MISSOURI PUBLIC SERVICE COMMISSION

STAFF'S GAS INCIDENT REPORT

Grandview Road
Kansas City, MO
April 22, 2025

APPENDIX B

Failure Investigation Report (FIR)

Spire Missouri, Inc.

Case No. GS-2025-0295

Industry Analysis Division
Safety Engineering Department
April 30, 2026 - Jefferson City, Missouri

** Denotes Confidential Information **

Appendix B

Failure Investigation Report (FIR)

Principal Investigators Missouri PSC – ** [redacted] **
responded to incident site on April 22 and 23, 2025.
Date of Report 04/28/2026
Subject Failure Investigation Report – Spire Missouri West – Third Party Damage

Operator, Location, and Consequences

Date of Failure - April 22, 2025
Commodity Released - Natural Gas
City, County, State – Kansas City, Jackson, MO
OpID and Operator Name – Spire Missouri West, #30769 ("Spire")
Milepost / Location – 9509 Grandview Rd, Kansas City, MO
Type of Failure – Leak at damaged fitting on top of 10-inch steel main; escaping gas ignited during Spire's emergency response.
Fatalities – 0
Injuries – 3
Description of the Impacted Area – Class 3 Location, city residential area; open excavation in street.

Total Costs - $177,240 per PHMSA F7100.1

Executive Summary

On April 22, 2025, the Kansas City Missouri Water Department was backfilling a water main repair excavation and damaged a 10-inch steel gas main operating at 130 psig, resulting in blowing gas. Spire emergency response personnel used excavation equipment in the vicinity of the blowing gas and an ignition occurred, resulting in injuries to Spire personnel. The emergency response by Spire personnel was inadequate and did not prevent accidental ignition of the blowing gas. Contributing factors to the excavation damage were the absence of the Spire inspector who had been present earlier that day during excavation activities to remove soil for a water main repair and unsafe digging practices by Kansas City Water when backfilling with a backhoe next to the 10-inch steel main. Contributing factors to the ignition were Spire emergency response personnel did not test the atmosphere where the engine-driven machinery was being operated, did not halt the work when an unsafe condition was present prior to ignition, and did not communicate with supervisory personnel who were planning to close valves and depressurize the pipeline.

System Details

Spire Missouri Inc. ("Spire") operates the natural gas distribution system in the City of Kansas City. The damage occurred on a 10-inch steel main (installed in 1929) in a distribution feeder line system that transports gas to several district regulator stations supplying distribution systems in the Kansas City area. The MAOP of the distribution feeder line system is 150 psig and it was operating at approximately 130 psig when the incident occurred.

Events Leading Up to the Failure

On April 14, 2025, the Kansas City Missouri Water Department requested that buried utilities be marked to repair a water main in the vicinity of a high pressure 10-inch steel main operated by Spire in Kansas City, Missouri. Spire indicated that the location had been marked by updating the ticket status as "Marked" at 11 am on April 16, 2025.

The excavation met multiple risk factors in Spire's Damage Prevention Program for determining if Spire should observe excavation activities. These factors included ** [redacted] **. A Spire employee was on-site on April 22, 2025, to observe excavations during the water main repair, but departed prior to the backfilling work. A 1-inch fitting at the 12:00 position on the 10-inch steel natural gas pipeline was damaged by a backhoe bucket during backfilling at approximately 5:10 pm.

Emergency Response

Spire was notified at approximately 5:17 pm. Spire's first responding personnel were a two-person Spire crew consisting of a machine operator and working foreman – they arrived at 5:36 pm and unloaded Spire's excavation equipment near the damage location. A Spire serviceman arrived at 5:42 pm. Spire personnel instructed KC Water personnel to move the City's excavation equipment away from the blowing gas, then Spire moved in its own mini-excavator and began excavating the backfill with the serviceman manning a fire extinguisher and the two-person crew wearing fire suits. The natural gas ignited during Spire's excavation activities, resulting in severe burns to the Spire machine operator. The pipeline condition was made safe by closing two nearby valves. Three Spire employees were injured as a result of the incident; the machine operator was hospitalized for extended treatment. Notifications were made to NRC and Missouri PSC. (See Exhibits 2 and 3).

Summary of Return-to-service

Repair was completed by removing the damaged 1-inch fitting and welding on a permanent repair sleeve.

Investigation Details

Staff responded to the incident site and arrived at 8:57 pm on April 22, 2025. Staff observed that a steel fitting on top of the 10-inch steel main was damaged. No photograph was taken by Staff due to venting gas in the air at that location. (A photograph of the damaged fitting was later obtained from Spire – see Exhibit 1). The City's backhoe bucket striking the fitting on top of the steel main was the probable cause of a fracture in the steel main next to the fitting weld. No lab analysis was performed on the fracture edge at the removed fitting. (Note: The fracture edge at the main was not accessible after containment inside a repair sleeve.)

The emergency response by Spire involved sending a Leak and Maintenance (L&M) two-person crew and a serviceman to the damage location and requesting Pressure and Measurement (P&M) personnel to isolate the damaged pipeline. ** [redacted] ** The serviceman on fire watch was located upwind of the blowing gas, but the Spire excavation equipment was downwind. The Spire L&M crew did not prevent accidental ignition in accordance with 49 CFR 192.751 [20 CSR 4240-40.030(13)(X)] because engine-driven machinery was used in the vicinity of blowing gas and the gas ignited.

The emergency response under 49 CFR 192.615 [20 CSR 4240-40.030(12)(J)] was inadequate because the Spire personnel operated engine-driven machinery in the vicinity of the blowing gas resulting in an ignition that resulted in injuries to the Spire personnel. Prior to the ignition, natural gas was escaping into the atmosphere and ignition sources were not kept away from the blowing gas until the pipeline could be valved off and depressurized. ** [redacted] **, but this information was not provided to the L&M crew before they started excavation – and the L&M crew did not consult supervision about an action plan before starting excavation.

Spire and 3rd-party excavator personnel were interviewed and Spire records related to the incident were reviewed (copies are provided in Exhibit 4):

SOP 110.C Stop Work Responsibility
SOP 220.C Damage Prevention Program
SOP 220.D Emergency Plan
SOP 220.L Hazardous Atmosphere
SOP 230.H Prevention of Accidental Ignition

- SOP 110.C was an adequate procedure for this incident, but none of the three Spire personnel excavating at the blowing gas used their authority to stop the hazardous and unsafe work.
- SOP 220.C was an adequate procedure for this incident, but the Spire inspector for this high-risk excavation did not stay and monitor the continued excavation activity of backfilling the water main repair, which is when the excavation damage occurred.
- SOP 220.D was an adequate procedure for this incident, but inadequate communication by Spire emergency response personnel resulted in Spire personnel excavating in the vicinity of blowing gas instead of waiting to employ an emergency response action plan ** [redacted] **.
- SOP 220.L in ** [redacted] ** This would not have applied to the current incident as there was no plastic gas piping within the excavation area. In its investigation of the incident (See Exhibit 5), Spire indicated that this ** [redacted] ** The rest of SOP 220.L was adequate for this incident, but Spire personnel did not test the atmosphere around the excavation before working in the vicinity of the excavation and did not stop the operation of mechanized equipment where excavation activities caused an uncontrolled release of gas.
- SOP 230.H was an adequate procedure for this incident, but Spire emergency response personnel did not prevent accidental ignition because they operated an ignition source (engine) in the vicinity of blowing gas.

