Pipeline Failure Investigation Report

Pipeline System: Distribution **Operator:** Montana-Dakota Utilities Co. (MDU)

Operator ID: 12684 **Unit Number:** _____ **Activity Number:** _____

Location: 920 11th Street Rapid City, SD **Date of Occurrence:** 11-29-2021

Material Released: Natural Gas **Quantity:** 46.28 MCF

PHMSA Arrival Time & Date: 11-29-2021 11:50 AM MT **Total Damages $:** $224,788

Investigation Responsibility: __x State __ PHMSA __ NTSB __Other _____

	Company Reported Apparent Cause:	*Company Reported Sub-Cause (from PHMSA Form 7000-1/7100.2):*
	Corrosion	
	Natural Force Damage	
x	Excavation Damage	Excavation Damage by Third Party
	Other Outside Force Damage	
	Material Failure (Pipe, Joint, Weld)	
	Equipment Failure	
	Incorrect Operation	
	Other	

	Accident/Incident Resulted in (check all that apply):	*Comments:*
	Rupture	
x	Leak	
x	Fire	
x	Explosion	
x	Evacuation	Number of Persons: 4 Area: Residential Homes

Narrative Summary

Short summary of the Incident/Accident scenario

On November 29, 2021 at 9:22 a.m. MST, an excavator notified Montana-Dakota Utilities Co. (MDU) that they damaged a 1" main near 920 11th Street, Rapid City, South Dakota. An MDU first responder arrived at 10:27 a.m. MST and after checking in with local fire department personnel on scene, began investigating. While the MDU emergency responders were working to secure the damage, the leaking natural gas caused by the excavation damage migrated and subsequently ignited causing an explosion and a fire at 920 11th Street. An MDU crew excavated and squeezed the 2" steel main upstream of the damaged 1" main. South Dakota PUC pipeline safety felt this incident could have been avoided if good emergency response steps were taken. Since the Incident MDU has changed their OPS 613 procedure to reflect the following changes. 8.1. First Responder Actions 8.1.1. Equipment strikes shall be treated as blowing lines until a leak investigation indicates there is not a release of gas. They have also added OPS procedure 611 Line locating and Marking as of March 1, 2022.

The investigation determined the third-party excavator locate ticket #2129918149 expired at 9:45 PM on 11/18/2021 prior to commencing work on 11/29/2021 the date of the incident.

Region/State: **Central Region/South Dakota** **Reviewed by:** _____

Principal Investigator: **Boice Hillmer** **Title:** _____

Date: **11/30/2021** **Date:** _____

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Failure Location & Response		
Location (City, Township, Range, County/Parish): Rapid City, SD		(Acquire Map)
Address or M.P. on Pipeline: (1) 920 11th Street	Type of Area (Rural, City): (1) City/Residential	
Coordinates of failure location (Latitude): 44.07769794	(Longitude): -103.23747298	
Date: 11-29-2021	Time of Failure: 9:22 a.m.	
Time Detected: 9:22 a.m.	Time Located: 10:27 a.m.	
How Located: Third Party Excavation Damage		
NRC Report #: (Attach Report) 1323119	Time Reported to NRC: 29-NOV-21 at 13:28 ET.	Reported by: JOSH SANDERS

Type of Pipeline:

Gas Distribution	**Gas Transmission**	**Hazardous Liquid**	**___ LNG**
__ LP	__ Interstate Gas	__ Interstate Liquid	
__ Municipal	__ Intrastate Gas	__ Intrastate Liquid	
__ Public Utility	__ Gas Gathering	__ Offshore Liquid	
__ Master Meter	__ Offshore Gas	__ Liquid Gathering	
x Private Utility	__ Offshore Gas - High H_2S	__ CO_2	
		__ Low Stress Liquid	
		__ HVL	

Pipeline Configuration (Regulator Station, Pump Station, Pipeline, etc.): Distribution system.

Operator/Owner Information	
Owner: Address: Company Official: Phone No.: Fax No.:	Operator: MONTANA DAKOTA UTILITIES Address: 400 NORTH 4TH STREET BISMARK, ND 58501 Company Official: Pat Darras Phone No. (701) 222-7611 Fax No.

