm the estimates in its initial report.

20 CSR 4240-40.020(4)(A) requires operators to notify designated Commission personnel by telephone within two hours following discovery of a Missouri reportable incident⁵³ by the operator, or as soon thereafter as practicable if emergency efforts to protect life and property would be hindered.

20 CSR 4240-40.020(6) requires that operators of distribution pipeline systems must submit U.S. Department of Transportation Form PHMSA F 7100.1 as soon as practicable but not more than 30 days after detection of an incident required to be reported under section (3).

⁵² 20 CSR 4240-40.020(2)(D) defines a Federal incident to mean any of the following events:

1. An event that involves a release of gas from a pipeline, gas from an underground natural gas storage facility (UNGSF), liquefied natural gas (LNG), liquefied petroleum gas, refrigerant gas, or gas from an LNG facility, and that results in one (1) or more of the following consequences:
 - A. A death or personal injury necessitating inpatient hospitalization; or
 - B. Estimated property damage of one hundred twenty-nine thousand three hundred dollars (\$129,300) or more, including loss to the operator and others, or both, but excluding the cost of gas lost; or
 - C. Unintentional estimated gas loss of three (3) million cubic feet or more;
2. An event that results in an emergency shutdown of an LNG facility or an UNGSF. Activation of an emergency shutdown system for reasons other than an actual emergency does not constitute an incident; or
3. An event that is significant, in the judgment of the operator, even though it did not meet the criteria of paragraph (2)(D)1. or (2)(D)2.

⁵³ 20 CSR 4240-40.020(4)(A) (requiring reporting of the following events within areas served by the operator:

1. An event that involves a release of gas involving the operator's actions or pipeline system, or where there is a suspicion by the operator that the event may involve a release of gas involving the operator's actions or pipeline system, and results in one (1) or more of the following consequences: A. A death; B. A personal injury involving medical care administered in an emergency room or health care facility, whether inpatient or outpatient, beyond initial treatment and prompt release after evaluation by a health care professional; or C. Estimated property damage of seventeen thousand five hundred dollars (\$17,500) or more, including loss to the gas operator or others, or both, and including the cost of gas lost;
2. An event that is significant, in the judgment of the operator, even though it did not meet the criteria of paragraph (4)(A)1.; or 3. An event that is reported as a Federal incident under section (3).

A Commission approved⁵⁴ Stipulation and Agreement in Case No. GC-2022-0087 required in part that Spire amend its Spire Missouri Inc. Operations Procedure Manual (OPM) to include the 48-hour telephonic update to the NRC within 48 hours after the confirmed discovery of an incident as required by 20 CSR 4240-40.020(3)(C).⁵⁵

2. Spire Actions to Comply with 20 CSR 4240-40.020(2)(C), (3), (4), and (6) and Applicable Commission Orders:

The house explosion occurred at approximately 6:52 p.m. on August 26, 2024, at 426 East Fair Street, Independence, Missouri.⁵⁶

Spire employee ** [REDACTED] ** was notified by the Independence Fire Department of the house explosion at 6:52 p.m.⁵⁷

Spire's confirmed discovery that the event met Missouri incident reporting criteria was at approximately 8:00 p.m.⁵⁸

Spire notified Staff of the incident by telephone at 8:10 p.m.

As the investigation continued, Spire determined at approximately 9:12 p.m. that the federal incident definition may also have been met, and made a notification to the NRC at 9:21 p.m.⁵⁹

The initial report, NRC #1409102, was submitted to the NRC at 9:21 p.m. on August 26, 2024. The 48-hour update, NRC #1409265, was submitted to the NRC at 1:07 p.m. on August 28, 2024.

⁵⁴ Approved in Commission Order filed February 02, 2022, in Case No. GC-2022-0087.

⁵⁵ Paragraph 8 of the Stipulation and Agreement filed January 20, 2022, in Case No. GC-2022-0087.

⁵⁶ According to PHMSA Form 7100.1.

⁵⁷ Spire's CONF Attachment 1A, provided in response to Staff Data Request 0001, Post Incident Review on November 7, 2024.

⁵⁸ Spire's response to Staff Data Request 0020.9.

⁵⁹ Spire's response to Staff Data Request 0020.9.

Spire's manager of Distribution, Integrity, and Engagement, ** [REDACTED] **, notified PHMSA that the incident did not reach reportable limits on September 25, 2024.⁶⁰ Spire reported a total estimated property damage of \$117,219, which included \$100,132 estimated cost of public and non-Operator private property damage paid/reimbursed by the Operator, \$6,659 of Operator's property damage and repair and \$500 emergency response.⁶¹ Spire reported an estimated 138 thousand standard cubic feet of gas lost, at an estimated cost of \$1,294 for the value of the gas released.⁶²

3. Staff Analysis:

According to the dates and times provided by Spire and verified by Staff from its notification records and copies of reports to the NRC, Staff believes that Spire met all applicable reporting requirements.

Initial notification to the NRC is required within one hour of "confirmed discovery." Confirmed Discovery is defined in 20 CSR 4240-40.020(2)(C) to mean when it can when it can be reasonably determined, based on information available to the operator at the time a reportable event has occurred, even if only based on a preliminary evaluation. Spire's initial notification to the NRC at 9:21 p.m. on August 26, 2024, was within one hour of its confirmed discovery that a reportable event had occurred.

⁶⁰ According to Spire's CONF Attachment 1A, provided in response to Staff Data Request 0001, Post Incident Review on November 7, 2024.

⁶¹ Spire's response to Staff Data Request 0020.

⁶² Spire's response to Staff Data Request 0020.

Spire's initial telephonic notification to Staff at 8:10 p.m. was within two hours following discovery that an event meeting the requirements for Immediate Notice of Missouri Incidents⁶³ had occurred.

Within 48 hours after the confirmed discovery of an incident, to the extent practical, an operator must revise or confirm its initial notification to the NRC.⁶⁴ Spire confirmed discovery of this incident at 9:12 p.m. on August 26, 2024. Spire's second notification to the NRC at 1:07 p.m. on August 28, 2024 was within 48 hours of its confirmed discovery of the incident.

Within 30 days after the confirmed discovery of an incident on a natural gas distribution system, an operator must submit an incident report to PHMSA,⁶⁵ and provide a copy to Staff.⁶⁶ This incident was initially reported to the NRC as a federally reportable due to projected cost of damage/repairs. After further analysis, the Company determined that the federal incident reporting criteria had not been reached. 20 CSR 4240-40.020 includes a property damage threshold of \$129,300 in the definition of "Federal Incident." Spire's estimated property damage of \$117,219 is below this threshold. Additionally, 20 CSR 4240-40.020 includes an unintentional gas released volume of three million cubic feet or more. The 138 thousand cubic feet of estimated gas lost (approximately 0.138 million cubic feet) is less than the three million cubic feet reporting threshold. Therefore the requirement for the 30-day report to PHMSA was not applicable.

4. Violations:

Staff found no violations with respect to compliance with the Commission's rules pertaining to incident reporting.

⁶³ 20 CSR 4240-40.020(4).

⁶⁴ 20 CSR 4240-40.020(3)(C).

⁶⁵ 20 CSR 4240-40.030(6)

⁶⁶ 20 CSR 4240-40.020(5)(A)2.

5. Staff Recommendations:

Staff has no recommendations with respect to compliance with the Commission's rules pertaining to incident reporting.

D. Damage Prevention Program

1. Regulatory Requirements and Applicable Commission Orders:

Commission Rule 20 CSR 4240-40.030(12)(I)1. requires each operator of buried pipelines to have and carry out a written program to prevent pipeline damage by excavation activities in accordance with subsection 20 CSR 4240-40.030(12)(I)1.

Commission Rule 20 CSR 4240-40.030(12)(I)3.G. requires that the written program provide for temporary marking of buried pipelines in the area of excavation activity before, as far as practical, the activity begins.

Commission Rule 20 CSR 4240-40.030(12)(C)1. requires that each operator prepare and follow for each pipeline, a manual of written procedures for conducting operations and maintenance activities and for emergency response, including each of the requirements of section (12).⁶⁷

Section 319.030 of the "Underground Facility Safety and Damage Prevention Act" requires that every person owning or operating an underground facility to whom notice of intent to excavate is required to be given, upon receipt of such notice as provided in this section from a person intending to commence an excavation, inform the excavator as promptly as practical, but not in excess of two working days, unless the excavator agrees to extend the start date and time provided in the locate request through methods established by the notification center, of the approximate

⁶⁷ 20 CSR 4240-40.030(12)(C)2.B. requires that the manual includes procedures for safe operating and maintaining the pipeline in accordance with each of the requirements of sections (12), (13) and (14) of 20 CSR 4240-40.030.

location⁶⁸ of underground facilities in or near the area of the excavation so as to enable the person engaged in the excavation work to locate the facilities in advance of and during the excavation work, provided that no excavation shall begin earlier than the scheduled excavation date provided on the locate request unless the excavator has confirmed that all underground facilities have been located. The utility owner or operator shall provide the approximate location of its underground facilities by the use of markings as designated in Section 319.015.

