

Missouri Public Service Commission

Staff's Investigation Report

In the Matter of Investigation into
Spire Missouri Inc., d/b/a Spire's Compliance with
The Commission's Rules Regarding Natural Gas Safety
Found at 20 CSR 4240-40.030
(Timely Responding to Requests to Locate Facilities)



Spire Missouri Inc., d/b/a Spire

Case No. GS-2022-0261

Industry Analysis Division

Safety Engineering Department

January 31, 2024 - Jefferson City, Missouri

**** Denotes Confidential Information ****

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STAFF INVESTIGATION REPORT

Spire Missouri Inc., d/b/a Spire

Case No. GS-2022-0261

I. EXECUTIVE SUMMARY

Spire Missouri Inc., d/b/a Spire (“Spire”) operates the two largest natural gas distribution systems in Missouri: Spire Missouri East and Spire Missouri West, serving approximately 1.2 million customers combined.¹ Spire Missouri East (formerly known as Laclede Gas Company) serves the St. Louis area and other communities in the eastern part of Missouri. Spire Missouri West (formerly Missouri Gas Energy) serves the Kansas City area and other communities in the western part of Missouri.

The Commission’s Staff (“Staff”) performs routine inspections of natural gas operators jurisdictional to the Commission for gas pipeline safety.² These include inspections for compliance with the Commission requirements for operators of:

- Buried natural gas pipeline to carry out a written program to prevent damages by excavation activities,³
- Natural gas pipelines to have and follow a written qualification program that 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 operator⁴,

¹ From Spire Inc. 2022 Form 10-K.

² RSMo 386.310 establishes the commission’s jurisdiction with respect to gas pipeline safety jurisdiction.

³ 20 CSR 4240-40.030(12)(I) – Damage Prevention Program.

⁴ 20 CSR 4240-40.030(12)(D) – Qualification of Pipeline Personnel.

- Natural gas pipelines to implement a written procedure to ensure that work completed on an operator's pipelines by its contractors complies with Commission rules,⁵ and
- Natural gas distribution pipelines to develop and implement an integrity management program, including identification of the threats and risks associated with excavation damages.⁶

In its motion filed on March 29, 2022, the Staff requested that the Commission open this case to investigate Spire's compliance with the Commission's Rules regarding natural gas safety found at 20 CSR 4240-40.030 and to assist Staff in conducting more formal discovery, pursuant to the Commission's rules of practice and procedure.⁷ Additionally, Staff intended to gather information on the reasons for the decreasing trend in Spire's timely responses to excavator requests for Spire to mark the locations of its underground natural gas facilities, and what Spire Missouri is doing to improve its timeliness.⁸

Staff conducted its investigation by review of Spire's records during routine pipeline safety inspections, review of quarterly and annual reports submitted by Spire to Staff, and through data requests to Spire in this case.

** [REDACTED] ⁹ ** In response to a Staff data request asking for a copy of each document that provides Spire's expectations related to compliance with Missouri statutory requirements to timely locate its

⁵ 20 CSR 4240-40.030(12)(B) – General Provisions.

⁶ 20 CSR 4240-40.030(17) – Gas Distribution Pipeline Integrity Management (IM).

⁷ See 20 CSR 4240-2.090 and 20 CSR 4240-2.100.

⁸ Paragraph 19 of Staff's March 29, 2022, Motion to Open Case.

⁹ Spire comments on draft of Confidential Appendix A.

facilities¹⁰ Spire provided a copy of its confidential ** [REDACTED] **. ** Staff subsequently requested copies of similar ** [REDACTED] ** over time. Staff's review of Spire's ** [REDACTED]

[REDACTED].¹¹

[REDACTED]¹², [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED] **

Staff's review of data from the Spire Missouri East service area showed Spire's monthly locate timeliness was ** [REDACTED] ** on time in 2015. After a ** [REDACTED] ** in September 2016, monthly locate timeliness ** [REDACTED] ** between November 2016 and March 2018. Between April 2018 and April 2023, the monthly locate timeliness ** [REDACTED] ** as shown in Confidential Figure 1 in Section II.C of this report. Spire's on-time performance in Spire Missouri East has ** [REDACTED] ** outside of St. Charles County in

¹⁰ In Staff Data Request No. 0002, Staff requested: "Please provide copies of each Spire document, including but not limited to policies and procedures that provide Spire's expectations related to compliance with the requirements of Missouri Revised Statute 319.030 to: "...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 location of underground facilities in or near the area of the excavation.""

¹¹ ** [REDACTED] **

¹² ** [REDACTED] **

September 2023. Staff notes that within the overall period between 2015 and 2023, Spire implemented some changes in its damage prevention program that could have an impact on locating timeliness trend results. Spire has used different locating contractors in its Spire Missouri East service area between 2015 and 2023¹³. Additionally, Spire began using a different source of data to report the monthly locate timeliness results in March 2019. To evaluate the trend in locating timeliness absent the potential impact of these changes, Staff also reviewed the trend between February 2020 and April 2023, a period of time when no major changes were noted in Spire’s damage prevention program. A similar ** [REDACTED] ** trend in locating timeliness was observed for the period between February 2020 and April 2023 as shown in Confidential Figure 2 in Section II.C of this report.

Staff’s review of data from the Spire Missouri West service area showed Spire’s monthly locate timeliness has generally been ** [REDACTED] ** on time during the period of January 2015 through March 2018 to a ** [REDACTED] ** during April 2019. Since April 2019, monthly locate timeliness has ** [REDACTED] [REDACTED] **. ** However, more recently, monthly locate timeliness has ** [REDACTED] ** during the period of May 2023 through September 2023 as shown in Confidential Figure 7 in Section II.C of this report.

Within the Spire Missouri West service area, Spire has utilized the same contractor, ** [REDACTED] **, to locate its underground facilities over the entire period evaluated by Staff. However, as previously noted, Spire began using a different source of data to calculate locate timeliness in March 2019. Because of this change in data source, and to be consistent with

¹³ During the period between ** [REDACTED]

** [REDACTED]

the analysis Staff performed using data from Spire Missouri East, Staff also reviewed the trend in locate timeliness in the Spire Missouri West service area between February 2020 and September 2023. A ** [REDACTED] ** trend in timeliness similar to Spire Missouri East for the period between February 2020 and April 2023 was observed for Spire Missouri West over the period between February 2020 and September 2023 as shown in Confidential Figure 8 in Section II.C of this report.

Staff's review of Spire's compliance with applicable commission rules and state statutes showed there are numerous instances each year when Spire fails to locate its underground facilities within the time allowed by Missouri Revised Statutes (RSMo) Section 319.030. 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, therefore Spire's failure to locate its underground facilities within the time allowed by Section 319.030 RSMo is a violation of 20 CSR 4240-40.030(12)(I)1.

Staff's investigation resulted in the following conclusions and recommendations:

- Spire has a written damage prevention program which meets the minimum requirements of 20 CSR 4240-40.030(12)(I). Staff has recommendations to Spire regarding implementation of its damage prevention program.
- Spire has and follows a written qualification program which meets the minimum requirements of 20 CSR 4240-40.030(12)(D). Staff does not have recommendations to Spire regarding the written qualification program.
- Spire has and follows a written procedure for oversight of its locating contractors as required by 20 CSR 4240-40.030(12)(B). Staff has recommendations to Spire regarding the written contractor oversight procedure.

- Spire has developed and is implementing an integrity management program, including identification of the threats and risks associated with excavation damages consistent with the requirements of 20 CSR 4240-40.030(17). Staff has recommendations to Spire regarding consistency in identification of damage causes, and tracking damages associated with failing to timely locate facilities.

As a result of this investigation, Staff found that sufficient facts and information¹⁴ exist to assert the following violation of Commission rules: (1) Failure to follow its written damage prevention program is a violation of 20 CSR 4240-40.030(12)(I)1. which requires each operator of a buried pipeline to carry out a written program to prevent damage to that pipeline by excavation activities in accordance with subsection (12)(I), and 20 CSR 4240-40.030(1)(G)3. which requires each operator to maintain, modify as appropriate and follow the plans, procedures and programs that it is required to establish under this rule.

II. BACKGROUND

Commission rules and Missouri statutes require operators of natural gas systems to provide for temporary markings of the underground pipelines in areas of planned excavation. The requirements of the applicable rules and statutes with respect to timeliness of providing markings are discussed in Section II.A of this report.

Through routine safety inspections conducted over a number of years, the Commission's Safety Engineering Staff ("Staff") have noted what appeared to be a downward trend in Spire's performance with respect to the timeliness of responding to requests from excavators to locate

¹⁴ 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 information as edited to address Spire's comments is provided in Confidential Appendix A.

Spire's below ground natural gas facilities. Staff has requested data from Spire in this case to further evaluate Spire's response times. Staff's analysis of Spire's response times is presented in Section II.C of this report.

A. Overview of Underground Facility Damage Prevention Requirements

Commission rules require, with some limited exceptions that do not apply in this case¹⁵, that each operator of a buried pipeline shall carry out a written program to prevent damage to that pipeline by excavation damage.¹⁶ Required elements of this program include but are not limited to:

1. The operator's pipeline must be covered by the qualified one-call system for Missouri;¹⁷
2. The operator must identify on a current basis person who normally engage in excavation activities ("excavators") in the area in which the pipeline is located¹⁸;
3. The operator must provide excavators with annual educational mailings, including a copy of the applicable sections of Chapter 319, RSMo, or a summary of the provisions of Chapter 319, RSMo approved by designated commission personnel, concerning underground facility safety and damage prevention pertaining to excavators;¹⁹
4. The operator must provide a means of receiving and recording notification of planned excavation activities through the qualified one call system for Missouri;²⁰

¹⁵ Exceptions in 20 CSR 4240-40.030(12)(I)6. and 7 include pipelines to which access is physically controlled by the operator and are part of a petroleum gas system or a distribution system operated by a person in connection with that person's leasing of property, and pipelines operated by persons other than municipalities whose primary activity does not include the transportation of gas.

¹⁶ 20 CSR 4240-40.030(12)(I).

¹⁷ 20 CSR 4240-40.030(12)(I)2.

¹⁸ 20 CSR 4240-40.030(12)(I)3.A.

¹⁹ 20 CSR 4240-40.030(12)(I)3.B.

²⁰ 20 CSR 4240-40.030(12)(I)2., and (12)(I)3.D.

5. If an operator has buried pipelines in the area of excavation activity, the operator must provide for actual notification of persons who give notice of their intent to excavate of the type of temporary markings to be provided and how to identify the markings;²¹ and
6. The operator must provide for temporary markings of the buried pipelines in the area of excavation activity before, as far as practical, the activity begins.²²

Missouri Revised Statutes (RSMo) Sections 319.010 through 319.050 are known as the “Underground Facility Safety and Damage Prevention Act”. Section 319.026 requires excavators to serve notice intent of intent to excavate to the notification center at least two working days, but not more than ten working days before the expected date of commencing the excavation activity.²³ Section 319.030 requires owners of underground facilities, including pipelines to inform the excavator of the locations of the approximated location of its underground facilities as promptly as practical, but not in excess of two working days, unless the excavator agrees to extend the start date and time. The excavator must wait for the facilities to be marked, or the time to elapse before beginning excavation.²⁴

²¹ 20 CSR 4240-40.030(12)(I)3.F.

²² 20 CSR 4240-40.030(12)(I)3.G.

²³ RSMo 319.026.1 states: “An excavator shall serve notice of intent to excavate to the notification center by toll-free telephone number operated on a twenty-four hour per-day, seven day per-week basis or by facsimile or by completing notice via the internet at least two working days, but not more than ten working days, before the expected date of commencing the excavation activity. The notification center receiving such notice shall inform the excavator of all notification center participants to whom such notice will be transmitted and shall promptly transmit all details of such notice provided under subsection 2 of this section to every notification center participant in the area of excavation.”

²⁴ RSMo 319.030.1 states: “Every person owning or operating an underground facility to whom notice of intent to excavate is required to be given shall, 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 location 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 two working days provided for notice in this subsection and subsection 1 of section 319.026 shall begin at 12:00 a.m. following the receipt of the request by the notification center....”

In the event two working days (or extended date and time agreed to by the excavator) has elapsed and a facility owner has not yet responded to the notification, the excavator must give a second notice, stating that there has been no response to the original notice. The facility owner must then within two hours of the receipt of such notice, mark its facilities or contact and inform the excavator of when the facilities will be marked. If the facility owner fails to mark its facilities or contact the excavator as required, the excavator may commence the excavation.²⁵

When the excavators and pipeline owners each perform the required actions in accordance with the timelines established by RSMo Chapter 319, each party knows when to anticipate initiation and completion of work by the other. The locations of underground facilities are marked prior to excavation beginning so that damages to those facilities can be prevented. However, when one party fails to perform the required actions, confidence in this system erodes. A report published by the Common Ground Alliance (CGA)²⁶ identifies “Facilities not marked accurately and on time” as one of three critical issues standing in the way of preventing damages. The report states: “When stakeholders observe locate requests not being marked on time, or other excavators failing to adhere to Best Practices, it exacerbates their lack of trust in the damage prevention system

²⁵ RSMo 319.030.4 states: “In the event that a person owning or operating an underground facility fails to comply with the provisions of subsection 1 of this section after notice given by an excavator in compliance with section 319.026, the excavator, prior to commencing the excavation, shall give a second notice to the notification center as required by section 319.026 stating that there has been no response to the original notice given under section 319.026. After the receipt of the notice stating there has been "no response", the owner or operator of an underground facility shall, within two hours of the receipt of such notice, mark its facilities or contact and inform the excavator of when the facilities will be marked; provided, however, that for "no response" notices made to the notification center by 2:00 p.m., the markings shall be completed on the working day the notice is made to the notification center, and provided that for "no response" notices made to the notification center after 2:00 p.m., the markings shall be completed no later than 10:00 a.m. on the next working day. If an underground facility owner fails to mark its facilities or contact the excavator as required by this subsection, the excavator may commence the excavation. Nothing in this subsection shall excuse the excavator from exercising the degree of care in making the excavation as is otherwise required by law.”

²⁶ Common Ground Alliance, *Next Practices Initiative, Pathways to Improving U.S. Damage Prevention Status Report*, October 12, 2021. [Next practices Pathways Report 2021_FINAL4.pdf](#).

as a whole and encourages poor safety practices across the system.” The report identifies three consequences that result from failure to timely mark the locations of underground facilities:

- Over-notification by excavators in the form of submitting additional locate requests to ensure that some projects will be ready for excavation at any given time,
- Facility construction and repair work delayed by late locates, and
- Costs associated with damages.

Some operators of underground utilities, including Spire, utilize contractors to mark the locations of underground facilities. Commission rule 20 CSR 4240-40.030(12)(B)3. states that each operator is responsible for ensuring that all work completed on its pipelines by its consultants and contractors complies with this rule. Staff’s position is that Spire is responsible for timely and accurately locating its underground facilities, whether or not the work is performed by Spire employees or contractors. Further, Staff’s position is that an operator using contractors to locate facilities must have and follow written procedures for the oversight and inspection of contract locators.²⁷ As part of the Stipulation and Agreement approved by the Commission in Case No. GC-2022-0087, Spire agreed to modify and follow its Standard Operating Procedure (SOP) 220.C Section 10 to define a process of how Spire personnel will conduct oversight and inspections of contractors performing the task of locating Spire’s facilities.

Staff performs routine inspections of natural gas pipeline operators to verify compliance with the Commission’s rules. In the course of performing these inspections, Staff additionally verifies operator compliance with its written programs and procedures required by these rules, including operators’ damage prevention programs required by 20 CSR 4240-40.030(12)(I).

²⁷ Staff’s position is based on the requirement in 20 CSR 4240-40.030(12)(C)1. that each operator shall prepare and follow for each pipeline, a manual of written procedures for conducting operations and maintenance activities and for emergency response. 20 CSR 4240-40.030(12)(C)2.A. requires that the manual require by paragraph (12)(C)1 must include procedures for operating, maintaining and repairing the pipeline in accordance with each of the requirements in sections (12), (13) and (14).

Over the course of several years, Staff has noted ** [REDACTED] ** in on-time performance for both the Spire Missouri East and Spire Missouri West sPage 11ervice areas, as discussed in Section II.C of this report.

B. Spire Expectations for Timeliness of Locating Facilities

** [REDACTED] ²⁸ ** In response to a Staff data request asking for a copy of each document that provides Spire’s expectations related to compliance with Missouri statutory requirements to timely locate its facilities²⁹ Spire provided a copy of its confidential ** [REDACTED] [REDACTED] **. ** Staff subsequently requested copies of similar ** [REDACTED] ** over time. Staff’s review of Spire’s ** [REDACTED]

[REDACTED]

[REDACTED] ³⁰ .

[REDACTED]

[REDACTED]

[REDACTED]

- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]

²⁸ Spire comments on draft of Confidential Appendix A.

²⁹ In Staff Data Request No. 0002, Staff requested: “Please provide copies of each Spire document, including but not limited to policies and procedures that provide Spire’s expectations related to compliance with the requirements of Missouri Revised Statute 319.030 to: “...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 location of underground facilities in or near the area of the excavation.””

³⁰ ** [REDACTED] **

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]	
[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]

[REDACTED]

[REDACTED]

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[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]

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[Redacted]	[Redacted]	[Redacted]

[Redacted]

[Redacted]

31 ** [Redacted]

[Redacted] ** Provided as a confidential attachment to Spire's response to Staff Data Request No. 0035.1.

32 ** [Redacted] **

Provided as a confidential attachment to Spire's response to Staff Data Request No. 0035.1.

[REDACTED]

[REDACTED] 33 [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]		
[REDACTED]		
[REDACTED]	[REDACTED]	
[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] **

³³ 20 CSR 4240-40.020(6)(A) requires each operator of a distribution pipeline system to submit an annual report for that system on U.S. Department of Transportation Form PHMSA F 7100.1-1 not later than March 15 for the preceding calendar year.

When failing to timely mark facilities routinely occurs ** [REDACTED]

[REDACTED] ** of times per year, Staff believes there are likely to be wide-spread negative consequences, as identified in the CGA report³⁴:

- Exacerbates a lack of trust in the damage prevention system as a whole and encourages poor safety practices across the system,
- Over-notification by excavators in the form of submitting additional locate requests to ensure that some projects will be ready for excavation at any given time,
- Facility construction and repair work delayed by late locates, and
- Costs associated with damages.

C. Locating Timeliness Trend Analysis

Historically, Laclede Gas Company and Missouri Gas Energy were separate companies, each operating under its own damage prevention programs. Initially, following the acquisition of Missouri Gas Energy by Laclede Gas Company and the name change to Spire, Spire continued to operate its Spire Missouri East and Spire Missouri West service areas under these separate damage prevention programs. In 2020, Spire combined its damage prevention program into a single procedure titled Damage Prevention Program Standard Operating Procedure (SOP), Document number 220.C issued on July 1, 2020.

RSMo 319.030 states in part that:

1. Every person owning or operating an underground facility to whom notice of intent to excavate is required to be given shall, 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 location 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. [Emphasis added.]

³⁴ Common Ground Alliance, *Next Practices Initiative, Pathways to Improving U.S. Damage Prevention Status Report*, October 12, 2021. [Next practices Pathways Report 2021_FINAL4.pdf](#).

Spire noted in its description of how it calculates locate timeliness that prior to March 2019, Spire Missouri East used the completion data sent by the Contract Locating Company to calculate timeliness percentages. Beginning in March 2019, Spire Missouri East began using data provided by the Missouri One Call System (MOCS) as the basis for determining its monthly locate timeliness percentages reported to Staff. Spire Missouri West sums the daily on time ticket count and total ticket count provided on the daily MOCS report and calculates the percentage using these totals.³⁵

Based on discussions with Spire, it is Staff's understanding that the difference before and after this change occurred relates to how Spire (and contractors to Spire) were documenting excavator agreement to extend start dates and time. Spire's documentation of changes to start date and time prior to March 2019 consists of written documentation made by Spire's contract locating companies regarding the extension, but does not include documented acknowledgement from the excavator. Spire's documentation of changes to start dates and times after March 2019 includes acknowledgment by the excavator of mutually agreed changes to start dates and times.

During this investigation³⁶, Spire became aware the MOCS was counting tickets with a status of "NOT COMPLETE/IN PROGRESS" as on-time provided the status was entered prior to the due date. Since these tickets did not have documentation of mutual agreement by the excavator, Spire has now counted them as late and recalculated the locate timeliness since March 2019.³⁷

³⁵ Spire's response to Staff Data Request No. 0017.1.

³⁶ Spire's response to Staff Data Request No. 0021.4 states that: On February 13, 2023, Spire became aware that MOCs was counting tickets with a status of "NOT COMPLETE/IN PROGRESS" as on-time provided the status was entered prior to the due date. b) Spire first began re-evaluating the locate types that include "Extended Start Time" and "Non-Compliance" for recalculating its OTP calculation on February 13, 2023. c) Spire submitted Supplemental Attachment 18.2 and Supplemental Attachment 25, to correct the OTP calculations for the status in question. The OTP was corrected for each month between March 2019 through and including December 2022. See Supplemental Attachment 18.2 and Supplemental Attachment 25 for the revised OTP calculations.

