



MISSOURI PUBLIC SERVICE COMMISSION

STAFF'S GAS INCIDENT REPORT

Grandview Road
Kansas City, MO
April 22, 2025

APPENDIX A

FACTS

Spire Missouri, Inc.
Case No. GS-2025-0295

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

Pipeline Failure Investigation Report Checklist

Pipeline System: Distribution feeder line **Operator:** Spire Missouri West
Operator ID: 30769 **Unit Number:** _____ **Activity Number:** _____
Location: 9509 Grandview Rd, Kansas City, MO **Date of Occurrence:** April 22, 2025
Material Released: Natural gas **Quantity:** 130 MCF per PHMSA F7100.1
PHMSA Arrival Time & Date: N/A **Total Damages \$:** \$177,240 per PHMSA F7100.1
Investigation Responsibility: State PHMSA NTSB Other

<i>Company Reported Apparent Cause:</i>	<i>Company Reported Sub-Cause (from PHMSA Form 7000-1/7100.2):</i>
<input type="checkbox"/> Corrosion	
<input type="checkbox"/> Natural Force Damage	
<input checked="" type="checkbox"/> Excavation Damage	Excavation Damage by Third Party
<input type="checkbox"/> Other Outside Force Damage	
<input type="checkbox"/> Material Failure (Pipe, Joint, Weld)	
<input type="checkbox"/> Equipment Failure	
<input type="checkbox"/> Incorrect Operation	
<input type="checkbox"/> Other	

<i>Accident/Incident Resulted in (check all that apply):</i>	<i>Comments:</i>
<input type="checkbox"/> Rupture	
<input checked="" type="checkbox"/> Leak	Leak at damaged fitting on top of main
<input checked="" type="checkbox"/> Fire	Escaping gas ignited during Spire's emergency response
<input type="checkbox"/> Explosion	
<input checked="" type="checkbox"/> Evacuation	Number of Persons: <u>16</u> Area: _____

<i>Narrative Summary</i>
<p>Short summary of the Incident/Accident scenario</p> <p>On April 14, 2025, the Kansas City Missouri Water Department ("KC Water") 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 Missouri West ("Spire") in Kansas City, Missouri (Missouri 811 Ticket No. 251045717 – ticket type routine). Spire indicated that the location had been marked by updating the ticket status as "Marked" at 11 am on April 16, 2025.</p> <p>The excavation occurred on April 22, 2025 and a Spire employee was on-site to observe, but departed prior to the backfilling work. A 1-inch nipple at the 12:00 position on the 10-inch steel natural gas pipeline was damaged during backfilling at approximately 5:10 pm. The pipeline was operating at approximately 130 psig. KC Water notified the Spire employee that had observed the excavation at approximately 5:17 pm, and notified Spire dispatch at 5:18 pm. Spire's first responding personnel were a two-person Spire crew consisting of a machine operator and working foreman – they arrived at 5:36pm and unloaded Spire's excavation equipment near the damage location. A Spire service person arrived at 5:42pm. Spire personnel instructed KC Water personnel to move their equipment away from the blowing gas, then began excavating the backfill using a mini-excavator. The natural gas ignited during Spire's excavation activities, resulting in severe burns to the Spire machine operator.</p> <p>The pipeline condition was made safe by closing two nearby valves and repair was completed by removing the damaged 1-inch nipple and welding on a permanent repair sleeve. Three Spire employees (machine operator, working foreman, and service person) were injured as a result of the incident (see Injuries section below). The machine operator was hospitalized for extended treatment.</p>

Region/State: Central / Missouri

Reviewed by: _____

Principal Investigator: *** [REDACTED] **

Title: Associate Engineer

Date: _____

Date: _____

Pipeline Failure Investigation Report Checklist

<i>Failure Location & Response</i>			
Location (City, Township, Range, County/Parish): Kansas City, MO; Jackson County (Maps provided in response to Staff Data Request #2)			(Acquire Map)
Address or M.P. on Pipeline: ⁽¹⁾ 9509 Grandview Rd, Kansas City, MO	Type of Area (Rural, City): ⁽¹⁾ City: Kansas City		
Coordinates of failure location (Latitude): 38.95367504		(Longitude): -94.54989956	
Date: April 22, 2025	Time of Failure: 17:10		
Time Detected: 17:10	Time Located: 17:36		
How Located: 3 rd party reported at 17:10; Spire arrived at 17:36			
NRC Report #: (Attach Report) 1429178 (initial) and 1429366 (48-hour)	Time Reported to NRC: 19:38 on 4/22/2025	Reported by: Spire (** [REDACTED] **)	
Type of Pipeline:			
<input type="checkbox"/> Gas Distribution	<input type="checkbox"/> Gas Transmission	<input type="checkbox"/> Hazardous Liquid	<input type="checkbox"/> LNG
<input type="checkbox"/> LP	<input type="checkbox"/> Interstate Gas	<input type="checkbox"/> Interstate Liquid	
<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.): 10-inch distribution feeder line with a 1-inch drilling nipple on top of 10-inch main.			