The Commission approved⁶⁹ Stipulation and Agreement in Case No. GC-2022-0087 required in part that Spire adopt specific procedures for requiring locators to perform a visual scan of the work area and to confirm the location of Spire's facilities through conductive methods⁷⁰ (completed prior to approval). This Stipulation and Agreement additionally required Spire to:

- Establish and follow a schedule for annual review of revisions to Common Ground Alliance Best Practice Marking Standards in SOP 220.C (Spire's Damage Prevention Program), and to review revisions to Common Ground Alliance Best Practice Marking Standards to determine when and how to adopt those into Spire's procedures and training requirements according to the schedule established in SOP 220.C.,⁷¹
- To include and follow a requirement for Spire personnel and its contractors to report mapping errors of Spire's natural gas system when identified through the completion of activities related to SOPs 220.C, 230.C (Spire's

⁶⁸ 319.015. Definitions. — For the purposes of sections 319.010 to 319.050, the following terms mean:

(1) "Approximate location", a strip of land not wider than the width of the underground facility plus two feet on either side thereof. In situations where reinforced concrete, multiplicity of adjacent facilities or other unusual specified conditions interfere with location attempts, the owner or operator shall designate to the best of his or her ability an approximate location of greater width;

⁶⁹ Approved in Commission Order filed February 02, 2022, in Case No. GC-2022-0087.

⁷⁰ Paragraph 6 of the Stipulation and Agreement in Case No. GC-2022-0087.

⁷¹ Paragraph 9 of the Stipulation and Agreement in Case No. GC-2022-0087.

Patrolling procedure), 230.D (Spire's Leak Survey procedure), and 220.R (Spire's Contract Locating Procedure),⁷² and

- To include and follow as part of its SOPs 220.C, 230.C, 230.D, and 220.R, a procedure to investigate each field reported mapping error and make timely correction of identified errors in the mapping system.⁷³

In the Stipulation and Agreement approved by the Commission in Case No. GC-2024-0305,⁷⁴ Spire agreed in part that Spire Missouri will implement and follow the plan attached to the Stipulation and Agreement as Highly Confidential Appendix 1, create or modify existing procedures to define the process of how contract locators are to communicate issues discovered in the field to Spire Missouri, and identify and define (in at least one of its procedures) each specific category it intends to use as a root cause description of an excavation damage event.⁷⁵

2. Spire Actions to Comply with 20 CSR 4240-40.030(12)(I), Chapter 319 RSMo, and Applicable Commission Orders:

Spire provided a copy of its damage prevention program Damage Prevention Program Standard Operating Procedure (SOP), Document number 220.C.8 published August 9, 2024, that was in effect at the time of the incident.⁷⁶ The Damage Prevention Program requires compliance with Chapter 319, RSMo.

On August 16, 2024, Spire received from Missouri 811 a notification of intent to excavate in the vicinity of the incident, starting on August 21, 2024, at 7:00 am. The Missouri 811 locate ticket⁷⁷ indicated the purpose of the excavation was to install fiber optic cable in Independence

⁷² Paragraph 15 of the Stipulation and Agreement in Case No. GC-2022-0087.

⁷³ Paragraphs 16 of the Stipulation and Agreement in Case No. GC-2022-0087.

⁷⁴ Stipulation and Agreement was filed November 14, 2024, approved by the Commission on December 4, 2024.

⁷⁵ Paragraphs 4, 6, and 8 of the Stipulation and Agreement in Case No. GC-2024-0305.

⁷⁶ Spire response to Staff Data Request 0014.

⁷⁷ Missouri 811 Ticket No. 242291655.

along South Hocker Avenue from East 23rd Street South to south of East Fair Street along a route marked in white paint. Spire's Contract Locator painted locate markings on the ground surface to indicate the location of Spire facilities along South Hocker Avenue on August 20, 2024.

On August 26, 2024, the Excavator was using directional drilling equipment to install telecommunication facilities from north to south along the west side of South Hocker Avenue, parallel to and west of Spire's markings. At the point of the natural gas main damage, the yellow paint locate marking⁷⁸ near the west pavement edge of South Hocker Avenue was approximately six feet east from the edge of the buried natural gas main.⁷⁹ Spire stated that the ** [REDACTED] [REDACTED] only one set of yellow paint markings to the east of the natural gas main damage, and that set of yellow paint markings extended to the north and south near to the west pavement edge of South Hocker Avenue. To the south at East Fair Street, there was a second set of yellow paint markings that were closer to the natural gas main, but yellow paint markings were no closer than three feet from the edge of the main.⁸¹ Following the incident and emergency response, an additional mark was observed by Staff north of the damage area in a ditch to the west of South Hocker Avenue, however only one set of marks was visible in the immediate vicinity of the damage. A diagram indicating the approximate locations of Spire's facilities in the area of the damage and Spire's markings⁸² is included as Confidential Figure 3 in Appendix B.

⁷⁸ The American Public Works Association (APWA) Uniform Color Codes for temporary marking of underground gas, oil, steam, petroleum or gaseous materials is yellow.

⁷⁹ Spire response to Staff Data Request 0001.7. The PIR and RCA copied in Confidential Appendix C to this Report indicate approximately five feet instead of approximately six feet; this discrepancy was acknowledged in Spire's response to Staff Data Request 0001.7 wherein Spire confirmed that approximately six feet is correct.

⁸⁰ Spire response to Staff Data Request 0001.14C.

⁸¹ Spire response to Staff Data Request 0001.7.

⁸² Spire response to Staff Data Request 0001.7 and Spire Attachment 1.7.

Spire also stated that certain requirements of its contract locating procedure Contract Locating Procedure Standard Operating Procedure (SOP), Document number 220.R.5 published August 9, 2024, were not followed.⁸³ Spire's findings regarding procedure compliance were that the Contract Locator employee did not use all available means to locate the main or services, did not pull measurements to verify if the markings were correct, and did not submit a Request for Locate Assistance (RFLA).⁸⁴ The Contract Locator employee did not identify the test point at the west side of South Hocker Avenue north of East Fair Street⁸⁵ that was closest to the damage location. Instead, the Contract Locator employee used an access point at the southwest corner of East Fair Street and South Hocker Avenue. According to Spire, the Contract Locator District Manager stated to Spire that this produced a "poor tone."⁸⁶

Following the incident, Spire found that one set of markings was the tone received by the Contract Locator employee, and an additional set of markings were based on measurements applied by the Contract Locator employee using mapping information provided by Spire.⁸⁷

Section 4.1.1.1.2 of SOP 220.R.5 states: **

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

**88

⁸³ Spire response to Staff Data Request 0001.5 and Spire Attachment 1.5.

⁸⁴ Spire responses to Staff Data Requests 0001.5 and 0001.11.

⁸⁵ Spire response to Staff Data Request 0001.8.

⁸⁶ Spire responses to Staff Data Request 0001.12; in this context, "tone" refers to the audible ton that grows in intensity depending on the distance of the locating instrument from the buried metallic pipe or tracer wire.

⁸⁷ Spire responses to Staff Data Requests 0001.7 and 0001.8.

⁸⁸ Spire response to Staff Data Request 0001.11.

Prior to the installation of the four-inch plastic main in the vicinity of the damage (shown in Confidential Figures 2 and 3 in Appendix B), an underground steel main was installed along the west edge of the South Hocker Avenue pavement. On June 17, 2003,⁸⁹ a segment of the steel main was replaced with four-inch plastic main. The plastic pipe was offset to the west of the steel main, and was installed beneath the lawns west of the pavement. The steel main segment that was taken out of service was abandoned in place. In the area of the plastic main damage, the set of marks made by tone appears to have been placed over the abandoned steel main instead of the plastic main that was off-set several feet to the west. According to Spire, the Contract Locator employee did not identify and use the test point at the steel tee near the damage location, and instead used an access point at the southwest corner of South Hocker Avenue and East Fair Street, resulting in a poor locate tone. The plastic main offset was shown on a map that was available to the Contract Locator employee, but the yellow paint marking of four-inch plastic main was placed over the abandoned steel main instead of the plastic main. Since the Contract Locator employee was not able to determine the location of the offset plastic main, Spire noted that the RFLA process should have been used.

