



MISSOURI PUBLIC SERVICE COMMISSION

STAFF'S GAS INCIDENT REPORT

**Glen Elm Drive
Glendale, MO
January 3, 2025**

APPENDIX A

FACTS

**Spire Missouri, Inc.
Case No. GS-2025-0209**

*Industry Analysis Division
Safety Engineering Department
June 12, 2026 - Jefferson City, Missouri*

Pipeline Failure Investigation Report Checklist

C&M crew called Missouri 811 at about 9:19 am to request a utility locate so that they could dig down to the service line and perform a squeeze off. An additional Spire Service and Installation Department (“SAID”) crew arrived on site at approximately 9:22 am. At approximately 9:24 am, the residence exploded. The Spire SAID crew was outside the residence attempting to obtain a gas reading when the home exploded. Spire personnel did not check inside the residence at 895 Glen Elm Dr., for the presence of gas and did not perform any evacuation of occupants prior to the explosion.

There were four people inside the residence at 895 Glen Elm Dr. when it exploded. All occupants were transported to Mercy Medical Center. One of the occupants sustained minor injuries and was treated and released that day. Initial estimates of property damages are \$404,555, including an estimated cost of \$401,755 cost of public and non-operator private property damage, \$2,300 damage and repair to Spire property and \$500 emergency response costs. Following the explosion, the residence was demolished.

Examination of the service line following the incident by Staff revealed that the copper service line appeared to have been pulled and bent by the excavator bucket and was damaged at the outside of and near the foundation wall where the service line entered the residence. The distance from the point of the damaged service line to the wall of the house was estimated following the incident to be approximately 11 feet. The source of ignition is unknown.

The apparent cause of the incident was ignition of gas that was released due to excavation damage to an unmarked natural gas service line. The apparent cause of the excavation damage was failure to correctly mark the location of the natural gas service line.

In its comments on this checklist, Spire noted that: “The SAID crew was outside the residence obtaining the first gas reading, when the home exploded. The crew was unable to check the residence for gas, and therefore did not perform any evacuations prior to the explosion.”

Region/State: Missouri Public Service Commission

Reviewed by: ** [REDACTED] **

Principal Investigator: ** [REDACTED] ** - Associate
Engineer

Title: Engineer Manager

Date: April 13, 2025

Date: April 13, 2025

Pipeline Failure Investigation Report Checklist

<i>Failure Location & Response</i>			
Location (City, Township, Range, County/Parish): Glendale, Missouri – 45N, 6E, St. Louis Parcel map			(Acquire Map)
Address or M.P. on Pipeline: ⁽¹⁾ 895 Glen Elm Drive, Glendale MO 63122	Type of Area (Rural, City): ⁽¹⁾ City: Glendale		
Coordinates of failure location (Latitude): NW Lat: 38.6004978 SW Lat: 38.5998634	(Longitude): Lon: -90.3868401 Lon: -90.3862260		
Date: 1/3/2025	Time of Failure: 8:51am	(time of excavation damage, not explosion)	
Time Detected: 8:51am	Time Located: 9:10am		
How Located: Smell and sound detected by excavator			
NRC Report #: 1420340	(Attach Report)	Time Reported to NRC: 11:04am	Reported by: Bob Gardner - Spire
Type of Pipeline:			
Gas Distribution	Gas Transmission	Hazardous Liquid	LNG
<input type="checkbox"/> LP	<input type="checkbox"/> Interstate Gas	<input type="checkbox"/> Interstate Liquid	<input type="checkbox"/> LNG
<input type="checkbox"/> Municipal	<input type="checkbox"/> Intrastate Gas	<input type="checkbox"/> Intrastate Liquid	
<input checked="" type="checkbox"/> Public Utility	<input type="checkbox"/> Gas Gathering	<input type="checkbox"/> Offshore Liquid	
<input type="checkbox"/> Master Meter	<input type="checkbox"/> Offshore Gas	<input type="checkbox"/> Liquid Gathering	
	<input type="checkbox"/> Offshore Gas - High H ₂ S	<input type="checkbox"/> CO ₂	
		<input type="checkbox"/> Low Stress Liquid	
		<input type="checkbox"/> HVL	
Pipeline Configuration (Regulator Station, Pump Station, Pipeline, etc.): A 2-inch plastic main running north-south along the east side of N. Sappington Rd fed the ½-copper service line to 895 Glen Elm Drive. The service meter and service regulator were located inside the basement of 895 Glen Elm Drive. The MAOP of this distribution system is 60 psig, the operating pressure at the time of the incident was estimated at 45 psig.			

<i>Operator/Owner Information</i>	
Owner: Spire Missouri Inc. East Address: 700 Market Street, St, Louis Missouri	Operator: Spire Missouri Inc. East Address: 700 Market Street, St, Louis Missouri
Company Official: ** [REDACTED] ** Senior Vice President, Engineering, Gas Supply and Operations Services Phone No.: ** [REDACTED] ** Fax No.:	Company Official: ** [REDACTED] ** Senior Vice President, Engineering, Gas Supply and Operations Services Phone No. ** [REDACTED] ** Fax No.
<u>Drug and Alcohol Testing Program Contacts</u>	
Drug Program Contact & Phone: ** [REDACTED] **	
Alcohol Program Contact & Phone: ** [REDACTED] **	
___ N/A	

1 Photo documentation

Pipeline Failure Investigation Report Checklist

Damages			
Product/Gas Loss or Spill ⁽²⁾ 8.83 mcf Amount Recovered: 0 Estimated Amount \$47.00	Estimated Property Damage \$404,555.00 Associated Damages ⁽³⁾ \$ 404,602.00		
Description of Property Damage: Major portions of exterior walls of the residence at 895 Glen Elm Drive were blown out. It was determined to be a total loss, and was subsequently demolished. Gas service was also temporarily interrupted at 1230 N. Sappington Rd for odor level testing.			
Customers out of Service: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Number: 2			
Suppliers out of Service: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Number:			