Drug and Alcohol Testing Program Contacts __x N/A

Drug Program Contact & Phone:

Alcohol Program Contact & Phone:

1 Photo documentation

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Damages			
Product/Gas Loss or Spill[2]	Natural Gas/46.28 MCF	Estimated Property Damage $	$210,000
Amount Recovered		Associated Damages[3] $	$14,500
Estimated Amount $	$288		

Description of Property Damage: Residential structure damaged from explosion and fire.

Customers out of Service: _x_ Yes __ No Number: 5

Suppliers out of Service: __ Yes _x_ No Number:

Fatalities and Injuries					_x__ N/A
Fatalities:	__ Yes	_x_ No	Company:	Contractor:	Public:
Injuries - Hospitalization:	__ Yes	_x_ No	Company:	Contractor:	Public:
Injuries - Non-Hospitalization:	__ Yes	_x_ No	Company:	Contractor:	Public:
Total Injuries (including Non-Hospitalization): 0			Company:	Contractor:	Public:

Name	Job Function	Yrs. w/ Comp.	Yrs. Exp.	Type of Injury

Drug/Alcohol Testing					_x__ 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 ___No

Job Function	Test Date & Time	Location	Results		Type of Drug
			Pos	Neg	

System Description

2 Initial volume lost or spilled
3 Including cleanup cost

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System Description
Describe the Operator's System: System Consist of steel and plastic distribution pipe. The section of the distribution system that was damaged was operating at a MAOP of 34 PSI. The operating pressure at the time of the incident was 30 PSI. The damaged section of pipe was a 1" steel main. The 90-degree dresser elbow was located where the main turned at the end of the alley south down the boulevard of 11th street. The Dresser fitting was located at the intersection of the alley and 11th Street in the boulevard.

Pipe Failure Description _x__ N/A	
Length of Failure (inches, feet, miles): (1)	
Position (Top, Bottom, include position on pipe, 6 O'clock): (1)	Description of Failure (Corrosion Gouge, Seam Split): (1)
Laboratory Analysis: ___ Yes ___ No Performed by:	
Preservation of Failed Section or Component: ___Yes ___No If Yes - Method:	
In Custody of:	
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.	

Component Failure Description ___ N/A	
Component Failed: Mechanical Elbow (1)	
Manufacturer: Dresser	Model: Unknown – 90 Degree Dresser Ell
Pressure Rating: Unknown	Size: 1"
Other (Breakout Tank, Underground Storage):	

Pipe Data ___ N/A	
Material: Steel	Wall Thickness/SDR:
Diameter (O.D.): 1"	Installation Date: 1-11-1967
SMYS: Unknown	Manufacturer: Unknown
Longitudinal Seam: ERW – Unknown Frequency	Type of Coating: Mill Wrap Tar Paper Coating
Pipe Specifications (API 5L, ASTM A53, etc.): Unknown	

Joining ___N/A	
Type: Mechanical Fitting	Procedure: Unknown
NDT Method: NA	Inspected: ___ Yes ___No

Pressure @ Time of Failure @ Failure Site ___ N/A	
Pressure @ Failure Site: 30 PSI	Elevation @ Failure Site: NA

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Pressure @ Time of Failure @ Failure Site				***___ N/A***
Pressure Readings @ Various Locations: Regulator Station 19			Direction from Failure Site	
Location/M.P./Station #	Pressure (psig)	Elevation (ft msl)	Upstream	Downstream
South of Quincy and W of West Street	30 psig	3,214 ft.	X	

Upstream Pump Station Data	***_x__ 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:

Upstream Compressor Station Data	***_x__ N/A***
Specific Gravity:	Flow Rate:
Pressure @ Time of Failure [4]	Distance to Failure Site:
High Pressure Set Point:	Low Pressure Set Point:

Operating Pressure	***___ N/A***
Max. Allowable Operating Pressure: 34 PSI	Determination of MAOP: Pressure Test
Actual Operating Pressure: 30 PSI	
Method of Over Pressure Protection: Relief	
Relief Valve Set Point: 30 psig	Capacity Adequate? __X_ Yes ___ No