Spire deemed that the Contract Locator was at fault and since this was the third at fault locate performed by this Contract Locator employee, the employee's qualification was pulled by the Contract Locator per Spire's request.⁹⁰ The three at-fault locates by this Contract Locator employee met the three-strike rule.⁹¹

⁸⁹ Spire responses to Staff Data Request 0011C.

⁹⁰ Spire response to Staff Data Request 0001 and Spire Attachment 1A.

⁹¹ Spire response to Staff Data Request 0001.16.

Spire provided Staff with a copy of its Damage Prevention Program Standard Operating Procedure (SOP), Document number 220.C.9 published March 3, 2025, that was updated in accordance paragraph 8 of the Stipulation and Agreement in Case No. GC-2024-0305. Spire provided Staff with a copy of its contract locating procedure Contract Locating Procedure Standard Operating Procedure (SOP), Document number 220.R.6 published March 3, 2025, that was updated in accordance paragraph 6 of the Stipulation and Agreement in Case No. GC-2024-0305.

3. Staff Analysis:

To evaluate compliance with requirements in Commission Rule 20 CSR 4240-40.030(12)(I) pertaining to written damage prevention programs, Staff reviewed Spire's Damage Prevention Program Standard Operating Procedure (SOP), Document number 220.C.8, and found that it met the requirements of 20 CSR 4240-40.030(12)(I), and paragraphs 6 and 9 of the January 20, 2022, Stipulation and Agreement in Case No. GC-2022-0087.

To evaluate compliance with Commission Rule 20 CSR 4240-40.030(12)(I)3.G. to provide for temporary markings of buried pipelines, Staff reviewed documentation regarding marking of the facility location prior to the incident. This included documentation created by Spire's Contract Locator, Spire and the Missouri 811's website ticket system. Documentation created by Spire⁹² and Spire's Contract Locator⁹³ indicate that Spire's Contract Locator employee responded to the Missouri 811 locate ticket at the incident location, but did not mark the underground natural gas main within the "approximate location" of the pipeline as required by Section 319.030, RSMo, at

⁹² Spire response to Staff Data Request 0001.7.

⁹³ Spire provided a copy of ** [REDACTED] ** as a Confidential Attachment to its response to Staff's Data Request 0001.14.

the location where the excavation damage occurred. Due to the inaccurate markings, Spire did not provide an indication to the Excavator that there was an underground natural gas main at the location where the excavation damage occurred. Following the incident, the investigations by Spire and Spire's Contract Locator ** [REDACTED]

[REDACTED] **.

Staff was not able to determine the validity of either position for reasons discussed in detail below, but was able to determine that the marks were not within the "approximate location" of the actual pipeline. The yellow paint markings placed by the Contract Locator employee on the ground surface were determined by Spire and Staff to be outside of the "approximate location"⁹⁴ of Spire's gas main, therefore Spire's Contract Locator failed to mark the approximate location as required by Section 319.030, RSMo. Additionally, according to Spire, Spire's Contract Locator did not follow certain requirements of Spire's contract locating procedure.⁹⁵

Confidential Figure 2 of Appendix B of this report shows a screenshot of Spire's GIS map of its four-inch plastic main pipeline in the vicinity of the incident. This map shows the four-inch plastic main segment crossing and continuing north of East Fair Street⁹⁶, to the west of and roughly parallel to South Hocker Avenue. Although no measurements or GPS coordinates are provided on the map for reference, the map does show an offset in the pipeline to the north of East Fair Street where the pipe appears to be further east (closer to South Hocker Avenue) than it is to the south of this offset. This was the original steel main as shown in Confidential Figure 3 of

⁹⁴ RSMo 319.015 defines "approximate location" to be a strip of land not wider than the width of the underground facility plus two feet on either side thereof. In situations where reinforced concrete, multiplicity of adjacent facilities or other unusual specified conditions interfere with location attempts, the owner or operator shall designate to the best of his or her ability an approximate location of greater width.

⁹⁵ Spire responses to Staff Data Requests 0001.5 and 0001.11.

⁹⁶ The map in Confidential Figure 2 shows "FAIR AVE" instead of the correct street name of East Fair Street.

Appendix B. Other legacy Spire records that are not associated with its GIS map provide measurements for test boxes and at various points along the main installation, such as tee locations. Spire's legacy record of the pipeline location in the vicinity of the damage indicated that the

** [REDACTED] **⁹⁷

Measurements from road centerlines are generally based on an individual's determination at the time of installation. When roads are curved or angled, or as roads are repaved, realigned, or widened, the centerline location can change or appear differently to the current individual trying to use the measurement from the centerline. Staff's experience is that this can result in different incorrect results for the facility location using a measurement from the centerline.

To evaluate compliance with the requirements of 20 CSR 4240-40.030(12)(C)1., Staff reviewed SOP 220.R.5 issued on August 9, 2024, which is the Contract Locating Procedure. Regarding Section 4.1.1.1,⁹⁸ Spire's Contract Locator did not use the tracer wire that was in the test box near the damage location, and instead used a tracer wire at a location south of East Fair Street that resulted in a poor tone and did not check the Spire record to confirm the accuracy of the tone. Regarding Section 4.1.1.1.2,⁹⁹ Spire's Contract Locator placed two sets of marks for one gas line and did not initiate procedures to address the situation internally or with Spire.

⁹⁷ Spire response to Staff Data Request 0001.32A.

⁹⁸ Section 4.1.1.1 states: **

**

⁹⁹ Section 4.1.1.1.2 states: **

**

Regarding Section 4.1,¹⁰⁰ Spire's Contract Locator did not access Spire's gas facilities data for the distance of the plastic main from the centerline. For at least these provisions, Staff agrees that Spire's Contract Locator did not follow the applicable Spire procedures.

To evaluate compliance with paragraphs 15 and 16 of the January 20, 2022, Stipulation and Agreement in Case No. GC-2022-0087, Staff requested a list of reported mapping errors that were identified during activities related to SOPs 220.C, 230.C, 230.D, and 220.R (Spire's damage prevention, patrolling, leakage survey, and contract locating procedures). In response, Spire provided a list containing mapping errors reported between the dates of ** [REDACTED]

[REDACTED] **101

Completed action dates for the early 2022 list items started on ** [REDACTED]
[REDACTED]
[REDACTED]

[REDACTED] ** The number of mapping errors already identified indicates to Staff that the accuracy of Spire's maps should be verified whenever the actual pipe location is known to Spire (e.g., when buried pipe is exposed during repair work or for other reasons).

Following the incident, Spire did not measure to determine whether or not the measurements Spire provided to its Contract Locator accurately reflected the actual location of the main in the vicinity of the damage.¹⁰² Spire's Contract Locator's ** [REDACTED]

[REDACTED]

¹⁰⁰ Section 4.1 states: ** [REDACTED]
[REDACTED] **

¹⁰¹ Spire response to Staff Data Request 0027 and confidential Spire Attachment 27.

¹⁰² Spire response to Staff Data Request 0001.33.

[REDACTED] **

the Spire record indicating the four-inch main was ** [REDACTED]

[REDACTED] **. ¹⁰³ Spire stated that it ** [REDACTED]

[REDACTED] **, ¹⁰⁴ but references SOP 220.R. SOP 220.R states:

** [REDACTED]

[REDACTED] **

Staff notes that the distance of four feet exceeds the tolerance of two feet that is considered to be within the “approximate location” as defined in Section 319.015, RSMo.

To evaluate compliance with applicable requirements of the November 14, 2024, Stipulation and Agreement in Case No. GC-2024-0305, Staff reviewed SOPs 220.C and 220.R. These procedures address the requirements in paragraphs 6 and 8 of the Stipulation and Agreement. The Spire action to implement the plan attached to the Stipulation and Agreement in Case No. GC-2024-0305 as Highly Confidential Appendix 1 is in progress and Staff will monitor Spire’s actions to follow the plan in Case No. GC-2024-0305.

4. Violations:

(1) 20 CSR 4240-40.030(12)(I)1. requires each operator of a buried pipeline to carry out a written program to prevent damage to that pipeline by excavation activities. Spire’s damage prevention program includes compliance with Chapter 319, RSMo. The locate markings on the ground surface above the natural gas main at the damage location were outside of the “approximate location” as required by Section 319.030, RSMo; therefore Spire’s failure to locate its underground

¹⁰³ Confidential Attachment 1.14 provided with Spire response to Staff Data Request 0001.14.