Fatalities and Injuries						___ N/A
Fatalities:	___ Yes	<input checked="" type="checkbox"/> No	Company:	Contractor:	Public:	
Injuries - Hospitalization:	___ Yes	<input checked="" type="checkbox"/> No	Company:	Contractor:	Public:	
Injuries - Non-Hospitalization:	<input checked="" type="checkbox"/> Yes	___ No	Company:	Contractor:	Public: 1	
Total Injuries (including Non-Hospitalization):	1		Company:	Contractor:	Public: 1	
Name	Job Function	Yrs. w/ Comp.	Yrs. Exp.	Type of Injury		
** [REDACTED] **	Resident of home	N/A	N/A	** [REDACTED] **		

Drug/Alcohol Testing					___ N/A
Were all employees that could have contributed to the incident, post-accident tested within the 2 hour time frame for alcohol or the 32 hour time frame for all other drugs? ___ Yes <input checked="" type="checkbox"/> No - all tested for drugs within 32 hours but none were tested for alcohol within 2 hours.					
Job Function	Test Date & Time	Location	Results		Type of Drug
			Pos	Neg	
** [REDACTED] ** - Spire-C&M crew Leak truck Foreman	Drug-2:09pm 1/3/25 Alcohol-2:10pm 1/3/25	Concentra – 6542 Manchester Ave. St. louis, MO.63139		X	
** [REDACTED] ** - Spire-C&M crew Leak truck worker	Drug -2:24pm 1/3/25 Alcohol-2:25pm 1/3/25	Concentra – 6542 Manchester Ave. St. louis, MO.63139		X	
USIC Locator – ** [REDACTED] **	Alcohol -2:48pm 1/3/25 Drug – 2:58pm 1/3/25	2446 Concentra Medical Center –83 Progress PKWY Maryland Heights, MO. 63043		X	

2 Initial volume lost or spilled
 3 Including cleanup cost

Pipeline Failure Investigation Report Checklist

Drug/Alcohol Testing ___ N/A				
** [REDACTED] ** - Spire - Spire Service technician	Alcohol- 3:22pm 1/3/25 Drug- 3:26pm 1/3/25	Concentra – 6542 Manchester Ave. St. Louis, MO.63139		X
** [REDACTED] ** – Spire- Helper	Drug- 3:34pm 1/3/25 Alcohol- 3:38pm 1/3/25	Concentra – 6542 Manchester Ave. St. Louis, MO.63139		X

System Description
Describe the Operator's System: Natural gas distribution system. Spire Missouri Inc. East provides natural gas to customers in the greater St. Louis area, including the City of Glendale. Spire Missouri Inc. East reported 627,971 services, 8,843.14 miles of distribution mains, and 229.63 miles of transmission mains in its 2025 annual reports. Spire installed the service line and main in 1960's, then recently the main was replaced with a plastic 2-inch but the service line was not replaced at that time.

Pipe Failure Description ___ N/A	
Length of Failure (inches, feet, miles): 1 inch on a 9-foot section of pipe. (1)	
Position (Top, Bottom, include position on pipe, 6 O'clock): Side of pipe in the 3 O'clock position.	Description of Failure (Corrosion Gouge, Seam Split): Puncture from mini excavator bucket.
Laboratory Analysis: ___ Yes ___X_ No	
Performed by:	
Preservation of Failed Section or Component: ___X_Yes ___No	
If Yes - Method: Spire Missouri Inc East Secure evidence locker	
In Custody of: Spire Missouri Inc East	
Develop a sketch of the area including distances from roads, houses, stress inducing factors, pipe configurations, direction of flow, etc. Bar Hole Test Survey Plot, if included, should be outlined with concentrations at test points.	
See Confidential Figure 6 of Exhibit 1 to Appendix A, Exhibit 5 to Appendix A and end of this checklist.	

Component Failure Description ___ N/A	
Component Failed:	½-inch Copper service line and the service head adapter at the basement wall. (1)
Manufacturer: unknown – 1960s	Model: unknown
Pressure Rating: unknown	Size: ½-inch
Other (Breakout Tank, Underground Storage):	

Pipeline Failure Investigation Report Checklist

<i>Pipe Data</i>		<u> </u> <i>N/A</i>
Material: Copper	Wall Thickness/SDR: 0.049	
Diameter (O.D.): ½ inch	Installation Date: 1960	
SMYS: unknown	Manufacturer: unknown – 1960s	
Longitudinal Seam: NONE Copper	Type of Coating: NONE – Copper	
Pipe Specifications (API 5L, ASTM A53, etc.):		

<i>Joining</i>		<u> </u> <i>N/A</i>
Type: Unknown	Procedure: Unknown	
NDT Method: Unknown	Inspected: <u> </u> Yes <u> X </u> No (no record of inspection)	

<i>Pressure @ Time of Failure @ Failure Site</i>					<u> </u> <i>N/A</i>
Pressure @ Failure Site: 45.00 psig			Elevation @ Failure Site: 598' above sea level		
Pressure Readings @ Various Locations:				Direction from Failure Site	
Location/M.P./Station #	Pressure (psig)	Elevation (ft msl)	Upstream	Downstream	
DRS #932 at Woodlawn and Manchester	Inlet 188 psig/Outlet 45 psig	614'	X		

<i>Upstream Pump Station Data</i>		<u> X </u> <i>N/A</i>
Type of Product:	API Gravity:	
Specific Gravity:	Flow Rate:	
Pressure @ Time of Failure ⁽⁴⁾	Distance to Failure Site:	
High Pressure Set Point:	Low Pressure Set Point:	

<i>Upstream Compressor Station Data</i>		<u> X </u> <i>N/A</i>
Specific Gravity:	Flow Rate:	
Pressure @ Time of Failure:	Distance to Failure Site:	
High Pressure Set Point:	Low Pressure Set Point:	