Integrity Test After Failure	***___ N/A***
Pressure test conducted in place? (Conducted on Failed Components or Associated Piping): ___ x Yes ___ No	
If No, tested after removal? ___ Yes ___ No	
Method:	
Describe any failures during the test. **None** 11-29-2021MDU employees air tested the line from in front of 924 11th street to where the 1" pulled out of the dresser coupling, through the damaged piece of pipe. The initial air test was placed at 32 PSI which is what the line was operating at the time of the incident for 1-hour. Then the increased the pressure on the same section of line to 90 PSI for 50 minutes to check for any additional failures, nothing was discovered, all okay. Gauge Serial Number: 190305 Calibrated on: 5-14-2021 11-29-2021 MDU Employees air tested the 2" main from squeeze off and 4 service lines still connected to the main to where the dresser ninety in question was cut out. This section was pressure tested at 30 PSI for 1-hour. Initial test lost approximately	

4 Obtain event logs and pressure recording charts

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Integrity Test After Failure	***___ N/A***
4-lbs of air, so crews soap tested all the ball valves on the customer risers, and it was discovered that two of the risers were leaking 920 11th street, and 1022 South Street. Crews replaced the two valves and re-tested the line at 90 PSI for 30 minutes to check for any additional failures, nothing discovered all okay. Gauge Serial Number: RC-2289-1-PO66495 Calibrated on: 5-14-2021	

Soil/water Conditions @ Failure Site	***___ N/A***
Condition of and Type of Soil around Failure Site (Color, Wet, Dry, Frost Depth): Red in color with no frost in the ground or measurable amount of moisture.	
Type of Backfill (Size and Description): Native soils, not concerns with existing backfill	
Type of Water (Salt, Brackish): None	Water Analysis [5] ___ Yes __x_ No

External Pipe or Component Examination	***___ N/A***
External Corrosion? ___Yes __x_ No [1]	Coating Condition (Disbonded, Non-existent): [1] Good
Description of Corrosion:	
Description of Failure Surface (Gouges, Arc Burns, Wrinkle Bends, Cracks, Stress Cracks, Chevrons, Fracture Mode, Point of Origin):	
Above Ground: ___ Yes __x_ No [1]	Buried: __x_ Yes ___ No [1]
Stress Inducing Factors: None [1]	Depth of Cover: 30 inches [1]

Cathodic Protection	***___ N/A***
P/S (Surface):	P/S (Interface): -1.75 rectifier read
Soil Resistivity: pH:	Date of Installation: Unknown
Method of Protection: Rectifier System	
Did the Operator have knowledge of Corrosion before the Incident? ____ Yes _X__ No	
How Discovered? (Close Interval Survey, Instrumented Pig, Annual Survey, Rectifier Readings, ECDA, etc): Rectifier readings	

Internal Pipe or Component Examination	***_x__ N/A***

5 Attach copy of water analysis report

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Internal Pipe or Component Examination	***_x__ N/A***
Internal Corrosion: ___ Yes ___No [(1)]	Injected Inhibitors: ___ Yes ___ No
Type of Inhibitors:	Testing: ___ Yes ___ No
Results (Coupon Test, Corrosion Resistance Probe):	
Description of Failure Surface (MIC, Pitting, Wall Thinning, Chevrons, Fracture Mode, Point of Origin):	
Cleaning Pig Program: ___ Yes ___ No	Gas and/or Liquid Analysis: ___ Yes ___ No
Results of Gas and/or Liquid Analysis [(6)]	
Internal Inspection Survey: ___ Yes ___ No	Results [(7)]
Did the Operator have knowledge of Corrosion before the Incident? ___ Yes ___ No	
How Discovered? (Instrumented Pig, Coupon Testing, ICDA, etc.):	

Outside Force Damage	***___ N/A***
Responsible Party: Matt Pike	Telephone No.: 1-775-621-6263
Address: Box Elder, SD 57719	
Work Being Performed: Contractor was repairing a water curb stop.	
Equipment Involved: Mini Excavator [(1)]	Called One Call System? _x__ Yes ___ No Ticket was called in on October 26th, Ticket was expired
One Call Name: South Dakota 811	One Call Report # [(8)] Ticket # 2129918149
Notice Date: 10/26/2021 10:54 PM	Time: 10:54 PM
Response Date: October 28, 2021 3:10 PM by elmlocating.pr: Located	Time: 3:10 PM
Details of Response:	
Was Location Marked According to Procedures? _X__ Yes ___ No	
Pipeline Marking Type: [(1)]	Location: [(1)]