¹⁰⁴ Spire response to Staff Data Request 0001.34C.

facilities within the “approximate location” as required by Section 319.030, RSMo is a violation of 20 CSR 4240-40.030(12)(I)1.

(2) 20 CSR 4240-40.030(12)(C)1. requires that each operator prepare and follow for each pipeline, a manual of written procedures for conducting operations and maintenance activities and for emergency response. Spire's Contract Locator did not follow Spire's contract locator procedure and this resulted in locate markings that were incorrect at the incident site.

5. Staff Recommendations:

1. Staff recommends that Spire evaluate the circumstances involved with locating offsets in its gas facilities and provide additional training and guidance to its Contract Locator employees regarding how to accurately locate the offset. This should include locating segments of plastic main that are offset from steel mains, where there may or may not be a working tracer wire to use for electronic locate equipment. When the tracer wire is not working for conductive methods using electronic locate equipment or the measurements for Spire records are not available or clear, the process needs to be clear for how Contract Locator employees should proceed.

2. Staff recommends that when Spire is able to observe the actual location of its gas facilities, including each instance when Spire or its contractor exposes buried gas facilities during operations and maintenance activities, that Spire verify and update its maps that are used by locating personnel and include electronic and GPS mapping coordinate information when appropriate. Updated maps should be provided to the contract locator.

3. Staff recommends that in instances when only road centerline measurements are provided to determine the observed actual pipe location, Spire should add measurements or

change to electronic and GPS mapping coordinates. Updated maps should be provided to the contract locator.

4. Staff recommends that Spire revise SOP 220.R to use a distance of no greater than two feet in the procedure stating: ** [REDACTED]

[REDACTED] **

Additionally, Staff requests Commission authorization to submit a redacted (public) copy of this investigation report to the Missouri Attorney General's Office ("AGO") as information that may be used in the event the AGO wishes to take further action as provided in Section 319.045, RSMo.

E. Drug and Alcohol Testing

1. Regulatory Requirements:

Missouri pipeline safety rules adopt the Federal Drug and Alcohol Testing regulations¹⁰⁵ by reference.¹⁰⁶ At the time the incident occurred, the Commission Rules adopted the Code of Federal Regulations ("CFR") dated October 1, 2019 49 CFR parts 40 and 199 by reference.¹⁰⁷ The descriptions and quotations of applicable requirements below are based on the October 1, 2019, 49 CFR parts 40 and 199.

49 CFR § 199.101 requires each operator to maintain and follow a written anti-drug plan that conforms to Part 199 and the Department of Transportation ("DOT") Procedures.¹⁰⁸

¹⁰⁵ 49 CFR §§ 40 and 199, effective October 1, 2019, incorporated by reference by the Commission at the time of the incident, effective January 30, 2022.

¹⁰⁶ 20 CSR 4240-40.080(1).

¹⁰⁷ Subsequent to the incident, Commission has opened a case to adopt more recent Federal amendments in File No. GX-2025-0249.

¹⁰⁸ 49 CFR § 199.3 (defining DOT procedures as the Procedures for Transportation Workplace Drug and Alcohol Testing Programs published by the Office of the Secretary of Transportation in part 40 of Title 49).

49 CFR § 199.202 requires each operator to maintain and follow a written alcohol misuse plan that conforms to Part 199 and the DOT Procedures.

20 CSR 4240-40.080(4)(B) states that the references to “accident” in 49 CFR § § 199.105 and 199.225 should refer to a “federal incident reportable under 20 CSR 4240-40.020.”

49 CFR § 199.3 defines “employee” and “covered employee” as: a person who performs a covered function, including persons employed by operators, contractors engaged by operators, and persons employed by such contractors.¹⁰⁹

49 CFR § 199.3 defines “covered function” as: an operations, maintenance, or emergency-response function regulated by part 192, 193, or 195 of this chapter that is performed on a pipeline or on an LNG facility.¹¹⁰

49 CFR § 199.3 defines “prohibited drug” as follows:

Prohibited drug means any of the following substances specified in Schedule I or Schedule II of the Controlled Substances Act (21 U.S.C. 812): marijuana, cocaine, opiates, amphetamines, and phencyclidine (PCP).¹¹¹

With respect to contractor employees, 49 CFR §§ 199.115 and 199.245 state that an operator may provide by contract that the drug and alcohol testing, education and training required by 49 CFR § 199 be carried out by the contractor, provided that a) the operator remains responsible for ensuring compliance with the requirements of 49 CFR § 199 and 40 and b) the contractor allows access to property and records by the operator, the Administrator, and if the operator is subject to the jurisdiction of a state agency, a representative of the state agency for the purpose of monitoring the operator's compliance with the requirements of this part.

¹⁰⁹ 49 CFR § 199.3.

¹¹⁰ *Id.*

¹¹¹ *Id.*

Drug tests are required for covered employees for: pre-employment, post-accident and at any time during employment as part of a pool of covered employees subject to random selection for testing. These requirements are as follows:

- Pre-employment: 49 CFR § 199.105(a) requires that: “No operator may hire or contract for the use of any person as an employee unless that person passes a drug test or is covered by an anti-drug program that conforms to the requirements of this part.”¹¹²
- Randomly during employment: 49 CFR § 199.105(c) provides that “except as provided in paragraphs (c)(2) through (4) of this section, the minimum annual percentage rate for random drug testing shall be 50 percent of covered employees.”¹¹³
- Post-Accident: 49 CFR § 199.105(b) provides the post-accident¹¹⁴ drug testing requirements: “As soon as possible but no later than 32 hours after an accident, an operator shall drug test each employee whose performance either contributed to the accident or cannot be completely discounted as a contributing factor to the accident. An operator may decide not to test under this paragraph but such a decision must be based on the specific information that the covered employee’s performance had no role in the cause(s) or severity of the accident.”¹¹⁵

¹¹² 49 CFR § 199.105(a).

¹¹³ 49 CFR § 199.105(c)(1).

¹¹⁴ 20 CSR 4240-40.080(4)(B)(stating that the references to “accident” in §§199.3, 199.100, 199.105, 199.200, 199.221, 199.225, 199.227 and 199.234 should refer to a “federal incident reportable under 20 CSR 4240-40.020” instead.).

¹¹⁵ 49 CFR § 199.105(b)(1).

Alcohol tests are required for covered employee's post-accident:

- Post-Accident: 49 CFR § 199.225(a) provides the post-accident¹¹⁶ alcohol testing requirements: "As soon as practicable following an accident, each operator must test each surviving covered employee for alcohol if that employee's performance of a covered function either contributed to the accident or cannot be completely discounted as a contributing factor to the accident. The decision not to administer a test under this section must be based on specific information that the covered employee's performance had no role in the cause(s) or severity of the accident. If a test required by this section is not administered within eight (8) hours following the accident, the operator shall cease attempts to administer an alcohol test and shall state in the record the reasons for not administering the test."¹¹⁷

1. Spire's Actions to Comply with 20 CSR 4240-40.080:

Spire provided copies of the Drug and Alcohol Testing Policies for Spire and for Spire's Contract Locator) that were in effect at the time of the incident.¹¹⁸

Spire identified a total of four individuals who were assigned to the project and on site at the time of the incident: Spire employees ** [REDACTED]

**¹¹⁹

¹¹⁶ 20 CSR 4240-40.080(4)(B) (stating that the references to "accident" in §§199.3, 199.100, 199.105, 199.200, 199.221, 199.225, 199.227 and 199.234 should refer to a "federal incident reportable under 20 CSR 4240-40.020" instead.).

¹¹⁷ 49 CFR § 199.225(1)-(2).

¹¹⁸ Spire's response to Staff Data Request 0024.

¹¹⁹ Post Incident Review dated November 7, 2024.

Pre-Employment Drug Testing:

Spire provided documentation of pre-employment drug testing for the Contract Locator employee, ** [REDACTED] ** and all of its four employees on site at the time of the incident:

** [REDACTED] **. ¹²⁰

Random Drug Testing:

Spire provided documentation of the number of random drug testing performed during calendar year 2023¹²¹ and 2024¹²² for Spire and the testing pools for its Contract Locator.

Post Incident Drug Testing:

Spire identified a total of four individuals who were assigned to the project and on site at the time of the incident: Spire employees ** [REDACTED] [REDACTED] **. All four employees were tested in a timely manner resulting in negative test results.¹²³ There were no other Spire contractors working during this emergency response.¹²⁴

2. Staff Analysis:

Drug and Alcohol Plans

Drug and Alcohol Testing Policies for Spire and Spire's Contract Locator and found that both policies meet the minimum requirements of Commission Rules.¹²⁵

¹²⁰ Spire's Confidential Attachment 25 provided in response to Staff Data Request 0025.