³⁷ Spire's response to Staff Data Request No. 0021.4.

Since the monthly locate timeliness prior to March 2019 still includes tickets without documented mutual agreement of an extension, the monthly locate timeliness before and after March 2019 were calculated using different sets of data and may not be directly comparable. For example, the original monthly locate timeliness for October 2019 in Spire Missouri East was ** [REDACTED] ** and the corrected monthly locate timeliness was ** [REDACTED] **. ³⁸ Both sets of data show the trends in locate timeliness.

1.0 Spire Missouri East

Spire Missouri East uses contractors to conduct facility locates. Over the time period evaluated in this analysis (01/01/2015 through 09/30/2023), Spire Missouri East has utilized ** [REDACTED]

- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED] **

Following a deficiency in locate timeliness noted by Staff during 2004 and 2006 inspections in the Spire Missouri East service area, Spire has provided monthly locate timeliness results in quarterly reports to Staff. During the 2004 inspection, Staff's review of a summary for 2004 locates resulted in an estimate that about ** [REDACTED] ** were not located with the required time. The locate database was modified as agreed, but the timeliness had not improved as of the 2006 inspection resulting in Staff's request for quarterly reports on locate timeliness and efforts to improve. The locate timeliness improved following the 2006 inspection. The 2007 inspection reviewed locate data for January through April, 2007 and the timeliness for Central, North, and

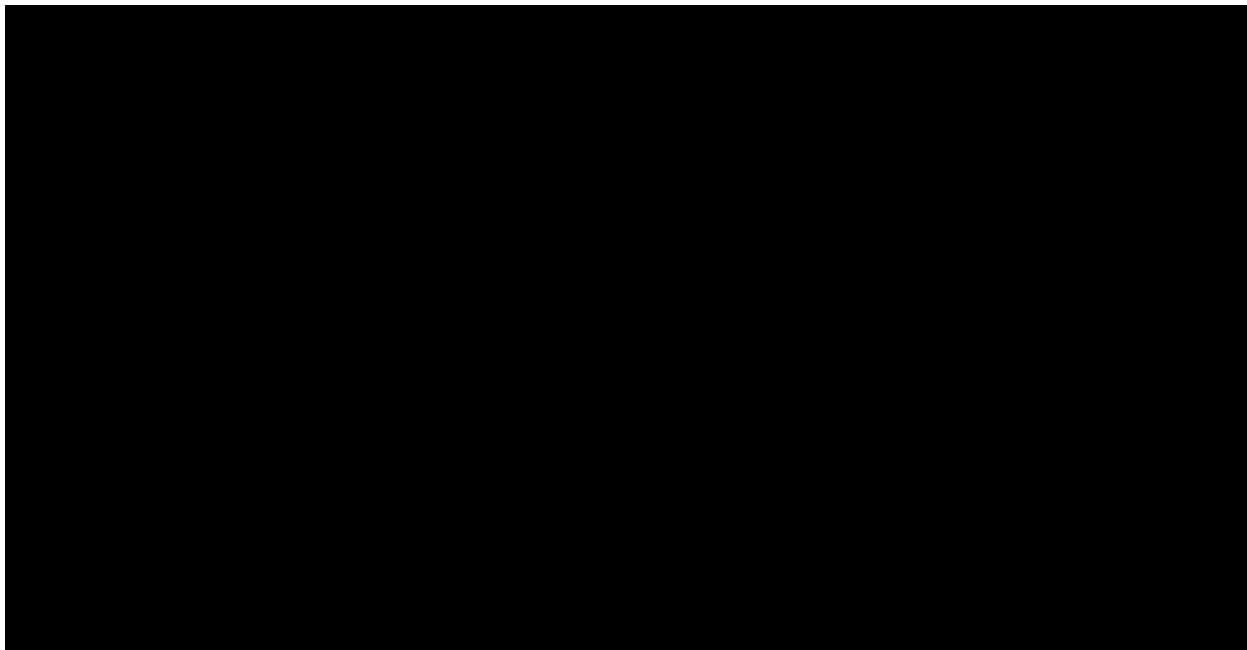
³⁸ Spire's response to Staff Data Request No. 0022.3.

South Districts was ** [REDACTED] **, respectively. ** [REDACTED] ** began performing locates of all facilities in the Spire Missouri East service area on February 8, 2010, and quarterly reports showed that between February 2010 and December 2014 the locate timeliness ranged between ** [REDACTED] **. **

The monthly locate timeliness was ** [REDACTED] ** and above in the first quarter of 2015 and continued above ** [REDACTED] ** for the remainder of 2015. After 2015 there was a ** [REDACTED] [REDACTED] ** in September 2016, but then the monthly locate timeliness ** [REDACTED] [REDACTED] ** between November 2016 and March 2018. The monthly locate timeliness ** [REDACTED] [REDACTED] [REDACTED] [REDACTED] **. **

Figure 1: Spire Missouri East Locate Timeliness

**

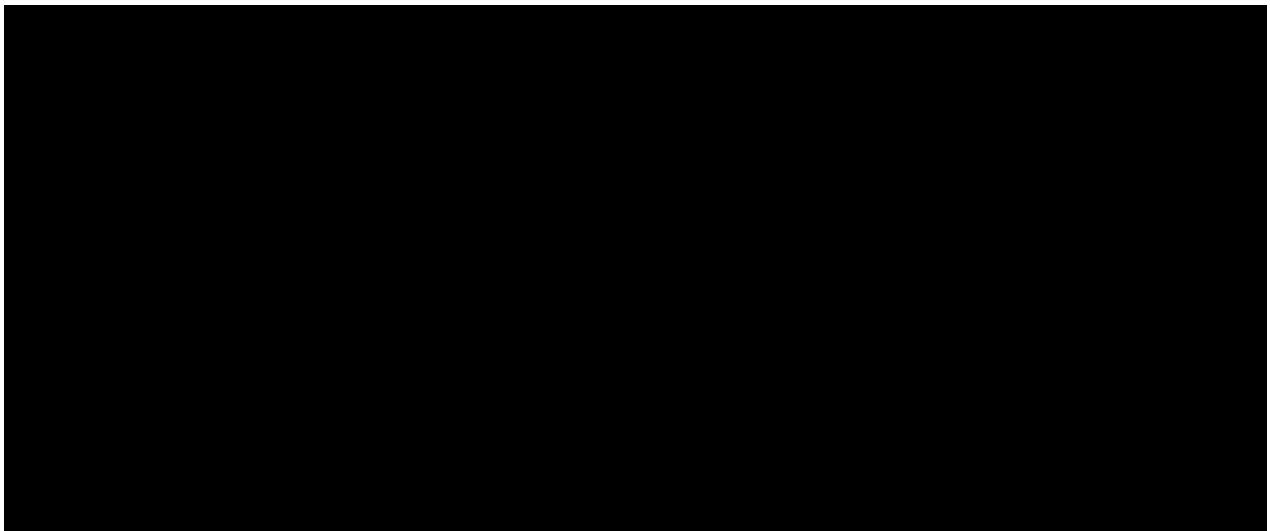


[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED] **

Staff notes that within the overall period between 2015 and 2023, Spire implemented some changes in its damage prevention program that could have an impact on locating timeliness trend results. Spire used ** [REDACTED] ** locating contractors³⁹ between 2015 and 2023. Spire also began using a different source of data to report the monthly locate timeliness results in March 2019. To evaluate the trend in locating timeliness absent the potential impact of these changes, Staff also reviewed the data between February 2020 and April 2023, a period of time when ** [REDACTED] ** was the only contractor locating facilities for Spire Missouri East. Between February 2020 and April 2023, the monthly locate timeliness ** [REDACTED] [REDACTED] **. Spire's response to Staff Data Request No. 0038 for October 2022 through April 2023 gave monthly locate timeliness that ** [REDACTED] **.

Figure 2: Spire Missouri East Locate Timeliness

**



[REDACTED] **

³⁹ During the period between ** [REDACTED] ** as its locating contractor.

** [REDACTED] **

On May 1, 2023, Spire started using an additional locating contractor in St. Charles County, ** [REDACTED] ** to promote improvement in the quality and timeliness of locates.⁴⁰ Locate requests in St. Charles County issued to ** [REDACTED] ** and locating timeliness in May and June of 2023 were: ** [REDACTED] **. ⁴¹ By comparison, locate requests issued to ** [REDACTED] ** and locating timeliness in May and June of 2023 were: ** [REDACTED] **. ⁴² Locate requests in St. Charles County issued to ** [REDACTED] ** and locating timeliness from July 1, 2023 through August 28, 2023 were 10,532 locate requests at ** [REDACTED] **. ⁴³ By comparison, locate requests issued to ** [REDACTED] ** and locating timeliness from July 1, 2023 through August 28, 2023 were 33,931 locate requests at ** [REDACTED] **. ⁴⁴ The most recent quarterly report submitted by Spire on October 31, 2023 for the third quarter of 2023 included that the ** [REDACTED] [REDACTED] ** for September 2023 were ** [REDACTED] **. ⁴⁵

Figure 1 shows an overall ** [REDACTED] ** since 2015. However, there has been considerable variability in the month to month results. Staff has considered that a number of factors may be affecting performance, including but may not be limited to monthly ticket volumes, changes in contract terms and conditions, and number of fully qualified contract locator employees. Staff recommends that Spire further evaluate what factors may have affected the following changes:

**

[REDACTED]

[REDACTED]

⁴⁰ Spire's response to Staff Data Request No. 0038.
⁴¹ Spire's response to Staff Data Request No. 0038.
⁴² Spire's response to Staff Data Request No. 0038.
⁴³ Spire's response to Staff Data Request No. 0038.1.
⁴⁴ Spire's response to Staff Data Request No. 0038.1.

█ [REDACTED]
 █ [REDACTED]
 █ [REDACTED] **

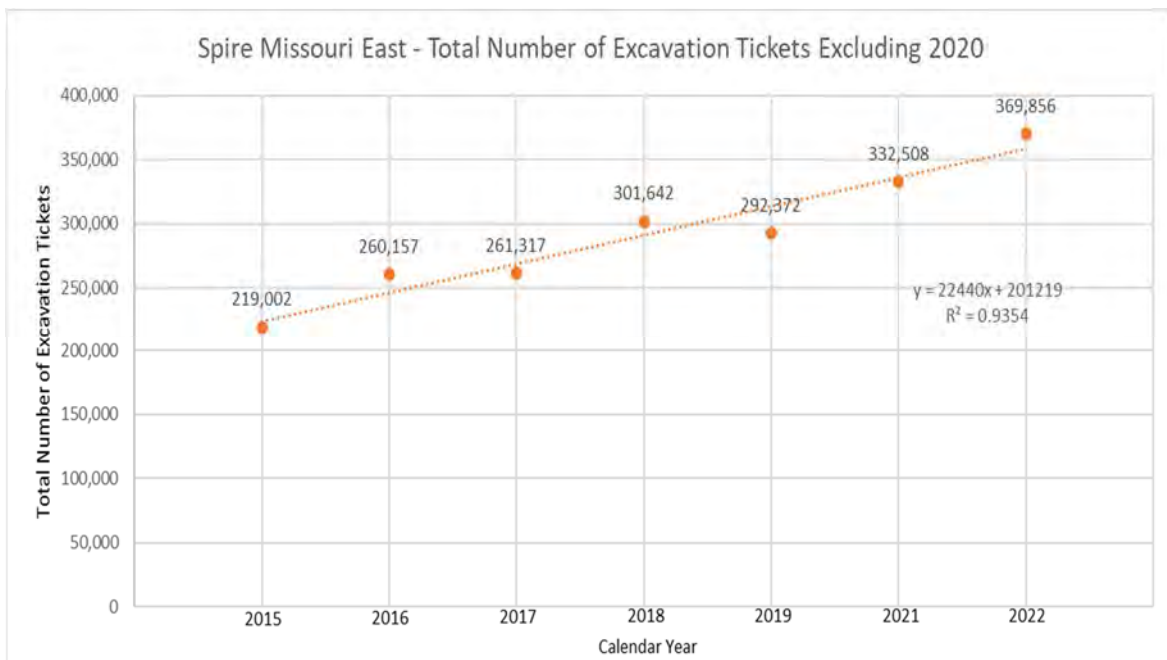
As discussed in Section II. Background, subsection B. Spire Expectations for Timeliness of Locating Facilities, Spire Missouri reports the annual aggregate number of requests (“excavation tickets”) it receives in each of its service areas, Spire Missouri East and Spire Missouri West in annual reports to the U.S. Department of Transportation’s Pipeline and Hazardous Material Administration (PHMSA), with copies to Staff. For calendar years 2015 through and including 2022, Spire Missouri East has experienced annual increases and decreases in the total number of excavation tickets as shown in Table 5 below.

Table 5: Spire Missouri East (Formerly Laclede Gas Company)		
Calendar Year	Total Number of Excavation Tickets	Percentage Increase (or Decrease) of Excavation Tickets from Previous Year
2015	219,002	4.13% increase
2016	260,157	18.79% increase
2017	261,317	0.45% increase
2018	301,642	15.43% increase
2019	292,372	(3.07%) decrease
2020	234,044	(19.95%) decrease
2021	332,508	42.07% increase
2022	369,856	11.23% increase

Overall, annual ticket volume has increased by approximately 69% between 2015 and 2022, however this has not been a constant increase over time as shown in Table 5. Staff assumes that the 20% decrease experienced during 2020 was related to a slowdown of construction during the pandemic, and the 42.07% increase in 2021 was likewise related to recovery after the pandemic. If the year 2020 is considered anomalous and removed from the data set, the increase from 2019 (292,372 tickets) to 2021 (332,508 tickets) of 13.72% would appear more consistent with historical increases.

With 2020 data removed, the overall increase appears to be close to linear with an approximate average annual increase of 21,500 tickets per year since 2015 as shown in Figure 3.

Figure 3: Spire Missouri East – Total Number of Excavation Tickets Excluding 2020

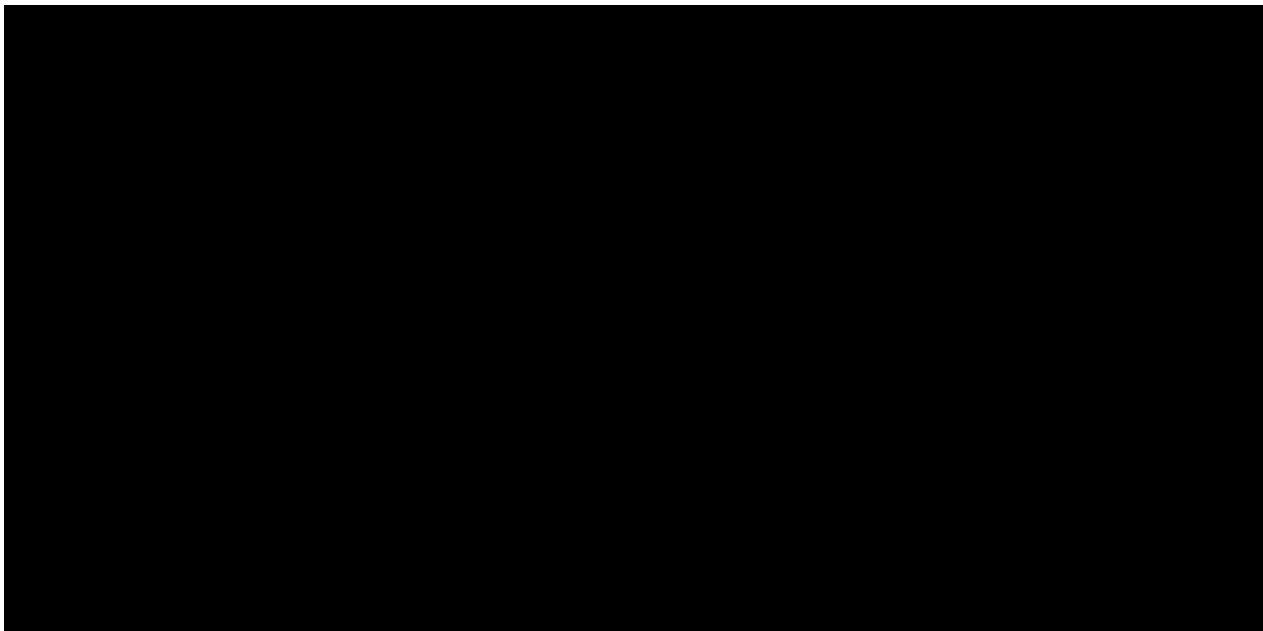


Spire has stated that its' staffing levels of contract locators for the Spire Missouri East service area were not formally tracked prior to February of 2020.⁴⁵ Regarding monthly staffing levels, Staff requested staffing level information data for the months of March 2020, August 2020,

⁴⁵ Spire's April 18, 2023 response to Staff Data Request No. 0029, part 2).

April 2021, August 2021, January 2022, May 2022, September 2022, and April 2023.⁴⁶ This information was requested to evaluate whether a correlation might exist between monthly contract locator staffing levels and locate timeliness percentages when the monthly number of measurable⁴⁷ locate request tickets either increase or decrease. Staff selected the periods of April 2021, August 2021, January 2022, May 2022, September 2022, and April 2023 since these months all have an OTP value **** [REDACTED] **.** Additionally, these represent different years and seasons. Staff chose the periods of March 2020 and August 2020 since these months have OTP values **** [REDACTED] **.** The chart below represents selected monthly locate ticket request numbers, the monthly contract locator staffing levels, and the monthly locate timeliness percentages for the periods of March 2020, August 2020, April 2021, August 2021, January 2022, May 2022, September 2022, and April 2023.

Figure 4: Spire Missouri East - Staffing Levels, Ticket Volumes and Timeliness Percentages



⁴⁶ Staff Data Request No. 0029 and Staff Data Request No. 0029.1.

⁴⁷ Spire’s April 12, 2023 response to Staff Data Request No. 0020.4 defines “measurable tickets” to include ticket types of ROUTINE, RENEWAL, EXTENDED START DATE, NON COMPLIANCE, and DESIGN.

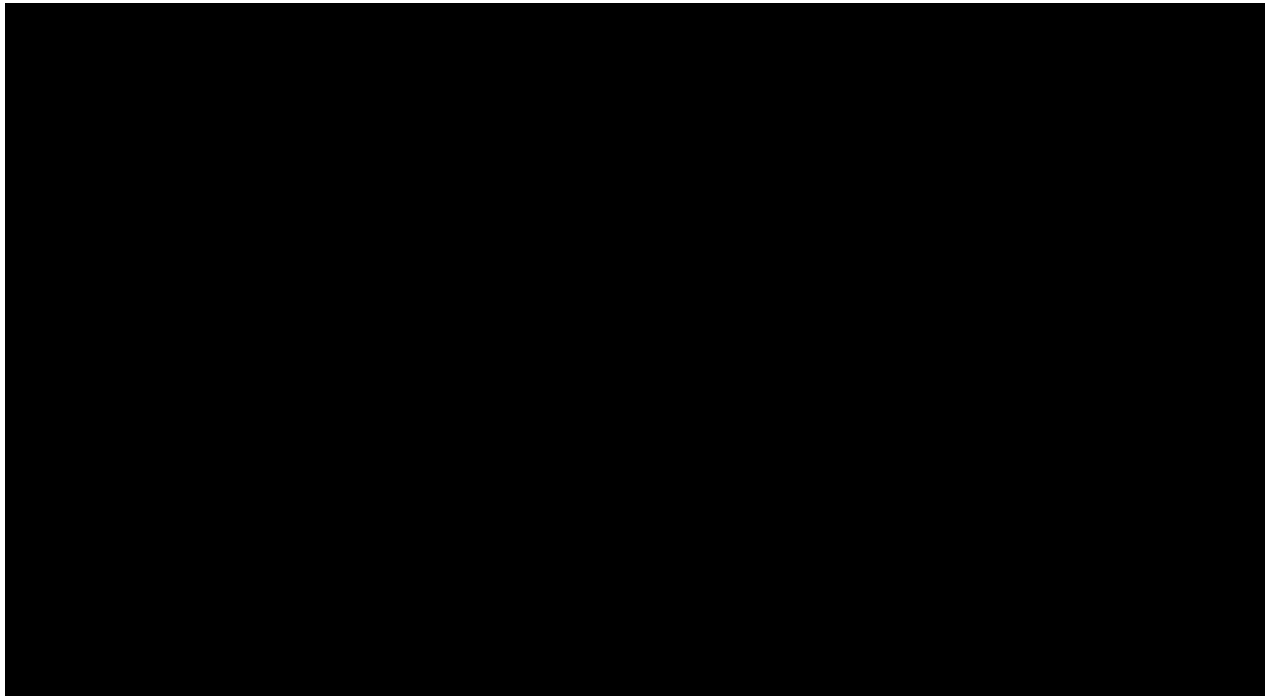
Comparing the months of March 2020 and August 2020, the locate timeliness percentage (also referred to as on-time percentage or OTP) was approximately the same at ** [REDACTED] ** for both periods while the locate ticket amounts increased by 5,730 between the two selected periods. Also, the average staffing level was increased by 10 during August 2020 for a total of 149.