Investigation Findings and Contributing Factors

The 3rd-party damage to the pipeline was caused by the excavator hitting a fitting on top of the natural gas main with a backhoe bucket while backfilling with gravel. The excavator did not follow safe digging practices during backfilling when moving gravel with mechanized equipment in immediate proximity to the natural gas main and fittings. A contributing factor was the absence of the Spire inspector who had been present earlier that day during excavation activities to remove soil for a water main repair, but left the site prior to the excavation activities to backfill the repair hole with gravel that were occurring at the time of the 3rd-party excavation damage. In response to Staff Data Request 0018 about whether Spire should have had a qualified representative on-site to observe the specific excavation activity of backfilling, Spire stated:

** [redacted] **

The natural gas escaping from the excavation damage was ignited when Spire personnel were operating engine-driven machinery in proximity to the blowing gas during the emergency response. A contributing factor is Spire personnel did not test the atmosphere where the engine-driven machinery was being operated. ** [redacted] ** did not follow the procedures in SOP 230.H Prevention of Accidental Ignition and SOP 220.L Hazardous Atmosphere.

Further contributing to the ignition is that the three Spire personnel working in the vicinity of blowing gas did not halt the work when an unsafe condition and hazard was present prior to the ignition. Spire SOP 110.C Stop Work Responsibility ** [redacted] **

Exhibits

Exhibit 1– Map and Photographs - Confidential
Exhibit 2 – NRC Reports
Exhibit 3 – Operator Incident Report to PHMSA
Exhibit 4 – Operator Procedures and Records - Confidential
Exhibit 5 – Operator Failure Investigation Report - Confidential

Map and Photographs

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Figure 1: 9509 Grandview Rd Leak Survey Sketch (Source: Spire Attachment 23.D)

Figure 2: Damaged Fitting on Main (Source: Spire Response to Staff Data Request 0001.3A)

Figure 3: Damaged Fitting After Removal (Source: Spire Response to Staff Data Request 0001.3B)

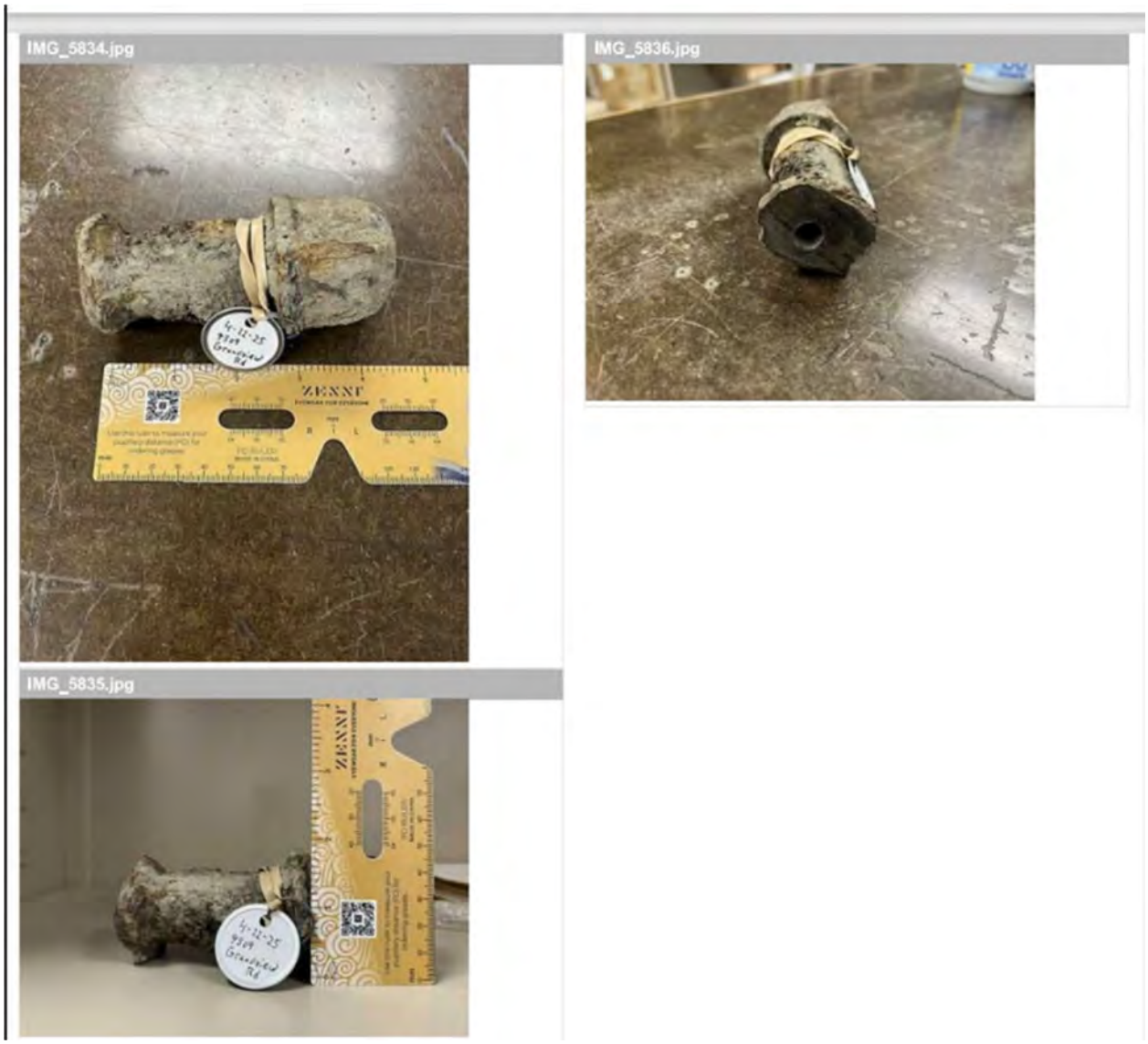
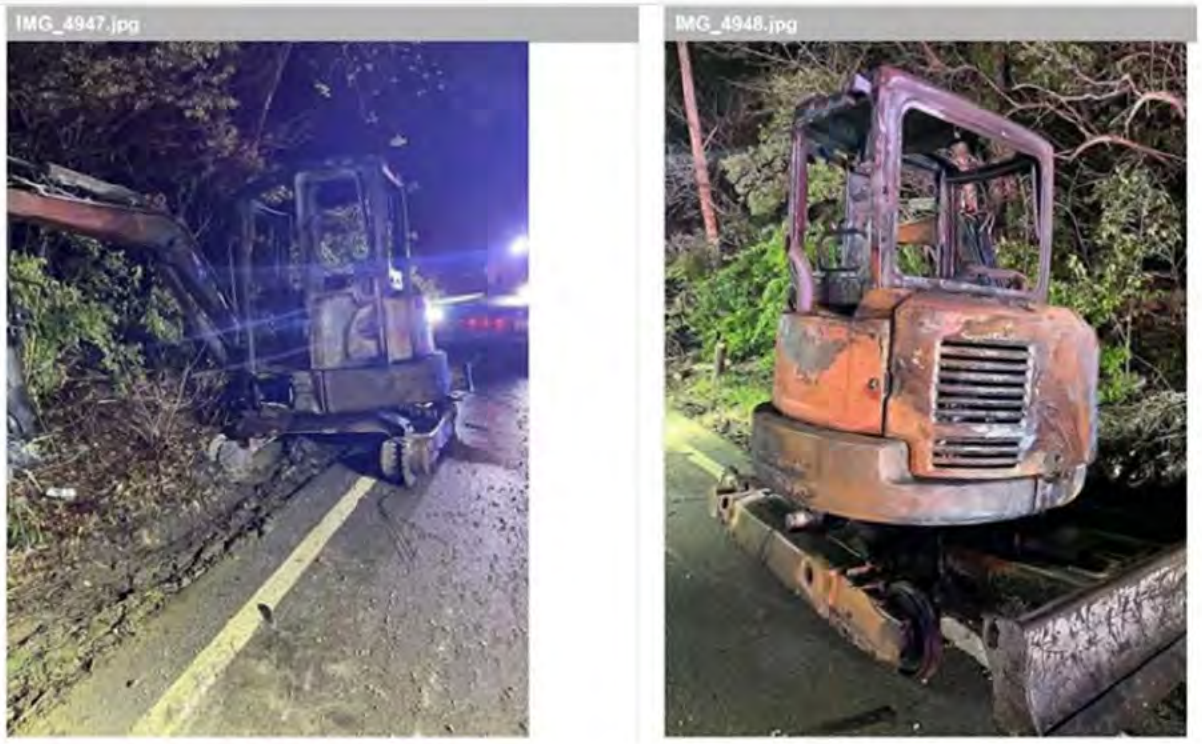