<i>Operating Pressure</i>		<u> </u> <i>N/A</i>
Max. Allowable Operating Pressure: 60.00 psig	Determination of MAOP: 04/09/1960 Pressure test 192.619(a)(2)	
Actual Operating Pressure: 45.00 psig		
Method of Over Pressure Protection: DRS # 932 Regulator Station		
Relief Valve Set Point: Monitor 58psig & Control 60psig	Capacity Adequate? <u> X </u> Yes <u> </u> No	

4 Obtain event logs and pressure recording charts

Pipeline Failure Investigation Report Checklist

Internal Pipe or Component Examination ___ N/A	
Internal Corrosion: ___ Yes <input checked="" type="checkbox"/> No ⁽¹⁾	Injected Inhibitors: ___ Yes <input checked="" type="checkbox"/> No
Type of Inhibitors:	Testing: ___ Yes <input checked="" type="checkbox"/> No
Results (Coupon Test, Corrosion Resistance Probe): – sections of pipe were placed into storage, not sure if exposed pipe inspection happened or not. Need to ask in DR. Per DR 54, internal corrosion checks were performed on 7/1/2019 and 7/25/2022 and would have been due in 7/2025.	
Description of Failure Surface (MIC, Pitting, Wall Thinning, Chevrons, Fracture Mode, Point of Origin):	
During the initial site visit, Staff witnessed the site condition and the damaged home at 895 Glen Elm. The service line was still buried, and the meter set was inside the basement so no visual inspection. During the second site visit, Staff was able to view the service line but could not determine the condition since it was encased. The meter set had fire damage but could not visibly determine if it had leaked due to the excavating damage. During the x-ray inspection, the service line had areas of interest but still encased so no visible inspection performed.	
Cleaning Pig Program: ___ Yes <input checked="" type="checkbox"/> No	Gas and/or Liquid Analysis: ___ Yes <input checked="" type="checkbox"/> No
Results of Gas and/or Liquid Analysis ⁽⁶⁾ Not Checked	
Internal Inspection Survey: ___ Yes <input checked="" type="checkbox"/> No	Results ⁽⁷⁾
Did the Operator have knowledge of Corrosion before the Incident? ___ Yes <input checked="" type="checkbox"/> No	
How Discovered? (Instrumented Pig, Coupon Testing, ICDA, etc.):	

Outside Force Damage ___ N/A	
Responsible Party: PLS Plumbing	Telephone No.: ** [REDACTED] **
Address: 4940 Vinto, St. Louis, MO. 63129	
Work Being Performed: Sewer repair.	
Equipment Involved: ⁽¹⁾ Mini excavator bucket	Called One Call System? <input checked="" type="checkbox"/> Yes ___ No
One Call Name: ** [REDACTED] **	One Call Report # ⁽⁸⁾ 250030078
Notice Date: 01/03/2025	Time: 7:21am
Response Date: 01/03/2025	Time: 9:30am
Details of Response: At 7:21 am on January 3, 2025, an excavator, PLS Plumbing requested an “Emergency” locate (Ticket No. 250030078) for work associated with a repair of sewer service at 895 Glen Elm Dr. The location of work on Missouri 811 Ticket No. requests marks on “front and right facing front side and including Glen Elm Dr. curb to curb and N. Sappington Rd. curb to curb”, with a start date and time of 01/03/2025 at 9:30 am. Spire’s Contract Locator responded “Marked” on behalf of Spire by updating the ticket status at 8:09 am. Although Spire’s Contractor locator did place marks indicating the presence of a natural gas line, the marks showed that the service line ran to the residence from Glen Elm Dr. to the south of the property, as opposed the actual location of the service line that ran from N. Sappington Rd. to the residence from the east.	

- 6 Attach copy of gas and/or liquid analysis report
- 7 Attach copy of internal inspection survey report
- 8 Attach copy of one-call report

Pipeline Failure Investigation Report Checklist

<i>Outside Force Damage</i>		___ N/A
Was Location Marked According to Procedures? ___ Yes <input checked="" type="checkbox"/> No		
Pipeline Marking Type: (1) Paint and flags	Location: (1) See pictures USIC service markings 1/3/2025 – the marks were placed from residence south to Glen Elm Dr., as opposed the actual location of the service line that ran from N. Sappington Rd. to the residence from the east.	
State Law Damage Prevention Program Followed? <input checked="" type="checkbox"/> Yes ___ No ___ No State Law		
Notice Required: <input checked="" type="checkbox"/> Yes ___ No	Response Required: <input checked="" type="checkbox"/> Yes ___ No	
Was Operator Member of State One Call? <input checked="" type="checkbox"/> Yes ___ No	Was Operator on Site? ___ Yes <input checked="" type="checkbox"/> No	
Did a deficiency in the Public Awareness Program contribute to the accident? ___ Yes <input checked="" type="checkbox"/> No		
Is OSHA Notification Required? ___ Yes <input checked="" type="checkbox"/> No		

<i>Natural Forces</i>	X N/A
Description (Earthquake, Tornado, Flooding, Erosion): NONE	

<i>Failure Isolation</i>		N/A
		(1)
Squeeze Off/Stopple Location and Method: Abandoned service at curb on N. Sappington Rd. Spire stated in response to Staff Data Request 0059: 106 valves would need to be closed to isolate 895 Glen Elm Drive from gas.		
Valve Closed - Upstream: Time: Spire was unable to find the upstream curb valve on service line, did not attempt to find or close valves on main.	I.D.: M.P.:	
Valve Closed - Downstream: Time: N/A – only residence was downstream	I.D.: M.P.:	
Pipeline Shutdown Method: <input checked="" type="checkbox"/> Manual ___ Automatic ___ SCADA ___ Controller ___ ESD		
Failed Section Bypassed or Isolated: Isolated Service from main		
Performed By: Spire Missouri East C&M Crew	Valve Spacing: 0.75 miles	