<i>Operator/Owner Information</i>	
Owner: Spire Missouri, Inc. Address: 700 Market St. Louis, MO 63101 Company Official: ** [REDACTED] ** Senior Vice President, Engineering, Gas Supply and Operations Services Phone No.: ** [REDACTED] ** Fax No.:	Operator: Spire Missouri West Company Official: ** [REDACTED] ** Senior Vice President, Engineering, Gas Supply and Operations Services Phone No. ** [REDACTED] ** Fax No. (Cell)
<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⁾ 130 MCF	Estimated Property Damage \$ 175,915		
Amount Recovered	Associated Damages ⁽³⁾ \$ 500		
Estimated Amount \$ 825	Total Cost 177,240		
Description of Property Damage: Spire mini-excavator; Spire fire suit; above-grade components of Spire regulator station #152; telephone pole			
Customers out of Service: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Number: 16		
Suppliers out of Service: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Number:		

Fatalities and Injuries				N/A
Fatalities: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Company:	Contractor:	Public:	
Injuries - Hospitalization: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Company: X	Contractor:	Public:	
Injuries - Non-Hospitalization: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Company: X	Contractor:	Public:	
Total Injuries (including Non-Hospitalization): 3	Company: 3	Contractor:	Public:	
Name	Job Function	Yrs. w/ Comp.	Yrs. Exp.	Type of Injury
** [REDACTED] **	Machine Operator	3.6	0.37	** [REDACTED] **
** [REDACTED] **	Service person	17.7	14.6	** [REDACTED] **
** [REDACTED] **	Working Foreman - Maintenance	4.1	0.67	** [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?					
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No					
Job Function	Test Date & Time	Location	Results		Type of Drug
			Pos	Neg	
** [REDACTED] **	4/22/25 10:12 pm	Quest Diagnostics, Collection Site 64532		X	
** [REDACTED] **	4/22/25 9:34 pm	Quest Diagnostics, Collection Site 64132		X	

2 Initial volume lost or spilled
3 Including cleanup cost

Pipeline Failure Investigation Report Checklist

<i>System Description</i>
Describe the Operator's System: The damage occurred on a 10-inch steel main 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.

<i>Pipe Failure Description</i>		___ N/A
Length of Failure (inches, feet, miles): 0.5" hole from 1-inch nipple (PHMSA F7100.1 entry in Part C at Leak Type)		(1)
Position (Top, Bottom, include position on pipe, 6 O'clock): (1) Damaged fitting at top of 10-inch steel main, 12 O'clock.	Description of Failure (Corrosion Gouge, Seam Split): (1) Crack in pipe at base of fitting	(1)
Laboratory Analysis: ___ Yes <input checked="" type="checkbox"/> No		
Performed by:		
Preservation of Failed Section or Component: <input checked="" type="checkbox"/> Yes ___ No		
If Yes - Method: Evidence storage		
In Custody of: Spire Missouri West		
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.		

<i>Component Failure Description</i>		___ N/A
Component Failed:	Fitting (1-inch drilling nipple) welded to top of 10-inch steel main	(1)
Manufacturer: Unknown	Model: Unknown	
Pressure Rating: Unknown	Size: 1-inch	
Other (Breakout Tank, Underground Storage): NA		

<i>Pipe Data</i>		___ N/A
Material: Steel	Wall Thickness/SDR: 0.247 inches	
Diameter (O.D.): 10-inch	Installation Date: 1929	
SMYS: Unknown	Manufacturer: Unknown	
Longitudinal Seam: ERW	Type of Coating: Bare steel pipe (no coating)	
Pipe Specifications (API 5L, ASTM A53, etc.): Unknown		

<i>Joining</i>		___ N/A
Type: Fitting welded to top of 10-inch main	Procedure: Fillet	
NDT Method: NA for fitting	Inspected: ___ Yes <input checked="" type="checkbox"/> No (Unknown)	

<i>Pressure @ Time of Failure @ Failure Site</i>		___ N/A
Pressure @ Failure Site: 130.2 psig	Elevation @ Failure Site: About 610' above sea level	