Figure 4: Fitting Measurements (Source Spire Response to Staff Data Request 0001.2)



**

[redacted]

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Figure 5: Spire Mini-Excavator and Pipe Repair (Source Spire Response to Staff Data Request 0001.3B).

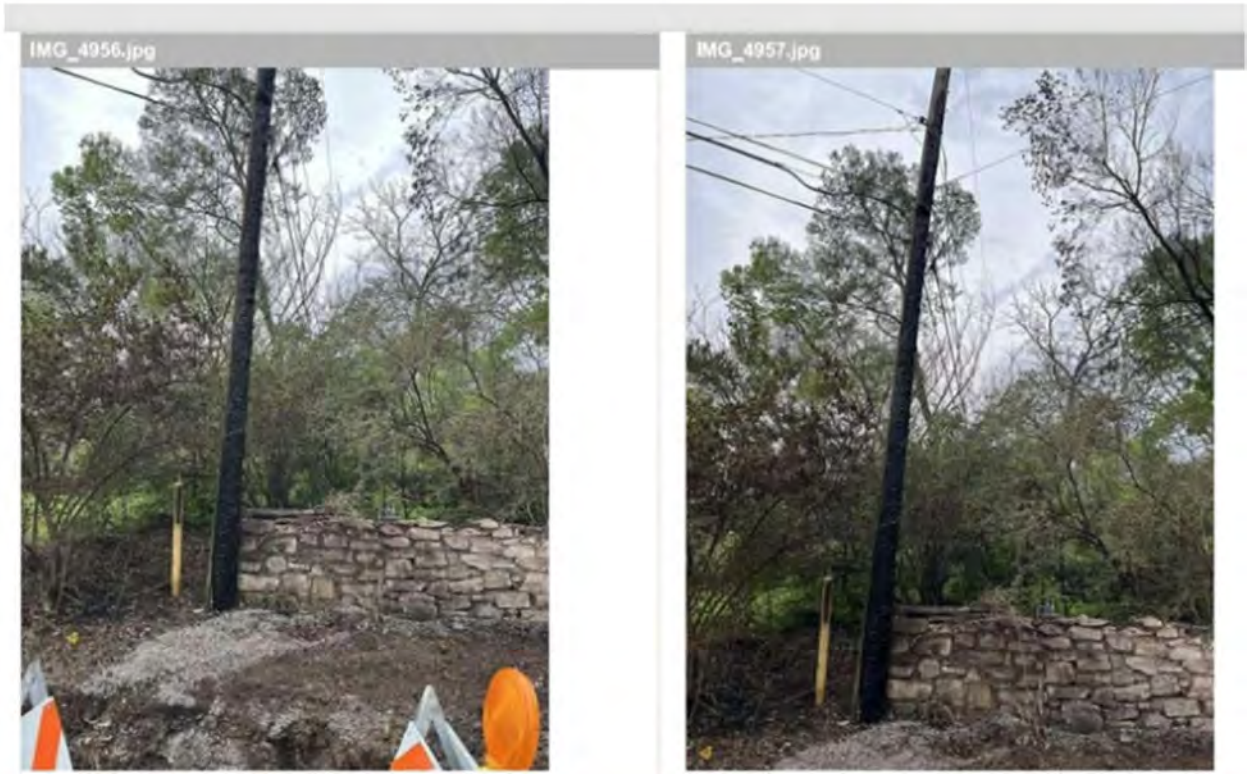

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Figure 6: Damaged Power Pole and Pipeline Marker (Source: Spire Response to Staff Data Request 0001.3B)

Figure 7: Kansas City Water Department Backhoe (Source: Spire Response to Staff Data Request 0001.3B)

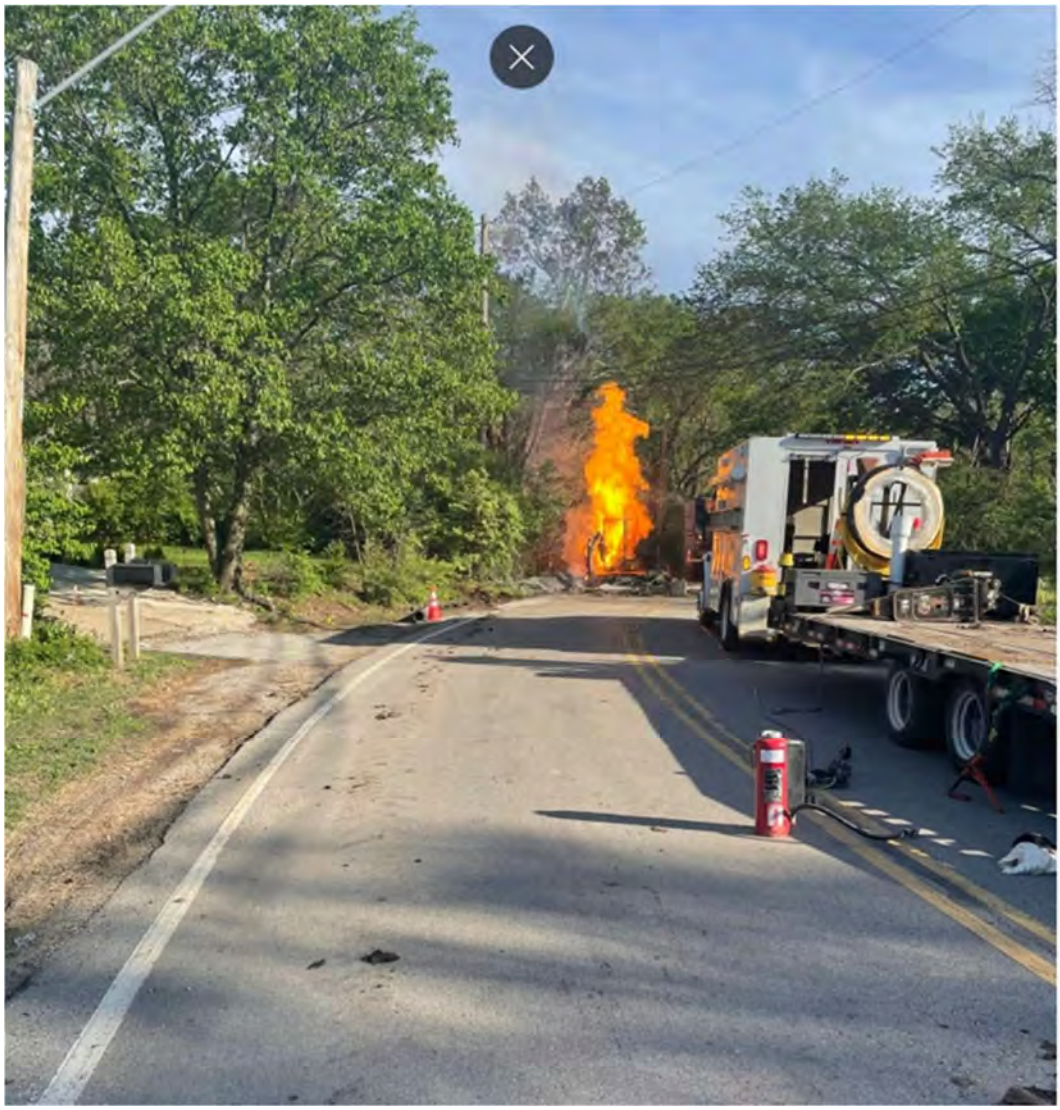

Figure 8: View Looking South at Gas Fire (Source: Spire Response to Staff Data Request 0001.3B)

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Figure 9: View Looking North with Nearby Regulator Station (Source: Spire Response to Staff Data Request 0001.3B).