Pipeline Failure Investigation Report Checklist

<i>Odorization</i>		<i>X</i> <i>N/A</i>
Gas Odorized: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Concentration of Odorant (Post Incident at Failure Site):	
Method of Determination: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No INJECTION RATE WAS CALCULATED FROM THE REPORTED FLOW RATE AND ODORANT USAGE.	% LEL: <input type="checkbox"/> Yes <input type="checkbox"/> No	% Gas In Air: <input type="checkbox"/> Yes <input type="checkbox"/> No
	Time Taken: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No 1/3/2025	
Was Odorizer Working Prior to the Incident? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Type of Odorizer (Wick, By-Pass): Injection pump	
Odorant Manufacturer: Chevron Phillips Model: Scentinel F-35 Gas Odorant	Type of Odorant: T-Butyl Mercaptan with Dimethyl Sulfide	
Amount Injected: Between 0.28 and 0.95LBS/MMCF	Monitoring Interval (Weekly): Monthly	
Odorization History (Leaks Complaints, Low Odorant Levels, Monitoring Locations, Distances from Failure Site): Odor reading at time was threshold 0.25% and readily detectable 0.4% Taken 12/31/24 – 1/28/2025		
	Dec-24 12/02- 12/09- 12/16- 12/23- 8-Dec 15-Dec 22-Dec 29-Dec WK.#1 WK.#2 WK.#3 WK.#4	
SHREWSBURY (IP)	0.29 0.35 0.36 0.39	
BREMERTON & MANCHESTER&SHREWS.(IP)	0.37 0.36 0.38 0	
<i>Weather Conditions</i>		<i>N/A</i>
Temperature: 36 degrees	Wind (Direction & Speed): NW 15mph	
Climate (Snow, Rain): Dry - overcast	Humidity: 64%	
Was Incident preceded by a rapid weather change? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
Weather Conditions Prior to Incident (Cloud Cover, Ceiling Heights, Snow, Rain, Fog): Cloud cover - dry		
<i>Gas Migration Survey</i>		<i>N/A</i>
Bar Hole Test of Area: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Equipment Used: CGI	
Method of Survey (Foundations, Curbs, Manholes, Driveways, Mains, Services) ⁽¹⁾ Mains, services and curbs. Manhole on Nancy Carol Ln and N. Sappington Rd checked. Foundation wall on East side checked.		
<i>Environment Sensitivity Impact</i>		<i>X</i> <i>N/A</i>
Location (Nearest Rivers, Body of Water, Marshlands, Wildlife Refuge, City Water Supplies that could be or were affected by the medium loss) ⁽¹⁾		
OPA Contingency Plan Available? <input type="checkbox"/> Yes <input type="checkbox"/> No	Followed? <input type="checkbox"/> Yes <input type="checkbox"/> No	

9 Plot on site description page

Pipeline Failure Investigation Report Checklist

Class Location/High Consequence Area __ N/A	
Class Location: 1 __ 2 __ 3 <u>X</u> 4 __ Determination:	HCA Area? <u>X</u> Yes __ No __ N/A Determination:
Odorization Required? <u>X</u> Yes __ No __ N/A	

Pressure Test History X __ N/A <i>(Expand List as Necessary)</i>						
	Req'd ⁽¹⁰⁾ Assessment Deadline Date	Test Date	Test Medium	Pressure (psig)	Duration (hrs)	% SMYS
Installation						
Next						
Next						
Most Recent						
Describe any problems experienced during the pressure tests.						

Internal Line Inspection/Other Assessment History X __ N/A <i>(Expand List as Necessary)</i>					
	Req'd ⁽¹⁰⁾ Assessment Deadline Date	Assessment Date	Type of ILI Tool ⁽¹¹⁾	Other Assessment Method ⁽¹²⁾	Indicated Anomaly If yes, describe below
Initial					<u>__</u> Yes <u>__</u> No
Next					<u>__</u> Yes <u>__</u> No
Next					<u>__</u> Yes <u>__</u> No
Most Recent					<u>__</u> Yes <u>__</u> No
Describe any previously indicated anomalies at the failed pipe, and any subsequent pipe inspections (anomaly digs) and remedial actions.					

Pre-Failure Conditions and Actions X __ N/A
Was there a known pre-failure condition requiring ⁽¹⁰⁾ the operator to schedule evaluation and remediation? <u>__</u> Yes (describe below or on attachment) <u>__</u> No
If there was such a known pre-failure condition, had the operator established and adhered to a required ⁽¹⁰⁾ evaluation and remediation schedule? Describe below or on attachment. <u>__</u> Yes <u>__</u> No <u>__</u> N/A
Prior to the failure, had the operator performed the required ⁽¹⁰⁾ actions to address the threats that are now known to be related to the cause of this failure? <u>__</u> Yes <u>__</u> No <u>__</u> N/A List below or on an attachment such operator-identified threats, and operator actions taken prior to the accident.
Describe any previously indicated anomalies at the failed pipe, and any subsequent pipe inspections (anomaly digs) and remedial actions.

10 As required of Pipeline Integrity Management regulations in 49CFR Parts 192 and 195

11 MFL, TFI, UT, Combination, Geometry, etc.

12 ECDA, ICDA, SCCDA, "other technology," etc.

Pipeline Failure Investigation Report Checklist

Maps & Records	N/A
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Are Maps and Records Current? ⁽¹³⁾ Yes No
 Comments: Both Spire and Spire's Locate Contractor evaluated the maps following the incident. Mapping is discussed in Staff's Gas Incident Report.

Leak Survey History	<input checked="" type="checkbox"/> N/A
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Leak Survey History (Trend Analysis, Leak Plots):
 No Leaks - Survey map copy is in the attachment to FIR.