Pipeline Failure Investigation Report Checklist

<i>Pressure @ Time of Failure @ Failure Site</i> ___ N/A				
Pressure Readings @ Various Locations: N/A			Direction from Failure Site	
Location/M.P./Station #	Pressure (psig)	Elevation (ft msl)	Upstream	Downstream

<i>Upstream Pump Station Data</i> ___ <input checked="" type="checkbox"/> N/A	
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> ___ <input checked="" type="checkbox"/> N/A	
Specific Gravity:	Flow Rate:
Pressure @ Time of Failure ⁽⁴⁾	Distance to Failure Site:
High Pressure Set Point:	Low Pressure Set Point:

<i>Operating Pressure</i> ___ N/A	
Max. Allowable Operating Pressure: 150 psig	Determination of MAOP: 192.619(a)(3)
Actual Operating Pressure: 130 psig	
Method of Over Pressure Protection: Monitor regulator at inlet station to west and monitor regulator at inlet station to east – two way feed with SCADA at each inlet station to monitor pressure.	
Relief Valve Set Point: No relief valve, monitor regulator	Capacity Adequate? ___ Yes ___ No (NA - no relief)

<i>Integrity Test After Failure</i> ___ N/A	
Pressure test conducted in place? (Conducted on Failed Components or Associated Piping):	___ <input checked="" type="checkbox"/> Yes ___ No
If No, tested after removal?	___ Yes ___ No
Method: Soap test of welded repair sleeve	
Describe any failures during the test: No failure.	

<i>Soil/water Conditions @ Failure Site</i> ___ N/A	
Condition of and Type of Soil around Failure Site (Color, Wet, Dry, Frost Depth): No soil around pipe at failure site; gravel backfill was around the fitting and pipe at the failure site that was in an excavation to repair a water main leak.	
Type of Backfill (Size and Description): Gravel fill by Kansas City Water Division.	
Type of Water (Salt, Brackish): Normal groundwater plus water from water main leak.	Water Analysis ⁽⁵⁾ ___ Yes ___ <input checked="" type="checkbox"/> No

<i>External Pipe or Component Examination</i> ___ N/A	
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- 4 Obtain event logs and pressure recording charts
 5 Attach copy of water analysis report

Pipeline Failure Investigation Report Checklist

<i>External Pipe or Component Examination</i>		<i>N/A</i>
External Corrosion? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No ⁽¹⁾	Coating Condition (Disbonded, Non-existent): ⁽¹⁾ Non-existent (bare steel)	
Description of Corrosion: N/A		
Description of Failure Surface (Gouges, Arc Burns, Wrinkle Bends, Cracks, Stress Cracks, Chevrons, Fracture Mode, Point of Origin): Crack in pipe at base of fitting.		
Above Ground: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No ⁽¹⁾	Buried: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No ⁽¹⁾	
Stress Inducing Factors: Backhoe bucket tooth ⁽¹⁾	Depth of Cover: Main – 32 inches; fitting – 30 inches ⁽¹⁾	

<i>Cathodic Protection</i>		<i>N/A</i>
P/S (Surface): -0.98 V	P/S (Interface): No soil at interface – in excavation.	
Soil Resistivity: Unknown pH: Unknown	Date of Installation: Rectifier installed on July 20, 2010	
Method of Protection: Rectifier		
Did the Operator have knowledge of Corrosion before the Incident? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
How Discovered? (Close Interval Survey, Instrumented Pig, Annual Survey, Rectifier Readings, ECDA, etc): NA - Cathodic protection was adequate with no corrosion leaks or anomalies requiring repair.		

<i>Internal Pipe or Component Examination</i>		<i>N/A</i>
Internal Corrosion: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No ⁽¹⁾	Injected Inhibitors: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Type of Inhibitors: N/A	Testing: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Results (Coupon Test, Corrosion Resistance Probe): Visual inspection of fitting – no internal corrosion.		
Description of Failure Surface (MIC, Pitting, Wall Thinning, Chevrons, Fracture Mode, Point of Origin): N/A		
Cleaning Pig Program: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Gas and/or Liquid Analysis: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Results of Gas and/or Liquid Analysis ⁽⁶⁾ N/A		
Internal Inspection Survey: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Results ⁽⁷⁾ N/A	
Did the Operator have knowledge of Corrosion before the Incident? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
How Discovered? (Instrumented Pig, Coupon Testing, ICDA, etc.): N/A		