From: HQS-SMB-NRC@uscg.mil
To: Kottwitz, John
Subject: NRC#1429366
Date: Monday, October 27, 2025 3:47:44 PM

NATIONAL RESPONSE CENTER 1-800-424-8802
*** For Public Use ***
Information released to a third party shall comply with any
applicable federal and/or state Freedom of Information and Privacy Laws

Incident Report # 1429366

INCIDENT DESCRIPTION

*Report taken by NRC on 24-APR-25 at 16:34 ET.
Incident Type: PIPELINE
Incident Cause: OPERATOR ERROR
Affected Area:
Incident was discovered on 22-APR-25 at 17:36 local incident time.
Affected Medium: AIR / ATMOSPHERE

SUSPECTED RESPONSIBLE PARTY

Organization: KANSAS CITY WATER

Type of Organization: PUBLIC UTILITY

INCIDENT LOCATION
9509 GRAND VIEW RD County: JACKSON
City: KANSAS CITY State: MO

RELEASED MATERIAL(S)
CHRIS Code: ONG Official Material Name: NATURAL GAS
Also Known As:
Qty Released: 0 UNKNOWN AMOUNT

DESCRIPTION OF INCIDENT
/// THIS IS A 48-HOUR UPDATE TO NRC REPORT 1429178 ///

THE UPDATE IS AS FOLLOWS: THE RELEASE WAS SECURED LATE TUESDAY EVENING. PERMANENT REPAIR HAS BEEN COMPLETED AND SERVICES HAVE BEEN RESTORED.

/// ORIGINAL REPORT BELOW ///

CALLER REPORTED EXCAVATION DAMAGE ON A TEN INCH STEEL GAS MAIN THAT CAUSED AN IGNITION AND RELEASE OF NATURAL GAS TO THE ATMOSPHERE. THERE IS ONE REPORTED INJURY. EMERGENCY SERVICES ARE ON SCENE. THE RELEASE IS ONGOING AND THERE IS A FIRE AT THIS TIME.

INCIDENT DETAILS

Pipeline Type: DISTRIBUTION
DOT Regulated: YES
Pipeline Above/Below Ground: BELOW
Exposed or Under Water: NO
Pipeline Covered: UNKNOWN

IMPACT

Fire Involved: NO Fire Extinguished: UNKNOWN

INJURIES: YES 1 Sent to Hospital:1 Empl/Crew: Passenger:
FATALITIES: NO Empl/Crew: Passenger: Occupant:
EVACUATIONS:NO Who Evacuated: Radius/Area:

Damages: UNKNOWN

Closure Type	Description of Closure	Hours Closed	Direction of Closure

Air: NO

Road: NO Major Artery:NO

Waterway:NO

Track: YES GRAND VIEW AVE
Passengers Transferred: NO
Environmental Impact: UNKNOWN
Media Interest: UNKNOWN

REMEDIAL ACTIONS

PERMANENT REPAIR HAS BEEN COMPLETED, AND SERVICES HAVE BEEN RESTORED.
Release Secured: YES
Release Rate:
Estimated Release Duration:

WEATHER

ADDITIONAL AGENCIES NOTIFIED

Federal:
State/Local:
State/Local On Scene: LOCAL EMERGENCY SERVICES
State Agency Number:

NOTIFICATIONS BY NRC

AGCY TOXIC SUBST & DISEASE REGISTRY (HHS)
24-APR-25 16:40
CENTERS FOR DISEASE CONTROL (GRASP)
24-APR-25 16:40
CG INVESTIGATIVE SVC PACIFIC REGION (INTELLIGENCE)
24-APR-25 16:40
CHEM SAFETY AND HAZARD INVEST BOARD (MAIN OFFICE)
24-APR-25 16:40
DEPT OF HEALTH AND HUMAN SERVICES (SECRETARY OPERATION CENTER (SOC))
24-APR-25 16:40

DHS CISA (REGION VII)
24-APR-25 16:40
DHS CISA (CISA CENTRAL)
24-APR-25 16:40
DOI HEADQUARTERS (IOC OFFICE OF EMERGENCY MANAGEMENT)
24-APR-25 16:40
OFFICE OF ENV. POLICY & COMPLIANCE (OEPC REGION 7)
24-APR-25 16:40
OFFICE OF ENV. POLICY & COMPLIANCE (DOI OFFICE OF ENVIRONMENTAL POLICY AND COMPLIANCE)
24-APR-25 16:40
DOT CRISIS MANAGEMENT CENTER (MAIN OFFICE)
24-APR-25 16:40
U.S. EPA VII (MAIN OFFICE)
24-APR-25 16:44
U.S. EPA VII (CRIMINAL INVESTIGATION DIVISION)
24-APR-25 16:40
WASTE AND CHEMICAL ENFORCEMENT (OFFICE OF CIVIL ENFORCEMENT)
24-APR-25 16:40
GSA OFFICE OF MISSION ASSURANCE (REGION 7 KANSAS CITY)
24-APR-25 16:40
IA HOMELAND SECURITY & EMERG MGMT (IA NATIONAL GUARD JOINT FORCES HEADQUARTERS)
24-APR-25 16:40
JOINT TASK FORCE CIVIL SUPPORT (CBRN ANALYSIS CELL)
24-APR-25 16:40
KANSAS INTEL FUSION CENTER (US DHS I&A, SLPO)
24-APR-25 16:40
MO INFORMATION ANALYSIS CENTER (COMMAND CENTER)
24-APR-25 16:40
MO DEPT OF HEALTH AND SENIOR SVC (COMMAND CENTER)
24-APR-25 16:40
MISSOURI EMERGENCY MGMT AGENCY (COMMAND CENTER)
24-APR-25 16:40
NOAA RPTS FOR MO (MAIN OFFICE)
24-APR-25 16:40
NTSB PIPELINE (MAIN OFFICE)
24-APR-25 16:40
OTHER UNIT (ADDITIONAL)
27-OCT-25 16:47
PIPELINE & HAZMAT SAFETY ADMIN (OFFICE OF PIPELINE SAFETY (AUTO))
24-APR-25 16:40
PIPELINE & HAZMAT SAFETY ADMIN (OFFICE OF PIPELINE SAFETY WEEKDAYS (VERBAL))
24-APR-25 16:45
PIPELINE & HAZMAT SAFETY ADMIN (HAZARDOUS MATERIAL ACCIDENT INVESTIGATION)
24-APR-25 16:40
REPORTING PARTY (RP SUBMITTER)
24-APR-25 16:40
DEPT HEALTH AND ENV (MAIN OFFICE)
24-APR-25 16:40
MODNR ATTN: DUTY OFFICER (MAIN OFFICE)
24-APR-25 16:40
TSA OFFICE OF SECURITY OPERATIONS (SURFACE OPS/PSAT - MISSOURI OFFICE)
24-APR-25 16:40
TSA ST LOUIS (TWIC ENFORCEMENT--SURFACE)
24-APR-25 16:40
USCG DISTRICT 8 (MAIN OFFICE)

24-APR-25 16:40
USDA FOREST SERVICE (NATIONAL FOREST SYSTEM RM REGION)
24-APR-25 16:40

ADDITIONAL INFORMATION

*** END INCIDENT REPORT #1429366 ***

**********ATTENTION **********

The NRC is in the process of updating its Incident Reporting Information System (IRIS) and wants your feedback!This system provides all reports and data to the NRT,making your feedback essential to ensure that current and future reporting requirements are met.