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

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Outside Force Damage	***___ N/A***
Paint and flags	Alley
State Law Damage Prevention Program Followed? ___ Yes _X__ No ___ No State Law Excavator digging with expired ticket. Marks from original (expired) ticket were insufficient.	
Notice Required: _x__Yes ___No	Response Required: _x__ Yes ___ No
Was Operator Member of State One Call? _x__ Yes ___ No	Was Operator on Site? ___ Yes _x__ No Not during excavation
Did a deficiency in the Public Awareness Program contribute to the accident? ___Yes _x__ No	
Is OSHA Notification Required? ___ Yes _x__ No	

Natural Forces	***_x_ N/A***
Description (Earthquake, Tornado, Flooding, Erosion): N/A	

Failure Isolation	***__ N/A***
Squeeze Off/Stopple Location and Method: Hydraulic Squeeze Tool on 2" Steel Pipe (1)	
Valve Closed - Upstream: No Time:	I.D.: M.P.:
Valve Closed - Downstream: No Time:	I.D.: M.P.:
Pipeline Shutdown Method: _x_ Manual __ Automatic __ SCADA __ Controller __ ESD	
Failed Section Bypassed or Isolated: Isolated	
Performed By: Larry Ruhoff & Jordan Porubensky	Valve Spacing:

Odorization	***__ N/A***	
Gas Odorized: __x Yes __ No	Concentration of Odorant (Post Incident at Failure Site): 12.5% LEL	
Method of Determination: _X_ Yes __ No Heath Odorator Serial Number: 2000650006 Calibration date: 8/16/2021	% LEL: _X_ Yes __ No	% Gas In Air: __ Yes __ No
	Time Taken: _X_ Yes __ No 11/29/2021 at ~ 5:00 PM	
Was Odorizer Working Prior to the Incident? _x_ Yes __ No	Type of Odorizer (Wick, By-Pass): Gas Odorized by WBT	
Odorant Manufacturer: Heath Model: Odorator	Type of Odorant: Mercaptan	
Amount Injected: Unknown	Monitoring Interval (Weekly): Monthly	

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Odorization __ *N/A*

Odorization History (Leaks Complaints, Low Odorant Levels, Monitoring Locations, Distances from Failure Site):

Odorometer Sniff Test -- 11/29/21
Fire Investigation -- 920 11th Street

Tool Serial #	Work Order	Work Type	Actual Finish	Time	Owner	Owner Group	External Owner	READ LOCATION	READ DETECTABLE (Y/N)	ODOROMETER READING	Manufacturer
2000650006	NA	NA	Nov 29, 2021	5:00 PM	Ralph Schad	NA	NA	924 11th Street	YES	0.500	Heath

Work Order Completion Responses

Job Plan: JP10000208 - GAS MONTHLY ODOROMETER SNIFF TEST
District: =RAPIDCITY

Actual Finish Date Range: 2021-01-01 to 2021-11-29

District	City	Location	Location Description	Tool Serial #	Work Order	Work Type	Actual Finish	Owner	External Owner	READ LOCATION	READ DETECTABL
RAPIDCITY	RAPID CITY	01556-ODST-58873	ODOROMETER SNIFF TEST TOWN OF RAPID CITY	2000650006	WO11169171	IN	Nov 1, 2021	KILES	KILES-002572	14300 SUNSHINE VALLE	YES
				2000650006	WO11104600	IN	Oct 4, 2021	KILES	KILES-002572	ROCKERVILLE	YES
				2000650006	WO11067010	IN	Sep 1, 2021	KILES	KILES-002572	718 STEELE AVE, RCSD	YES
				2000650007	WO11014603	IN	Aug 3, 2021	KILES	KILES-002572	720 BEARTOOTH CT	YES
				2000650007	WO10943652	IN	Jul 1, 2021	KILES	KILES-002572	1669 SAMCO ROAD RCSD	YES
				2000650007	WO10895321	IN	Jun 1, 2021	KILES	KILES-279772	PIEDMONT SD	YES
				2000650007	WO10799558	IN	May 4, 2021	KILES	KILES-279772	404 11TH ST RCSD	YES
				2000650007	WO10780202	IN	Apr 1, 2021	KILES	KILES-279772	RAPID CITY	YES
				2000650007	WO10763972	IN	Mar 1, 2021	KILES	KILES-279772	RAPID CITY	YES
				2000650007	WO10738667	IN	Feb 1, 2021	KILES	KILES-279772	525 BALLISTA, BOX EL	YES
				2000650007	WO10731808	IN	Jan 4, 2021	KILES	KILES-279772	450 E DISK DRIVE	YES