<i>Outside Force Damage</i>	<i>N/A</i>

6 Attach copy of gas and/or liquid analysis report
7 Attach copy of internal inspection survey report

Pipeline Failure Investigation Report Checklist

<i>Outside Force Damage</i>		<u> </u> <i>N/A</i>
Responsible Party: Kansas City Water		Telephone No.: (816) 513-1313
Address: 4800 East 63 rd Street, Kansas City, Missouri		
Work Being Performed: Repair of water main leak		
Equipment Involved: Backhoe ⁽¹⁾	Called One Call System? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
One Call Name: Missouri 811	One Call Report # ⁽⁸⁾ 251045717	
Notice Date: 4/14/25	Time: 9:34 pm	
Response Date: 4/16/25	Time: 11:00 am	
Details of Response: Ticket 251045717 indicated work was to begin at 7:00 am on 4/17/25, so the locate was completed on-time.		
Was Location Marked According to Procedures? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
Pipeline Marking Type: Paint & flags ⁽¹⁾	Location: 259' South of South Pavement Edge ⁽¹⁾ (SSPE) of E. 95th Terrace, and 1' East of East Pavement Edge (EEPE) of Grandview Road	
State Law Damage Prevention Program Followed? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> No State Law		
Notice Required: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Response Required: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Was Operator Member of State One Call? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Was Operator on Site? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Did a deficiency in the Public Awareness Program contribute to the accident? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
Is OSHA Notification Required? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		

<i>Natural Forces</i>	<u> </u> <i>N/A</i>
Description (Earthquake, Tornado, Flooding, Erosion):	

<i>Failure Isolation</i>		<u> </u> <i>N/A</i>
Squeeze Off/Stopple Location and Method: N/A ⁽¹⁾		
Valve Closed - Upstream: Time: 7:50 p.m.	I.D.: VLV001287430 - Bannister Rd and 71 Highway M.P.:	
Valve Closed - Downstream: Time: 7:24 p.m.	I.D.: VLV001288678 - 3305 Red Bud Rd M.P.:	
Pipeline Shutdown Method: <input checked="" type="checkbox"/> Manual <input type="checkbox"/> Automatic <input type="checkbox"/> SCADA <input type="checkbox"/> Controller <input type="checkbox"/> ESD		
Failed Section Bypassed or Isolated: Isolated		
Performed By: Spire P&M department	Valve Spacing: 0.8 miles	

8 Attach copy of one-call report

Pipeline Failure Investigation Report Checklist

<i>Odorization</i>		<u> </u> N/A
Gas Odorized: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Concentration of Odorant (Post Incident at Failure Site): 0.26	
Method of Determination: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	% LEL: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	% Gas In Air: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Odorator II	Time Taken: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Was Odorizer Working Prior to the Incident? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Type of Odorizer (Wick, By-Pass): YZ Injection	
Odorant Manufacturer: Model: YZ Odorizer	Type of Odorant: Mercaptan	
Amount Injected: Unknown	Monitoring Interval (Weekly): Monthly	
Odorization History (Leaks Complaints, Low Odorant Levels, Monitoring Locations, Distances from Failure Site): To Spire's knowledge, there have been no odorization issues near this site leading up to this incident. For the KC South system, monitoring locations are at 18 th & Indiana, 64 th and Belmont, Richard Gebaur airbase, 9800 Holmes, 107 th & Elm, 107 th & Greenwood and 12613 Grandview Road. Monitoring post-incident was on 4/29/2025, with 0.26% gas-in-air reading at 9800 Holmes (2 miles from failure site).		

<i>Weather Conditions</i>		<u> </u> N/A
Temperature: 78 °F	Wind (Direction & Speed): South 12 mph	
Climate (Snow, Rain): No precipitation	Humidity: 37-38%	
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): Winds had reached 18 mph about 4 hours prior to the incident. *Information gathered using historical data from www.wunderground.com		

<i>Gas Migration Survey</i>		<u> </u> <input checked="" type="checkbox"/> N/A
Bar Hole Test of Area: <input type="checkbox"/> Yes <input type="checkbox"/> No	Equipment Used:	
Method of Survey (Foundations, Curbs, Manholes, Driveways, Mains, Services) ⁽⁹⁾ (1)		

<i>Environment Sensitivity Impact</i>		<u> </u> <input checked="" type="checkbox"/> N/A
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	

<i>Class Location/High Consequence Area</i>		<u> </u> N/A
Class Location: 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input checked="" type="checkbox"/> 4 <input type="checkbox"/>	HCA Area? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Determination: City residential area	Determination:	
Odorization Required? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		

9 Plot on site description page

Pipeline Failure Investigation Report Checklist

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

<i>Internal Line Inspection/Other Assessment History</i> <u>X</u> 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					__ Yes __ No
Next					__ Yes __ No
Next					__ Yes __ No
Most Recent					__ Yes __ No
Describe any previously indicated anomalies at the failed pipe, and any subsequent pipe inspections (anomaly digs) and remedial actions.					