If you have recommendations for improvements, suggested capabilities, or any other items that would be helpful in the performance of your duties, we want to know!

Please submit your feedback to SMB-COMDT-NRCIRIS@uscg.mil no later than August 8,2025.

We greatly appreciate your assistance and thank you for your attention!

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Report any problems by calling 1-800-424-8802

PLEASE VISIT OUR WEB SITE AT https://urldefense.com/v3/__http://nrc.uscg.mil__;!!EErPFA7f--AJOw!D0kj0wNa_vsR5Al9jc6diOhlBcIjxGHerF8zFEyE-ZLzPO5UvNh4T5HEvJs_YDlo_JC-0pDJG1YCCNnz5f5ZEG-73R9YLPM$

NOTICE: This report is required by 49 CFR Part 191. Failure to report can result in a civil penalty as provided in 49 USC 60122.	OMB NO: 2137-0635 EXPIRATION DATE: 6/30/2026
U.S. Department of Transportation Pipeline and Hazardous Materials Safety Administration	**Original Report Date:** 05/22/2025
	No. 20250031-41663 --- (DOT Use Only)

INCIDENT REPORT - GAS DISTRIBUTION SYSTEM

A federal agency may not conduct or sponsor, and a person is not required to respond to, nor shall a person be subject to a penalty for failure to comply with a collection of information subject to the requirements of the Paperwork Reduction Act unless that collection of information displays a current valid OMB Control Number. The OMB Control Number for this information collection is 2137-0635. Public reporting for this collection of information is estimated to be approximately 12 hours per response, including the time for reviewing instructions, gathering the data needed, and completing and reviewing the collection of information. All responses to this collection of information are mandatory. Send comments regarding the burden or any other aspect of this collection of information, including suggestions for reducing the burden to: Information Collection Clearance Officer, PHMSA, Office of Pipeline Safety (PHP-30) 1200 New Jersey Avenue, SE, Washington, D.C. 20590.

INSTRUCTIONS

Important: *Please read the separate instructions for completing this form before you begin. They clarify the information requested and provide specific examples. If you do not have a copy of the instructions, you can obtain one from the PHMSA Pipeline Safety Community Web Page at https://www.phmsa.dot.gov/pipeline/library/forms*

PART A - KEY REPORT INFORMATION

Report Type: (select all that apply)	Original:	Supplemental:	Final:
		Yes	Yes
Last Revision Date	12/05/2025		
1. Operator's OPS-issued Operator Identification Number (OPID):	30769		
2. Name of Operator	SPIRE MISSOURI INC. WEST		
3. Address of Operator:			
3a. Street Address	700 MARKET STREET		
3b. City	Saint Louis		
3c. State	Missouri		
3d. Zip Code	63101		
4. Local time (24-hr clock) and date of incident:	04/22/2025 17:10		
4a. Time Zone for local time (select only one)	Central		
4b. Daylight Saving in effect?	Yes		
5. Location of Incident:			
5a. Street Address or location description	9509 Grandview Rd		
5b. City	Kansas City		
5c. County or Parish	Jackson		
5d. State:	Missouri		
5e. Zip Code:	64137		
5f. Latitude / Longitude	38.95367504, -94.54989956		
6. Gas released:	Natural Gas		
- Other Gas Released Name:			
7. Estimated volume of gas released unintentionally: - thousand standard cubic feet (mcf)	186.22		
8. Estimated volume of intentional and controlled release/blowdown:thousand standard cubic feet (mcf)	0		
9. Were there fatalities?	No		
- If Yes, specify the number in each category:			
9a. Operator employees			
9b. Contractor employees working for the Operator			
9c. Non-Operator emergency responders			
9d. Workers working on the right-of-way, but NOT associated with this Operator			
9e. General public			
9f. Total fatalities (sum of above)	0		
10. Were there injuries requiring inpatient hospitalization?	Yes		
- If Yes, specify the number in each category:			
10a. Operator employees	1		

10b. Contractor employees working for the Operator	0
10c. Non-Operator emergency responders	0
10d. Workers working on the right-of-way, but NOT associated with this Operator	0
10e. General public	0
10f. Total injuries (sum of above)	1
11. What was the Operator's initial indication of the Failure? *(select only one)*	Notification from Third Party that caused the Incident
- If Other, Specify:	
11a. If "Controller", "Local Operating Personnel, including contractors", "Air Patrol", or "Ground Patrol by Operator or its contractor" is selected in Question 11, specify.	
12. Local time operator identified failure	04/22/2025 17:10
If 11 = Notification from Emergency Responder, skip questions 13 through 15.	
13. Did the operator communicate with Local, State, or Federal Emergency Responders about the incident?	Yes
- If No, skip A14 and A15	
14. Which party initiated communication about the incident?	Operator
15. Local time of initial Operator and Local/State/Federal Emergency Responder communication	04/22/2025 17:20
16. Local time operator resources arrived on site:	04/22/2025 17:36
17. Local time of confirmed discovery:	04/22/2025 19:17
18. Local time (24-hr clock) and date of initial operator report to the National Response Center:	04/22/2025 19:38
19. Initial Operator National Response Center Report Number:	1429178
19a. Additional NRC Report numbers submitted by the operator:	1429366
20. Method of Flow Control *(select all that apply)*	
"Key/Critical" Valve – inspected in accordance with Part 192.747	
Main Valve other than "Key/Critical"	Yes
Service (curb) Valve	
Meter/Regulator shut-off Valve	
Excess flow valve	
Squeeze-Off	
Stopple fitting	
Other	
- If Other, Specify:	
21. Did the gas ignite?	Yes
If A21 = Yes, answer A21a through A21d.	
21a. Local time of ignition	04/22/2025 18:08
21b. How was the fire extinguished?	Local/State/Federal Emergency Responder
- If Other, Specify:	
21c. Estimated volume of gas consumed by fire (MCF): (must be less than or equal to A7.)	159.62
21d. Did the gas explode?	No
22. Number of general public evacuated:	16

PART B - ADDITIONAL LOCATION INFORMATION

1. Was the Incident on Federal land?	No
2. Location of Incident	Public property
3. Area of Incident:	Underground
Specify:	Exposed due to excavation
If Other, Describe:	
3a. Depth of Cover:	30
3b. Were other underground facilities found within 12 inches of the failure location?	No
4. Did Incident occur in a crossing?	No
- If Yes, specify type below:	
- If Bridge crossing –	
Cased/ Uncased:	
- If Railroad crossing –	

Cased	
Uncased	
Bored/drilled	
- If Road crossing –	
Cased	
Uncased	
Bored/drilled	
- If Water crossing –	
Cased	
Uncased	
Bored/drilled	
Name of body of water (If commonly known):	
Approx. water depth at time and location of Incident (ft):	
(select only one):	