Pipeline Operation History	<input checked="" type="checkbox"/> N/A
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Description (Repair or Leak Reports, Exposed Pipe Reports): Spire has no records of leak repairs, reports or exposed pipe reports at 895 Glen Elm.

Did a Safety Related Condition Exist Prior to Failure? Yes No Reported? Yes No

Unaccounted For Gas: 8.83 thousand standard cubic feet(mcf)

Over & Short/Line Balance (24 hr., Weekly, Monthly/Trend):

Operator/Contractor Error	<input type="checkbox"/> N/A
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Name: ** [REDACTED] ** -USIC locating working for Spire Energy	Job Function: Locator
Title: USIC Contractor Locator	Years of Experience: 3 years
Training (Type of Training, Background): Task 1291 Locating Underground Pipelines both Computer and Performance Evaluations (Hands on) has not had qualifications expire.	
Was the person "Operator Qualified" as applicable to a precursor abnormal operating condition? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Was qualified individual suspended from performing covered task <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Type of Error (Inadvertent Operation of a Valve): Mismarked location of the service line to 895 Glen Elm Drive	
Procedures that are required: Spire's Contract Locating Procedure SOP 220.R	
Actions that were taken: The locator is no longer on EnergyWorld.Net site. Qualifications have been pulled.	
Pre-Job Meeting (Construction, Maintenance, Blow Down, Purging, Isolation): PLS Plumbing had a Construction Briefing with locator of the sewer line prior to starting work. PLS had sewer marked and nothing in their way, they started.	
Prevention of Accidental Ignition (Tag & Lock Out, Hot Weld Permit): Spire SOP 230.H Prevention of Accidental Ignition	
Procedures conducted for Accidental Ignition: None	

13 Obtain copies of maps and records

Pipeline Failure Investigation Report Checklist

<i>Operator/Contractor Error</i>				
Was a Company Inspector on the Job? ___ Yes ___ <input checked="" type="checkbox"/> No				
Was an Inspection conducted on this portion of the job? ___ Yes ___ <input checked="" type="checkbox"/> No				
Additional Actions (Contributing factors may include number of hours at work prior to failure or time of day work being conducted): NA				
Training Procedures: NA The Spire Contract Locator did not mark the correct service line which led to the line being damaged by the plumber SOP 220.R Spire Contractor Locating. The Spire crew did not check for gas migration into the residence, and no evacuations were done SOP 220.D.7 Emergency Plan Standard Operating Procedure.				
In its review of this checklist, Spire provided the following comment: "Spire did not perform these SOP tasks because Spire did not have a chance to obtain gas readings before the home exploded. In accordance with SOP 220.D.7, Spire was in the process of obtaining the first gas reading outside the home when the explosion occurred. The SOP calls for initiation of evacuation when gas readings inside a structure meet or exceed 1% in free air, and Spire had no information to indicate that there was gas migration into the residence, so as to trigger an evacuation."				
Operation Procedures: NA The Spire contract locating procedure SOP 220.R.5, Spire Emergency Plan SOP 220.D.7				
Controller Activities: NA				
Name	Title	Years Experience	Hours on Duty Prior to Failure	Shift
** [REDACTED] **	USIC Locator	NA	NA	Day
** [REDACTED] **	Leak Truck Foreman			Day
** [REDACTED] **	Leak Truck Worker			Day
** [REDACTED] **	Service Technician			Day
** [REDACTED] **	Helper			Day
Alarm Parameters: N/A				
High/Low Pressure Shutdown: N/A				
Flow Rate: N/A				
Procedures for Clearing Alarms: N/A				
Type of Alarm: N/A				
Company Response Procedures for Abnormal Operations: Spire Operations and Procedure Manual(OPM)				
Over/Short Line Balance Procedures: N/A				
Frequency of Over/Short Line Balance: N/A				
Additional Actions:				

Pipeline Failure Investigation Report Checklist

<i>Additional Actions Taken by the Operator</i> ___ N/A
<p>Make notes regarding the emergency and Failure Investigation Procedures (Pressure reduction, Reinforced Squeeze Off, Clean Up, Use of Evacuators, Line Purging, closing Additional Valves, Double Block and Bleed, Continue Operating downstream Pumps):</p> <p>Site visit 1 – January 3, 2025, Staff arrived onsite and spoke with Spire Compliance personnel and the St. Louis County Police Department detective. Staff took pictures of locates and the damage to the home and found Spire did a squeeze off at the main and abandoned the service line in place. Spire did not clean up anything at this time.</p> <p>Site visit 2 – January 21 & 22, 2025, Staff witnessed Spire reclaiming portions of the service and meter set after Spire performed a pressure test and at that time, they had a 3d modeling done on the basement of 895 Glen Elm. Staff witnessed the service line for the first time out of the ground and could see the damage from the excavator. Air pressure testing was performed on the section of service line to see if it would hold pressure but failed. The site prepped and after testing the remains of the home were hauled to the landfill.</p> <p>Visit 3 - On April 7, 2025 x-ray inspections were performed on a 9-foot section of the service, and it showed what appears to be items of interest. The service line was X-rayed, and 2 areas of interest were found and listed as anomalies.</p> <p>Site visit 1 – ** [REDACTED] **</p> <p>Site visit 2 – ** [REDACTED] **</p> <p>Visit 3 – ** [REDACTED] **</p>

<i>Photo Documentation ⁽¹⁾</i>			
Overall Area from best possible view. Pictures from the four points of the compass. Failed Component, Operator Action, Damages in Area, Address Markings, etc.			
Photo No.	Description	Photo No.	Description
1	Figure 1 – Front of 895 Glen Elm Drive with locate flags	16	
2	Figure 2 – USIC Natural Gas Locate	17	
3	Figure 3 – USIC Natural gas Service locate	18	
4	Figure 4 – Plumber’s excavation	19	
5	Figure 5 – Location of Gas Valve	20	
6	Figure 6 – Bar-hole Locations	21	
7	Figure 7 – Inside meter vent	22	
8	Figure 8 – Service Line location in excavation	23	
9	Figure 9 – Service line	24	
10	Figure 10 – Service Line entrance inside basement	25	
11	Figure 11 – Excavation over USIC locate	26	
12	Figure 12 – Plumbers work site	27	
13		28	
14		29	
15		30	
Camera Type: RICOH WG-30			