When comparing August 2020 and April 2021, the OTP ** [REDACTED] ** and the locate ticket amounts increased by 8,488 between the two selected periods. Additionally, the average staffing level was increased by 10 during April 2021 for a total of 159.

Comparing the months of January 2022 and May 2022, the OTP locate timeliness percentage ** [REDACTED] ** while the locate ticket amounts increased by 19,231 between the two selected periods. Also, the average staffing level decreased by 6 during May 2022 for a total of 159.

Figure 5: Spire Missouri East – Staffing and Ticket Volumes

**



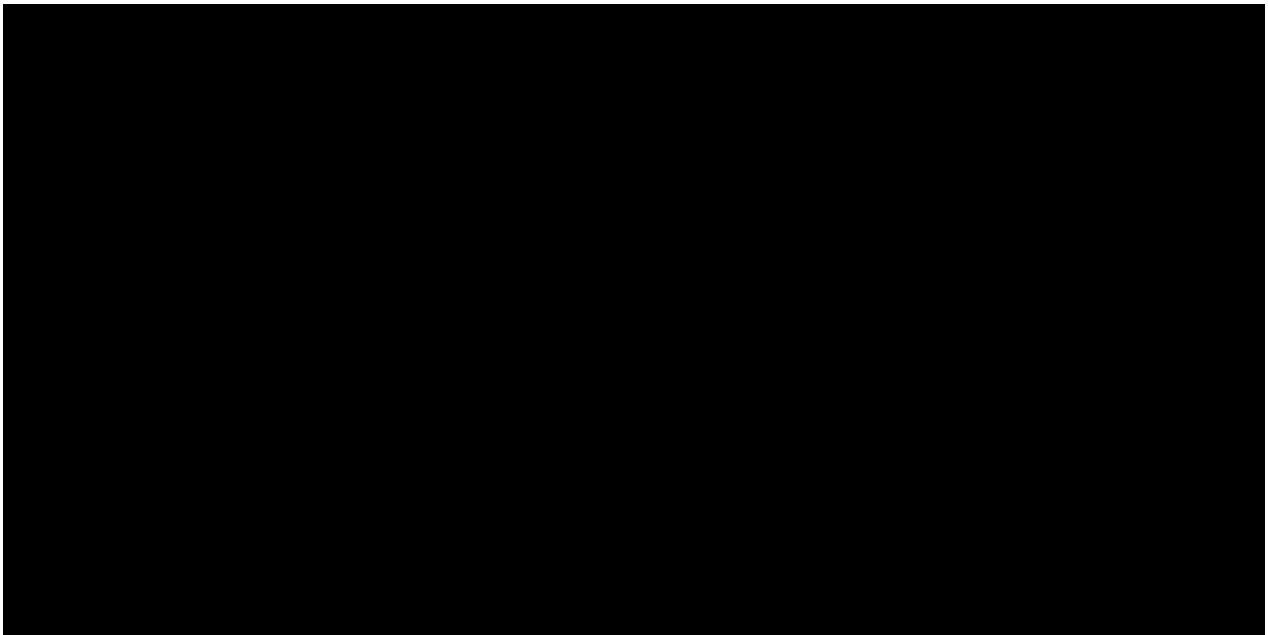
**

Figure 5 indicates that ticket volumes have generally been increasing at a faster rate than staffing increases.

Staff then divided the monthly number of locate tickets by the corresponding average number of locating employees, and compared to locate timeliness, as shown in Figure 6.

Figure 6: On-Time Percentages as a Function of Average Staff Levels – Spire Missouri East

**



**

While the data set is likely too small to be conclusive, this suggests that locating timeliness may improve when the ratio of monthly tickets to staffing levels is less than about 170 tickets per locating employee per month. Staff notes that this does not consider other potentially relevant factors such as variations in experience levels of the locating employees during any of the sample months, and recommends that Spire further evaluate the correlation between number of tickets/locating employee and on-time performance.

2.0 *Spire Missouri West*

Spire uses its own employees for conducting facility locates within certain areas that include “The Plaza”, downtown Kansas City, and Missouri West service areas east of Warrensburg. Spire uses a contractor, ** [REDACTED] **, to locate its underground facilities in the parts of the Spire Missouri West service areas where underground facilities are not located by Spire employees⁴⁸.

Until October 2019 Spire did not track monthly on-time performance as a separate performance metric based on whether the facility was located by a Spire employee or an employee of a contractor working for Spire.⁴⁹

During a November 2019 inspection, Staff noted that the timeliness of marking facilities by the locating contractor utilized in the Spire Missouri West area, ** [REDACTED] **, had ** [REDACTED] **. ** The monthly locate timeliness percentages for March, April, May, June, July, August, September, and October of 2019 were ** [REDACTED] [REDACTED] ** respectively⁵⁰. As a result, Staff requested that Spire take actions to improve the locate timeliness and requested the Company to start reporting locate timeliness for Spire Missouri West to Staff on a quarterly basis. Spire Missouri West began submitting quarterly reports to Staff in 2020 that included monthly locate timeliness for its contract locator. For an example, the second quarterly report submitted by Spire Missouri West on July 31, 2020 stated:

** [REDACTED]

⁴⁸ Information obtained from Spire responses to Staff Data Request No. 0008, parts A and B.

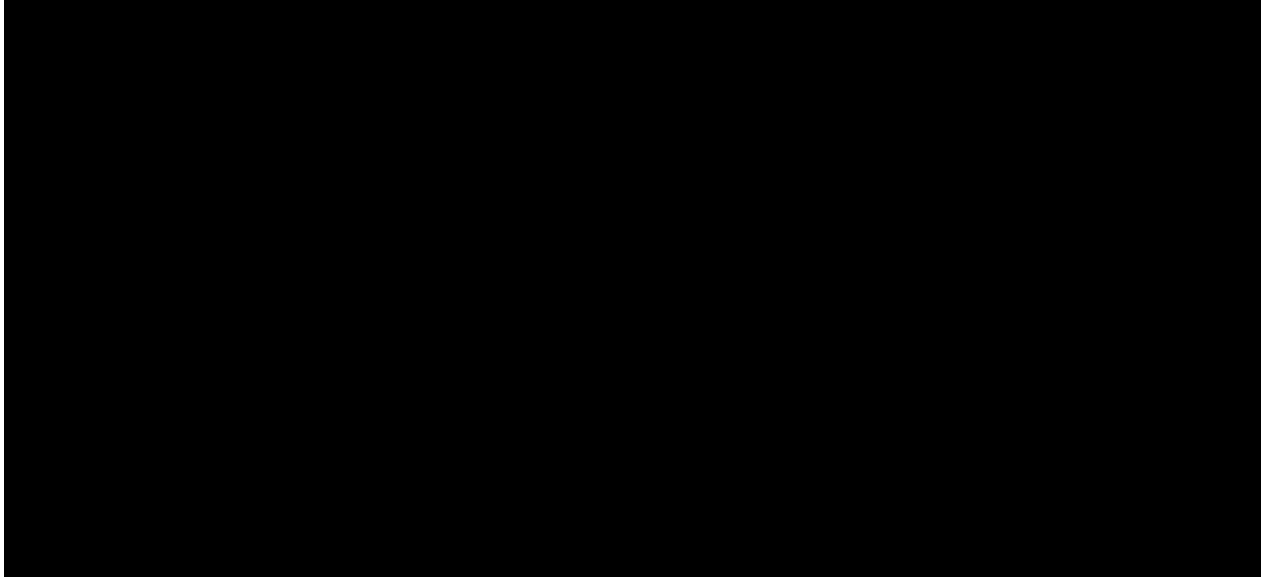
⁴⁹ Information obtained from Spire’s July 7, 2022 response to Staff Data Request No. 0025.

⁵⁰ Note that the locate timeliness percentage values observed during the Staff’s November 2019 inspection for March through October of 2019 for Spire Missouri West are different from the values shown within Figure 7 as Spire has since recalculated these monthly percentage values. Spire’s May 26, 2023 response to Staff Data Request No. 0018.2 provided a worksheet that contained the updated and recalculated monthly locate timeliness percentages for March through October of 2019 which is shown within Figure 7.

[REDACTED] **
(See Figure 7)

Figure 7: Spire Missouri West – Locate Timeliness

**



**

Note: Chart data from January 2015 through September 2019 includes both Company (Spire West employee locators) and Contract Locator combined percentages while October 2019 through September 2023 includes the Contract Locator percentages.

The quarterly report submitted by Spire on October 31, for the third quarter of 2023 stated:

** [REDACTED]

[REDACTED] ** (See Figure 7)

Referring to Figure 7, the monthly locate timeliness was ** [REDACTED] ** and above in the first quarter of 2015 and then ** [REDACTED] ** for April 2015. After April 2015, the monthly locate timeliness ** [REDACTED] ** for July 2015. After July 2015, the monthly locate timeliness ** [REDACTED] ** for February 2016.

During the period of April 2018 through and including April 2019, the monthly locate timeliness

** [REDACTED] **.

For the period of January 2015 through and including September 2023, the maximum locate timeliness percentage was ** [REDACTED] ** and the minimum locate timeliness percentage was ** [REDACTED] **. The average locate timeliness percentage during the period of January 2015 through and including September 2023 was ** [REDACTED] **.

** [REDACTED]

[REDACTED] **

Additionally, during the periods of August 2015 through November 2015, April 2018 through January 2020, September 2020 through May 2021, and August 2021 through September 2023, all reported monthly locate timeliness percentages were ** [REDACTED] **. The quarterly reports for 2022 were submitted by Spire on May 2, 2022, August 2, 2022, October 31, 2022, and January 31, 2023 and reported the following monthly locate timeliness:

** [REDACTED]

[REDACTED]

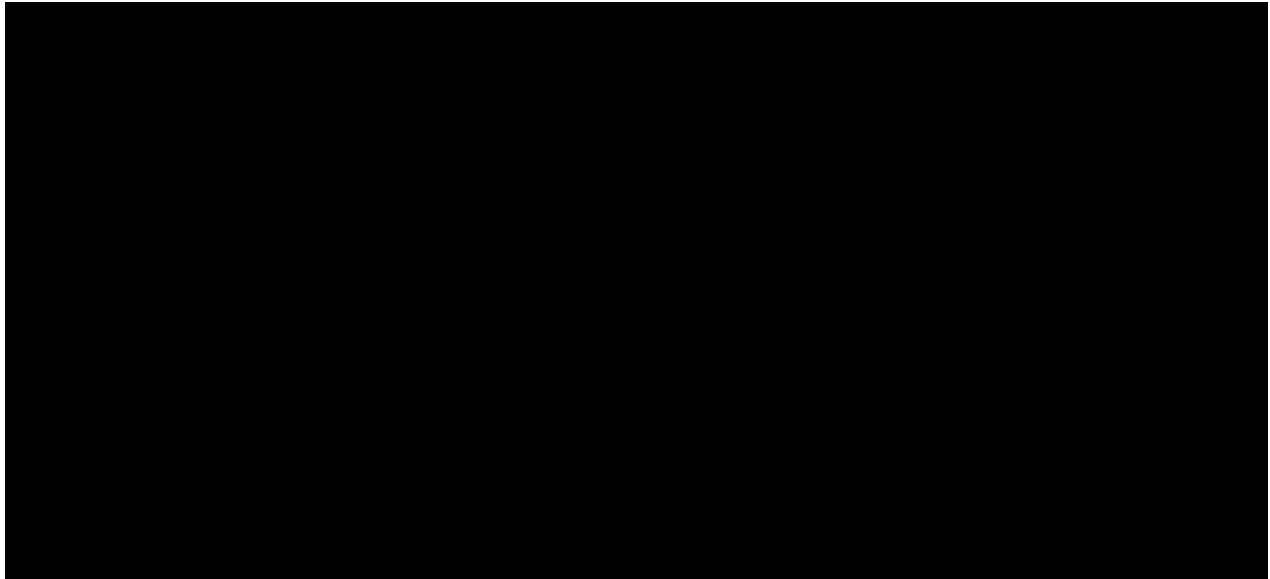
[REDACTED]. **

Although Figure 7 shows an overall ** [REDACTED] ** there has been variability in the month-to-month results.

Referring to Confidential Figure 8, for the period of February 2020 through and including September 2023, the maximum locate timeliness percentage was ** [REDACTED] ** and the minimum locate timeliness percentage was ** [REDACTED] **. The average locate timeliness percentage during the period of February 2020 through and including September 2023 was ** [REDACTED] **.

Figure 8: Spire Missouri West – Locate Timeliness

**



**

*Note: Chart data from February 2020 through September 2023 includes the Contract Locator, ** [REDACTED] ** timeliness percentages.*

**

[REDACTED]

Additionally, during the periods of September 2020 through May 2021, and August 2021 through September 2023, all reported monthly locate timeliness percentages were ** [REDACTED] **. The quarterly reports for 2022 were submitted by Spire on May 2, 2022, August 2, 2022, October 31, 2022, and January 31, 2023 and reported the following monthly locate timeliness: ** [REDACTED]

[REDACTED]

[REDACTED].**

Based on annual report data, Spire Missouri West has experienced annual increases and decreases in the total number of excavation tickets as shown in Table 6 below.

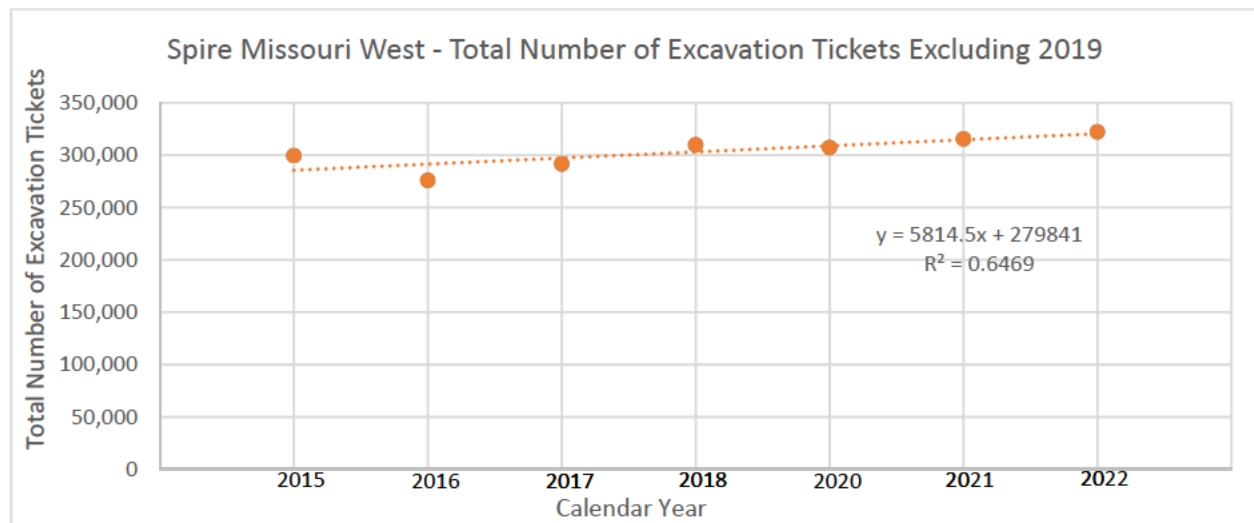
Table 6: Spire Missouri West (Formerly Missouri Gas Energy)		
Calendar Year	Total Number of Excavation Tickets	Percentage Increase (or Decrease) of Excavation Tickets from Previous Year
2015	299,485	4.10 % increase
2016	275,939	(7.86%) decrease
2017	291,577	5.67% increase
2018	309,826	6.26% increase
2019	347,773	12.25% increase
2020	307,168	(11.68%) decrease
2021	315,541	2.73% increase
2022	322,155	2.10% increase

Overall, between calendar years 2015 and 2022 the annual ticket volume has increased by approximately 8% in Spire Missouri West’s operating area, however this has not been a constant increase over time as shown in Table 6. Prior to calendar year 2018, the annual ticket volumes during calendar years 2015 through 2017 were less than 300,000 excavation tickets per year. For calendar years 2018 through and including calendar year 2022, the annual ticket volumes have been greater than 300,000. During the period of 2015 through and including 2022, the largest increase in annual ticket volume of 12.25% occurred during calendar year 2019. Staff assumes that the 11.68% decrease experienced during 2020 may have been related to the pandemic, or a return to normal condition after an unusually high-ticket volume in 2019. If the year 2019 is considered abnormal due to the 12.25% increase in ticket volumes and removed from the data set,

the decrease from 2018 (309,826 tickets) to 2020 (307,168 tickets) would appear more in line with past ticket decreases.

With 2019 data removed, the overall increase appears to be somewhat consistent over time, with an approximate average annual increase of 5,800 tickets per year since 2015 as shown in Figure 9 below.

Figure 9: Annual Excavation Ticket Volume, Spire Missouri West, Excluding 2019



Spire has stated that its' staffing levels of contract locators for the Spire Missouri West service area were not formally tracked prior to February of 2020.⁵¹ Staff requested staffing level information data for the months of March 2020, December 2020, June 2021, October 2021, January 2022, February 2022, June 2022, and January 2023 through and including June 2023⁵² to evaluate whether a correlation might exist between monthly contract locator staffing levels and locate timeliness percentages when the monthly number of locate request tickets either increase or decrease. Staff selected the periods of December 2020, October 2021, February 2022, June 2022, April 2023, and June 2023 since these months all have an OTP value ** [REDACTED] ** plus

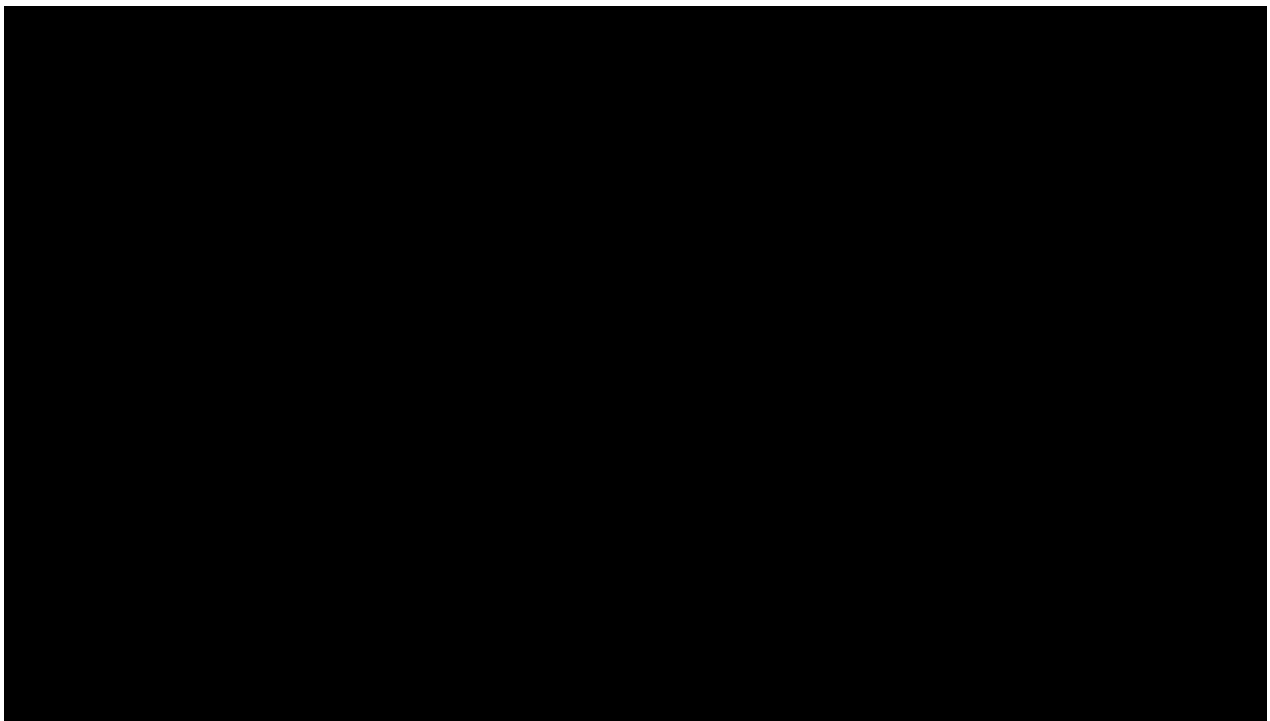
⁵¹ Spire's response to Staff Data Request No. 0030, part b).

⁵² Staffing level information provided by Spire's response to Staff Data Request No. 0030, Staff Data Request No. 0030.1, and Staff Data Request No. 0041.

they were in different years and seasons. Staff chose the periods of March 2020 and June 2021 since these months have OTP values ** [REDACTED] **. Figure 10 below represents selected monthly locate ticket request numbers, the monthly contract locator staffing levels, and the monthly locate timeliness percentages for the periods of March 2020, December 2020, June 2021, October 2021, February 2022, June 2022, April 2023, and June 2023.

Figure 10: Spire Missouri West – Staffing Levels, Ticket Volumes and Timeliness Percentages

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**

Comparing the months of March 2020 and December 2020, the locate timeliness percentage (also referred to as on-time percentage or OTP) ** [REDACTED] ** while the locate ticket amounts decreased by 2,020 between the two selected periods. Also, the average staffing level increased by 5 during December 2020 for a total of 140.