PART C - ADDITIONAL FACILITY INFORMATION

1. Indicate the type of pipeline system:	Investor Owned
- If Other, specify:	
2. Part of system involved in Incident:	Main
- If Other, specify:	
2a. Year item involved in the incident was installed:	1929
2b. Year item involved in the incident was manufactured:	Unknown
When 2.is any value other than "Main", "Main Valve", "District Regulator/Metering Station", or "Other":	
2c. Indicate the customer type: (select only one)	
2d. Was an EFV installed on the service line before the time of the incident?	
If 2d = Yes, then 2e. Did the EFV activate?	
2f. Was a curb valve installed on the service line before the time of the incident?	
3. When 2. is "Main" or "Service" answer 3a through c and 4:	
3a. Nominal Pipe Size:	10
3b. Pipe specification (e.g., API 5L, ASTM D2513):	Unknown
3c. Pipe manufacturer:	Unknown
4. Material involved in Incident:	Steel
- If Other, specify:	
4a. If Steel, Specify seam type:	Longitudinal ERW - Unknown Frequency
- If Other, specify:	
4b. If Steel, Specify wall thickness (inches):	Unknown
4c. If Plastic, Specify type:	
- If Other, describe:	
4d. If Plastic, Specify Standard Dimension Ratio (SDR):	
Or wall thickness:	
Unknown	
4e. If Polyethylene (PE) is selected as the type of plastic in Part C, Question 4.c:	
- Specify PE Pipe Material Designation Code (i.e. 2406, 3408, etc.)	
Unknown?	
5. Type of release involved :	Leak
- If Mechanical Puncture - Specify Approx. size:	
Approx. size: in. (axial):	
in. (circumferential):	
- If Leak - Select Type:	Other
- If Other, Describe:	.5" hole from 1-inch nipple
- If Rupture - Select Orientation:	
- If Other, Describe:	
Approx. size: (widest opening):	
(length circumferentially or axially):	
- If Other - Describe:	

PART D - ADDITIONAL CONSEQUENCE INFORMATION	
1. Class Location of Incident:	Class 3 Location
2. Estimated Property Damage:	
2a. Estimated cost of public and non-Operator private property damage paid/reimbursed by the Operator	$0
2b. Estimated cost of Operator's property damage & repairs	$175,915
2c. Estimated cost of emergency response	$500
2d. Estimated other costs	$0
- Describe:	
2e. Property damage subtotal (sum of above)	$176,415
Cost of Gas Released	
Cost of Gas in $ per thousand standard cubic feet (mcf):	$6.3330
2f. Estimated cost of gas released unintentionally	$1,179
2g. Estimated cost of gas released intentionally during controlled release/blowdown	$0
2h. Total estimated cost of gas released (sum of 2f and g)	$1,179
2i. Estimated Total Cost (sum of 2e and 2h)	$177,594
3. Estimated number of customers out of service:	
3a. Commercial entities	0
3b. Industrial entities	0
3c. Residences	16
Injured Persons not included in A10 The number of persons injured, admitted to a hospital, and remaining in the hospital for at least one overnight are reported in A10. If a person is included in A10, do not include them in D4.	
4. Estimated number of persons with injuries requiring treatment in a medical facility but not requiring overnight in-patient hospitalization:	1
If a person is included in 4, do not include them in 5.	
5. Estimated number of persons with injuries requiring treatment by EMTs at the site of incident:	1
Buildings Affected	
6. Number of residential buildings affected (evacuated or required repair or had gas service interrupted):	16
7. Number of business buildings affected (evacuated or required repair or had gas service interrupted):	0

PART E - ADDITIONAL OPERATING INFORMATION	
1. Estimated pressure at the point and time of the Incident (psig):	130.24
2. Normal operating pressure at the point and time of the Incident (psig):	130.00
3. Maximum Allowable Operating Pressure (MAOP) at the point and time of the Incident (psig):	150.00
3a. MAOP established by 49 CFR section:	192.619(a)(3)
3b. Date MAOP established:	07/01/1970
4. Describe the pressure on the system relating to the Incident:	Pressure did not exceed MAOP
5. Type of odorization system for gas at the point of failure:	injection pump
- If Other, Specify:	
6. Odorant level near the point of failure measured after the failure:	0.4
Not Measured	
7. Was a Supervisory Control and Data Acquisition (SCADA) based system in place on the pipeline or facility involved in the Incident?	Yes
- If Yes:	
7a. Was it operating at the time of the Incident?	Yes
7b. Was it fully functional at the time of the Incident?	Yes
7c. Did SCADA-based information (such as alarm(s), alert(s), event (s), and/or volume or pack calculations) assist with the initial indication of the Incident?	No

7d. Did SCADA-based information (such as alarm(s), alert(s), event (s), and/or volume calculations) assist with the confirmed discovery of the Incident?	No
8. Was an investigation initiated into whether or not the controller(s) or control room issues were the cause of or a contributing factor to the Incident? (select all that apply):	No, the Operator did not find that an investigation of the controller(s) actions or control room issues was necessary due to: (provide an explanation for why the Operator did not investigate)
- If "No, the operator did not find that an investigation of the controller(s) actions or control room issues was necessary due to:" *(provide an explanation for why the operator did not investigate)*	The controller(s) actions did not result in any abnormal pipeline operation or pressures that caused or contributed to the incident.
- If Yes, Specify investigation result(s) *(select all that apply):*	
- Investigation reviewed work schedule rotations, continuous hours of service (while working for the Operator), and other factors associated with fatigue	
- Investigation did NOT review work schedule rotations, continuous hours of service (while working for the Operator), and other factors associated with fatigue	
- Provide an explanation for why not:	
- Investigation identified no control room issues	
- Investigation identified no controller issues	
- Investigation identified incorrect controller action or controller error	
- Investigation identified that fatigue may have affected the controller(s) involved or impacted the involved controller(s) response	
- Investigation identified incorrect procedures	
- Investigation identified incorrect control room equipment operation	
- Investigation identified maintenance activities that affected control room operations, procedures, and/or controller response	
- Investigation identified areas other than those above	
Describe:	

PART F - DRUG & ALCOHOL TESTING INFORMATION

1. As a result of this Incident, were any Operator employees tested under the post-accident drug and alcohol testing requirements of DOT's Drug & Alcohol Testing regulations?	Yes
- If Yes:	
1a. How many were tested:	2
1b. How many failed:	0
2. As a result of this Incident, were any Operator contractor employees tested under the post-accident drug and alcohol testing requirements of DOT's Drug & Alcohol Testing regulations?	No
- If Yes:	
2a. How many were tested:	
2b. How many failed:	

PART G - CAUSE INFORMATION

Select only one box from PART G in shaded column on left representing the Apparent Cause of the Incident, and answer the questions on the right. Enter secondary, contributing, or root causes of the Incident in Part J – Contributing Factors.