Weather Conditions __ *N/A*

Temperature: 65 degrees	Wind (Direction & Speed): N/A
Climate (Snow, Rain): No Precipitation	Humidity:
Was Incident preceded by a rapid weather change? __ Yes _x_ No	
Weather Conditions Prior to Incident (Cloud Cover, Ceiling Heights, Snow, Rain, Fog): N/A	

Gas Migration Survey __ *N/A*

Bar Hole Test of Area: _x_ Yes __ No	Equipment Used: Heath Consultants Bar hole tester and a CGI gas indicator SN: 45303 Last Calibrated: 11/2/21

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Gas Migration Survey	***__ N/A***
Method of Survey (Foundations, Curbs, Manholes, Driveways, Mains, Services) [9] (1) Mains & services to establish perimeter of gas migration, and next to building foundation in question.	

Environment Sensitivity Impact	***_x_ 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? __ Yes __ No	Followed? __ Yes __ No

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

Pressure Test History **__ N/A**

(Expand List as Necessary)

	Req'd [10] Assessment Deadline Date	Test Date	Test Medium	Pressure (psig)	Duration (hrs)	% SMYS
Installation	N/A	1/11/1967	Air	50	Unknown	NA
Next						
Next						
Most Recent						

Describe any problems experienced during the pressure tests.

Internal Line Inspection/Other Assessment History ***_x_ N/A***

(Expand List as Necessary)

	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

9 Plot on site description page
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.

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Internal Line Inspection/Other Assessment History *(Expand List as Necessary)*	**_x_ N/A**
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? __ Yes (describe below or on attachment) _x_ 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 _x_ 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 _x_ 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.	

Maps & Records	***___ N/A***
Are Maps and Records Current? [13] __x Yes __ No	

13 Obtain copies of maps and records

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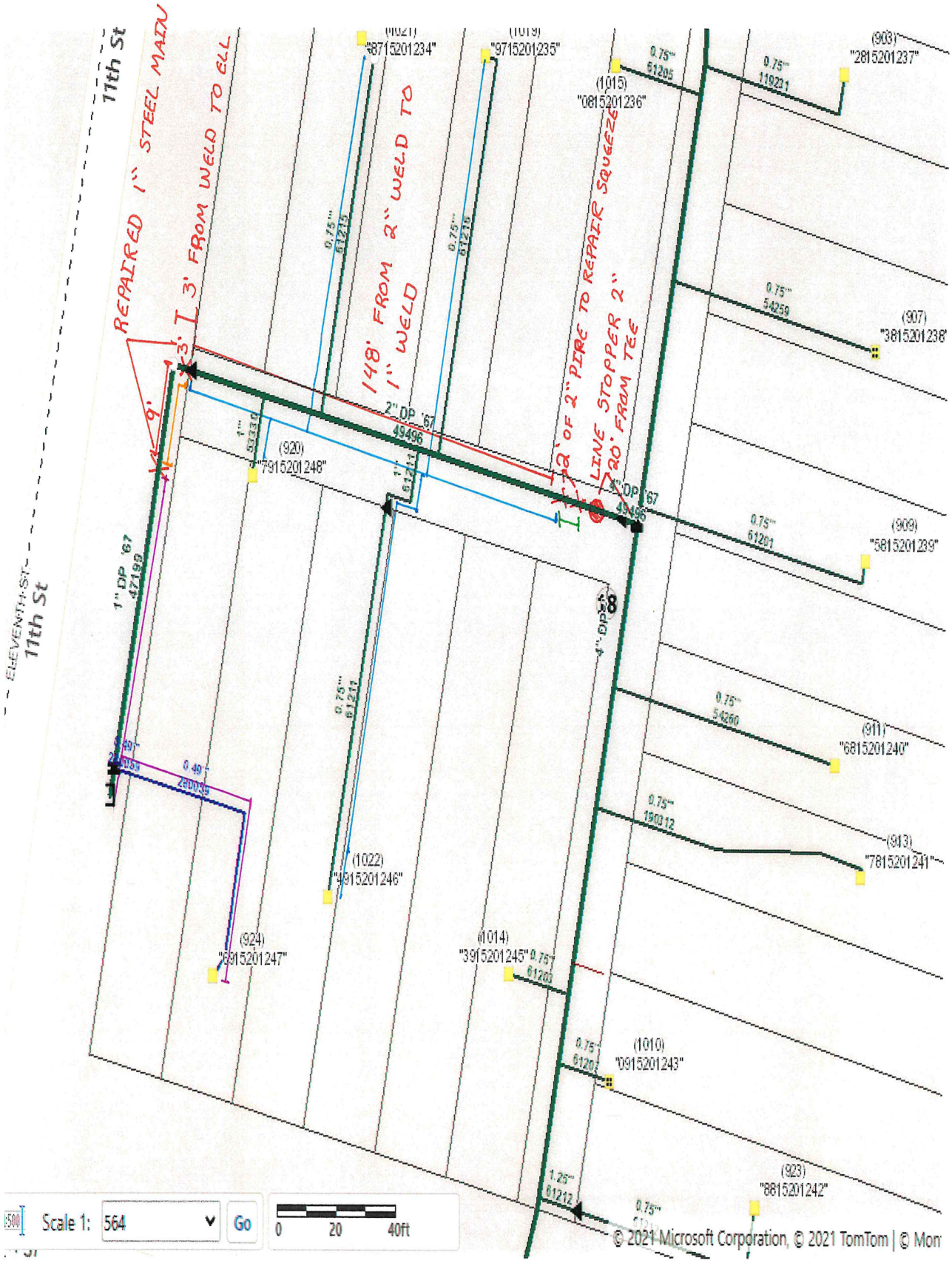
Maps & Records	*N/A*