When comparing December 2020 and June 2021, the OTP locate timeliness percentage ** [REDACTED] ** while the locate ticket amounts increased

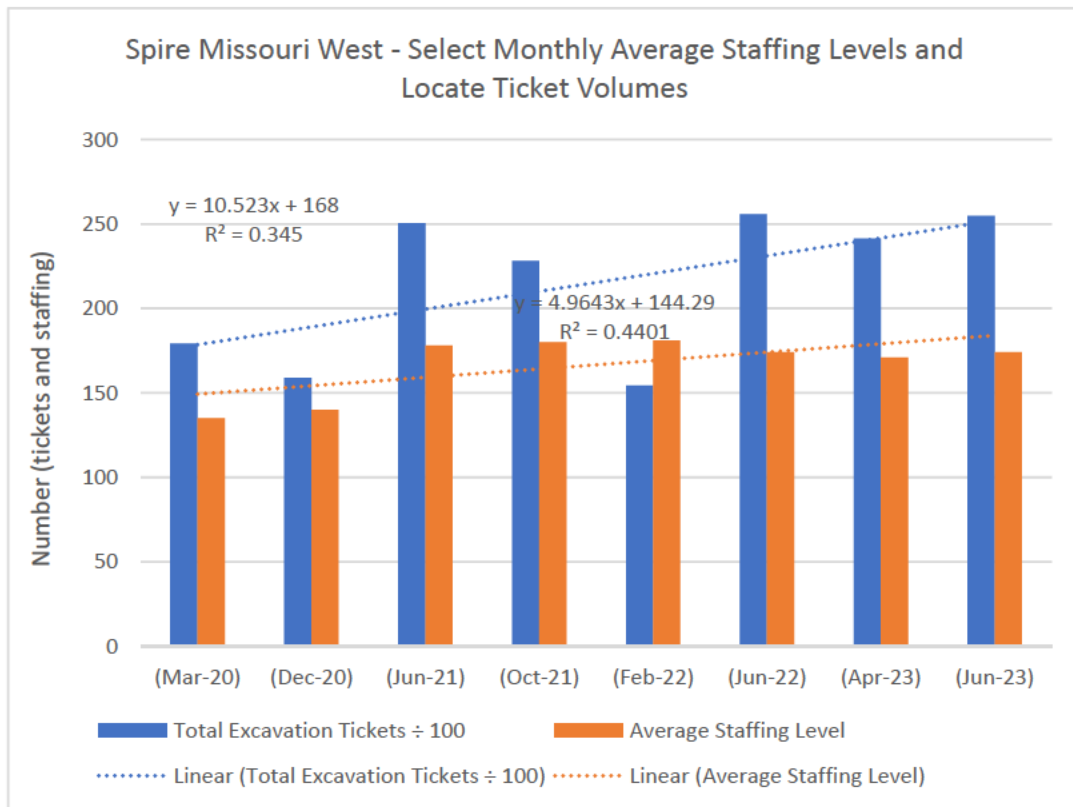
by 9,166 between the two selected periods. During this same period, the average staffing level increased by 38 during June 2021 for a total of 178.

Comparing the months of October 2021 and February 2022, the locate timeliness percentage ** [REDACTED] ** while the locate ticket amounts decreased by 7,365 between the two selected periods. Also, the average staffing level increased by 1 during February 2022 for a total of 181.

When comparing June 2022 and April 2023, the OTP locate timeliness percentage ** [REDACTED] ** while the locate ticket amounts decreased by 1,448 between the two selected periods. During this same period, the average staffing level decreased by 3 during April 2023 for a total of 171.

In the Spire Missouri West Service Area, Figure 11 indicates that ticket volumes have been increasing at a rate slightly greater than the staffing increases.

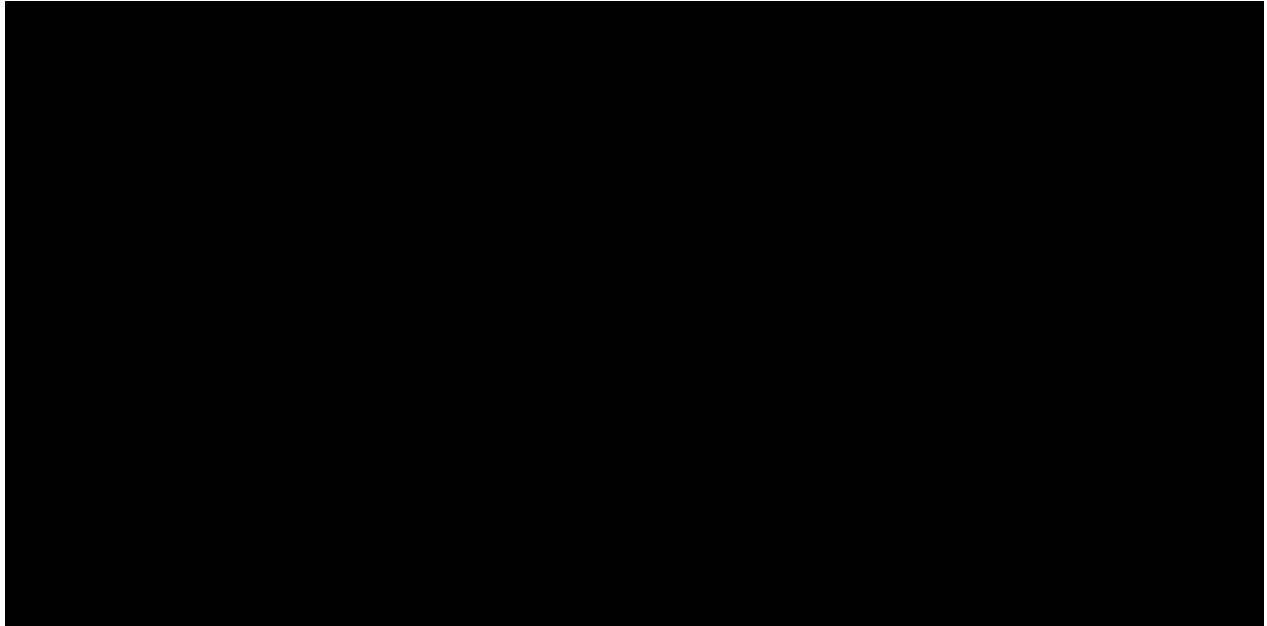
Figure 11: Spire Missouri West – Staffing and Ticket Volumes



Staff then divided the monthly number of locate tickets by the corresponding average number of locating employees, and compared to locate timeliness, as show in Figure 12.

Figure 12: On-Time Percentages as a Function of Average Staff Levels – Spire Missouri West

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**

While the data set is too small to be conclusive, this data suggests that locating timeliness is not directly linked to staffing levels for Spire Missouri West within the range of ticket volumes evaluated. Staff notes that this does not consider other potentially relevant factors such as variations in experience levels of the locating employees during any of the sample months.

III. STAFF ANALYSIS

A. Compliance with Applicable Commission Rules and State Statutes

1.0 Damage Prevention Program

Commission rule 20 CSR 4240-40.030(12)(I), Damage Prevention Program, prescribes the written program that each operator of a buried pipeline must carry out to prevent damage to that

pipeline by excavation activities. Minimum requirements for the damage prevention program are listed in 20 CSR 4240-40.030(12)(I)3.

20 CSR 4240-40.030(12)(I)3.G. requires that the damage prevention program must, at a minimum:

Provide for temporary marking of buried pipelines in the area of the excavation activity before, as far as practical, the activity begins.

Spire has submitted to Staff a copy of its Damage Prevention Program Standard Operating Procedure (SOP), Document number 220.C.5, which is current as of September 7, 2023.⁵³ The Spire damage prevention program includes Chapter 319 RSMo as an applicable state law, so following Section 319.030 RSMo is a program provision for meeting 20 CSR 4240-40.030(12)(I)3.G. Spire's response to Staff Data Request No. 0033.1 states: "Yes, the Company's Damage Prevention SOP 220.C.5 requires Spire to follow the applicable provisions of Chapter 319, RSMo."

Section 319.030 RSMo requires owners of underground facilities, including pipelines to inform the excavator of the locations of the approximated location of its underground facilities as promptly as practical, but not in excess of two working days, unless the excavator agrees to extend the start date and time. The excavator must wait for the facilities to be marked, or the time to elapse before beginning excavation. In the event the two working days (or extended date and time agreed to by the excavator) has elapsed and a facility owner has not yet responded to the notification, the excavator must give a second notice, stating that there has been no response to the original notice. The facility owner must then within two hours of the receipt of such notice, mark its facilities or contact and inform the excavator of when the facilities will be marked. If the facility

⁵³ Spire's response to Staff Data Request No. 0033.1.

owner fails to mark its facilities or contact the excavator as required, the excavator may commence the excavation.

1.1 Spire Locate Timeliness in Spire Missouri East.

Locates of underground pipelines in the Spire Missouri East service area were normally conducted within the required time in 2015, as demonstrated by the monthly locate timeliness

** [REDACTED] **. Since 2015, the percentage of locates conducted within the required time has been ** [REDACTED]

[REDACTED]

[REDACTED] **.

To evaluate the general length of time that Spire was late in responding to requests to locate its underground facilities, Staff requested and Spire provided additional details for a sample of the related Spire Missouri East data. Staff requested detailed information about locates that were not timely in the months of January 2022 and October 2019. Staff selected these months to further evaluate because October 2019 was a month with a ** [REDACTED] ** OTP of approximately ** [REDACTED] ** and January 2022 was a month with a ** [REDACTED] ** OTP of ** [REDACTED] **, and represent different years and seasons. Spire provided the following information in response to Staff data requests:

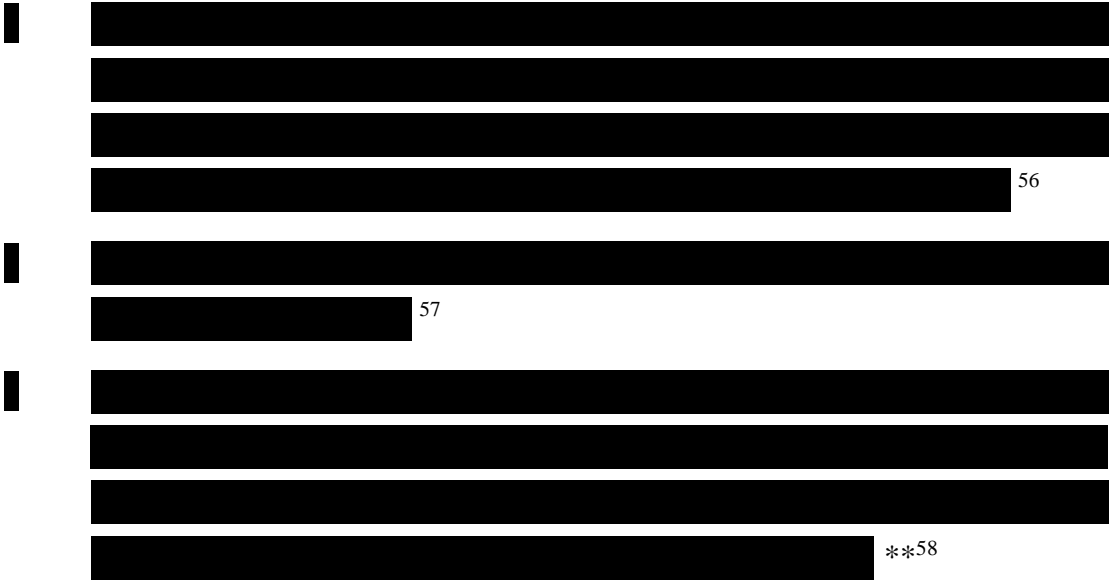
**

[REDACTED] 54, [REDACTED]
[REDACTED] 55 [REDACTED]

⁵⁴ Spire response to Staff Data Request No. 0020.3B.

⁵⁵ Spire’s response to Staff Data Request No. 0020.3A states that: A) The Company has recalculated its OTP after discovering that MOCS was counting tickets with a status of “NOT COMPLETE/IN PROGRESS” as on-time provided the status was entered prior to the due date. The Company does not agree with this method of calculating OTP. The Company has chosen to count tickets in the “NOT COMPLETE/IN PROGRESS” status as late unless the ticket was subsequently completed prior to the due date. In addition, the Company removed non-measurable tickets from all its OTP calculations. ** [REDACTED]

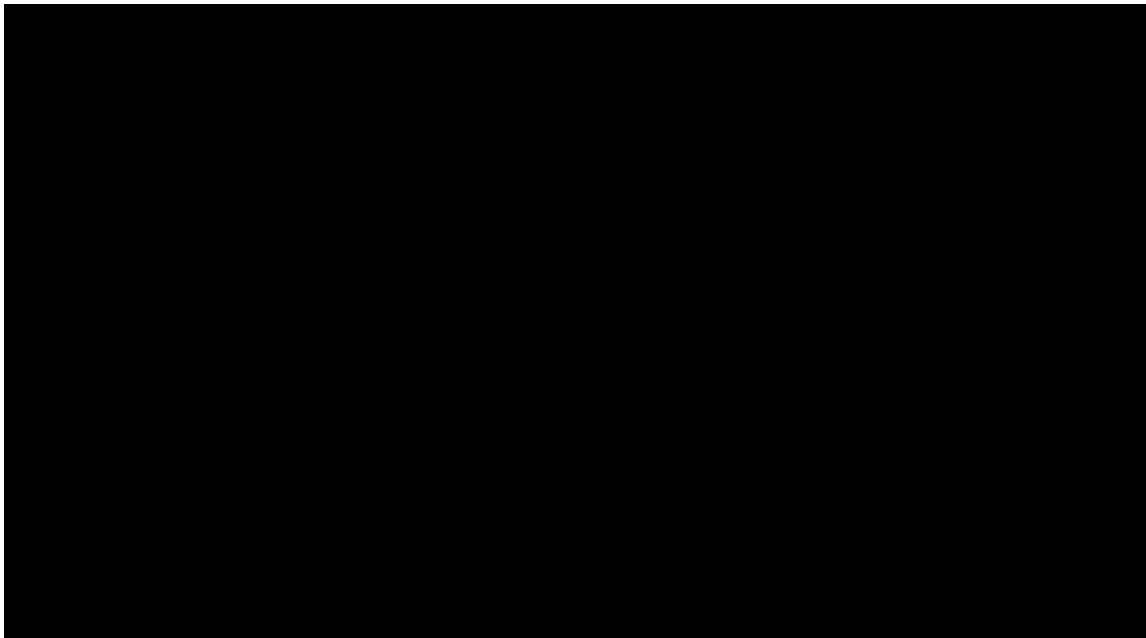
[REDACTED] **



The length of time that Spire’s responses to requests for facility locates were late in January 2022 and October 2019 is illustrated in Figure 13.

Figure 13: Number of Tickets Late by Days Late – Spire Missouri East

**



**

⁵⁶ Worksheet provided with Spire’s response to Staff Data Request No. 0020.1.

⁵⁷ Spire’s response to Staff Data Request No. 0022.3B.

⁵⁸ Worksheet provided with Spire’s response to Staff Data Request No. 0022.

** [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] **

1.2 Spire Locate Timeliness in Spire Missouri West.

Since 2015, the percentage of locates conducted within the required time has been

** [REDACTED]

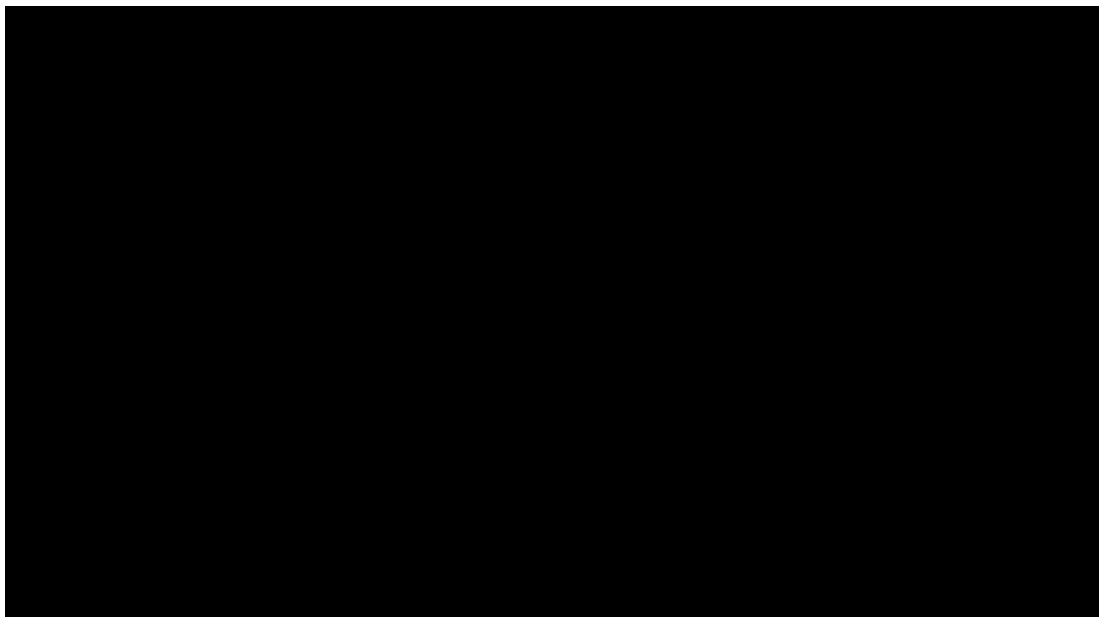
[REDACTED]

[REDACTED] **.

Staff requested and Spire provided additional details for a sample of the related Spire Missouri West data to evaluate the length of time elapsed between when the facility was required to be located and when it actually was located. Staff evaluated the months of January and July 2022 to evaluate in detail because January 2022 was a month with a ** [REDACTED] ** OTP of ** [REDACTED] ** and July 2022 was a month with a ** [REDACTED] ** OTP of ** [REDACTED] **, and they were in different seasons.

Figure 14: Number of Tickets Late by Days Late – Spire Missouri West

**



[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] **

1.3 Spire's Explanations for Late Locates

Spire has stated that difficulties obtaining a time extension from the excavator, locate request volume increases, and tickets with large scopes of work are challenges to achieving full compliance with the locate time requirements.⁵⁹ Staff notes that time extensions help with compliance on individual tickets, but adds to the locate volume on future dates. The large increases in locate request volume, especially project locates, further increases the number of locators that are needed to complete the work on time.⁶⁰ Spire has stated that due to the nationwide labor shortage, their contract locating company has had difficulties achieving the staffing levels needed to meet the requirements to timely locate its facilities.⁶¹

Additionally, Spire stated that “The Company does not provide additional training because late locates are the result of inadequate staffing and not due to a training concern.”⁶²

Staff notes that for the data evaluated, it does appear that for Spire Missouri East, the ticket volumes appear to have increased more rapidly than locating Staff (See Figure 5), and there does appear to be a correlation between on-time performance and number of tickets per locating employee (See Figure 6), with ** [REDACTED]

⁵⁹ Spire's response to Staff Data Request No. 0003.

⁶⁰ Spire's response to Staff Data Request No. 00032.1.

⁶¹ Spire's response to Staff Data Request No. 00032.1.

⁶² Spire's response to Staff Data Request No. 0032 regarding additional training for contract locators when locates were not performed on time.

[REDACTED]. ** However for Spire Missouri West, ** [REDACTED]
[REDACTED] ** (See Figure 11), and there
** [REDACTED] ** appear to be a correlation between on-time performance and number of tickets per
locating employee (See Figure 12).

1.4 Staff Findings

(1) There are numerous instances each year when Spire does not locate its underground facilities within the time allowed by requirements in Section 319.030 RSMo.

(2) By failing to meet the requirements, Spire also did not follow its written damage prevention program required by 20 CSR 4240-40.030(12)(I)1., (12)(C)1., and (1)(G)3.

(3) Spire has stated that insufficient staffing is a reason that it cannot meet the requirements to timely locate its facilities.

(4) From July 1, 2023 to August 28, 2023, Spire provided locates of its underground facilities in St. Charles County within the time allowed by Section 319.030 RSMo at an on-time percentage of ** [REDACTED] **⁶³.

1.5 Recommendations

(1) Staff recommends that Spire increase the number of persons providing locates of its underground facilities to a level needed to meet Section 319.030 RSMo. Staff anticipates that Spire could accomplish this using either a combination of additional Spire and contractor personnel, or by ** [REDACTED]

[REDACTED]

[REDACTED] **, or both.

⁶³ Spire's response to Staff Data Request No. 0038.1.

(2) Staff recommends that Spire evaluate past trends including increasing numbers of facility locate requests over time, turn-over of qualified locating personnel, and other factors that may affect locating timeliness going forward.

(3) Staff recommends that Spire further evaluate what factors may have affected the following changes in Spire Missouri East:

**
█ [REDACTED]
█ [REDACTED]
█ [REDACTED]
█ [REDACTED]
█ [REDACTED] **

(4) Staff recommends that Spire provide a plan to the Commission for providing locates of its underground facilities within the time allowed by Section 319.030 RSMo and an estimated time schedule for implementing the plan. The plan should allow for the variations over time in the number of personnel necessary to meet Section 319.030 RSMo (e.g., use Spire personnel for non-locating work on days when the number of Spire and contractor personnel exceeds the level needed to meet Section 319.030 RSMo) and provide for the upward trend in locate request volume.