Apparent Cause:	G3 - Excavation Damage

G1 - Corrosion Failure – only one **sub-cause** can be picked from shaded left-hand column

Corrosion Failure Sub-Cause:	
- If External Corrosion:	
1. Results of visual examination:	
- If Other, Specify:	
2. Type of corrosion:	
- Galvanic	

- Atmospheric	
- Stray Current	
- Microbiological	
- Selective Seam	
- Other	
- If Other, Describe:	
2a. If 2. is Stray Current, specify	
2b. Describe the stray current source:	
3. The type(s) of corrosion selected in Question 2 is based on the following:	
- Field examination	
- Determined by metallurgical analysis	
- Other	
- If Other, Describe:	
4. Was the failed item buried or submerged?	
- If Yes:	
4a. Was failed item considered to be under cathodic protection at the time of the incident?	
- If Yes, Year protection started:	
4b. Was shielding, tenting, or disbonding of coating evident at the point of the incident?	
4c. Has one or more Cathodic Protection Survey been conducted at the point of the incident? (select all that apply)	
If "Yes, CP Annual Survey" – Most recent year conducted:	
If "Yes, Close Interval Survey" – Most recent year conducted:	
If "Yes, Other CP Survey" – Most recent year conducted:	
Describe Other CP Survey:	
- If No:	
4d. Was the failed item externally coated or painted?	
5. Was there observable damage to the coating or paint in the vicinity of the corrosion?	
6. Pipeline coating type, if steel pipe is involved:	
- If Other, Describe:	
6a. Field Applied?	
- If Internal Corrosion:	
7. Results of visual examination:	
- If Other, Describe:	
8. Cause of corrosion (select all that apply):	
- Corrosive Commodity	
- Water drop-out/Acid	
- Microbiological	
- Erosion	
- Other	
- If Other, Specify:	
9. The cause(s) of corrosion selected in Question 8 is based on the following: (select all that apply):	
- Field examination	
- Determined by metallurgical analysis	
- Other	
- If Other, Describe:	
10. Location of corrosion (select all that apply):	
- Low point in pipe	
- Elbow	
- Drop-out	
- Other	
- If Other, Describe:	
11. Was the gas/fluid treated with corrosion inhibitor or biocides?	
12. Were any liquids found in the distribution system where the Incident occurred?	

Complete the following if any Corrosion Failure sub-cause is selected AND the "Part of system involved in incident" (from PART C, Question 2) is Main, Service, or Service Riser.	
13. Date of the most recent Leak Survey conducted	
14. Has one or more pressure test been conducted since original construction at the point of the Incident?	
- If Yes:	
Most recent year tested:	
Test pressure**:**	
G2 – **Natural Force Damage** – only one **sub-cause** can be picked from shaded left-handed column	
Natural Force Damage – **Sub-Cause:**	
- If Earth Movement, NOT due to Heavy Rains/Floods:	
1. Specify:	
- If Other, Specify:	
- If Heavy Rains/Floods:	
2. Specify:	
- If Other, Specify:	
- If Lightning:	
3. Specify:	
- If Temperature:	
4. Specify:	
- If Other, Specify:	
- If Other Natural Force Damage:	
5. Describe:	
Complete the following if any Natural Force Damage sub-cause is selected.	
6. Were the natural forces causing the Incident generated in conjunction with an extreme weather event?	
6a. If Yes, specify *(select all that apply):*	
- Hurricane	
- Tropical Storm	
- Tornado	
- Other	
- If Other, Specify:	
G3 – **Excavation Damage** – only one **sub-cause** can be picked from shaded left-hand column	
Excavation Damage – **Sub-Cause:**	Excavation Damage by Third Party
- If Previous Damage due to Excavation Activity: Complete the following ONLY IF the "Part of system involved in Incident" (from Part C, Question 2) is Main, Service, or Service Riser.	
1. Date of the most recent Leak Survey conducted	
2. Has one or more pressure test been conducted since original construction at the point of the Incident?	
- If Yes:	
Most recent year tested:	
Test pressure:	
Complete the following if any Excavation Damage sub-cause is selected.	
3. Did the operator get prior notification of the excavation activity?	Yes
3a. If Yes, Notification received from: *(select all that apply):*	
- One-Call System	Yes
- Excavator	
- Contractor	
- Landowner	
3b. Per the primary Incident Investigator report, did State law exempt the excavator from notifying the one-call center?	No
If yes, answer 3c through 3e.	
3c. (select only one)	

- If Other, Specify:	
3d. Exempting Authority:	
3e. Exempting Criteria:	
4. Do you want PHMSA to upload the following information to CGA-DIRT *(www.cga-dirt.com)?*	No
5. Right-of-Way where event occurred *(select all that apply):*	
- Public	Yes
- If Public, Specify:	City Street
- Private	
- If Private, Specify:	
- Pipeline Property/Easement	
- Power/Transmission Line	
- Railroad	
- Dedicated Public Utility Easement	
- Federal Land	
- Unknown/Other	
6. Was the facility part of a Joint Trench:	No
7. Did this event involve a Cross Bore:	No
8. Measured Depth from Grade:	18” – 36”
Measured depth From Grade in inches	
9. Type of excavator:	Utility
10. Type of excavation equipment:	Backhoe/Trackhoe
11. Type of work performed:	Water
12. Was the One-Call Center notified?	Yes
If No, skip to question 13	
12a. If Yes, specify ticket number:	251045717
12b. If this is a State where more than a single One-Call Center exists, list the name of the One-Call Center notified:	
12c. Was work area white lined:	Yes
13. Type of Locator:	Contract Locator
14. Were facility locate marks visible in the area of excavation?	Yes
15. Did the damage cause an interruption in service?	Yes
15a. If Yes, specify duration of the interruption:	24
16. Description of the CGA-DIRT Root Cause *(select the predominant CGA-DIRT Root Cause):*	
- Root Cause Category:	Excavation Issue
- Root Cause Type:	Improper backfilling practices
(Comment required)	
G4 - Other Outside Force Damage - only one **sub-cause** can be selected from the shaded left-hand column	
Other Outside Force Damage – Sub-Cause:	
- If Damage by Car, Truck, or Other Motorized Vehicle/Equipment NOT Engaged in Excavation:	
1. Vehicle/Equipment operated by:	
If this sub-cause is picked, complete questions 7-13 below.	
- If Damage by Boats, Barges, Drilling Rigs, or Other Maritime Equipment or Vessels Set Adrift or Which Have Otherwise Lost Their Mooring:	
2. Select one or more of the following IF an extreme weather event was a factor:	
- Hurricane	
- Tropical Storm	
- Tornado	
- Heavy Rains/Flood	
- Other	
- If Other, Specify:	
- If Previous Mechanical Damage NOT Related to Excavation: Complete the following ONLY IF the "Part of system involved in Incident" (from Part C, Question 2) is Main, Service, or Service Riser.	
3. Date of the most recent Leak Survey conducted:	

4. Has one or more pressure test been conducted since original construction at the point of the Incident?	
- If Yes:	
Most recent year tested:	
Test pressure (psig):	
- If Intentional Damage:	
5. Specify:	
- If Other, Specify:	
- If Other Outside Force Damage:	
6. Describe:	
Complete the following if Damage by Car, Truck, or Other Motorized Vehicle/Equipment NOT Engaged in Excavation sub-cause is selected.	
7. Was the driver of the vehicle or equipment issued one or more citations related to the incident?	
If 7. is Yes, what was the nature of the citations (select all that apply)	
7a. Excessive Speed	
7b. Reckless Driving	
7c. Driving Under the Influence	
7d. Other:	
- If Other, Specify:	
8. Was the driver under control of the vehicle at the time of the collision?	
9. Estimated speed of the vehicle at the time of impact (miles per hour)?	0
Unknown	
10. Type of vehicle?	
11. Where did the vehicle travel from to hit the pipeline facility?	
12. Shortest distance from answer in 11. to the damaged pipeline facility *(in feet):*	
13. At the time of the incident, were protections installed to protect the damaged pipeline facility from vehicular damage?	
If 13. is Yes, specify type of protection *(select all that apply):*	
13a. Bollards/Guard Posts	
13b. Barricades, including "jersey" barriers and fences	
13c. Guard Rails	
13d. Meter Box	
13e. Ingress or Regress at a Residence	
13f. Other	
- If Other, Specify:	
G5 - Pipe, Weld, or Joint Failure - only one **sub-cause** can be selected from the shaded left-hand column	
Pipe, Weld or Joint Failure – Sub-Cause:	
- If Body of Pipe:	
1. Specify:	
- If Other, Describe:	
- If Butt Weld:	
2. Specify:	
- If Other, Describe:	
- If Fillet Weld:	
3. Specify:	
- If Other, Describe:	
- If Pipe Seam:	
4. Specify:	
- If Other, Describe:	
- If Mechanical Joint Failure	
5a. Specify the Mechanical Fitting Involved *(select only one)*	
Other Compression Type Fitting (specify):	
5b. Specify the Type of Mechanical Fitting *(select only one)*	
Other (specify):	