Are Maps and Records Current? (13) __x Yes __ No

Comments:



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Leak Survey History	***___ N/A***
Leak Survey History (Trend Analysis, Leak Plots): Last leak survey was completed on August 24, 2020	

Pipeline Operation History	***_x__ N/A***
Description (Repair or Leak Reports, Exposed Pipe Reports):	
Did a Safety Related Condition Exist Prior to Failure? ___ Yes _x__ No Reported? ___ Yes ___ No	
Unaccounted For Gas:	
Over & Short/Line Balance (24 hr., Weekly, Monthly/Trend):	

Operator/Contractor Error If locate was marked incorrectly this informaiton should be completed. ***___ N/A***	
Name: Bryce Leftwich	Job Function: Locator
Title: Locator - ELM	Years of Experience: 6-Months
Training (Type of Training, Background): ELM Star Training, EWN OQ Qualification, MDU Print Training	
Was the person "Operator Qualified" as applicable to a precursor abnormal operating condition? _x__Yes ___ No ___ N/A	
Was qualified individual suspended from performing covered task ___ Yes __x_ No ___ N/A	
Type of Error (Inadvertent Operation of a Valve): Mislocated line	
Procedures that are required: Line Locating	
Actions that were taken: ELM audited locate employee.	
Pre-Job Meeting (Construction, Maintenance, Blow Down, Purging, Isolation): NA	
Prevention of Accidental Ignition (Tag & Lock Out, Hot Weld Permit): NA	
Procedures conducted for Accidental Ignition: NA	
Was a Company Inspector on the Job? ___ Yes __X_ No	
Was an Inspection conducted on this portion of the job? ___ Yes __X_ 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:	
Operation Procedures:	
Controller Activities:	

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Operator/Contractor Error If locate was marked incorrectly this informaiton should be completed. ***N/A***				
Name	Title	Years Experience	Hours on Duty Prior to Failure	Shift
Alarm Parameters:				
High/Low Pressure Shutdown:				
Flow Rate:				
Procedures for Clearing Alarms:				
Type of Alarm:				
Company Response Procedures for Abnormal Operations:				
Over/Short Line Balance Procedures:				
Frequency of Over/Short Line Balance:				
Additional Actions:				

Additional Actions Taken by the Operator	***___N/A***

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):

An MDU first responder arrived at 10:27 a.m. MST and after checking in with local fire department personnel on scene, began investigating. While the MDU emergency responders were working to secure the damage, the leaking natural gas caused by the excavation damage migrated and subsequently ignited causing an explosion and a fire at 920 11th Street. An MDU crew excavated and squeezed the 2" steel main upstream of the damaged 1" main.