<i>Pre-Failure Conditions and Actions</i> <u>X</u> N/A
Was there a known pre-failure condition requiring ⁽¹⁰⁾ the operator to schedule evaluation and remediation? __ Yes (describe below or on attachment) __ 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. __ Yes __ No __ 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? __ Yes __ No __ 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.

<i>Maps & Records</i> N/A
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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

Are Maps and Records Current? ⁽¹³⁾ <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Comments:
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<i>Leak Survey History</i> ___ <u>X</u> N/A
Leak Survey History (Trend Analysis, Leak Plots):

<i>Pipeline Operation History</i> ___ N/A
Description (Repair or Leak Reports, Exposed Pipe Reports): No prior repairs or leak reports at failure location (corrosion repair 0.5 miles to west in 2017). No prior exposed pipe reports at failure site (7 exposed pipe reports at 0.1 to 0.2 miles to east in 2018 – each marked “Good”).
Did a Safety Related Condition Exist Prior to Failure? ___ Yes <u>X</u> No Reported? ___ Yes ___ No
Unaccounted For Gas: N/A for this distribution feeder line. (Unaccounted gas for entire Spire West was 1.69% in annual report for 2024.)
Over & Short/Line Balance (24 hr., Weekly, Monthly/Trend): N/A for this distribution feeder line.

<i>Operator/Contractor Error</i> ___ N/A	
Name: 1) ** [REDACTED] ** 2) ** [REDACTED] **	Job Function: 1) Machine Operator 2) Foreman
Title: 1) Machine Operator 2) Working Foreman	Years of Experience: 1) 3.6 (total); 0.37 (operator) 2) 4.1(total); 0.67 (working foreman).
Training (Type of Training, Background): 1) Background: 3.7 years of experience. Training: Completed OQ tasks for excavation and leak repair. Completed annual reviews of emergency procedures. 2) Background: 4.1 years of experience. Training: Completed OQ tasks for excavation and leak repair. Completed annual reviews of emergency procedures.	
Was the person “Operator Qualified” as applicable to a precursor abnormal operating condition? <u>X</u> Yes ___ No ___ N/A	
Was qualified individual suspended from performing covered task ___ Yes <u>2) X</u> No <u>1) X</u> N/A – Employee 1 didn’t return to work due to injuries.	
Type of Error (Inadvertent Operation of a Valve): Causing an accidental ignition during excavation for a pipe repair	
Procedures that are required: Emergency Response and Prevention of Accidental Ignition	
Actions that were taken: 1) Operating excavation equipment downwind in the presence of blowing gas 2) Advised KC Water personnel to move their excavation equipment in the vicinity (adjacent upwind) of blowing gas	
Pre-Job Meeting (Construction, Maintenance, Blow Down, Purging, Isolation): N/A emergency response	
Prevention of Accidental Ignition (Tag & Lock Out, Hot Weld Permit): N/A emergency response	
Procedures conducted for Accidental Ignition: Prevention of Accidental Ignition Standard Operating Procedure (SOP) Document number 230.H.4	
Was a Company Inspector on the Job? ___ Yes <u>X</u> No	

13 Obtain copies of maps and records

Pipeline Failure Investigation Report Checklist

Operator/Contractor Error ___ N/A				
Was an Inspection conducted on this portion of the job? ___ Yes <u>X</u> No				
Additional Actions (Contributing factors may include number of hours at work prior to failure or time of day work being conducted):				
Training Procedures: OQ Plan – MO West-MO East Revised 2/18/2025; Emergency procedures – annual review.				
Operation Procedures: 1) Emergency Response - SOP 220.D.7 2) Prevention of Accident Ignition – SOP 230.H.4				
Controller Activities: N/A				
Name	Title	Years Experience	Hours on Duty Prior to Failure	Shift
Alarm Parameters: Nearest SCADA point at 9800 Holmes: Low alarm at 100 psig and Low-Low at 95 psig. SCADA pressure prior to event was 130.6 psig and after event was 130.2 psig – no alarm activated.				
High/Low Pressure Shutdown: No shutdown by SCADA.				
Flow Rate: NA				
Procedures for Clearing Alarms: NA				
Type of Alarm: NA				
Company Response Procedures for Abnormal Operations: NA				
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>	___ <i>N/A</i>
<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>Emergency procedures after ignition: Closed valves to east and west of failure location to isolate and depressurize the involved pipeline segment. After gas depressurized and fire extinguished, repairs were made. Pipeline segment was purged and pressurized, and service to affected customers was re-established.</p> <p>Post Incident Review was conducted on December 15, 2025, and PIR Report was provided to Staff on February 6, 2026 in response to Data Request 9. Root Cause Analysis was conducted after PIR and results were provided to Staff on March 6, 2026 in response to Data Request 19.</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	Damaged fitting on main	16	
2	Damaged fitting after removal	17	
3	Photos of fitting at storage	18	
4	Photos of Spire mini-excavator and repair	19	
5	Photos of damaged power pole and line marker	20	
6	Photo of KC Water Dept. backhoe	21	
7	View looking south at gas fire	22	
8	View looking north with nearby regulator station	23	
9		24	
10		25	
11		26	
12		27	
13		28	
14		29	
15		30	
Camera Type:			