2.0 Operator Qualifications

20 CSR 4240-40.030(12)(D), Qualification of Pipeline Personnel, prescribes the required qualifications of individuals performing covered tasks on a pipeline facility, including any other entity or individual performing covered tasks on behalf of the operator. 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.”

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.”

2.1 Spire Missouri’s Operator Qualification Program

To evaluate Spire’s compliance with the Commission’s requirements for Qualification of Pipeline Personnel, Staff reviewed:

- Spire’s current written operator qualification program in effect for Spire’s Missouri operations (including both Spire Missouri East and Spire Missouri West) that is titled as the Spire Inc., Operator Qualification Plan (Last Update Date: 1/21/2023).
- The operator qualification program for ** [REDACTED] ** titled Operator Qualification Program & Covered Task List - Locating Pipelines (Revision Date: 8/3/2023).
- The current written operator qualification (OQ) program in effect for ** [REDACTED] ** which is the Spire Inc., Operator Qualification Plan (Last Update Date: 1/21/2023).⁶⁴
- Training and qualification records for Spire and contractor personnel responsible for locating Spire’s underground facilities.

2.2 Staff Findings

Staff found that the written operator qualification programs and the training and qualification of Spire and contractor personnel were consistent with the requirements of 20 CSR 4240-40.030(12)(D).

⁶⁴ Spire’s response to Staff Data Request No. 0042.

2.3 Recommendations

Staff has no recommendations relating to Spire's or its contractor's operator qualification programs or implementation of the written programs.

3.0 Oversight of Contractors

3.1 Rule Requirements and 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 each operator to prepare and follow a manual of written procedures for conducting operation and maintenance activities and for emergency response.

20 CSR 4240-40.030(12)(C)2.A. requires that the manual required by paragraph (12)(C)1. must include procedures for operating, maintaining, and repairing the pipeline in accordance with each of the applicable requirements of 20 CSR 4240-40.030(12), (13), and (14).

On July 1, 2020, a federal reportable incident⁶⁵ occurred when an excavator damaged one of Spire's 12-inch diameter gas distribution mains. Prior to the incident, the excavator had requested that underground facilities in the vicinity be located and marked. The contract locator working for Spire failed to mark the facilities, responding in error that there were no Spire facilities in the area. As part of this investigation, Staff reviewed Spire's oversight of its contractors, and found that sufficient evidence existed to assert that failure to have and follow procedures for the oversight and inspection of a contract locator was a violation of Commission Rule 20 CSR 4240-40.030(12)(C)2.A.

⁶⁵ See 20 CSR 4240-40.020(3) and (4) for reporting requirements.

In the Stipulation and Agreement approved by the Commission in related Case No. GC-2022-0087, Spire agreed to create policy and procedures to conduct random oversight and inspections of contractors conducting locates. The oversight and inspections shall be based on the final disposition of the locate request, type of work being performed, the contractor performing the work, area of excavation, the technician performing the work, and history of the technician. To address this part of the Stipulation and Agreement, Spire modified its confidential ** [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] **

However, Staff did not find a written process for how the contract locators are to communicate these conditions to Spire. Additionally, Staff did not find any information regarding how the results of Spire audits are to be communicated to the contract locators.

3.2 Spire's Oversight of Contract Locators

Spire's oversight of the contractors is accomplished via meetings with the Contract Locating Company management teams ** [REDACTED] **, field audits for locate accuracy, and participation in new hire training with contract locators.

Contractor Meetings

Spire Missouri holds weekly meetings (both virtual and in person) with the Contract Locating Company management teams. These weekly communications include emails and phone calls. Spire Missouri does not retain documentation of the weekly meetings or phone calls, but provided a copy of a meeting attendance sheet to Staff as an example of contractor interaction.

Field Audits

Spire conducts field audits of locates based on⁶⁶:



Spire considers a locate to be “completed on time” when the time and date of the locate response does not exceed two working days from the time and date of the locate request. Table 7 below shows a comparison of audits conducted in each specific location from 2015 through August 2023 for Spire Audits of ** [redacted] **.

Table 7: Number of ** [redacted] ** Audits Spire Conducted 2015 – August 2023						
Year	Spire Audit Result of Completed on Time		Spire Audit Result of % Completed on Time		Spire Total Audits Completed	
	MO East	MO West	MO East	MO West	MO East	MO West
2015	** [redacted]	** [redacted]	** [redacted]	** [redacted]	40	16
2016	[redacted]	[redacted]	[redacted]	[redacted]	130	99
2017	[redacted]	[redacted]	[redacted]	[redacted]	16	135
2018	[redacted]	[redacted]	[redacted]	[redacted]	621	219
2019	[redacted]	[redacted]	[redacted]	[redacted]	611	234
2020	[redacted]	[redacted]	[redacted]	[redacted]	655	298
2021	[redacted]	[redacted]	[redacted]	[redacted]	641	633
Jan 22-Aug 23	[redacted] **	[redacted] **	[redacted] **	[redacted] **	260	704

⁶⁶ Spire’s confidential response and attachments to Staff Data Request No. 0015.1.

Between May 1, 2023 and August 31, 2023, Spire also performed 12 audits of ** [REDACTED] **. In ** [REDACTED] ** of these audits Spire found on-time performance to be passing.

Participation in New Hire Training

Spire stated that it interacts with contract locator employees during new hire training, and provided the number of such interactions as shown in Table 8 below:

Table 8: Number of Times Spire Participated in ** [REDACTED] ** New Hire Training	
Year	Number of Times
2015	0
2016	3
2017	5
2018	6
2019	6
2020	9
2021	22
2022	36
Jan – Aug 2023	25

3.3 *Staff Findings*

The number of random field audits have increased from 200 to over 600 per year between 2018 and 2021 in Spire Missouri East service area, but has since decreased to 272 (including both ** [REDACTED] **) beginning in 2022. The number of audits Spire completed in its west service area increased to over 200 per year beginning in 2018, then to over 700 per year in 2023. Participation in new hire training has more than doubled between 2020 and 2021.

3.4 Staff Recommendations

Staff recommends that Spire create or modify existing procedures to define the process of how contract locators are to communicate issues discovered in the field (e.g. inaccurate facilities mapping, broken or missing tracer wire) to Spire.

Additionally, Staff recommends that Spire create or modify existing procedures to define how Spire will communicate audit findings to contract locators, and work with the contractor locators to prevent any problem(s) from recurring in the future.

4.0 Distribution Integrity Management

Section 17 of the Commission's Safety Standards – Transportation of Gas by Pipeline⁶⁷ prescribes the minimum requirements for an Integrity Management (IM) program for any gas distribution pipeline covered under this rule. Each gas distribution pipeline operator is required to consider the threat of excavation damage,⁶⁸ to evaluate and determine the relative risk of each threat to its pipeline⁶⁹, and to determine and implement measures design to reduce the risks from pipeline failures⁷⁰.

Additionally, during Distribution Integrity Management Program (DIMP) inspections, Staff encourages operators that routinely experience excavation damages to track and evaluate damages by the root causes of the excavation damage. Staff's reasoning is that the appropriate preventative measures will likely vary depending upon the reason(s) facilities are being damaged. For example, if a significant number of damages are caused because excavators are not requesting facility locates, it may be appropriate for the operator to evaluate and improve the effectiveness of

⁶⁷ 20 CSR 4240-40.030.

⁶⁸ 20 CSR 4240-40.030(17)(A)1 defines Excavation Damage as any impact that results in the need to repair or replace an underground facility due to a weakening, or the partial or complete destruction of the facility, including but not limited to, the protective coating, lateral support, cathodic protection, or the housing for the line device or facility.

⁶⁹ 20 CSR 4240-40.030(17)(D)3.

⁷⁰ 20 CSR 4240-40.030(17)(D)4.

its excavator education and outreach programs. On the other hand, if a significant number of damages are caused by errors or omissions on the part of the operator in locating its facilities, it may be appropriate for the operator to evaluate in greater detail why its locating personnel (or contract locating personnel) are failing to timely and accurately mark facilities.

4.1 Spire Excavation Damage Data Collection

In response to a Staff data request⁷¹ asking for currently effective procedures addressing determination of the root cause(s) of damages by excavation activities, Spire stated that it

** “[REDACTED]
[REDACTED]” **, and provided copies of three procedures.

The first of these procedures, *Investigation of Incidents Standard Operating Procedure (SOP), 220.O.1*, states that ** “[REDACTED]

[REDACTED]
[REDACTED]
[REDACTED]

[REDACTED]⁷² **

Staff did not find any specific information in this procedure related to determining the root cause(s) of excavation damages. Further, since the scope of this procedure states that it is related to the investigation of unacceptable material and/or equipment performance, it is unclear to Staff how the scope of this procedure is intended to provide guidance for determining the causes of failures by excavation damage.

⁷¹ Staff Data Request No. 0009.

⁷² ** [REDACTED]
[REDACTED] **

The second of these procedures, *Damage Prevention Program Standard Operating Procedure (SOP), 220.C* includes a section related to excavation damages. With respect to determining causes, the procedure states:

** [REDACTED] **

Staff notes that the *Damage Prevention Program Standard Operating Procedure (SOP), 220.C* provides examples of broad categories of possible root causes of excavation damages within the five different states in which Spire operates, but does not list or define specific root causes.

The third of these procedures: *Investigation of Failures Standard Operating Procedure (SOP) 220.E.1.* ** [REDACTED] ⁷³ [REDACTED]

⁷⁴ ** Staff notes however that the procedure does not address possible root causes of excavation damages.

Staff additionally requested copies of Spire’s tracking results of the root cause(s) of damages to its underground pipelines by excavation activities for calendar years 2015 -2021. The data Spire provided attributed damages to a number of specific root cause descriptions not listed as examples in the *Damage Prevention Program Standard Operating Procedure (SOP), 220.C*.

⁷³ Spire defines excavation damage as ** [REDACTED] **

⁷⁴ ** [REDACTED] **

Staff appreciates that Spire has implemented a program that evaluates and documents specific causes of excavation damages. However, Staff recommends that to ensure consistency when the root cause determinations are made in the field, Spire 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. Staff further recommends that once the categories have been identified and defined, Spire train personnel responsible for making the determinations in the field on the criteria applicable to each identified root cause.

4.2 *Spire Excavation Damage Data Evaluation*

In response to a Staff data request⁷⁵ asking for a copies of Spire’s three most recent evaluations of excavation damages in general, excavation damages caused by failure to locate facilities and excavations damages caused by failure to timely locate facilities, Spire provided a copies of tables titled ** [REDACTED]

[REDACTED] ** from its DIMP. The table with ** [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED] **

In response to a staff data request asking what measures Spire has implemented to address the risk of damage to its pipelines as a result of failure to timely locate its underground facilities, Spire responded:

The Company reduces the risk from failures of its gas pipelines by addressing those threats that pose the most risk to its system. The threat of failure to timely locate underground facilities was not a driver of the sub-threat “Locating Practices Not Sufficient.” The Company made the best use of its available resources by implementing action plans that address the primary drivers of the sub-threat “Locating Practices Not Sufficient.”

⁷⁵ Staff Data Request No. 0014.

Staff agrees that operators should prioritize resources addressing the greatest risks. However, in this instance Staff questions if a thorough enough evaluation has been performed. From information provided, it appears that Spire evaluated the threat of damages caused by failing to timely locate facilities ** [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] **

Staff recommends that to ensure consistency when the root cause determinations are made in the field, in at least one of its procedures Spire should identify and define each specific category it intends to use as a Root Cause Description of an excavation damage event, and that Spire inform and train its damage prevention personnel on the definitions of each category. Staff further recommends that failure to timely locate facilities be included as one of the specific categories of Root Cause Description, and that Spire resume tracking and evaluation of this category.

4.3 Staff Findings

Staff found no violations of 20 CSR 4240-40.030(17), but has four recommendations based on its review of Spire procedures and collected data.

4.4 Recommendations

1. In at least one of its procedures, Spire should identify and define each specific category it intends to use as a Root Cause Description of an excavation damage event.
2. Spire should inform and train its damage prevention personnel on the definitions of each specific category of Root Cause Description of an excavation damage event.

3. Failure to timely locate facilities should be included as one of the specific categories of Root Cause Description of an excavation damage event.

4. Spire should resume tracking and evaluation of damages caused by failure to timely locate its facilities.

B. Staff Conclusions

1. Spire often does not provide locates of its pipelines within the time period required by Section 319.030, RSMo. When the statutory requirements are not met, Spire also does not follow its written damage prevention program required by 20 CSR 4240-40.030(12)(I)1., (12)(C)1., and (1)(G)3.

2. Due to insufficient staffing, Spire's on-time performance in its Spire Missouri East service area generally ** [REDACTED]

[REDACTED]

[REDACTED] **.

3. Spire's on-time performance in Spire Missouri East has ** [REDACTED] ** in April 2023. From July 1, 2023 to August 28, 2023, Spire provided locates of its underground facilities in St. Charles County within the time allowed by Section 319.030, RSMo at an on-time percentage of ** [REDACTED] ** outside of St. Charles County. In September 2023, the on-time percentage outside of St. Charles County ** [REDACTED] **. **

4. Spire's on-time performance in its Spire Missouri West service area has generally been ** [REDACTED]

[REDACTED] **. Since April 2019, on-time

performance has fluctuated within the ** [REDACTED] **. Recent on-time

performance has ** [REDACTED] ** during the period of May 2023

through September 2023.

5. Spire's expectations for on-time performance as set forth in ** [REDACTED]

[REDACTED]
[REDACTED]. **

6. There has been an increase in the annual number of requests Spire receives to locate its facilities in the Spire Missouri East service area of an average of approximately 21,500 tickets per year since 2015. The annual aggregate number of tickets in calendar year 2022 for the Spire Missouri East service area was reported by Spire as 369,856.

7. Additionally, there has been an increase in the annual number of requests Spire receives to locate facilities in the Spire Missouri West service area of an average of approximately 5,800 tickets per year since 2015. The annual aggregate number of tickets in calendar year 2022 for the Spire Missouri West service area was reported by Spire as 322,155.

8. Given the relatively large volume of requests Spire receives, a change in on-time performance from ** [REDACTED] ** results in a significant number of times that Spire does not timely respond to requests to locate its facilities.

9. The Staffing levels appear to be increasing at almost the same rate as the increase in ticket volumes in Spire Missouri West, but at a lower rate than the increase in ticket volumes in Spire Missouri East.

10. Spire's procedures for determining causes of damages do not provide a comprehensive listing or definition of specific excavation damage related root causes.

11. Spire provided documentation that for one year ** [REDACTED] ** it evaluated the threat of failing to timely locate its facilities in its Spire Missouri East service area ** [REDACTED] [REDACTED] **, but does not appear to have re-evaluated this threat in light of the ** [REDACTED] **. **

IV. VIOLATIONS OF COMMISSON RULES

Failure to follow its written damage prevention program is a violation of 20 CSR 4240-40.030(12)(I)1. which requires each operator of a buried pipeline to carry out a written program to prevent damage to that pipeline by excavation activities in accordance with subsection (12)(I), and 20 CSR 4240-40.030(1)(G)3. which requires each operator to maintain, modify as appropriate and follow the plans, procedures and programs that it is required to establish under this rule.

V. STAFF RECOMMENDATIONS

1. Staff recommends that Spire increase the number of persons providing locates of its underground facilities to a level needed to meet Section 319.030, RSMo. Staff anticipates that Spire could accomplish this using either a combination of additional Spire and contractor personnel, or by ** [REDACTED]

[REDACTED]

[REDACTED] **, or both.

2. Staff recommends that Spire evaluate past trends including increasing numbers of facility locate requests over time, turn-over of qualified locating personnel, and other factors that may affect locating timeliness going forward.

3. Staff recommends that Spire further evaluate what factors may have affected the following changes in Spire Missouri East:

**

- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED] **

4. Staff recommends that Spire provide a plan to the Commission for providing locates of its underground facilities within the time allowed by Section 319.030, RSMo and an estimated time schedule for implementing the plan. The plan should allow for the variations over time in the number of personnel necessary to meet Section 319.030, RSMo (e.g., use Spire personnel for non-locating work on days when the number of Spire and contractor personnel exceeds the level needed to meet Section 319.030, RSMo) and provide for the upward trend in locate request volume.

5. Staff recommends that Spire create or modify existing procedures to define the process of how contract locators are to communicate issues discovered in the field (e.g. inaccurate facilities mapping, broken or missing tracer wire) to Spire.

6. Staff recommends that Spire create or modify existing procedures to define how Spire will communicate audit findings to contract locators, and work with the contractor locators to prevent any problem(s) from recurring in the future.

7. In at least one of its procedures, Spire should identify and define each specific category it intends to use as a root cause description of an excavation damage event.

8. Spire should inform and train its damage prevention personnel on the definitions of each specific category of Root Cause Description of an excavation damage event.

9. Failure to timely locate facilities should be included as one of the specific categories of root cause description of an excavation damage event.

10. Spire should resume tracking and evaluation of damages caused by failure to timely locate its facilities.

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter of an Investigation into Spire)
Missouri Inc. d/b/a Spire's Compliance with)
The Commission's Rules Regarding Natural)
Gas Safety Found at 20 CSR 4240-40.030) Case No. GS-2022-0261

AFFIDAVIT OF KATHLEEN A. McNELIS, PE

STATE OF MISSOURI)
) ss.
COUNTY OF COLE)

COMES NOW KATHLEEN A. McNELIS and on her oath declares that she is of sound mind and lawful age; that she contributed to the foregoing *Staff Investigation Report*; and that the same is true and correct according to her best knowledge and belief.

Further the Affiant sayeth not.


KATHLEEN A. McNELIS, PE

JURAT

Subscribed and sworn before me, a duly constituted and authorized Notary Public, in and for the County of Cole, State of Missouri, at my office in Jefferson City, on this 29th day of January 2024.

D. SUZIE MANKIN
Notary Public - Notary Seal
State of Missouri
Commissioned for Cole County
My Commission Expires: April 04, 2025
Commission Number: 12412070


Notary Public

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

In the Matter of an Investigation into Spire)
Missouri Inc. d/b/a Spire's Compliance with)
The Commission's Rules Regarding Natural)
Gas Safety Found at 20 CSR 4240-40.030) Case No. GS-2022-0261

AFFIDAVIT OF JOHN D. KOTTWITZ

STATE OF MISSOURI)
) ss.
COUNTY OF COLE)

COMES NOW JOHN D. KOTTWITZ and on his oath declares that he is of sound mind and lawful age; that he contributed to the foregoing *Staff Investigation Report*; and that the same is true and correct according to his best knowledge and belief.

Further the Affiant sayeth not.


JOHN D. KOTTWITZ

JURAT

Subscribed and sworn before me, a duly constituted and authorized Notary Public, in and for the County of Cole, State of Missouri, at my office in Jefferson City, on this 29th day of January 2024.

D. SUZIE MANKIN
Notary Public - Notary Seal
State of Missouri
Commissioned for Cole County
My Commission Expires: April 04, 2025
Commission Number: 12412070


Notary Public

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

In the Matter of an Investigation into Spire)
Missouri Inc. d/b/a Spire's Compliance with)
The Commission's Rules Regarding Natural)
Gas Safety Found at 20 CSR 4240-40.030) Case No. GS-2022-0261

AFFIDAVIT OF GREG A. WILLIAMS

STATE OF MISSOURI)
)
COUNTY OF COLE) ss.

COMES NOW GREG A. WILLIAMS and on his oath declares that he is of sound mind and lawful age; that he contributed to the foregoing *Staff Investigation Report*; and that the same is true and correct according to his best knowledge and belief.

Further the Affiant sayeth not.

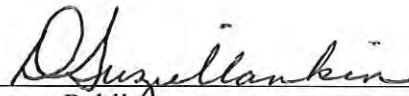


GREG A. WILLIAMS

JURAT

Subscribed and sworn before me, a duly constituted and authorized Notary Public, in and for the County of Cole, State of Missouri, at my office in Jefferson City, on this 31st day of January 2024.

D. SUZIE MANKIN
Notary Public - Notary Seal
State of Missouri
Commissioned for Cole County
My Commission Expires: April 04, 2025
Commission Number: 12412070



Notary Public

Missouri Public Service Commission

Staff's Investigation Report

In the Matter of an Investigation into Spire
Missouri Inc. d/b/a Spire's Compliance with
The Commission's Rules Regarding Natural
Gas Safety Found at 20 CSR 4240-40.030

APPENDIX A

FACTS

Spire Missouri, Inc., d/b/a Spire

Case No. GS-2022-0261

*Industry Analysis Division
Safety Engineering Department
~~January XX, 2024~~ - Jefferson City, Missouri*

** Denotes Confidential Information **

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I. EXECUTIVE SUMMARY

Spire Missouri Inc. (“Spire”) operates the two largest natural gas distribution systems in Missouri: Spire Missouri East and Spire Missouri West, serving approximately 1.2 million customers combined.¹ Spire Missouri East (formerly known as Laclede Gas Company) serves the St. Louis area and other communities in the eastern part of Missouri. Spire Missouri West (formerly Missouri Gas Energy) serves the Kansas City area and other communities in the western part of Missouri.