5c. Fitting Manufacturer:	
Unknown	
5d. Part or Model Number:	
Unknown	
5e. Fitting Material (select only one)	
Other (specify):	
5f. How did the joint failure occur? (select only one)	
Other (specify):	
- If Fusion Joint:	
6. Specify:	
- If Other, Specify:	
7. Year installed:	
8. Other attributes:	
9. Specify the two materials being joined:	
9a. First material being joined:	
- If Other, Specify:	
9b. Second material being joined:	
- If Other, Specify:	
- If Other Pipe, Weld, or Joint Failure:	
10. Describe:	
Complete the following if any Pipe, Weld, or Joint Failure sub-cause is selected.	
11. Additional Factors *(select all that apply):*	
- Dent	
- Gouge	
- Pipe Bend	
- Arc Burn	
- Crack	
- Lack of Fusion	
- Lamination	
- Buckle	
- Wrinkle	
- Misalignment	
- Burnt Steel	
- Other	
- If Other, Specify:	
12. Was the Incident a result of:	
- Construction defect	
Specify:	
- Material defect	
Specify:	
- If Other, Specify:	
- Design defect	
- Previous damage	
13. Has one or more pressure test been conducted since original construction at the point of the Incident?	
- If Yes:	
Most recent year tested:	
Test pressure:	
G6 - Equipment Failure - only one **sub-cause** can be selected from the shaded left-hand column	
Equipment Failure – **Sub-Cause:**	
- If Malfunction of Control/Relief Equipment:	
1. Specify:	
- Control Valve	
- Instrumentation	
- SCADA	

- Communications	
- Block Valve	
- Check Valve	
- Relief Valve	
- Power Failure	
- Stopple/Control Fitting	
- Pressure Regulator	
- Other	
- If Other, Specify:	
- If Threaded Connection Failure:	
2. Specify:	
- If Other, Specify:	
- If Non-threaded Connection Failure:	
3. Specify:	
- If Other, Specify:	
- If Valve:	
4. Specify:	
- If Other, Specify:	
4a. Valve type:	
4b. Manufactured by:	
4c. Year manufactured:	
4d. Valve Material:	
- If Other, Specify:	
- If Other Equipment Failure:	
5. Describe:	
G7 - Incorrect Operation - only one **sub-cause** can be selected from the shaded left-hand column	
Incorrect Operation Sub-Cause:	
- If Other Incorrect Operation:	
1. Describe:	
Complete the following if any Incorrect Operation sub-cause is selected.	
2. Was this Incident related to: *(select all that apply)*	
- Inadequate procedure	
- No procedure established	
- Failure to follow procedure	
- Other	
- If Other, Describe:	
3. What category type was the activity that caused the Incident:	
4. Was the task(s) that led to the Incident identified as a covered task in your Operator Qualification Program?	
4a. If Yes, were the individuals performing the task(s) qualified for the task(s)?	
G8 - Other Incident Cause - only one **sub-cause** can be selected from the shaded left-hand column	
Other Incident Cause – Sub-Cause:	
- If Miscellaneous:	
1. Describe:	
- If Unknown:	
2. Specify:	
Mandatory comment field:	
PART J - CONTRIBUTING FACTORS	
The Apparent Cause of the accident is contained in Part G. Do not report the Apparent Cause again in this Part J. If Contributing Factors were identified, select all that apply below and explain each in the Narrative:	
External Corrosion	

External Corrosion, Galvanic	
External Corrosion, Atmospheric	
External Corrosion, Stray Current Induced	
External Corrosion, Microbiologically Induced	
External Corrosion, Selective Seam	
Internal Corrosion	
Internal Corrosion, Corrosive Commodity	
Internal Corrosion, Water drop-out/Acid	
Internal Corrosion, Microbiological	
Internal Corrosion, Erosion	
Natural Forces	
Earth Movement, NOT due to Heavy Rains/Floods	
Heavy Rains/Floods	
Lightning	
Temperature	
High Winds	
Snow/Ice	
Tree/Vegetation Root	
Excavation Damage	
Excavation Damage by Operator (First Party)	
Excavation Damage by Operator's Contractor (Second Party)	
Excavation Damage by Third Party	
Previous Damage due to Excavation Activity	
Other Outside Force	
Nearby Industrial, Man-made, or Other Fire/Explosion	
Damage by Car, Truck, or Other Motorized Vehicle/Equipment NOT Engaged in Excavation	
Damage by Boats, Barges, Drilling Rigs, or Other Adrift Maritime Equipment	
Routine or Normal Fishing or Other Maritime Activity NOT Engaged in Excavation	
Electrical Arcing from Other Equipment or Facility	
Previous Mechanical Damage NOT Related to Excavation	
Intentional Damage	
Other underground facilities buried within 12 inches of the failure location	
Pipe/Weld Failure	
Design-related	
Construction-related	
Installation-related	
Fabrication-related	
Original Manufacturing-related	
Equipment Failure	
Malfunction of Control/Relief Equipment	
Threaded Connection/Coupling Failure	
Non-threaded Connection Failure	
Valve Failure	
Incorrect Operation	
Damage by Operator or Operator's Contractor NOT Excavation and NOT Vehicle/Equipment Damage	
Valve Left or Placed in Wrong Position, but NOT Resulting in Overpressure	
Pipeline or Equipment Overpressured	
Equipment Not Installed Properly	
Wrong Equipment Specified or Installed	
Inadequate Procedure	
No procedure established	
Failure to follow procedures	Yes

PART H - NARRATIVE DESCRIPTION OF THE INCIDENT

A third-party excavator was backfilling when they damaged a 1-inch nipple on a 10-inch steel natural gas pipeline. Although the company's procedures state that operation of mechanized equipment shall cease immediately and shall not be permitted to resume where there is a sudden, uncontrolled release of gas during excavation activities, a mini excavator was used during the company's response to the damage, and the natural gas ignited. The condition was made safe by closing two nearby valves and repair was completed by removing the damaged 1-inch nipple and welding on a pumpkin. Two Company employees were injured as a result of the incident and transported to the hospital. One employee was admitted for extended treatment and the second employee was treated and released. The mini-excavator and a nearby regulator station were also damaged by the fire during the incident.

A 48-hour update to the NRC was made on April 24, 2025, at 15:34 - Report Number 1429366

PART I - PREPARER AND AUTHORIZED PERSON

Preparer's Name	Erin Milkert
Preparer's Title	Manager Distribution Integrity
Preparer's Telephone Number	314-349-2932
Preparer's E-mail Address	erin.milkert@spireenergy.com
Preparer's Facsimile Number	
Local Contact Name:	Erin Milkert
Local Contact Email:	erin.milkert@spireenergy.com
Local Contact Phone:	314-349-2932
Authorized Signer's Name	Randy Wilson
Authorized Signer's Title	Director - Pipeline and System Integrity
Authorized Signer's Email Address	randy.wilson@spireenergy.com

Case No. GE-2025-0295

APPENDIX B

Exhibits 4 and 5

HAVE BEEN DEEMED

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IN ENTIRETY