Photo Documentation [(1)]

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		16	
2		17	
3		18	
4		19	
5		20	
6		21	
7		22	
8		23	
9		24	
10		25	
11		26	
12		27	
13		28	
14		29	
15		30	
Camera Type:			

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Additional Information Sources			
Agency	Name	Title	Phone Number
Police:			
Fire Dept.:	**Daryl Strong**	**RC Fire Department**	
State Fire Marshall:			
State Agency:	**Boice Hillmer**	**Pipeline Safety Inspector**	**605-773-4210**
NTSB:			
EPA:			
USCG:			
FBI:			
ATF:			
OSHA:			
Insurance Co.:			
FRA:			
MMS:			
Television:			
Newspaper:			
Other:	**Included in Incident File**		

Persons Interviewed		
Name	Title	Phone Number
Toby Bordewyk	**MDU District Manager**	**605-355-4054**
Michael Scheopp	**MDU Director, Operations Services**	**701-222-7923**
Josh Sanders	**MDU Director, Ops Policy & Procedures**	**701-222-7773**
Brandon Lance	**MDU Region Director**	**605-355-4004**

Event Log	
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
9:22AM/11-29-2021	Matt pike called Jamie Overby stating he had dug into a gas line stating he was pretty sure it was a live line and that it may be leaking and need someone to look. Jamie asked Matt to call 800-MDU-FAST, 911 and 811.
9:37AM-11/29/2021	Fire Department Got first Alarm
9:43AM-11/29/2021	Fire Department Arrived on scene
9:47AM-11/29/2021	Order created in MDU System
10:03AM-11/29/2021	Order dispatched to Ralph Schad.
10:05AM-11/29/2021	Ralph Schad accepted order and en-route
10:27AM-11/29/2021	Ralph Schad arrived on-site – checked in with Fire Department and began investigation
10:45AM-11/29/2021	Larry Ruhoff arrived onsite (ELM/ULS onsite)
10:50AM-11/29/2021	Jordan Porubensky arrived onsite
11:00AM-11/29/2021	Ignition and explosion at 920 11th Street.
11:15AM-11/29/2021	Jamie Overby arrived on site.
11:16AM-11/29/2021	Power killed (called by fire).
11:16AM-11/29/2021	Larry Ruhoff and Jordan Porubensky started digging in east end of ally to squeeze 2” pipe to stop flow.
11:20AM-11/29/2021	Mark Knodel, Sandi Kile, Casey Smith on site.
11:22AM-11/29/2021	Casey, Sandi and Ralph checking houses, finding UG perimeter, verifying houses were safe, migrating gas.
11:29AM-11/29/2021	Fire Department determines the fire as controlled
11:30AM-11/29/2021	Gas Secure, squeezed 2”.
11:39AM-11/29/2021	1014 South St cleared by Sandi.
11:42AM-11/29/2021	Mark spoke with fire department to allow people back to house. After cleared, checked for migrating gas.

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Event Log	
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.)	
11:42AM- 11/29/2021	Jamie called 811 to extend emergency locates further down the alley.
11:43AM- 11/29/2021	Casey cleared 1022 South ST.
11:44AM- 11/29/2021	Fire dept called and said as long as no gas okay to let people back.
11:45AM- 11/29/2021	Casey cleared 924 11th St.
11:47AM- 11/29/2021	Cleared 1019 and 1021 Columbus St. (laser). No one was home.
11:50AM- 11/29/2021	Began bar hole investigation to find migration.
11:50AM- 11/29/2021	Boice with SDPUC showed up on site
11:50AM- 11/29/2021	Casey finished apartment check west side of 11th St.
12:46PM- 11/29/2021	Called Kelly for sandbags, bar holed and mapped again.
1:45PM- 11/29/2021	Casey Smith secured all risers, off and pinned.
2:00PM- 11/29/2021	Larry started digging out 2” hole to line stop/cap
2:40PM- 11/29/2021	Fire Department Last unit cleared from scene
2:45PM- 11/29/2021	Jordan started welding line stopper.
4:30PM- 11/29/2021	Welding complete and capped. All secure for night.

Pipeline Failure Investigation Report

Investigation Contact Log			
Time	Date	Name	Description

Failure Investigation Documentation Log				
Operator:		Unit #:	CPF #:	Date:
Appendix Number	Documentation Description	Date Received	FOIA Yes	FOIA No

Pipeline Failure Investigation Report

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.