** [REDACTED] ²** In response to a Staff data request asking for a copy of each document that provides Spire’s expectations related to compliance with Missouri statutory requirements to timely locate its facilities³ Spire provided a copy of its confidential ** [REDACTED]

[REDACTED] ** Staff subsequently requested copies of similar ** [REDACTED] ** over time. Staff’s review of Spire’s ** [REDACTED]

[REDACTED] ⁴ **

Staff’s review of data from the Spire Missouri East service area showed Spire’s on-time performance was ** [REDACTED] ** on time in 2015. After a ** [REDACTED]

¹ From Spire Inc. 2022 Form 10-K.

² Spire comments on draft of Appendix A.

³ In Staff Data Request 0002, Staff requested: “Please provide copies of each Spire document, including but not limited to policies and procedures that provide Spire’s expectations related to compliance with the requirements of Missouri Revised Statute 319.030 to: “...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 location of underground facilities in or near the area of the excavation.””

⁴ ** [REDACTED] **

[REDACTED] ** in September 2016, on-time performance ** [REDACTED]
[REDACTED] ** between November 2016 and March 2018. Between April 2018 and April 2023, the on-time performance ** [REDACTED]
[REDACTED] ** as shown in Figure 1 in Section II.C of this report. Spire’s on-time performance in Spire Missouri East has ** [REDACTED]
[REDACTED] ** outside of St. Charles County in September 2023.

Staff’s review of data from the Spire Missouri West service area showed Spire’s on-time performance has generally been ** [REDACTED] ** on time during the period of January 2015 through March 2018 to ** [REDACTED] ** during April 2019. Since April 2019, on-time performance has ** [REDACTED]
[REDACTED] **. However most recently, on-time performance has ** [REDACTED] ** during the period of May 2023 through September 2023.

II. BACKGROUND

A. Overview of Underground Facility Damage Prevention Requirements

B. Spire Expectations for Timeliness of Locating Facilities

** [REDACTED] ⁵** In response to a Staff data request asking for a copy of each document that provides Spire’s expectations related to compliance with Missouri statutory requirements to timely locate its

⁵ Spire comments on draft of Appendix A.

facilities⁶ Spire provided a copy of its confidential ** [REDACTED]

[REDACTED] ** Staff subsequently requested copies of similar ** [REDACTED]

[REDACTED] ** over time. Staff's

review of Spire's ** [REDACTED]

[REDACTED]

[REDACTED] ⁷

[REDACTED]

[REDACTED]

[REDACTED]

- [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

- [REDACTED]

[REDACTED]

⁶ In Staff Data Request 0002, Staff requested: "Please provide copies of each Spire document, including but not limited to policies and procedures that provide Spire's expectations related to compliance with the requirements of Missouri Revised Statute 319.030 to: "...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 location of underground facilities in or near the area of the excavation.""

⁷ ** [REDACTED] **

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

- [REDACTED]

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	[Redacted]	[Redacted]
[Redacted]	[Redacted]	[Redacted]
[Redacted]	[Redacted]	[Redacted]
[Redacted]	[Redacted]	[Redacted]

[Redacted]

[Redacted]

8 ** [Redacted]

9 ** [Redacted] ** Provided as a confidential attachment to Spire's response to Staff Data Request 0035.1.

Provided as a confidential attachment to Spire's response to Staff Data Request 0035.1. **

[REDACTED]

[REDACTED] 10 [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]		
[REDACTED]		
[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] **

¹⁰ 20 CSR 4240-40.020(6)(A) requires each operator of a distribution pipeline system to submit an annual report for that system on U.S. Department of Transportation Form PHMSA F 7100.1-1 not later than March 15 for the preceding calendar year.

C. Case History Trend Analysis

Historically, Laclede Gas Company and Missouri Gas Energy were separate companies, each operating under its own damage prevention programs. Initially, following the acquisition of Missouri Gas Energy by Laclede Gas Company and the name change to Spire, Spire continued to operate its Spire Missouri East and Spire Missouri West service areas under these separate damage prevention programs. In 2020, Spire combined its damage prevention program into a single procedure titled Damage Prevention Program Standard Operating Procedure (SOP), Document number 220.C issued on July 1, 2020.

RSMo 319.030 states in part (emphasis added) that “1. Every person owning or operating an underground facility to whom notice of intent to excavate is required to be given shall, 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 location 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.”

Spire noted in its description of how it calculates locate timeliness that prior to March 2019, Spire Missouri East used the completion data sent by the Contract Locating Company to calculate timeliness percentages. Beginning in March 2019, Spire Missouri East began using data provided by the Missouri One Call System (MOCS) as the basis for determining its monthly

locate timeliness percentages reported to Staff. Spire Missouri West sums the daily on time ticket count and total ticket count provided on the daily MOCS report and calculates the percentage using these totals.¹¹

Based on discussions with Spire, it is Staff's understanding that the difference before and after this change occurred relates to how Spire (and contractors to Spire) were documenting excavator agreement to extend start dates and time. Spire's documentation of changes to start date and time prior to March 2019 consists of written documentation made by Spire's contract locating companies regarding the extension, but does not include documented acknowledgement from the excavator. Spire's documentation of changes to start dates and times after March 2019 includes acknowledgment by the excavator of mutually agreed changes to start dates and times.

During this investigation¹², Spire became aware the MOCS was counting tickets with a status of "NOT COMPLETE/IN PROGRESS" as on-time provided the status was entered prior to the due date. Since these tickets did not have documentation of mutual agreement by the excavator, Spire has now counted them as late and recalculated the locate timeliness since March 2019.¹³ Since the monthly locate timeliness prior to March 2019 still includes tickets without documented mutual agreement of an extension, the monthly locate timeliness before and after March 2019 were calculated using different sets of data and may not directly comparable. For

¹¹ Spire's response to Staff Data Request 0017.1.

¹² Spire's response to Staff Data Request 0021.4 states that: On February 13, 2023, Spire became aware that MOCs was counting tickets with a status of "NOT COMPLETE/IN PROGRESS" as on-time provided the status was entered prior to the due date. b) Spire first began re-evaluating the locate types that include "Extended Start Time" and "Non-Compliance" for recalculating its OTP calculation on February 13, 2023. c) Spire submitted Supplemental Attachment 18.2 and Supplemental Attachment 25, to correct the OTP calculations for the status in question. The OTP was corrected for each month between March 2019 through and including December 2022. See Supplemental Attachment 18.2 and Supplemental Attachment 25 for the revised OTP calculations.

¹³ Spire's response to Staff Data Request 21.4.

example, the original monthly locate timeliness for October 2019 in Spire Missouri East was ** [REDACTED] ** and the corrected monthly locate timeliness was ** [REDACTED] **. ¹⁴ Both sets of data show the trends in locate timeliness.

1.0 Spire Missouri East

Spire Missouri East uses contractors to conduct facility locates. Over the time period evaluated in this analysis (01/01/2015 through 09/30/2023), Spire Missouri East has utilized

** [REDACTED]

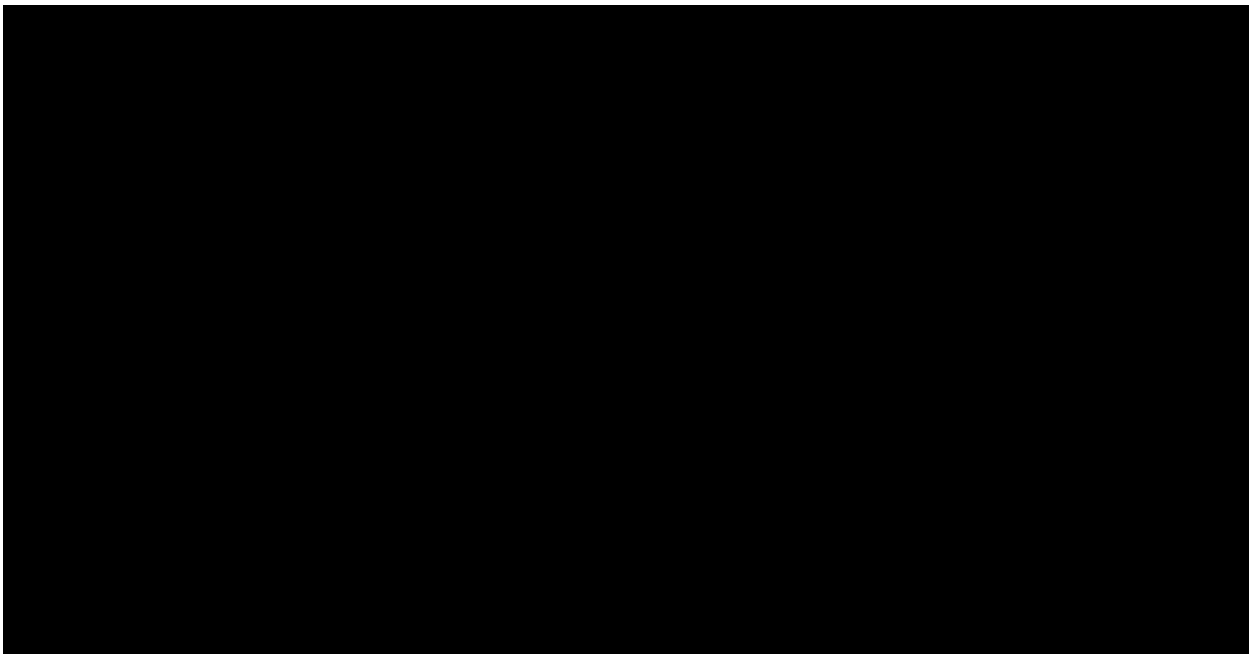
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED] - **

Following a deficiency in locate timeliness noted by Staff during 2004 and 2006 inspections in the Spire Missouri East service area, Spire has provided monthly locate timeliness results in quarterly reports to Staff. During the 2004 inspection, Staff's review of a summary for 2004 locates resulted in an estimate that about ** [REDACTED] ** were not located with the required time. The locate database was modified as agreed, but the timeliness had not improved as of the 2006 inspection resulting in Staff's request for quarterly reports on locate timeliness and efforts to improve. The locate timeliness improved following the 2006 inspection. The 2007 inspection reviewed locate data for January through April, 2007 and the timeliness for Central, North, and South Districts was ** [REDACTED] **, respectively. ** [REDACTED] ** began performing locates of all facilities in the Spire Missouri East service area on February 8, 2010,

¹⁴ Spire's response to Staff Data Request 22.3.

and quarterly reports showed that between February 2010 and December 2014 the locate timeliness ranged between ** [redacted] **.

The monthly locate timeliness was ** [redacted] ** and above in the first quarter of 2015 and continued above ** [redacted] ** for the remainder of 2015. After 2015, there was a ** [redacted] [redacted] ** in September 2016, but then the monthly locate timeliness ** [redacted] [redacted] ** between November 2016 and March 2018. The monthly locate timeliness ** [redacted] [redacted] **. Spire’s response to Staff Data Request 0038 for October 2022 through April 2023 gave monthly locate timeliness that ** [redacted] [redacted] **.



**

Figure 1: Spire Missouri East Locate Timeliness

** [REDACTED]
[REDACTED]
[REDACTED]
**

On May 1, 2023, Spire started using an additional locating contractor in St. Charles County, ** [REDACTED] **, to promote improvement in the quality and timeliness of locates.¹⁵ Locate requests in St. Charles County issued to ** [REDACTED] ** and locating timeliness in May and June of 2023 were: ** [REDACTED] **. ¹⁶ By comparison, locate requests issued to ** [REDACTED] ** and locating timeliness in May and June of 2023 were: ** [REDACTED] **. ¹⁷ Locate requests in St. Charles County issued to ** [REDACTED] ** and locating timeliness from July 1, 2023 through August 28, 2023 were 10,532 locate requests at ** [REDACTED] **. ¹⁸ By comparison, locate requests issued to ** [REDACTED] ** and locating timeliness from July 1, 2023 through August 28, 2023 were 33,931 locate requests at ** [REDACTED] **. ¹⁹ The most recent quarterly report submitted by Spire on October 31, 2023 for the third quarter of 2023 included that the ** [REDACTED] [REDACTED] ** for September 2023 were ** [REDACTED] [REDACTED] **.

As discussed in Section II. Background, subsection B. Spire Expectations for Timeliness of Locating Facilities, Spire Missouri reports the annual aggregate number of requests (“excavation tickets”) it receives in each of its service areas, Spire Missouri East and Spire

¹⁵ Spire’s response to Staff Data Request 0038.

¹⁶ Spire’s response to Staff Data Request 0038.

¹⁷ Spire’s response to Staff Data Request 0038.

¹⁸ Spire’s response to Staff Data Request 0038.1.

¹⁹ Spire’s response to Staff Data Request 0038.1.

Missouri West in annual reports to the U.S. Department of Transportation’s Pipeline and Hazardous Material Administration (PHMSA), with copies to Staff. For calendar years 2015 through and including 2022, Spire Missouri East has experienced annual increases and decreases in the total number of excavation tickets as shown in Table 5.

Table 5 - Spire Missouri East (Formerly Laclede Gas Company)		
Calendar Year	Total Number of Excavation Tickets	Percentage Increase (or Decrease) of Excavation Tickets from Previous Year
2015	219,002	4.13% increase
2016	260,157	18.79% increase
2017	261,317	0.45% increase
2018	301,642	15.43% increase
2019	292,372	(3.07%) decrease
2020	234,044	(19.95%) decrease
2021	332,508	42.07% increase
2022	369,856	11.23% increase

Overall, annual ticket volume has increased by approximately 69% between 2015 and 2022, however this has not been a constant increase over time as shown in Table 5. Staff assumes that the 20% decrease experienced during 2020 was related to a slowdown of construction during the pandemic, and the 42.07% increase in 2021 was likewise related to recovery after the pandemic. If the year 2020 is considered anomalous and removed from the

data set, the increase from 2019 (292,372 tickets) to 2021 (332,508 tickets) of 13.72% would appear more consistent with historical increases.

With 2020 data removed, the overall increase appears to be close to linear with an approximate average annual increase of 21,500 tickets per year since 2015 as shown in Figure 2.

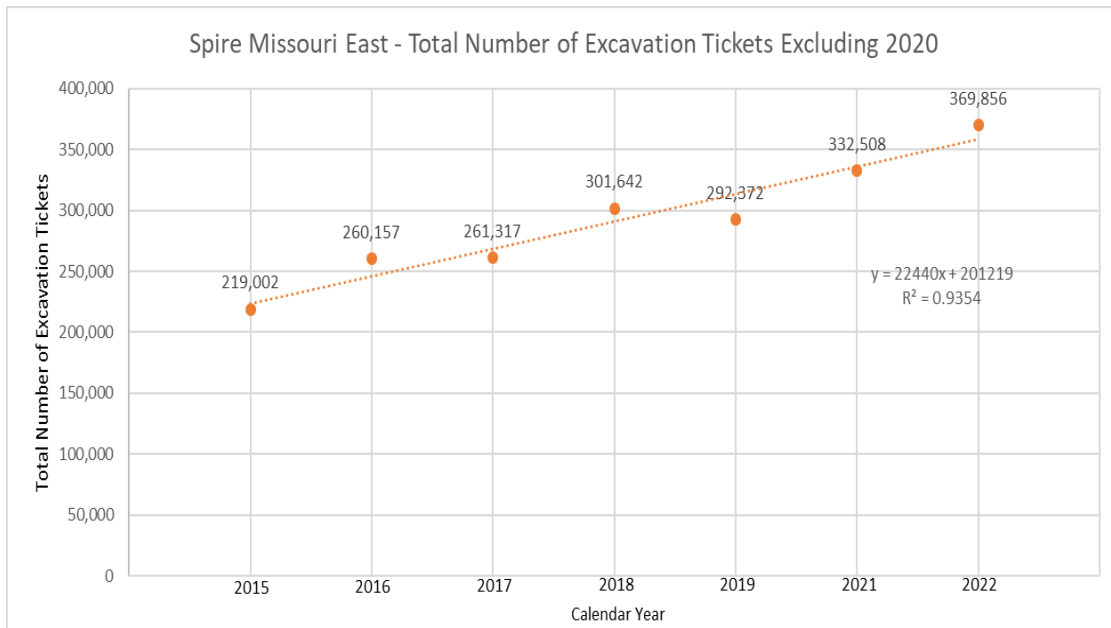


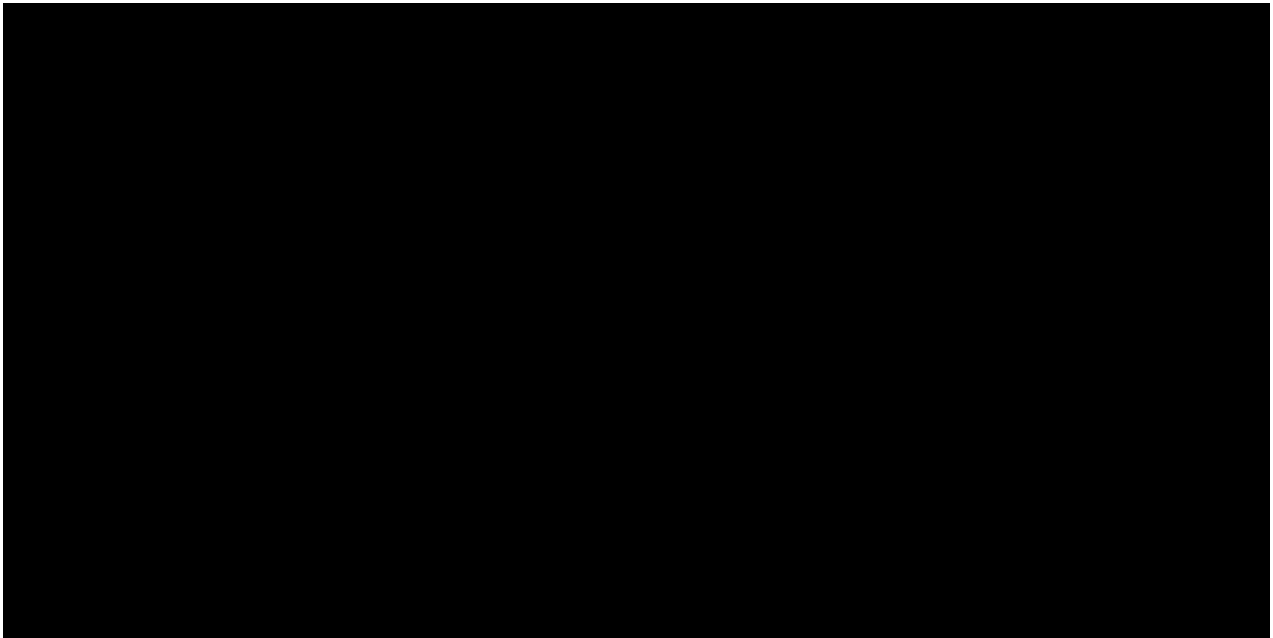
Figure 2: Spire Missouri East – Total Number of Excavation Tickets Excluding 2020

Spire has stated that its’ staffing levels of contract locators for the Spire Missouri East service area were not formally tracked prior to February of 2020.²⁰ Regarding monthly staffing levels, Staff requested staffing level information data for the months of March 2020, August 2020, April 2021, August 2021, January 2022, May 2022, September 2022, and April 2023.²¹ This information was requested to evaluate whether a correlation might exist between monthly

²⁰ Spire’s April 18, 2023 response to Staff Data Request 0029, part 2).

²¹ Staff Data Request 0029 and Staff Data Request 0029.1.

contract locator staffing levels and locate timeliness percentages when the monthly number of measurable²² locate request tickets either increase or decrease. Staff selected the periods of April 2021, August 2021, January 2022, May 2022, September 2022, and April 2023 since these months all have an OTP value **[REDACTED]**. Additionally, these represent different years and seasons. Staff chose the periods of March 2020 and August 2020 since these months have OTP values **[REDACTED]**. The chart below represents selected monthly locate ticket request numbers, the monthly contract locator staffing levels, and the monthly locate timeliness percentages for the periods of March 2020, August 2020, April 2021, August 2021, January 2022, May 2022, September 2022, and April 2023.



**

Figure 3: Spire Missouri East - Staffing Levels, Ticket Volumes and Timeliness Percentages

²² Spire’s April 12, 2023 response to Staff Data Request 20.4 defines “measurable tickets” to include ticket types of ROUTINE, RENEWAL, EXTENDED START DATE, NON COMPLIANCE, and DESIGN.

Comparing the months of March 2020 and August 2020, the locate timeliness percentage (also referred to as on-time percentage or OTP) was approximately the same at ** [REDACTED] ** for both periods while the locate ticket amounts increased by 5,730 between the two selected periods. Also, the average staffing level was increased by 10 during August 2020 for a total of 149.

When comparing August 2020 and April 2021, the OTP ** [REDACTED] ** and the locate ticket amounts increased by 8,488 between the two selected periods. Additionally, the average staffing level was increased by 10 during April 2021 for a total of 159.

Comparing the months of January 2022 and May 2022, the OTP locate timeliness percentage ** [REDACTED] ** while the locate ticket amounts increased by 19,231 between the two selected periods. Also, the average staffing level decreased by 6 during May 2022 for a total of 159.