¹²¹ Spire's Confidential Attachment 26C provided in response to Staff Data Request 0026.

¹²² Spire's Confidential Attachments 26.1(A) and 26.1(B) provided in response to Staff Data Request 0026.1.

¹²³ Post Incident Review dated November 7, 2024.

¹²⁴ Spire's response to Staff Data Request 0024.

¹²⁵ Spire's Confidential Attachment 24A and 24B provided in response to Staff Data Request 0024.

Pre-employment Drug Testing:

Spire provided documentation of pre-employment drug testing for the Contract Locator employee, ** [REDACTED] ** and all of its four employees on site at the time of the incident: ** [REDACTED]

[REDACTED] **

Random Drug Testing:

PHMSA set the random drug testing rate for all covered employees at 25 percentage for calendar year 2023 and 2024.¹²⁶ The random testing rates for Spire were 32% in 2023 and 28% in 2024. The random rates for ** [REDACTED] ** were 35% in 2023 and 33% in 2024.

Post Incident Testing:

Spire identified a total of four individuals who were assigned to the project and on site at the time of the incident: Spire employees ** [REDACTED] [REDACTED] **. All four employees were tested in a timely manner resulting in negative test results. Because the incident occurred more than 32 hours after the Contract Locator employee had located the line, drug and alcohol testing was not required for this employee.

3. Violations:

Staff found no violations with respect to compliance with the Commission's rules pertaining to drug and alcohol testing.

4. Staff Recommendations:

Staff has no recommendations with respect to compliance with the Commission's rules pertaining to drug and alcohol testing.

¹²⁶ 88 FR 85728 for calendar year 2024.

F. Operator Qualification

1. Regulatory Requirements:

20 CSR 4240-40.030(12)(D), Qualification of Pipeline Personnel, prescribes the required qualifications of individuals performing covered tasks on a pipeline facility,¹²⁷ including any other entity or individual performing covered tasks on behalf of the operator.¹²⁸ A “covered task” is defined by 20 CSR 4240-40.030(12)(D)1.B. as “an activity, identified by the operator, that:

- (I) Is performed on a pipeline facility;
- (II) Is an operations, maintenance or emergency-response task;
- (III) Is performed as a requirement of this rule; and
- (IV) Affects the operation or integrity of the pipeline.”¹²⁹

20 CSR 4240-40.030(12)(D)2.C. defines “qualified” to mean “that an individual has been evaluated and can:

- (I) Perform assigned covered tasks; and
- (II) Recognize and react to abnormal operating conditions.”¹³⁰

Therefore, an individual must be evaluated in order to be considered qualified to perform covered tasks.

¹²⁷ 20 CSR 4240-40.030(1)(B)33 (defining a “pipeline facility” as “new and existing pipelines, rights-of-way, and any equipment, facility, or building used in the transportation of gas or in the treatment of gas during the course of transportation.”).

¹²⁸ 20 CSR 4240-40.030(12)(D)1.A. (“This subsection applies to all individuals who perform covered tasks, regardless of whether they are employed by the operator, a contractor, a subcontractor, or any other entity performing covered tasks on behalf of the operator.”).

¹²⁹ 20 CSR 4240-40.030(12)(D)1.B.

¹³⁰ 20 CSR 4240-40.030(12)(D)2.A. (defining “abnormal operating condition” as “a condition identified by the operator that may indicate a malfunction of a component or deviation from normal operations that may:(a) indicate a condition exceeding design limits; (b) result in a hazard(s) to persons, property, or the environment; or (c) require an emergency response.”).

Program Requirements:

20 CSR 4240-40.030(12)(D)3., requires that each operator have and follow a written qualification program that includes provisions to:

- A. Identify covered tasks;
- B. Provide training, as appropriate, to ensure that individuals performing covered tasks have the necessary knowledge and skills to perform the tasks in a manner that ensures the safe operation of pipeline facilities;
- C. Ensure through evaluation that individuals performing covered tasks are qualified and have the necessary knowledge and skills to perform the tasks in a manner that ensures the safe operation of pipeline facilities;
- D. Allow individuals that are not qualified pursuant to this subsection to perform a covered task if directed and observed by an individual that is qualified;
- E. Evaluate an individual if the operator has reason to believe that the individual's performance of a covered task contributed to an incident meeting the Missouri reporting requirements in 20 CSR 4240-40.020(4)(A);
- F. Evaluate an individual if the operator has reason to believe that the individual is no longer qualified to perform a covered task;
- G. Communicate changes, including changes to rules and procedures, that affect covered tasks to individuals performing those covered tasks and their supervisors, and incorporate those changes in subsequent evaluations;
- H. Identify the interval for each covered task at which evaluation of the individual's qualifications is needed, with a maximum interval of thirty-nine (39) months;

- I. Evaluate an individual's possession of the knowledge and skills under paragraph (12)(D)4. at intervals not to exceed thirty-nine (39) months;
- J. Ensure that covered tasks are:
 - (I) Performed by qualified individuals, or
 - (II) Directed and observed by qualified individuals.¹³¹

2. Spire's Actions to Comply with 20 CSR 4240-40.030(12)(D):

Spire provided a copy of its *Spire Operator Qualification Plan MO West-MO East Last Update Date: 3/29/2024*, as the written operator qualification (OQ) program that was applicable to all personnel, including Spire employees and all contractor personnel working for Spire performing work at the incident location on August 26, 2024, in Independence, Missouri. This includes personnel who performed the tasks of receiving, recording, and responding to notification(s) of the excavation activity occurring in the vicinity of the incident.¹³²

Spire identified four groups of individuals who performed covered tasks as part of its work related to this incident: Contract Locator personnel, Service Department personnel, Construction (Street) Department personnel, and Pressure & Measurement Operator personnel.¹³³ Specific descriptions of the tasks performed by each group and its personnel OQ records follow below.

Spire identified one covered task was performed by its Contract Locator personnel prior to the incident:¹³⁴

¹³¹ 20 CSR 4240-40.030(12)(D)3.A-I.

¹³² Spire response to Staff Data Request 0018.

¹³³ Spire response to Staff Data Requests 0018.1 and 0018.3.

¹³⁴ Spire response to Staff Data Request 0018.3.

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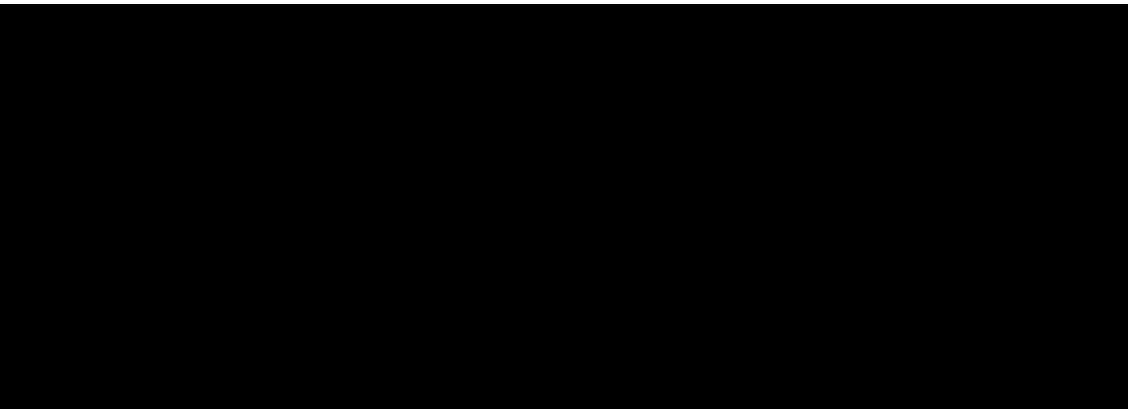


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Spire identified one Contract Locator employee that performed the covered task identified in Table 3, and provided documentation that this individual was qualified at the time he performed the task.¹³⁵

For Service Department personnel, Spire identified the following covered tasks that were performed in response to the incident:¹³⁶

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Spire identified eight Spire employees from Spire's Service Department that conducted the covered tasks identified in Table 4 above in response to the incident. Spire provided records showing the eight Spire employees identified were qualified to perform the covered tasks identified in Table 4 on the date of the incident.¹³⁷