Pipeline Failure Investigation Report Checklist

Additional Information Sources			
Agency	Name	Title	Phone Number
Police:	Kansas City		
Fire Dept.:	Kansas City		
State Fire Marshall:	No		
State Agency:	Missouri PSC		
NTSB:	No		
EPA:	No		
USCG:	No		
FBI:	No		
ATF:	No		
OSHA:	No		
Insurance Co.:	No		
FRA:	No		
MMS:	No		
Television:	No		
Newspaper:	No		
Other:	Kansas City Water		
Persons Interviewed			
Name	Title	Phone Number	
** [REDACTED] **	Damage Prevention Coordinator		
** [REDACTED] **	Civic Improvement Inspector		
** [REDACTED] **	Supervisor of Field Operations		
** [REDACTED] **	Serviceperson		
** [REDACTED] **	Manager of Field Operations		
** [REDACTED] **	Claims Specialist		
** [REDACTED] **	Leak & Maintenance Specialist for Field Operations		
** [REDACTED] **	Manager of Gas Operations		
** [REDACTED] **	Kansas City Water General Supervisor		
** [REDACTED] **	Kansas City Water Maintenance Worker		
** [REDACTED] **	Kansas City Water Senior Equipment Operator		
** [REDACTED] **	Working Foreman		

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
9:35 pm/ 4-14-25	The third-party excavator submitted a locate request to Missouri 811, ticket #251045717.
11:00 pm/ 4-16-25	The locate was accurately completed by ** [REDACTED] **.
3:30 pm/ 4-21-25	The Civic Improvement Inspector ** [REDACTED] ** contacted the excavator and asked when work would begin adjacent to Spire's gas main. The excavator informed him this work would not begin until sometime on the following date.
12:00 pm/ 4-22-25	The Civic Improvement Inspector contacted the excavator and was informed work had already begun adjacent to Spire's main.
1:07 pm/ 4-22-25	The Civic Improvement Inspector arrived on site, where work by a third-party excavator, KC Water Company, was already in progress.
5:06 pm/ 4-22-25	** [REDACTED] ** left the site while the excavator was backfilling an excavation.
5:10 pm/ 4-22-25	While backfilling, the excavator damaged a 10-inch steel pipe and fitting (1 inch nipple) and observed a hissing sound.
5:17 pm/ 4-22-25	The excavator called ** [REDACTED] ** and informed him of the damage to Spire's gas main.
5:18 pm/ 4-22-25	The excavator notified Work Plan Execution (Spire dispatch) of the damage.
5:20 pm/ 4-22-25	** [REDACTED] ** notified Leak and Maintenance (L&M) Supervisor ** [REDACTED] ** of the damage.
5:23 pm/ 4-22-25	** [REDACTED] ** notified the first L&M crew to respond to the damage.
5:25 pm/ 4-22-25	The fire department notified Spire dispatch that 911 had already been called by the excavator, requested Spire to arrive on site, and began setting up a restricted zone.
5:28 pm/ 4-22-25	The fire department arrived.
5:31 pm/ 4-22-25	** [REDACTED] ** notified Gas Ops Manager ** [REDACTED] ** of the damage and requested Pressure & Measurement (P&M) assistance to isolate the area of the damage.
5:36 pm/ 4-22-25	The first L&M crew (Working Foreman ** [REDACTED] ** and Machine Operator ** [REDACTED] **) arrived on site.
5:42 pm/ 4-22-25	Serviceperson ** [REDACTED] ** arrived.
5:44 pm/ 4-22-25	Field Ops Manager ** [REDACTED] ** contacted ** [REDACTED] ** to discuss a plan of action, including potentially isolating and closing two valves, exposing/uncovering the damaged fitting, installing a circle band clamp and a pumpkin fitting.
5:48 pm/ 4-22-25	** [REDACTED] ** returned to the site.
5:52 pm/ 4-22-25	** [REDACTED] ** was holding a fire extinguisher and standing upwind of the excavation. ** [REDACTED] ** was downwind of the blowing gas while operating a mini excavator immediately adjacent to the excavation.
5:57 pm/ 4-22-25	Ignition occurred.
6:02 pm/ 4-22-25	The excavator called 911. Police were dispatched to site.
6:07 pm/ 4-22-25	The second L&M crew arrived.
6:10 pm/ 4-22-25	** [REDACTED] **
6:40 pm/ 4-22-25	Pipeline Safety Distribution Manager ** [REDACTED] ** notified the Missouri Public Service Commission.
7:00 pm/ 4-22-25	** [REDACTED] **
7:24 pm/ 4-22-25	P&M Operator ** [REDACTED] ** arrived at the 3305 Red Bud Road valve location #VLV001288678 and closed the valve.