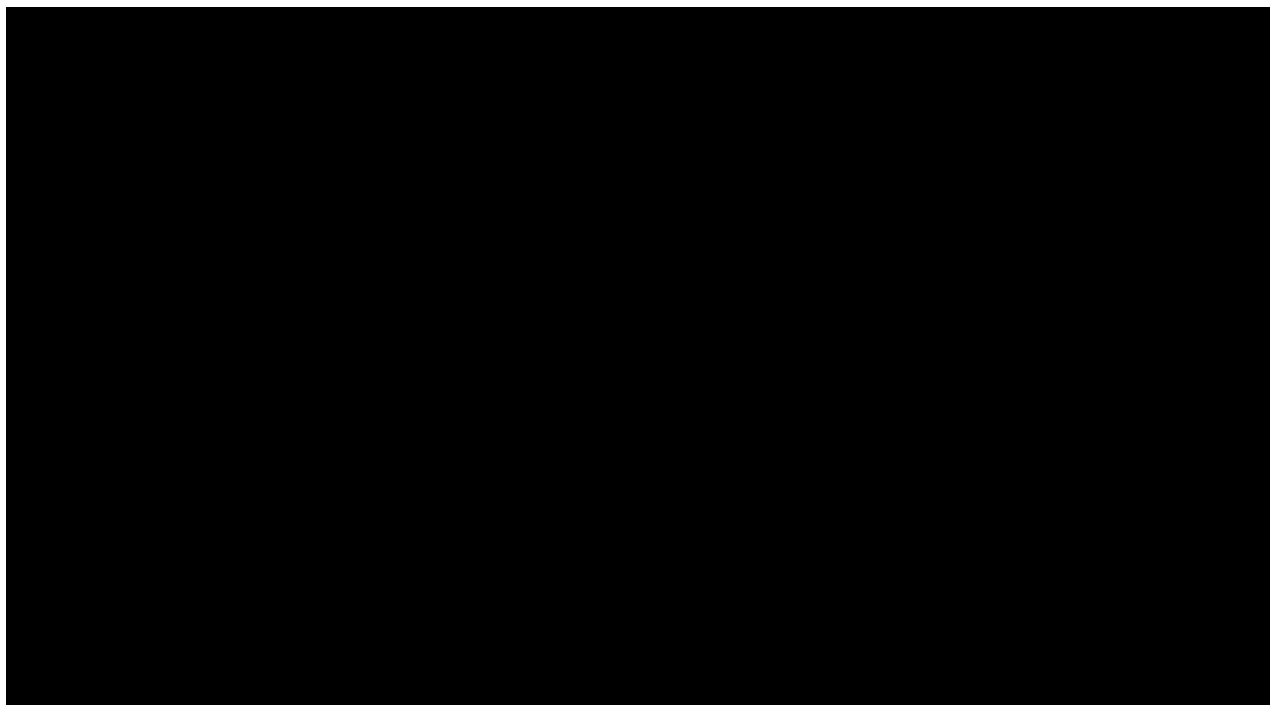


Figure 4: Spire Missouri East – Staffing and Ticket Volumes

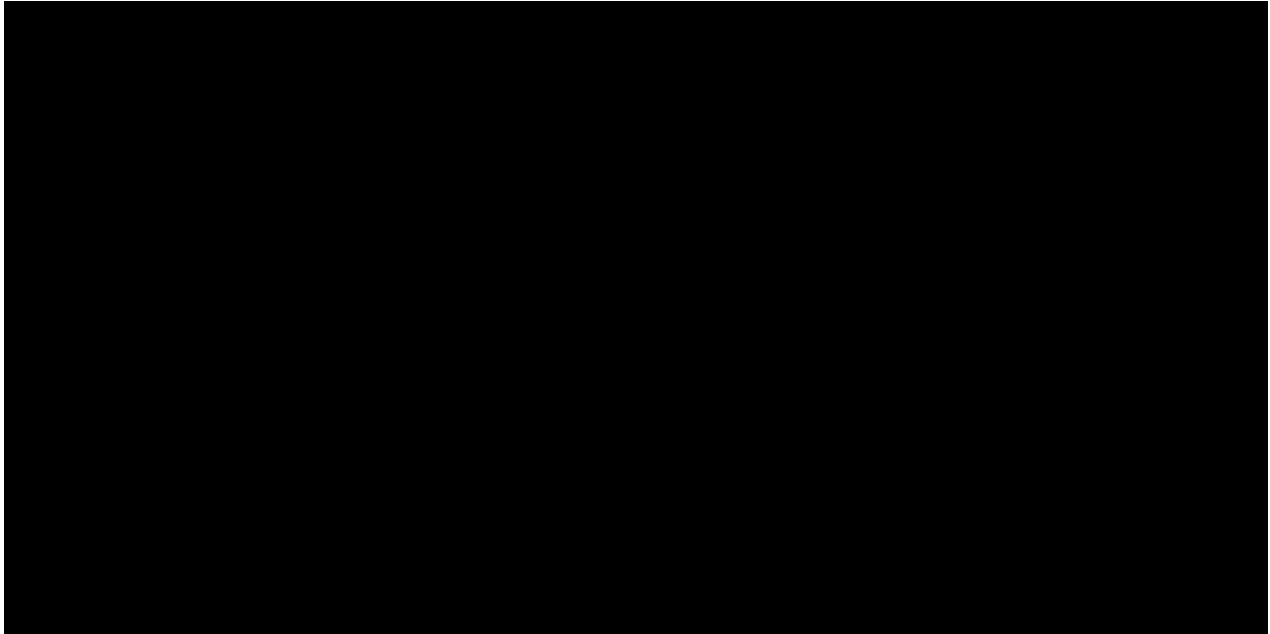


Figure 5: On-Time Percentages as a Function of Average Staff Levels – Spire Missouri East

2.0 Spire Missouri West

Spire uses its own employees for conducting facility locates within certain areas that include “The Plaza”, downtown Kansas City, and Missouri West service areas east of Warrensburg. Spire uses a contractor, ** [REDACTED] **, to locate its underground facilities in the parts of the Spire Missouri West service areas where underground facilities are not located by Spire employees²³.

²³ Information obtained from Spire responses to Staff Data Request 0008, parts A and B.

Until October 2019 Spire did not track monthly on-time performance as a separate performance metric based on whether the facility was located by a Spire employee or an employee of a contractor working for Spire.²⁴

During a November 2019 inspection, Staff noted that the timeliness of marking facilities by the locating contractor utilized in the Spire Missouri West area, ** [REDACTED] **, had ** [REDACTED] **. The monthly locate timeliness percentages for March, April, May, June, July, August, September, and October of 2019 were ** [REDACTED] [REDACTED] ** respectively²⁵. As a result, Staff requested that Spire take actions to improve the locate timeliness and requested the Company to start reporting locate timeliness for Spire Missouri West to Staff on a quarterly basis. Spire Missouri West began submitting quarterly reports to Staff in 2020 that included monthly locate timeliness for its contract locator. For an example, the second quarterly report submitted by Spire Missouri West on July 31, 2020 stated:

** “[REDACTED]
[REDACTED]
[REDACTED] **

The most recent quarterly report submitted by Spire on October 31, for the third quarter of 2023 stated:

²⁴ Information obtained from Spire’s July 7, 2022 response to Staff Data Request 0025.

²⁵ Note that the locate timeliness percentage values observed during the Staff’s November 2019 inspection for March through October of 2019 for Spire Missouri West are different from the values shown within Figure 6 as Spire has since recalculated these monthly percentage values. Spire’s May 26, 2023 response to Staff Data Request 0018.2 provided a worksheet that contained the updated and recalculated monthly locate timeliness percentages for March through October of 2019 which is shown within Figure 6.

** [REDACTED]

[REDACTED] **

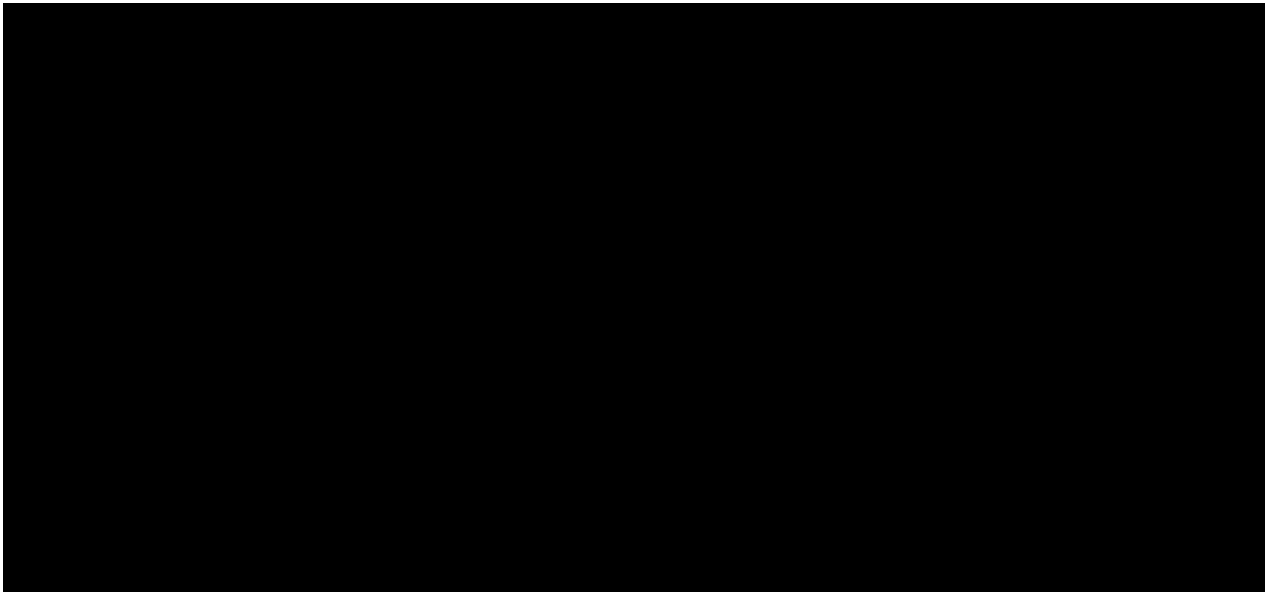
Referring to Figure 6, the monthly locate timeliness was ** [REDACTED] ** and above in the first quarter of 2015 and then ** [REDACTED] ** for April 2015. After April 2015, the monthly locate timeliness ** [REDACTED] ** for July 2015. After July 2015, the monthly locate timeliness ** [REDACTED] ** for February 2016. During the period of April 2018 through and including April 2019, the monthly locate timeliness ** [REDACTED] **.

For the period of January 2015 through and including September 2023, the maximum locate timeliness percentage was ** [REDACTED] ** and the minimum locate timeliness percentage was ** [REDACTED] **. The average locate timeliness percentage during the period of January 2015 through and including September 2023 was ** [REDACTED] **.

** [REDACTED]

[REDACTED] **





**

Figure 6: Spire Missouri West – Locate Timeliness

Note: Chart data from January 2015 through September 2019 includes both Company (Spire West employee locators) and Contract Locator combined percentages while October 2019 through September 2023 includes the Contract Locator percentages.

Additionally, during the periods of August 2015 through November 2015, April 2018 through January 2020, September 2020 through May 2021, and August 2021 through September 2023, all reported monthly locate timeliness percentages were ** [REDACTED] **. The quarterly reports for 2022 were submitted by Spire on May 2, 2022, August 2, 2022, October 31, 2022, and January 31, 2023 and reported the following monthly locate timeliness: ** [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] **

Based on annual report data, Spire Missouri West has experienced annual increases and decreases in the total number of excavation tickets as shown in Table 6.

Table 6-Spire Missouri West (Formerly Missouri Gas Energy)		
Calendar Year	Total Number of Excavation Tickets	Percentage Increase (or Decrease) of Excavation Tickets from Previous Year
2015	299,485	4.10 % increase
2016	275,939	(7.86%) decrease
2017	291,577	5.67% increase
2018	309,826	6.26% increase
2019	347,773	12.25% increase
2020	307,168	(11.68%) decrease
2021	315,541	2.73% increase
2022	322,155	2.10% increase

Overall, between calendar years 2015 and 2022 the annual ticket volume has increased by approximately 8% in Spire Missouri West’s operating area, however this has not been a constant increase over time as shown in Table 6. Prior to calendar year 2018, the annual ticket volumes during calendar years 2015 through 2017 were less than 300,000 excavation tickets per year. For calendar years 2018 through and including calendar year 2022, the annual ticket volumes have been greater than 300,000. During the period of 2015 through and including 2022, the largest increase in annual ticket volume of 12.25% occurred during calendar year 2019. Staff assumes that the 11.68% decrease experienced during 2020 may have been related to the pandemic, or a return to normal condition after an unusually high-ticket volume in 2019. If the year 2019 is considered abnormal due to the 12.25% increase in ticket volumes and removed from the data

set, the decrease from 2018 (309,826 tickets) to 2020 (307,168 tickets) would appear more in line with past ticket decreases.

With 2019 data removed, the overall increase appears to be somewhat consistent over time, with an approximate average annual increase of 5,800 tickets per year since 2015 as shown in Figure 7 below.

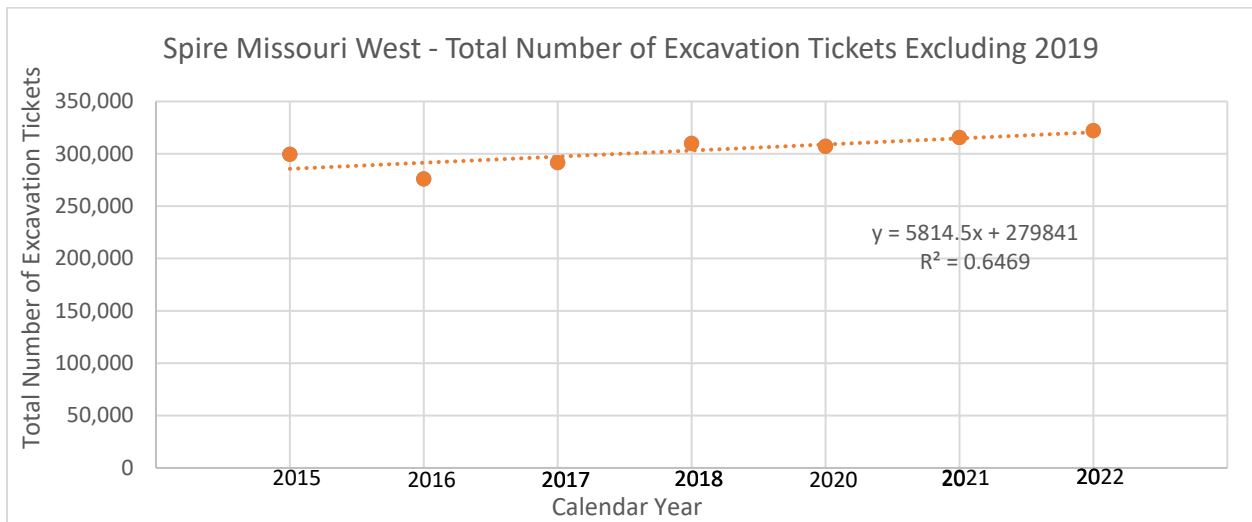


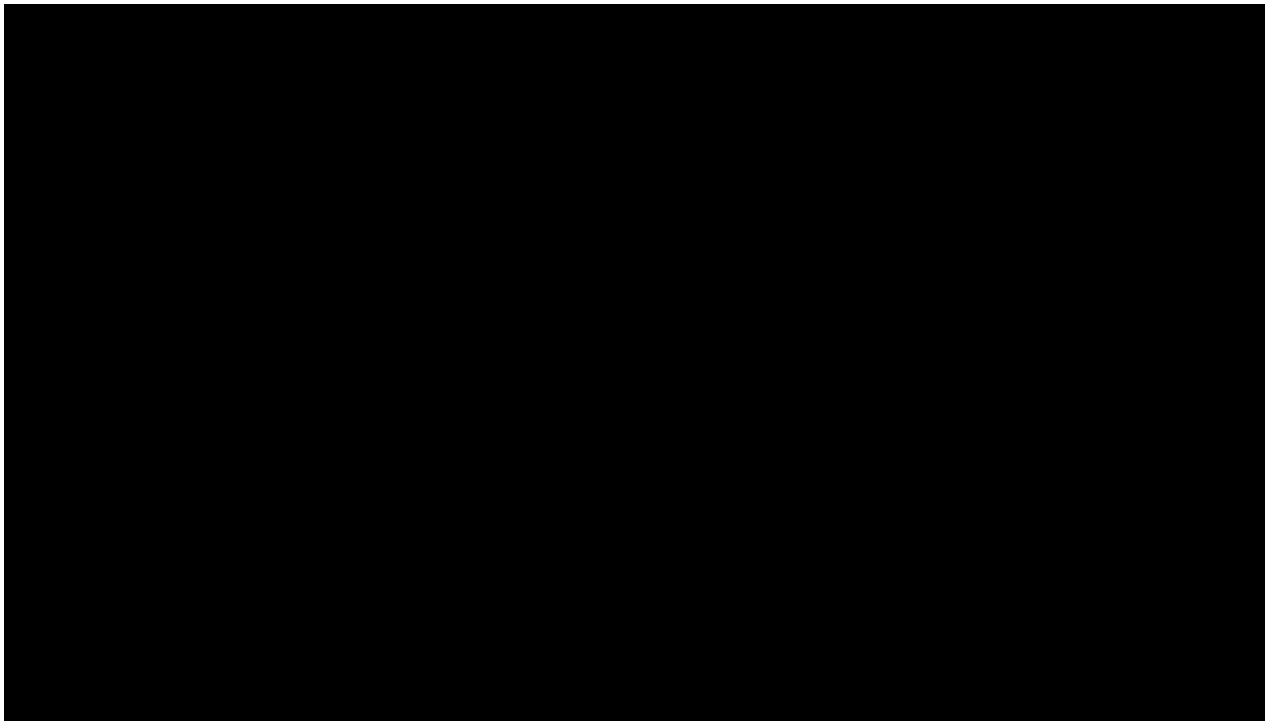
Figure 7: Annual Excavation Ticket Volume, Spire Missouri West, Excluding 2019

Spire has stated that its' staffing levels of contract locators for the Spire Missouri West service area were not formally tracked prior to February of 2020.²⁶ Staff requested staffing level information data for the months of March 2020, December 2020, June 2021, October 2021, January 2022, February 2022, June 2022, and January 2023 through and including June 2023²⁷ to evaluate whether a correlation might exist between monthly contract locator staffing levels and locate timeliness percentages when the monthly number of locate request tickets either increase or decrease. Staff selected the periods of December 2020, October 2021, February

²⁶ Spire's response to Staff Data Request 0030, part b).

²⁷ Staffing level information provided by Spire's response to Staff Data Request 0030, Staff Data Request 0030.1, and Staff Data Request 0041.

2022, June 2022, April 2023, and June 2023 since these months all have an OTP value ** [REDACTED] ** plus they were in different years and seasons. Staff chose the periods of March 2020 and June 2021 since these months have OTP values ** [REDACTED] **. Figure 8 below represents selected monthly locate ticket request numbers, the monthly contract locator staffing levels, and the monthly locate timeliness percentages for the periods of March 2020, December 2020, June 2021, October 2021, February 2022, June 2022, April 2023, and June 2023.



**

Figure 8: Spire Missouri West – Staffing Levels, Ticket Volumes and Timeliness Percentages

Comparing the months of March 2020 and December 2020, the locate timeliness percentage (also referred to as on-time percentage or OTP) ** [REDACTED] ** while the locate ticket amounts decreased by 2,020 between the two selected periods. Also, the average staffing level increased by 5 during December 2020 for a total of 140.

When comparing December 2020 and June 2021, the OTP locate timeliness percentage ** [REDACTED] ** while the locate ticket amounts increased by 9,166 between the two selected periods. During this same period, the average staffing level increased by 38 during June 2021 for a total of 178.

Comparing the months of October 2021 and February 2022, the locate timeliness percentage ** [REDACTED] ** while the locate ticket amounts decreased by 7,365 between the two selected periods. Also, the average staffing level increased by 1 during February 2022 for a total of 181.

When comparing June 2022 and April 2023, the OTP locate timeliness percentage ** [REDACTED] ** while the locate ticket amounts decreased by 1,448 between the two selected periods. During this same period, the average staffing level decreased by 3 during April 2023 for a total of 171.