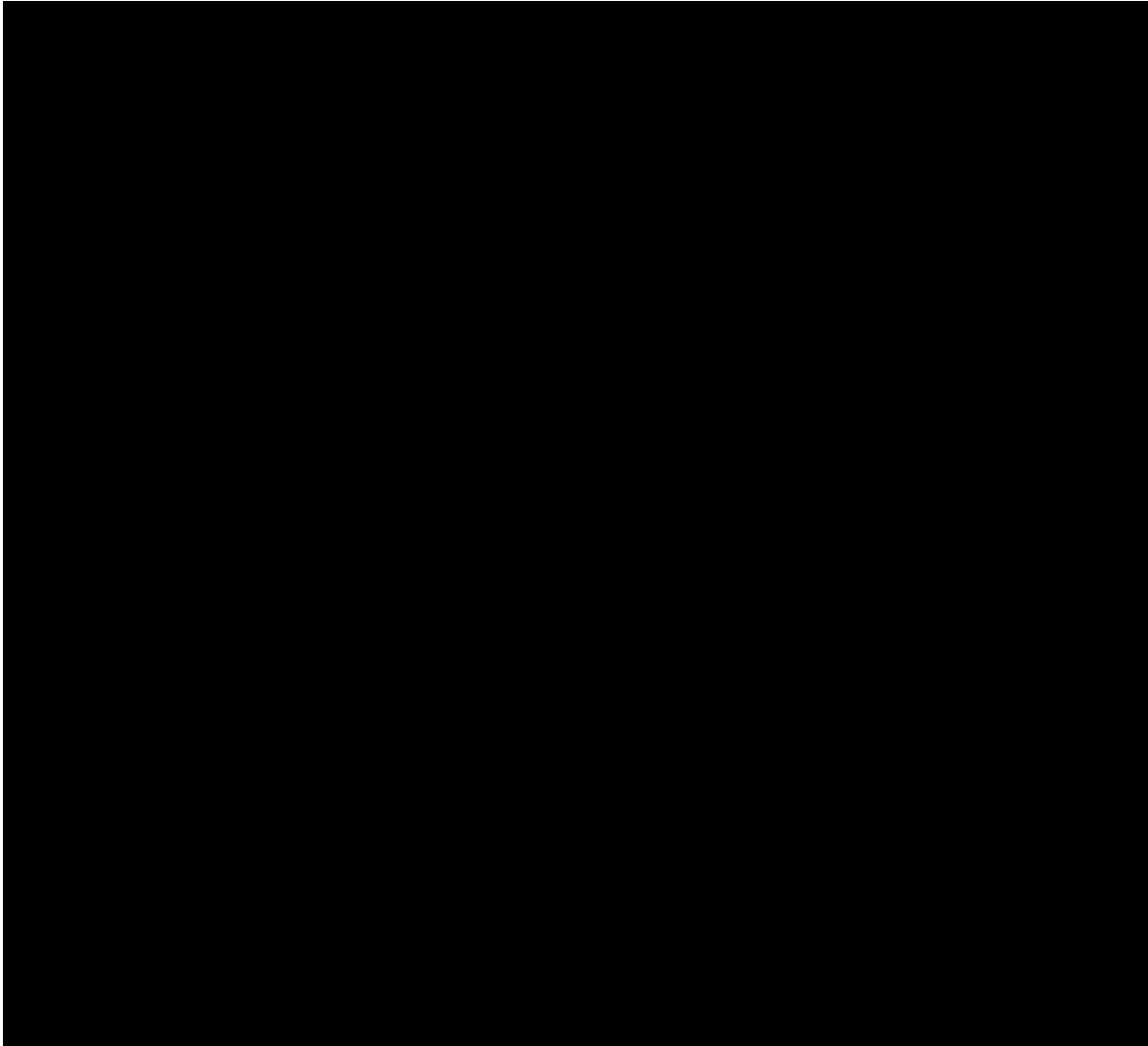
¹³⁵ Spire response to Staff Data Request 0018.3 and Spire Attachment 18.3.

¹³⁶ Spire response to Staff Data Request 0018.1.

¹³⁷ Spire response to Staff Data Request 0018.

For Construction (Street) Department personnel, Spire identified the following covered tasks that were performed in response to the incident:¹³⁸

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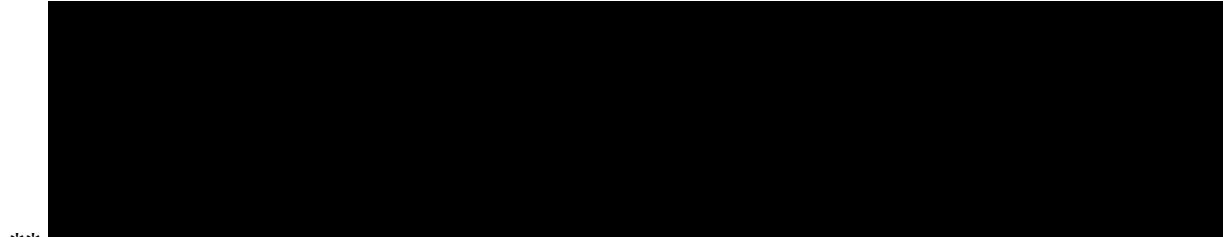
Spire identified nine Spire employees from Spire's Construction (Street) Department that conducted the covered tasks identified in Table 5 at the incident location. Spire provided records showing the nine Spire employees identified were qualified to perform the covered tasks identified in Table 5 on the date of the incident.¹³⁹

¹³⁸ Spire response to Staff Data Request 0018.1.

¹³⁹ Spire response to Staff Data Request 0018.

For Pressure & Measurement Operator personnel, Spire identified the following covered task that was performed in response to the incident:¹⁴⁰

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Spire identified one Spire employee from Spire's Pressure & Measurement Operator personnel that conducted the covered task identified in Table 6 in response to the incident. Spire provided a record showing the Spire employee identified was qualified to perform the covered task identified in Table 6 on the date of the incident.¹⁴¹

3. Staff Analysis:

Staff's analysis of Spire's OQ program and records showed that qualified individuals were used to perform work prior to and in response to the incident in Independence, Missouri, on August 26, 2024.

4. Violations:

No violations were identified by Staff with regards to Spire's OQ Program and records related to this incident.

5. Staff Recommendations:

Staff has no recommendations with regards to Spire's OQ Program and records related to this incident.

¹⁴⁰ Spire response to Staff Data Request 0018.1.

¹⁴¹ Spire response to Staff Data Request 0018.

G. Distribution Integrity Management Program ("DIMP")

1. Regulatory Requirements and Applicable Commission Orders:

Commission Rules require each gas distribution operator, other than a master meter operator, to develop and implement a Gas Distribution Integrity Management Program ("DIMP") no later than August 2, 2011. Program elements must include a demonstrated knowledge of the system, identification of threats, evaluation and ranking of risk, identification and implementation of measures to address risks, measurement of performance, monitoring of results and evaluation of effectiveness. Sources of data to be considered in DIMP includes, but is not limited to incident history. In implementation of DIMP, a baseline is established for threats to monitor the effectiveness of the program.

At a minimum, operators must consider the following categories of threats to each gas distribution pipeline:

- Corrosion,
- Natural Forces,
- Excavation Damage,
- Other Outside Force Damage,
- Material or Welds,
- Equipment Failure,
- Incorrect Operation, and
- Other concerns that could threaten the integrity of its pipeline.

To comply with the knowledge of the system part of this rule,¹⁴² an operator must:

- Demonstrate an understanding of its gas distribution system developed from reasonably available information, identify the characters of the pipeline's design and operations

¹⁴² 20 CSR 4240-40.030(17)(D)1.

and the environmental factors that are necessary to assess the applicable threats and risks to its distribution pipeline,

- Consider information from past design, operations and maintenance, and
- Identify additional information needed and provide a plan for gaining that information over time through normal activities conducted on the pipeline.

Gas distribution system operators must consider reasonably available information to identify existing and potential threats,¹⁴³ evaluate the relative importance of each threat, and estimate and rank the risks posed to its pipeline.¹⁴⁴ Operators must determine and implement measures to address the risks,¹⁴⁵ then measure performance and evaluate the effectiveness of the program in controlling each identified threat.¹⁴⁶

The Commission approved¹⁴⁷ Stipulation and Agreement in Case No. GC-2022-0087 required in part that Spire include all known factors contributing to incidents as part of its DIMP threat evaluation, write this change into the Company's DIMP plan as part of Spire's next DIMP update, and provide a copy of the revised Company's DIMP plan after review.¹⁴⁸

2. Spire Actions to Comply with 20 CSR 4240-40.030(17) and Applicable Commission Orders:

Spire provided a copy of its written DIMP Plan Spire, Gas Distribution Integrity Management Program published August 31, 2021, that was in effect at the time of the incident.¹⁴⁹

¹⁴³ 20 CSR 4240-40.030(17)(D)2.