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.)	
7:38 pm/ 4-22-25	Distribution, Integrity & Engagement Manager ** [REDACTED] ** notified the National Response Center.
7:38 pm/ 4-22-25	P&M Operator ** [REDACTED] ** arrived at the Bannister Road and U.S. Highway 71 valve location #VLV001287430 and closed the valve.
8:09 pm/ 4-22-25	The third L&M crew arrived.
8:37 pm/ 4-22-25	Spire submitted an emergency locate request to Missouri 811, ticket #251125457.
8:50 pm/ 4-22-25	Fire at damage location was extinguished and the site was made gas safe by installing a circle band clamp.
8:50 pm/ 4-22-25	Spire worked with police and firefighters to help make the site safe.
8:55 pm/ 4-22-25	Spire personnel began performing leak surveys in the area.
8:57 pm/ 4-22-25	The Missouri Public Service Commission arrived.
9:20 pm/ 4-22-25	The permanent repair process began.
9:32 pm/ 4-22-25	The excavator notified Missouri 811 of the damage to Spire's main (dig-up #251125528).
9:34 pm/ 4-22-25	** [REDACTED] **
10:12 pm/ 4-22-25	** [REDACTED] **
11:30 pm/ 4-22-25	The third shift crew arrived.
2:43 am/ 4-23-25	Permanent repairs were completed.
1:32 pm/ 4-23-25	OSHA was notified by Senior Safety Specialist ** [REDACTED] ** of the hospitalization of ** [REDACTED] **
4:36 pm/ 4-23-25	Leak surveys completed.
6:32 pm/ 4-23-25	The re-lights of the affected customers began.
9:36 pm/ 4-23-25	The re-lights were completed (where possible).
3:34 pm/ 4-24-25	48-hour update to NRC provided, NRC #1429366.

Pipeline Failure Investigation Report Checklist

Investigation Contact Log			
Time	Date	Name	Description
8:03PM	4/22/25	** [REDACTED] **	<ul style="list-style-type: none"> • Received call from ** [REDACTED] ** requesting me to travel to incident site at 9509 Grandview Rd. ** [REDACTED] ** (Spire) included on the call and gave further details: <ul style="list-style-type: none"> ○ Damage to pipe ○ There was an ignition ○ Potential flash fire burn to Spire employee, who was assessed by an EMT and transported to hospital.
8:57 PM	4/22/25	** [REDACTED] **	<ul style="list-style-type: none"> • Arrived on-site at 8:57PM – received verbal situation report from ** [REDACTED] **: <ul style="list-style-type: none"> ○ Address near to damage is 9509 Grandview Rd., Kansas City, MO 64137 ○ Dispatch first received info of damage to the line at 5:27PM <ul style="list-style-type: none"> ▪ KC Water reports cap blown off main which is hissing ○ 6:08PM – Spire first receives notification that there was an injury ○ ~6:40PM – initial notification to ** [REDACTED] ** ○ 7:38PM – NRC report after determined that injuries may require in-patient hospitalization ○ 150 psig MAOP; 10” steel