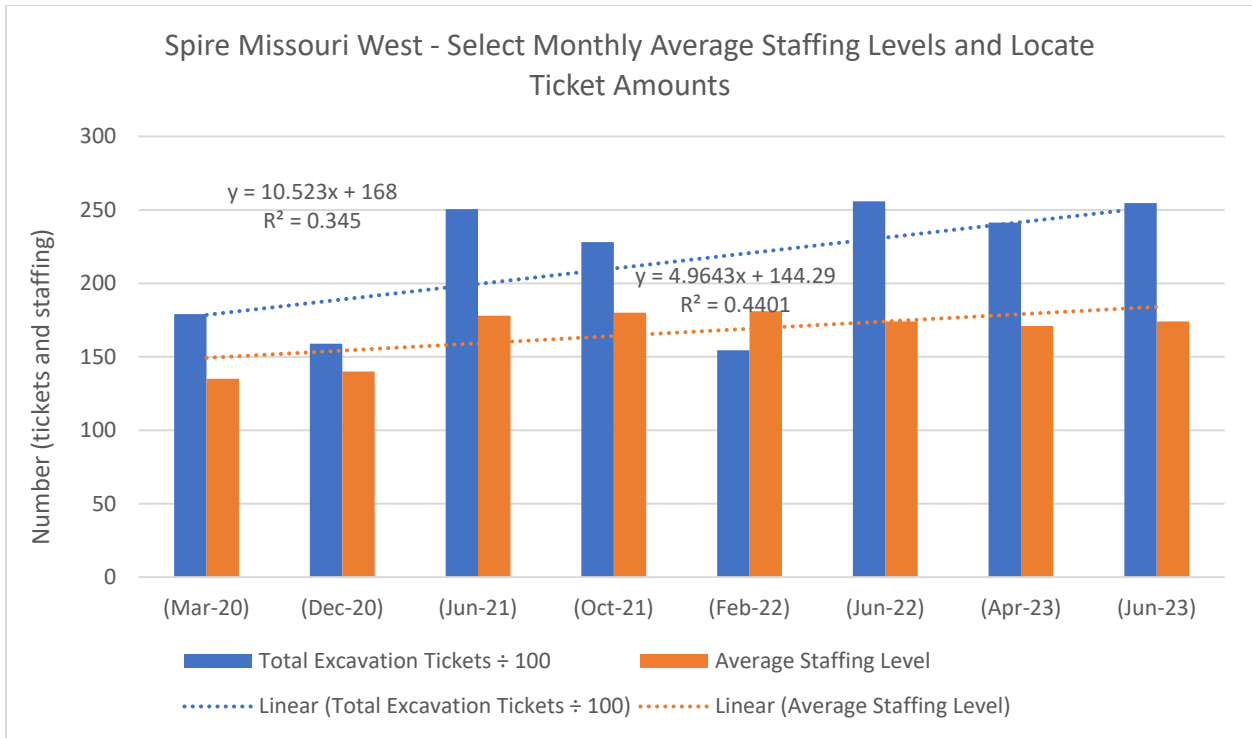
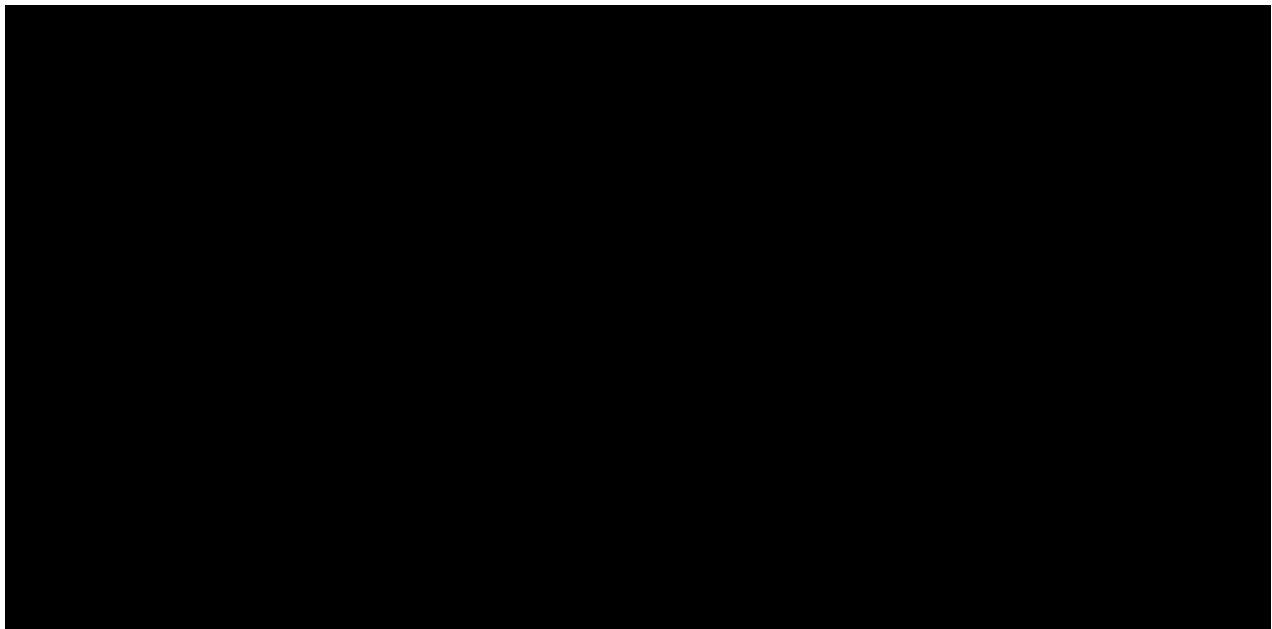


Figure 9: Spire Missouri West – Staffing, Ticket Volumes and Timeliness



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Figure 10: On-Time Percentages as a Function of Average Staff Levels – Spire Missouri West

III. STAFF ANALYSIS

A. Compliance with Applicable Commission Rules and State Statutes

1.0 Damage Prevention Program

Spire has submitted to Staff a copy of its Damage Prevention Program Standard Operating Procedure (SOP), Document number 220.C.5, which is current as of September 7, 2023.²⁸ The Spire damage prevention program includes Chapter 319 RSMo as an applicable state law, so following Section 319.030 RSMo is a program provision for meeting 20 CSR 4240-40.030(12)(I)3.G. Spire’s response to Staff Data Request 0033.1 states: “Yes, the Company’s Damage Prevention SOP 220.C.5 requires Spire to follow the applicable provisions of Chapter 319, RSMo.”

1.1 Spire Locate Timeliness in Spire Missouri East.

Locates of underground pipelines in the Spire Missouri East service area were normally conducted within the required time in 2015, as demonstrated by the monthly locate timeliness ** [REDACTED] **. Since 2015, the percentage of locates conducted within the required time has been ** [REDACTED]

[REDACTED]

[REDACTED] **.

Spire provided the following information in response to Staff data requests:

- ** [REDACTED] ²⁹ [REDACTED]
- [REDACTED] ³⁰ [REDACTED].

²⁸ Spire’s response to Staff Data Request 0033.1.
²⁹ Spire response to Staff Data Request 0020.3B.
³⁰ Spire’s response to Staff Data Request 0020.3A states that:

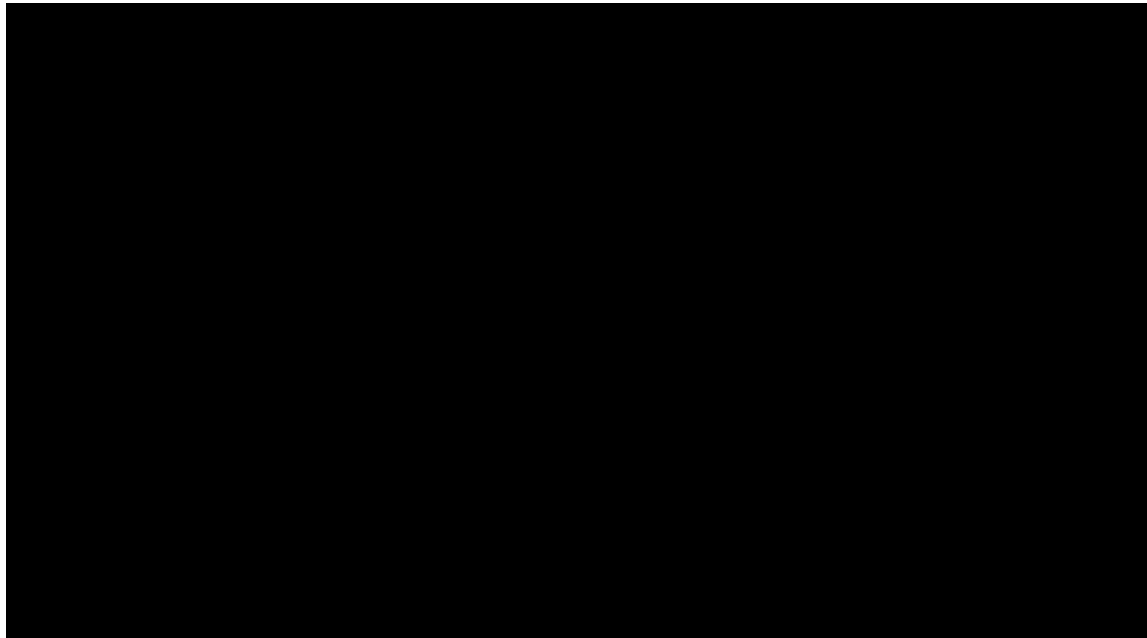
- [REDACTED]
- [REDACTED]
- [REDACTED]

The January 2022 and October 2019 information is illustrated in Figure 11.



A) The Company has recalculated its OTP after discovering that MOCS was counting tickets with a status of “NOT COMPLETE/IN PROGRESS” as on-time provided the status was entered prior to the due date. The Company does not agree with this method of calculating OTP. The Company has chosen to count tickets in the “NOT COMPLETE/IN PROGRESS” status as late unless the ticket was subsequently completed prior to the due date. In addition, the Company removed non-measurable tickets from all its OTP calculations. ** [REDACTED]

³¹ Worksheet provided with Spire’s response to Staff Data Request 0020.1.
³² Spire’s response to Staff Data Request 0022.3B.
³³ Worksheet provided with Spire’s response to Staff Data Request 0022.



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Figure 11: Number of Tickets Late by Days Late – Spire Missouri East



1.2 Spire Locate Timeliness in Spire Missouri West.

Since 2015, the percentage of locates conducted within the required time has been



Staff requested and Spire provided additional details for a sample of the related Spire Missouri West data to evaluate the length of time elapsed between when the facility was required

to be located and when it actually was located. Staff evaluated the months of January and July 2022 to evaluate in detail because January 2022 was a month with a higher OTP of ** [REDACTED] ** and July 2022 was a month with a lower OTP of ** [REDACTED] **, and they were in different seasons.

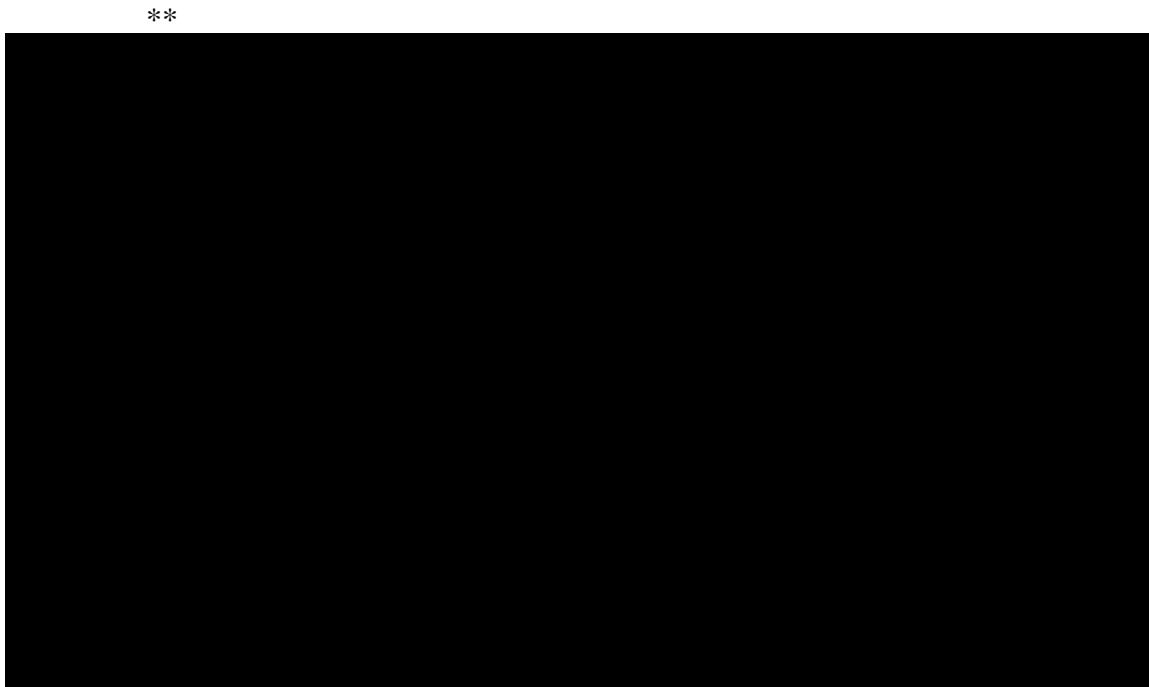
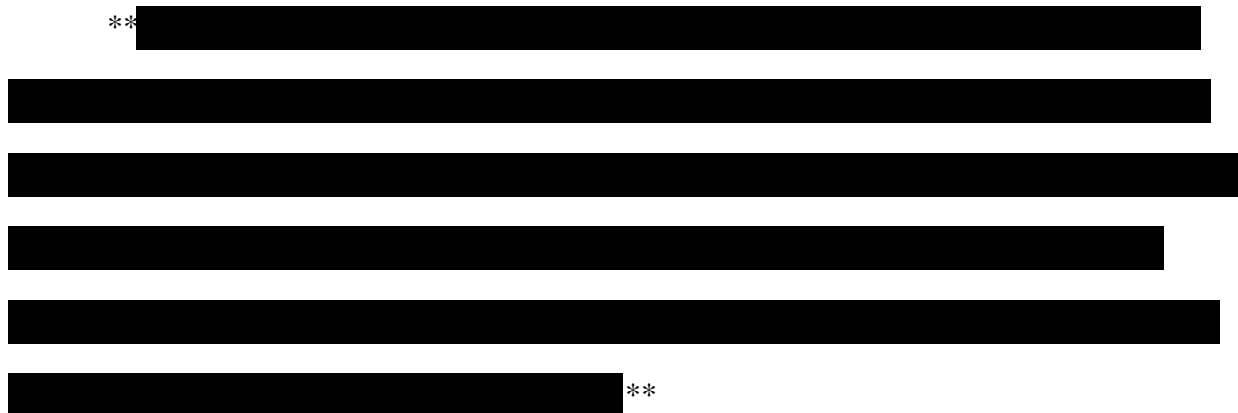


Figure 12: Number of Tickets Late by Days Late – Spire Missouri West



1.3 Spire’s Explanations for Late Locates

Spire has stated that difficulties obtaining a time extension from the excavator, locate request volume increases, and tickets with large scopes of work are challenges to achieving full compliance with the locate time requirements.³⁴ Spire has stated that due to the nationwide labor shortage, their contract locating company has had difficulties achieving the staffing levels needed to meet the requirements to timely locate its facilities.³⁵

Additionally, Spire stated that “The Company does not provide additional training because late locates are the result of inadequate staffing and not due to a training concern.”³⁶

2.0 Operator Qualifications

2.1 Spire Missouri’s Operator Qualification Program

To evaluate Spire’s compliance with the Commission’s requirements for Qualification of Pipeline Personnel, Staff reviewed:

- Spire’s current written operator qualification program in effect for Spire’s Missouri operations (including both Spire Missouri East and Spire Missouri West) that is titled as the Spire Inc., Operator Qualification Plan (Last Update Date: 1/21/2023).
- The operator qualification program for ** [REDACTED] ** titled Operator Qualification Program & Covered Task List - Locating Pipelines (Revision Date: 8/3/2023).
- The current written operator qualification (OQ) program in effect for ** [REDACTED] ** which is the Spire Inc., Operator Qualification Plan (Last Update Date: 1/21/2023).³⁷

³⁴ Spire’s response to Staff Data Request 0003.

³⁵ Spire’s response to Staff Data Request 00032.1.

³⁶ Spire’s response to Staff Data Request 0032 regarding additional training for contract locators when locates were not performed on time.

³⁷ Spire’s response to Staff Data Request 0042.

- Training and qualification records for Spire and contractor personnel responsible for locating Spire’s underground facilities.

3.0 Oversight of Contractors

3.2 Spire’s Oversight of Contract Locators

Spire’s oversight of the contractors is accomplished via meetings with the Contract Locating Company management teams (**[REDACTED]**), field audits for locate accuracy, and participation in new hire training with contract locators.

Contractor Meetings

Spire Missouri holds weekly meetings (both virtual and in person) with the Contract Locating Company management teams. These weekly communications include emails and phone calls. Spire Missouri does not retain documentation of the weekly meetings or phone calls, but provided a copy of a meeting attendance sheet to Staff as an example of contractor interaction.

Field Audits

Spire conducts field audits of locates based on³⁸:

**

- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED] **

³⁸ Spire’s confidential response and attachments to Staff Data Request 0015.1.

Spire considers a locate to be “completed on time” when the time and date of the locate response does not exceed two working days from the time and date of the locate request. Table 7 shows a comparison of audits conducted in each specific location from 2015 through August 2023 for Spire Audits of ** [REDACTED] **:

Table 7-Number of ** [REDACTED] ** Audits Spire Conducted 2015 – August 2023						
Year	Spire Audit Result of Completed on Time		Spire Audit Result of % Completed on Time		Spire Total Audits Completed	
	MO East	MO West	MO East	MO West	MO East	MO West
2015	** [REDACTED] **	** [REDACTED] **	** [REDACTED] **	** [REDACTED] **	40	16
2016	** [REDACTED] **	** [REDACTED] **	** [REDACTED] **	** [REDACTED] **	130	99
2017	** [REDACTED] **	** [REDACTED] **	** [REDACTED] **	** [REDACTED] **	16	135
2018	** [REDACTED] **	** [REDACTED] **	** [REDACTED] **	** [REDACTED] **	621	219
2019	** [REDACTED] **	** [REDACTED] **	** [REDACTED] **	** [REDACTED] **	611	234
2020	** [REDACTED] **	** [REDACTED] **	** [REDACTED] **	** [REDACTED] **	655	298
2021	** [REDACTED] **	** [REDACTED] **	** [REDACTED] **	** [REDACTED] **	641	633
Jan 22-Aug 23	** [REDACTED] **	** [REDACTED] **	** [REDACTED] **	** [REDACTED] **	260	704

Between May 1, 2023 and August 31, 2023, Spire also performed 12 audits of GridHawk. In ** [REDACTED] ** of these audits Spire found on-time performance to be passing.

Participation in New Hire Training

Spire stated that it interacts with contract locator employees during new hire training, and provided the number of such interactions as follows:

Table 8-Number of Times Spire Participated in ** [REDACTED] ** New Hire Training	
Year	Number of Times
2015	0

Table 8-Number of Times Spire Participated in ** [REDACTED] ** New Hire Training	
Year	Number of Times
2016	3
2017	5
2018	6
2019	6
2020	9
2021	22
2022	36
Jan – Aug 2023	25

4.0 Distribution Integrity Management

4.1 Spire Excavation Damage Data Collection

In response to a Staff data request³⁹ asking for currently effective procedures addressing determination of the root cause(s) of damages by excavation activities, Spire stated that it **

[REDACTED]

[REDACTED]”, and provided copies of three procedures.

The first of these procedures, *Investigation of Incidents Standard Operating Procedure (SOP), 220.O.1*, states that ** [REDACTED]

[REDACTED]

[REDACTED]

³⁹ Staff Data Request 0009.

[REDACTED]

[REDACTED] ⁴⁰ **

The second of these procedures, *Damage Prevention Program Standard Operating Procedure (SOP)*, 220.C includes a section related to excavation damages. With respect to determining causes, the procedures states:

** [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] **

The third of these procedures: *Investigation of Failures Standard Operating Procedure (SOP) 220.E.1.* ** [REDACTED] ⁴¹ [REDACTED]

⁴⁰ ** [REDACTED]

[REDACTED]

[REDACTED] **

⁴¹ Spire defines excavation damage as *** [REDACTED]

[REDACTED] **

[REDACTED]^{42.} ** Staff notes however that the procedure does not address possible root causes of excavation damages.

Staff additionally requested copies of Spire’s tracking results of the root cause(s) of damages to its underground pipelines by excavation activities for calendar years 2015 -2021. The data Spire provided attributed damages to a number of specific root cause descriptions not listed as examples in the *Damage Prevention Program Standard Operating Procedure (SOP)*, 220.C.

4.2 Spire Excavation Damage Data Evaluation

In response to a Staff data request⁴³ asking for a copies of Spire’s three most recent evaluations of excavation damages in general, excavation damages caused by failure to locate facilities and excavations damages caused by failure to timely locate facilities, Spire provided a copies of tables titled ** [REDACTED]

[REDACTED] ** from its DIMP. The table with ** [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED] **

In response to a staff data request asking what measures Spire has implemented to address the risk of damage to its pipelines as a result of failure to timely locate its underground facilities, Spire responded:

⁴² ** [REDACTED] **

⁴³ Staff Data Request 0014.

The Company reduces the risk from failures of its gas pipelines by addressing those threats that pose the most risk to its system. The threat of failure to timely locate underground facilities was not a driver of the sub-threat “Locating Practices Not Sufficient.” The Company made the best use of its available resources by implementing action plans that address the primary drivers of the sub-threat “Locating Practices Not Sufficient.”