¹⁴⁴ 20 CSR 4240-40.030(17)(D)3.

¹⁴⁵ 20 CSR 4240-40.030(17)(D)4.

¹⁴⁶ 20 CSR 4240-40.030(17)(D)5.

¹⁴⁷ Approved in Commission Order filed February 02, 2022, in Case No. GC-2022-0087.

¹⁴⁸ Paragraph 19 of the Stipulation and Agreement filed January 20, 2022, in Case No. GC-2022-0087.

¹⁴⁹ Spire response to Staff Data Request 0022.

In its incident report provided to PHMSA¹⁵⁰, Spire lists the apparent cause of the incident as “Excavation Damage”. “Excavation Damage” is one of the threat categories that must be considered in an operator’s DIMP. The DIMP Plan that was effective for Spire at the time of the incident included a written action plan *Damage Prevention Action Plan, Version 3.0* dated July 31, 2021.¹⁵¹ This action plan addressed excavation damage sub-threats including “Locating Practices Not Sufficient”, and the Damage Prevention Program (SOP 220.C.8) was updated on August 9, 2024.¹⁵² ** [REDACTED] ** was an action to address locating practices and the DIMP Plan was updated on August 9, 2024, with training completed on July 17 through 19, 2024.¹⁵³ ** [REDACTED] ** was another action that was addressed by the action plan.¹⁵⁴ Spire’s DIMP does not currently contain any other action plans to address “Locating Practices Not Sufficient.”

The Form PHMSA F 7100.1-1 annual report Spire submitted for calendar year 2024 for its Spire Missouri Inc. West service area showed that in calendar year 2024 there were a total of 387 damages to Spire’s pipelines due to location issues, 150 of which Spire attributed to “Facility marked inaccurately due to Incorrect facility records/maps.”

¹⁵⁰ 20 CSR 4240-40.020(6)(A) requires that each operator submit a federal incident report on Form PHMSA F 7100.1 as soon as practicable but not more than thirty (30) days after detection of an incident required to be reported under 20 CSR 4240-40.020(3). Spire’s incident report was provided in response to Staff Data Request 0020.

¹⁵¹ Spire response to Staff Data Request 0022.

¹⁵² Spire response to Staff Data Request 0022.2.

¹⁵³ Spire response to Staff Data Request 0022.2. In response to Staff Data Request 0027, Spire provided a list of reported mapping errors and action completion dates that includes ** [REDACTED] ** reported in Missouri since August 9, 2024.

¹⁵⁴ Spire response to Staff Data Request 0022, the “Damage Prevention Action Plan” states that the ** [REDACTED] **. Additional information regarding increasing field audits and oversight of contractors is provided in Section H below.

Spire stated that events and incidents are reviewed with Subject Matter Resources (SMR's) on a quarterly basis and are discussed to determine if changes are needed.¹⁵⁵ This incident was reviewed with the SMR's on November 19, 2024, and no changes were identified by the SMR's as being needed.¹⁵⁶

3. Staff Analysis:

Staff reviewed the Spire, Gas Distribution Integrity Management Program and found that it met the minimum requirements of 20 CSR 4240-40.030(17) and paragraph 19 of the January 20, 2022, Stipulation and Agreement in Case No. GC-2022-0087.

Staff's analysis of Spire's DIMP program showed that the excavation damage threat is addressed and a review was conducted after the incident in Independence, Missouri, on August 26, 2024. Actions to address locating practices were completed in the month prior to the incident and will be evaluated during ongoing DIMP Plan reviews and audits. Actions and analysis regarding field audits of locator work and oversight of locating contractors are further addressed in Section III.H - *Oversight of Contractors* of this report.

4. Violations:

Staff found no violations of 20 CSR 4240-40.030(17) or applicable Commission orders.

5. Staff Recommendations:

Staff does not have any recommendations with respect to Spire's DIMP program.

¹⁵⁵ Spire response to Staff Data Request 0022.

¹⁵⁶ Spire response to Staff Data Request 0022.1.

H. Oversight of Contractors

1. Regulatory Requirements and Applicable Commission Orders:

20 CSR 4240-40.030(12)(B)3. states that each operator is responsible for ensuring that all work its contractors complete on its pipelines complies with this rule.

20 CSR 4240-40.030(12)(C)1. requires that each operator prepare and follow for each pipeline a manual of written procedures for conducting operations and maintenance activities and for emergency response, including each of the requirements of section (12).¹⁵⁷

In a Stipulation and Agreement approved by the Commission in Case No. GC-2020-0127,¹⁵⁸ Spire agreed in part to do the following:

- To update its Standards and Procedures for Contractor Oversight Requirements,¹⁵⁹
- To create a list of tasks that require oversight when the tasks are to be performed by a contractor,¹⁶⁰
- To be more proactive in ensuring contractors are maintaining compliance with Commission pipeline safety rules, including:¹⁶¹
 - o Reviewing contractor training materials,
 - o Conducting random or routine field evaluations of contractor employees' knowledge, skills and abilities to perform assigned tasks, at a minimum:
 - Field verification of contractor company qualifications to perform the covered tasks,
 - Verification that the procedures being used in the field are the same as the latest approved procedures and that the procedures are being followed,

¹⁵⁷ 20 CSR 4240-40.030(12)(C)2.B. requires that the manual includes procedures for safe operating and maintaining the pipeline in accordance with each of the requirements of sections (12), (13) and (14) of 20 CSR 4240-40.030.

¹⁵⁸ The Stipulation and Agreement was filed November 6, 2019 and approved by the Commission on November 21, 2019.

¹⁵⁹ Paragraph 6 of Stipulation and Agreement approved in Case No. GC-2020-0127.

¹⁶⁰ Paragraph 7 of the Stipulation and Agreement approved in Case No. GC-2020-0127.

¹⁶¹ Paragraph 8 of the Stipulation and Agreement approved in Case No. GC-2020-0127.

- Determination that all tools and special equipment identified in the procedures are present at the job site and are properly employed in the performance for the tasks are used as described.
- Verification that the individuals performing covered tasks are cognizant of the Abnormal Operating Conditions (“AOCs”) that are applicable to the tasks observed.
- Quality Assurance checks (working fire extinguishers, personal protective equipment).

In a Stipulation and Agreement approved by the Commission in Case No. GC-2022-0087,¹⁶² Spire agreed in part to modify and follow its SOP 220.C Section 10 to define the process of how Spire personnel will conduct oversight and inspection of contractors performing the task of locating Spire’s facilities to ensure compliance with 20 CSR 4240-40.030(12)(B)3.¹⁶³

2. Spire Actions to Comply:

Spire provided a copy of its Company Service Providers Inspection & Field Oversight Standard Operating Procedure (SOP) 220.K.2 (“SOP 220.K.2”). An employee of Spire’s Locating Contractor, ** [REDACTED] **, completed the locate on August 20, 2024. The incident occurred on August 26, 2024.

3. Staff Analysis:

Staff reviewed Spire’s SOP 220.K.2 and found that it addresses each of the requirements of 20 CSR 4240-40.030(12)(B)3., paragraphs 6-8 of the November 6, 2019 Stipulation and Agreement in Case No. GC-2020-0127, and paragraph 13 of the January 20, 2022, Stipulation and Agreement in Case No. GC-2022-0087.

¹⁶² Stipulation and Agreement was filed January 20, 2022, approved by the Commission on February 2, 2022.

¹⁶³ Paragraph 13 of the Stipulation and Agreement in Case No. GC-2022-0087.

Staff reviewed the number of field audits Spire performed of its contract locators in its Spire Missouri West operating area in 2023 and 2024,¹⁶⁴ as well as the total number of excavation tickets and damages¹⁶⁵ with root cause of locating issues¹⁶⁶ for those years:

TABLE 7: Spire Missouri West Excavation Tickets, Damages and Audits		
Description	2023	2024
Total Excavation Tickets	** [REDACTED] **	** [REDACTED] **
Total Excavation Damages with Root Cause Locating Issues	** [REDACTED] **	** [REDACTED] **
Total Damages with Root Cause Locating Issues per 1,000 Excavation Tickets	** [REDACTED] **	** [REDACTED] **
Total Spire Field Audits of Locators	** [REDACTED] **	** [REDACTED] **
Spire Field Audits as percentage of Total Excavation Tickets	** [REDACTED] **	** [REDACTED] **

Audit notes indicate to Staff that Spire ** [REDACTED]

**.

Staff notes that although the number of field audits was ** [REDACTED] **, the number of damages caused by ** [REDACTED] **. However, the percentage of audits per locate ticket was ** [REDACTED]

**

¹⁶⁴ Provided in Spire's response to Staff Data Request 0022.3.