Pipeline Failure Investigation Report Checklist

Investigation Contact Log			
Time	Date	Name	Description
9:10 PM	4/22/25	** [REDACTED] **	<ul style="list-style-type: none"> • Observations: <ul style="list-style-type: none"> ○ KCPD and KCFD on-scene ○ Power cut to area upon arrival ○ Spire reports Evergy originally had outage of ~200 customers, currently understood to be around 20 customers ○ Spire reports around 10-20 customers out for them ○ Spire reports 10" line is valved off in two locations to isolate the line, however there appears to be some bleed by ○ Observed Spire employees checking for gas in the area with CGIs ○ Spire working to excavate the damaged section of the line before determining how to repair • Spire Damage Prevention dept. ** [REDACTED] ** reports that ** [REDACTED] ** (Spire Civic Improvement Inspector) was on-site to observe KC Water excavating near the 10" line for a few hours, and understands that line was damaged during KC Water's backfilling, at which point ** [REDACTED] ** was no longer on-site. • Observed damage visually: <ul style="list-style-type: none"> ○ Appeared to be damage to a 1"-2" diameter nipple coming off the top of the 10" line, damage appeared to be at the connection weld between the nipple and the 10" line ○ No photos taken due to gas in air • At 10:30 Spire's plan was to weld a bottle fitting over the damaged portion of the line to encapsulate the damage. • Departed site around 11PM

Pipeline Failure Investigation Report Checklist

Investigation Contact Log			
Time	Date	Name	Description
12 AM	4/23/25		<ul style="list-style-type: none"> Received phone update from ** [REDACTED] ** around 12AM reporting that due to them not being able to stop bleed-by gas, they now plan to use a bolt-on clamp/sleeve to stop gas leakage and then will weld a full encapsulating pumpkin around the damage as a permanent repair.
10 AM	4/23/25	** [REDACTED] **	<ul style="list-style-type: none"> Observed completed repair, included a welded full encapsulating pumpkin. Pumpkin welds were reported to be tested with mag particle NDT At 10:28AM Spire personnel took a pressure reading on the 10" line and it was at 39psig Spire reporting that 10-20 customers out of service still ** [REDACTED] ** ** [REDACTED] ** gave two names for welders who completed the repair (** [REDACTED] **)

Failure Investigation Documentation Log				
Operator: Spire Missouri		Unit #:	CPF #:	Date:
Staff Data Request Number	Documentation Description	Date	FOIA	
		Received	Yes	No
Data Request 0001.0	Narrative Description of Incident	6/6/25		
Data Request 0001.1	Damaged Fitting Information	7/1/25		
Data Request 0001.2	Damaged Fitting Photograph and Information	7/1/25		
Data Request 0001.3	Incident Photographs	7/1/25		
Data Request 0002.0	Pipeline Information	6/6/25		
Data Request 0003.0	Emergency Plan	6/6/25		
Data Request 0007.0	Post Incident Drug and Alcohol Testing 49 CFR 199.105(b) and .221	6/6/25		
Data Request 0008.0	Operator Qualification 20 CSR 4240-40.030(12)(D)	6/6/25		
Data Request 0009.0	Failure Investigation – Final Post Incident Review	2/6/26		
Data Request 0010.0	Incident Notifications 20 CSR 4240-40.020	6/6/25		
Data Request 0012.0	Prevention of Accidental Ignition 20 CSR 4240-40.030(13)(X)	6/6/25		
Data Request 0013.0	Isolation of Gas Flow	6/6/25		

Pipeline Failure Investigation Report Checklist

<i>Failure Investigation Documentation Log</i>				
Operator: Spire Missouri		Unit #:	CPF #:	Date:
Staff Data Request Number	Documentation Description	Date	FOIA	
		Received	Yes	No
Data Request 0014.0	Fire Department Report	8/26/25		
Data Request 0015.0	Police Department Report	8/26/25		
Data Request 0016.0	Damage Prevention Program Standard Operating Procedure	8/26/25		
Data Request 0019.0	Root Cause Analysis	3/6/26		
Data Request 0021.0	Injuries	11/5/25		
Data Request 0023.0	Pipe Failure Description (sketch of the area)	10/9/25		
Data Request 0024.0	Pipe Data	10/9/25		
Data Request 0025.0	Exposed Pipe Report	10/9/25		
Data Request 0026.0	Odorization	10/9/25		
Data Request 0027.0	Operator Qualification for Repairing Pipe	10/9/25		
Data Request 0028.0	Additional Actions Taken by the Operator	3/6/26		
Data Request 0032.0	Pressure System	1/15/26		
Data Request 0033.0	Cathodic protection	1/15/26		
Data Request 0034.0	Pipeline Operation History	1/15/26		
Data Request 0036.0	Pressure System Monitoring	1/13/26		
Other Documents				
MO 811 #251045717	Missouri 811 Ticket	10/28/25		
NRC#1429178	NRC notice on April 22, 2025 (public version)	10/27/25		
NRC#1429366	NRC notice on April 24, 2025 (public version)	10/27/25		
PHMSA F7100.1	Incident Report	5/22/25		

<i>Site Description</i>
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.