Pipeline Failure Investigation Report Checklist

Additional Information Sources			
Agency	Name	Title	Phone Number
Police:	** [REDACTED] ** - St. Louis County Police	Detective	** [REDACTED] **
Fire Dept.:	** [REDACTED] ** - Glendale Fire	Fire Chief	** [REDACTED] **
State Fire Marshall:	** [REDACTED] ** - Fire Marshall	Fire Marshall	** [REDACTED] **
State Agency:	** [REDACTED] ** - MOPSC Staff	Associate Engineer	** [REDACTED] **
NTSB:			
EPA:			
USCG:			
FBI:			
ATF:			
OSHA:			
Insurance Co.:	Farmers Insurance - ** [REDACTED] [REDACTED] **		
FRA:			
MMS:			
Television:			
Newspaper:			
Other:	** [REDACTED] **	Compliance Inspector	** [REDACTED] **

Persons Interviewed		
Name	Title	Phone Number
** [REDACTED] **	Spire Compliance	** [REDACTED] **
** [REDACTED] **	Administration/Field Ops	** [REDACTED] **
** [REDACTED] **	C&M Supervisor	** [REDACTED] **
** [REDACTED] **	PLS Plumbing	** [REDACTED] **

Pipeline Failure Investigation Report Checklist

<i>Event Log</i>	
Sequence of events prior, during, and after the incident by time. (Consider the events of all parties involved in the incident, Fire Department and Police reports, Operator Logs and other government agencies.)	
Time / Date	Event
1/3/25 7:21am	A third-party excavator, PLS Plumbing, called Missouri 811 for an emergency locate request, ticket #250030078.
1/3/25 8:09am	The contract (US Infrastructure Company) USIC locator completed markings on the ground for Spire's facilities per Missouri 811.
1/3/25 8:40am	The third-party excavator damaged a service line while performing an emergency sewer repair.
1/3/25 8:54am	The third-party excavator notified Missouri 811 to request a dig up, ticket #250030307.
1/3/25 8:56am	Spire Dispatch received a call from Missouri 811.
1/3/25 9:04am	Spire Dispatch notified Spire (Construction and Maintenance) C&M and (Service and Installation Department) SAID crews.
1/3/25 9:09am	Spire (Construction and Maintenance) C&M crew with Leak Truck Foreman ** [REDACTED] ** and Leak Truck Worker ** [REDACTED] ** were routed.
1/3/25 9:17am	Spire (Construction and Maintenance) C&M crew arrived and began attempts to locate curb box.
1/3/25 9:19am	Spire (Construction and Maintenance) C&M called Missouri 811 for a locate request, ticket #250030413.
1/3/25 9:22am	Spire Service Tech ** [REDACTED] ** and Helper ** [REDACTED] ** arrived.
1/3/25 9:24am	Spire Service Tech attempted to obtain gas readings at the exterior of the house.
1/3/25 9:24am	The home explosion at 895 Glen Elm Drive occurred.
1/3/25 9:24am	Spire Service Tech and Spire Helper evaluated themselves for possible related injuries.
1/3/25 9:24am	Spire Service Tech and Spire Helper began moving occupants of 895 Glen Elm Drive and nearby residents to a safe distance.
1/3/25 9:24am	Spire Service Tech and Spire Helper began moving/coordinating movement of vehicles away from the 895 Glen Elm Drive residence for emergency responder access. This included a vehicle belonging to the excavator which had to be removed from the front of the residence.
1/3/25 9:27am	Spire (Construction and Maintenance) C&M began excavating to abandon the service line.
1/3/25 9:29am	Spire Service Tech called 911.
1/3/25 9:30am	Evacuations of 8 nearby homes were initiated by Spire.
1/3/25 9:31am	Spire Leak Truck Foreman called 911.
1/3/25 9:32am	Spire Dispatch notified Spire Service Supervisor ** [REDACTED] **.
1/3/25 9:34am	The Glendale fire department arrived.
1/3/25 9:39am	A second Spire (Construction and Maintenance) C&M crew, Leak Truck Foreman ** [REDACTED] ** and Leak Truck Worker ** [REDACTED] ** arrived.
1/3/25 9:40am	Spire Service Tech began performing leak surveys in the area.
1/3/25 9:42am	Spire Distribution Manager ** [REDACTED] ** notified Spire Claims.
1/3/25 9:45am	A Second Service Tech ** [REDACTED] ** arrived.
1/3/25 9:45am	** [REDACTED] ** began performing leak surveys (Bar Hole) in the area.
1/3/25 9:46am	Spire Distribution Manager notified Spire I&C.
1/3/25 9:46am	** [REDACTED] ** and Spire C&M Supervisor ** [REDACTED] ** arrived.
1/3/25 9:50am	** [REDACTED] ** notified Spire Claims Manager ** [REDACTED] **.