¹⁶⁵ From Spire's annual reports to PHMSA on form F7100.1-1 for natural gas distribution.

¹⁶⁶ Per PHMSA's instructions on completing form F7100.1-1, this category includes damages resulting from facility could not be found or located; or facility marking or location not sufficient; or facility was not located or marked; or incorrect facility records/maps.

Staff additionally notes that in the Stipulation and Agreement approved by the Commission in Case No. GC-2024-0305, Spire provided it's ** [REDACTED]

[REDACTED] **. ¹⁶⁷ In the Highly Confidential Appendix 1 to the Stipulation and Agreement, Spire provided ** [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] ** Quarterly updates provided by Spire to Staff indicate that Spire began ** [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] **. ¹⁶⁸

Because the changes being implemented in accordance with the Stipulation and Agreement in Case No. GC-2024-0305 ** [REDACTED] **, Staff is not making any specific recommendations regarding changes to oversight of Spire's locating contractors at this time, but is recommending additional reporting so that Staff can track future performance.

4. Violations:

Spire's failure to ensure that all work completed on its pipelines by its contractor complies with 20 CSR 4240-40.030 was a violation of 20 CSR 4240-40.030(12)(B)3. (See Section III.H. - *Oversight of Contractors* of this report.)

¹⁶⁷ Spire's Highly Confidential Attachment 1 to the November 14, 2024 Stipulation and Agreement.

¹⁶⁸ Spire's Highly Confidential Attachment 1 to the November 14, 2024 Stipulation and Agreement.

5. Staff Recommendations:

1. Staff recommends that Spire provide a quarterly report to Staff of the "Quality Ratio" for each locating contractor that Spire utilizes in Missouri during that quarter. The report should include a quality ratio, calculated as contractor locate at fault damages divided by the total billable locates.

2. Staff recommends that Spire provide annual summaries of the results of audits Spire performs on each of its contract locators. The annual summaries should include at a minimum the date of the audit, Missouri 811 ticket number, internal remarks or notes by the auditor, an indication of whether the locate passed or failed the audit, and identification of all corrective measures taken as a result of locates that failed the audit.

IV. STAFF'S FINDINGS

As a result of its investigation, Staff found that sufficient facts/information exist to assert the following violations:

1. Spire's failure to locate its underground facilities within the "approximate location"¹⁶⁹ as required by Section 319.030, RSMo was a violation of 20 CSR 4240-40.030(12)(I)1. (See Section III.D – *Damage Prevention Program* of this report).

2. Spire's Contract Locator's failure to follow Spire's manual of written procedures for conducting operations and maintenance activities and for emergency response was a violation of 20 CSR 4240-40.030(12)(C)1. (See Section III.D – *Damage Prevention Program* of this report).

¹⁶⁹ Approximate location is defined in RSMo 319.015 as a strip of land not wider than the width of the underground facility plus two feet on either side thereof. In situations where reinforced concrete, multiplicity of adjacent facilities or other unusual specified conditions interfere with location attempts, the owner or operator shall designate to the best of his or her ability an approximate location of greater width.

3. Spire's failure to ensure that all work completed on its pipelines by its contractor complies with 20 CSR 4240-40.030 was a violation of 20 CSR 4240-40.030(12)(B)3. (See Section III.H. -*Oversight of Contractors* of this report.)

V. STAFF'S RECOMMENDATIONS

In summary, throughout this Report, Staff has identified several areas that either require improvement or are violations of Commission Rules. Staff summarizes below its recommendations related to these areas requiring improvement and violations of Commission Rules.

1. Staff recommends that Spire provide quarterly updates to the Commission regarding the status of implementation for corrective action items 4 and 8 in Confidential Table 2 of this report until the corrective action items have been completed satisfactorily. If either of the two identified corrective action items is no longer considered to be necessary by Spire, the reason(s) should be explained in the quarterly updates. (See Section III.B. - *Investigation of Failures and Incidents* of this report).
2. Staff recommends that Spire evaluate the circumstances involved with locating offsets in its gas facilities and provide additional training and guidance to its Contract Locator employees regarding how to accurately locate the offset. This should include locating segments of plastic main that are offset from steel mains, where there may or may not be a working tracer wire to use for electronic locate equipment. When the tracer wire is not working for conductive methods using electronic locate equipment or the measurements for Spire records are not available or clear, the process needs to be clear for

how Contract Locator employees should proceed. (See Section III.D - *Damage Prevention Program* of this report).

3. Staff recommends that when Spire is able to observe the actual location of its gas facilities, including each instance when Spire or its contractor exposes buried gas facilities during operations and maintenance activities, that Spire verify and update its maps that are used by locating personnel and include electronic and GPS mapping coordinate information when appropriate. Updated maps should be provided to the contract locator. (See Section III.D - *Damage Prevention Program* of this report).
4. Staff recommends that in instances when only road centerline measurements are provided to determine the observed actual pipe location, Spire should add measurements or change to electronic and GPS mapping coordinates. Updated maps should be provided to the contract locator. (See Section III.D - *Damage Prevention Program* of this report).
5. Staff recommends that Spire revise SOP 220.R to use a distance of no greater than two feet in the procedure stating: ** [REDACTED]
[REDACTED] ** (See Section III.D - *Damage Prevention Program* of this report).
6. Staff recommends that Spire provide a quarterly report to Staff of the "Quality Ratio" for each locating contractor that Spire utilizes in Missouri during that quarter. The report should include a quality ratio, calculated as contractor locate at fault damages divided by the total billable locates. (See Section III.H - *Oversight of Contractors* of this report).
7. Staff recommends that Spire provide annual summaries of the results of audits Spire performs on each of its contract locators. The annual summaries should include at a minimum the date of the audit, Missouri 811 ticket number, internal remarks or notes

by the auditor, an indication of whether the locate passed or failed the audit, and identification of all corrective measures taken as a result of locates that failed the audit.

(See Section III.H - *Oversight of Contractors* of this report).

8. Staff recommends that the Commission order Spire to file an action plan, by January 9, 2026, which addresses the recommendations (numbered 1-7). Staff further recommends that the Commission order Spire to include in its action plan filing when it will effectuate that action plan. Finally, Staff recommends:

- A. The Commission require that the action plan include Spire's proposed resolution for addressing each recommendation and the timeframe for implement the resolution.
- B. The Commission require Spire to file updates every six months as to how the plan has been effectuated.

If for any recommendation Spire believes no action is necessary, Staff recommends the Commission order Spire to explain, and provide supporting documentation as available, the reason(s) Spire believes no action is required.

Additionally, Staff requests Commission authorization to submit a redacted (public) copy of this investigation report to the Missouri Attorney General's Office ("AGO") as information that may be used in the event the AGO wishes to take further action as provided in Section 319.045, RSMo.

In the Matter of an Investigation into Spire)
Missouri Inc. d/b/a Spire Concerning a) Case No. GS-2025-0068
Natural Gas Incident in Independence,)
Missouri)

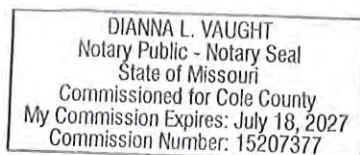
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Further the Affiant sayeth not.


JASON DICKNEITE

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 15 day of October 2025.

Dianna L. Vaughn
Notary Public



In the Matter of an Investigation into Spire)
Missouri Inc. d/b/a Spire Concerning a) Case No. GS-2025-0068
Natural Gas Incident in Independence,)
Missouri)

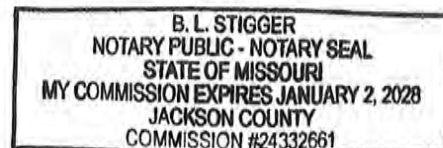
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Further the Affiant sayeth not.


CLINTON L. FOSTER

Subscribed and sworn before me, a duly constituted and authorized Notary Public, in and for the County of Jackson, State of Missouri, at my office in Kansas City, on this 2nd day of October 2025.


Notary Public



In the Matter of an Investigation into Spire)
Missouri Inc. d/b/a Spire Concerning a) Case No. GS-2025-0068
Natural Gas Incident in Independence,)
Missouri)

[illegible]

John D. Kottwitz
JOHN D. KOTTWITZ

Diana L. Vayns
Notary Public



DIANNA L. VAUGHT
Notary Public - Notary Seal
State of Missouri
Commissioned for Cole County
My Commission Expires: July 18, 2027
Commission Number: 15207377