Pipeline Failure Investigation Report Checklist

<i>Event Log</i>	
Sequence of events prior, during, and after the incident by time. (Consider the events of all parties involved in the incident, Fire Department and Police reports, Operator Logs and other government agencies.)	
1/3/25 9:54am	Spire C&M Admin ** [REDACTED] ** arrived.
1/3/25 10:00am	Spire Distribution Manager notified Damage Prevention.
1/3/25 10:00am	Spire Service Tech ** [REDACTED] ** began performing leak surveys (Bar Hole) in the area.
1/3/25 10:06am	Spire Distribution Manager arrived.
1/3/25 10:06am	Spire Damage Prevention Manager ** [REDACTED] ** notified Spire Public Relations Director ** [REDACTED] **.
1/3/25 10:20am	Spire Service Admin ** [REDACTED] ** arrived.
1/3/25 10:24am	Spire C&M made the site gas safe by abandoning the service at the main.
1/3/25 10:30am	Damage Prevention Manager notified USIC Operations Manager ** [REDACTED] **.
1/3/25 10:30am	Spire Damage Prevention Coordinator ** [REDACTED] ** arrived.
1/3/25 10:30am	Spire Technician ** [REDACTED] ** arrived on site to obtain odorant readings.
1/3/25 10:30am	The meter at 1230 N. Sappington Road was locked out.
1/3/25 10:39am	Damage Prevention Manager notified Pipeline Safety Compliance Director ** [REDACTED] **.
1/3/25 10:53am	Senior Damage Prevention Coordinator, ** [REDACTED] **, arrived.
1/3/25 10:58am	Spire Damage Prevention Manager ** [REDACTED] ** arrived.
1/3/25 10:58am	Spire Claims Specialist ** [REDACTED] ** arrived.
1/3/25 11:00am	Spire Service Tech ** [REDACTED] ** finished performing leak surveys in the area
1/3/25 11:14am	Director of Pipeline and System Integrity ** [REDACTED] ** notified the National Response Center.
1/3/25 11:19am	Manager of Pipeline Safety Distribution ** [REDACTED] ** notified the Missouri Public Service Commission Staff.
1/3/25 11:25am	Spire Technician ** [REDACTED] ** left the site to obtain odorant readings in the nearby area
1/3/25 12:41pm	** [REDACTED] ** left the site for drug and alcohol testing.
1/3/25 12:45pm	Compliance Engineer II ** [REDACTED] ** arrived.
1/3/25 1:05pm	The fire at the 895 Glen Elm Drive residence was extinguished
1/3/25 1:40pm	Spire Service Tech ** [REDACTED] ** finished performing leak surveys in the area.
1/3/25 1:53pm	Spire Helper ** [REDACTED] ** finished performing leak surveys in the area.
1/3/25 1:53pm	** [REDACTED] ** left the site for drug and alcohol testing.
1/3/25 2:09pm	Spire Leak Truck Foreman ** [REDACTED] ** took a drug test.
1/3/25 2:10pm	Spire Leak Truck Foreman ** [REDACTED] ** took an alcohol test.
1/3/25 2:24pm	Spire Leak Truck Worker ** [REDACTED] ** took a drug test.
1/3/25 2:25pm	Spire Leak Truck Worker ** [REDACTED] ** took an alcohol test.
1/3/25 2:46pm	The USIC locator took an alcohol test.
1/3/25 2:57pm	The (Construction and Maintenance) C&M job was complete.
1/3/25 2:58pm	The USIC locator took a drug test.
1/3/25 3:15pm	Missouri Public Service Commission Staff arrived.
1/3/25 3:22pm	Spire Service Tech ** [REDACTED] ** took an alcohol test.

Pipeline Failure Investigation Report Checklist

<i>Event Log</i>	
Sequence of events prior, during, and after the incident by time. (Consider the events of all parties involved in the incident, Fire Department and Police reports, Operator Logs and other government agencies.)	
1/3/25 3:26	Spire Service Tech ** [REDACTED] ** took a drug test.
1/3/25 3:34pm	Spire Helper ** [REDACTED] ** took a drug test.
1/3/25 3:38pm	Spire Helper ** [REDACTED] ** took an alcohol test.
1/3/25 4:11pm	Spire Service Tech ** [REDACTED] ** arrived
1/3/25 4:40pm	Service to 1230 N. Sappington Road was restored.
1/3/25 5:05pm	Missouri Public Service Commission Staff left the site.

<i>Investigation Contact Log</i>			
Time	Date	Name	Description
	1/3/2025	** [REDACTED] **	Spire leak supervisor
	1/3/2025	** [REDACTED] **	Spire compliance
	1/3/2025	** [REDACTED] **	St. Louis County Police Department

<i>Failure Investigation Documentation Log</i>					
Operator:		Unit #:	CPF #:	Date:	
Staff Data Request	Documentation Description	Date		FOIA	
Number		Received	Yes	No	
DR 1.0	Spire PIR	2/26/25			
DR 13.0	Spire Emergency Plan	2/26/25			
DR 15.0	Spire Damage Prevention Plan	2/26/25			
DR 17.0	Spire Drug and Alcohol Prevention Plan	3/7/25			
DR 31.0	Spire Contractor Oversight	3/7/25			
Additional Source Documents					
1	Form PHMSA F7100.1	2/3/2025		X	
2	Missouri 811 Ticket No. 250030078	1/3/2025		X	
3	Service Order Card to Replace Service Line from Main to Meter with Copper Tubing (Spire CONF-Attachment 4C)	2/26/2025		X	
4	Field Sketch of Streets, Residences, Service Line and Marked Location				

Pipeline Failure Investigation Report Checklist

Site Description

Provide a sketch of the area including distances from roads, houses, stress inducing factors, pipe configurations, etc. Bar Hole Test Survey Plot should be outlined with concentrations at test points. Photos should be taken from all angles with each photo documented. Additional areas may be needed in any area of this guideline.





Figure 1 - Front of 895 Glen Elm Drive Following the Explosion.

** Denotes Confidential Information **



Figure 2 – USIC Natural Gas Locate Made Prior to Incident.



Figure 3 – USIC Natural gas service locate

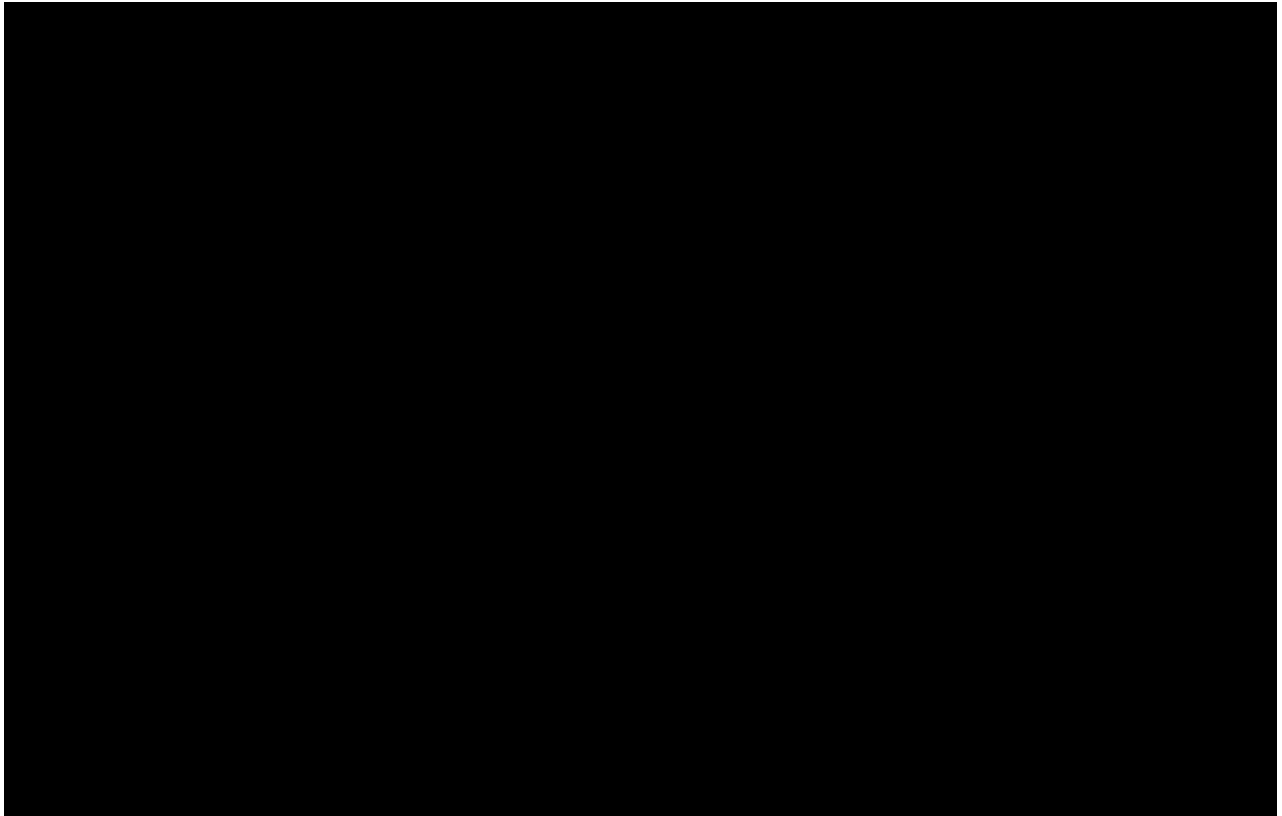


Figure 4 – Excavation Made Prior to Incident



Figure 5 – Location of Spire Excavation Made in Attempt to Find Gas Curb Valve

**



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Figure 6 – Spire’s Documentation of Bar Hole Locations Made Following the Incident



Figure 7 – Inside Meter Vent



Figure 8 – Service Line



Figure 9 – Service line



Figure 10 – Service Line In Basement



Figure 11 – Excavation overUSIC Locate



Figure 12 – Excavator’s work site

Case No. GS-2025-0209

APPENDIX A - Exhibit 2

HAS BEEN DEEMED

CONFIDENTIAL

IN ITS ENTIRETY

Missouri 811

Ticket no 250030078 **Type** EMERGENCY CALL

Job number

Original call date 01/03/25 07:21 am

Start date 01/03/25 09:30 am

Expiration date/time

Work to be completed

Caller information

Caller name DOMINIC ANIC **Phone** 314-503-8680

Rec device? Y

Excavator information

Excavator name PLS PLUMBING

Phone 314-503-8680 **Cell phone:** 314-503-8680

Fax phone

Address 4940 VINTO
ST. LOUIS, MO 63129

Onsite contact DOMINIC ANIC **Phone** 314-503-8680

Dig site information

Type of work EMERGENCY - REPAIR SEWER SERVICE

Work being done for HOMEOWNER

Equipment EXCAVATOR

Location information

County ST. LOUIS **City** GLENDALE

Address 895 **City limits** Y

Street GLEN ELM DR

Between N SAPPINGTON RD and
BROOKSIDE DR

Location of work MARK FRONT AND RIGHT FACING FRONT SIDE AND INCLUDING GLEN ELM DR CURB TO CURB
AND N SAPPINGTON RD CURB TO CURB.

Remarks CREW IS EN ROUTE.

Map Twp 45N **Rng** 6E **Sect-qtr** 31-NE

NW Lat 38.6004978 **Lon** -90.3868401 **SE Lat** 38.5998634 **Lon** -90.3862260

Members notified

Company name	District	Type	Status
AMEREN MISSOURI ELECTRIC	AMELE01	E	Clear/No conflict (2025/01/03 08:08 marked per scope)
ATT DISTRIBUTION	ATT306	FO,TEL,TV	Marked

MISSOURI AMERICAN WATER CO	MOAMWC01	W	Marked
MCI	MT	TEL	Clear/No conflict
SPIRE MO EAST	SPIRE01	G	Marked (Stewart3,+Michael+marked+per+scope)
ST LOUIS METROPOLITAN SEWER	STLSS01	S	Marked (")

Map



Case No. GS-2025-0209

**APPENDIX A
Exhibit 4 and Exhibit 5**

HAVE BEEN DEEMED

CONFIDENTIAL

IN ENTIRETY