



Nebraska State Fire Marshal Pipeline Safety Section Investigation Report

SFM Deputy Conducting Inspection:

Arnie Bates

Call#:

8738

Report Date:

11/23/11

Inspection Type:

INCIDENT INVESTIGATION

Inspection Date(s):

11/22/2011

Operator Name:

Black Hills Energy

Unit:

Southern

Town/Site:

Geneva

Facility ID:

02-02-128

Narrative Summary

Short summary of the Incident/Accident scenario

On September 30, 2011 Black Hills Energy (BHE) personnel installed a segment of 2" PE 2406 gas main from east side of 11th Street, west approximately 165' to an existing 2" steel mill-wrapped (mw) gas main. The 2" 2406 PE gas main was connected to what was thought to be a 6" PE 3408 15 psig main. The 2" steel mw gas main was stoppled, cut and capped by BHE contractor and north side of 2" mw main connected to new 2" PE 2406 gas main.

In reality, the new 2" 2406 PE main was connected to a 6" PE 3408 gas main operating at 52 psig (60 MAOP)

Existing 2" system serves approximately 31 customers operating at 15 psig system (which is the MAOP), is steel main with combination steel and PE services. The existing 2" steel mw main was connected to a tap on a 4" bare steel main, located near "old" TBS site.

CONCLUSION

- 1) Was natural gas and/or facilities involved? **YES**
- 2) Were there contributing factors? **Yes**
- 3) Violations of the Operator to Part 191 or Part 192? (Yes or No). **YES**
- 4) Recommendations to the operator to prevent reoccurrence.

Findings: Black Hills Energy personnel failed to verify pressures within existing segment of system before interconnecting to an existing elevated pressure main. This action introduced elevated pressure (52 psig) into an existing system with an MAOP of 15 psig. This action created a safety related condition that required prompt action on part of Black Hills Energy to remediate the issue.

Violation: 29 CFR Part 192. 619 Maximum allowable operating pressure - Steel or plastic pipelines:
(a) No person may operate a segment of steel or plastic pipeline at a pressure that exceeds a maximum allowable operating pressure determined under paragraph (c) or (d) of this section, or the lowest of the following: (3) The highest actual operating pressure to which the segment was subjected during the 5 years preceding the applicable date in the second column. (July 1, 1965- July 1, 1970).

Region/State: Central / Nebraska

Reviewed by: _____

Principal Investigator: Arnie Bates

Title: _____

Date: November 22, 2011

Date: _____

Pipeline System: Geneva Distribution System **Operator:** Black Hills Energy
Operator ID: 15359 **Unit Number:** 02-02-000 **Activity Number:** 02-02-128
Location: 1033 "O" Street **Date of Occurrence:** Novemebr 22, 2011
Material Released: NA **Quantity:** NA
Arrival Time & Date: 11:38 11/22/11 **Total Damages \$:** >\$5000
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 type="checkbox"/>	Excavation Damage	
<input type="checkbox"/>	Other Outside Force Damage	
<input type="checkbox"/>	Material Failure (Pipe, Joint, Weld)	
<input type="checkbox"/>	Equipment Failure	
<input checked="" type="checkbox"/>	Incorrect Operation	Failed to verify pressure in main before tie in
<input type="checkbox"/>	Other	

<i>Accident/Incident Resulted in (check all that apply):</i>		<i>Comments:</i>
<input type="checkbox"/>	Rupture	Over pressurization of main and services
<input type="checkbox"/>	Leak	
<input type="checkbox"/>	Fire	
<input type="checkbox"/>	Explosion	
<input type="checkbox"/>	Evacuation	Number of Persons: _____ Area: _____

<i>Failure Location & Response</i>			
Location (City, Township, Range, County/Parish):		NO Failure or incident (safety related condition) (Acquire Map) Geneva NE NW corner of distribution system, work in area at intersection of 11 th Street & "O" Street.	
Address or M.P. on Pipeline: 1033 "O" Street		(1) Type of Area (Rural, City): City, class II	(1)
Coordinates of failure location (Latitude):		(Longitude):	
Date:		Time of Failure: No failure	
Time Detected: 11/21/11		Time Located:	
How Located: Verification of MAOP and Construction records			
NRC Report #: (Attach Report) NA		Time Reported to NRC: NA	Reported by: NA
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	

Failure Location & Response		
<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.): Geneva Distribution system consisting of 60 psi MAOP and 15 psi MAOP sections. Pipe size ranging from 6" to 1/2" with pipe materials of bare steel, cathodically protected steel and polyethylene. This specific section is a 15 psi MAOP section, is a 5 block area consisting of 2300' of steel main with 31 services.		

Operator/Owner Information	
Owner: Black Hills Corporation Address: 1102 East 1 st Street Papillion NE 68046 Company Official: Phone No.: Fax No.:	Operator: Black Hills Energy Address: 510 North Commerce Street BEATRICE NE 68310 Company Official: Rick Schwartz Phone No. 402 332 3340 Fax No. 402 223 3397
<u>Drug and Alcohol Testing Program Contacts</u> <input type="checkbox"/> N/A	
Drug Program Contact & Phone:	
Alcohol Program Contact & Phone:	

Damages	
Product/Gas Loss or Spill ⁽²⁾ Amount Recovered Estimated Amount \$	Estimated Property Damage \$ Associated Damages ⁽³⁾ \$ Repair only
Description of Property Damage: No property damage. Expense for repair and correction of system piping.	
Customers out of Service:	<input type="checkbox"/> Yes <input type="checkbox"/> No Number: na
Suppliers out of Service:	<input type="checkbox"/> Yes <input type="checkbox"/> No Number: na

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

2 Initial volume lost or spilled
 3 Including cleanup cost

Fatalities and Injuries					___ N/A

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 ___ No					
Job Function	Test Date & Time	Location	Results		Type of Drug
			Pos	Neg	

System Description	
Describe the Operator's System: Black Hills Energy, Geneva town distribution system has approximately 900 meters, 60 psi feeder main with and 15 psi MAOP pressure regulated district. TBS located at 11 th & R Street , DRS located at Alley north of "G" Street, west of 11th Street.	

Pipe Failure Description		___ N/A
Length of Failure (inches, feet, miles):		(1)
Position (Top, Bottom, include position on pipe, 6 O'clock):	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:	(1)	
Manufacturer:	Model:	
Pressure Rating:	Size:	
Other (Breakout Tank, Underground Storage):		

Pipe Data		___ N/A
Material:	Wall Thickness/SDR:	
Diameter (O.D.):	Installation Date:	
SMYS:	Manufacturer:	

<i>Pipe Data</i>		___ N/A
Longitudinal Seam:	Type of Coating:	
Pipe Specifications (API 5L, ASTM A53, etc.):		

<i>Joining</i>		___
Type: welding	Procedure: API 1104	
NDT Method: visual	Inspected: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

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

<i>Upstream Pump Station Data</i>		___ 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>		___ 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>		___
Max. Allowable Operating Pressure: 60 & 15 MAOP	Determination of MAOP: 60 MAOP by test, 15 MAOP by highest operating pressure in given time, 1965-1970	
Actual Operating Pressure: 52-57 & 15-12.5		
Method of Over Pressure Protection: District Regulating Station Relief device		
Relief Valve Set Point: 17 psig	Capacity Adequate? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

<i>Integrity Test After Failure</i>		___
Pressure test conducted in place? (Conducted on Failed Components or Associated Piping): <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
If No, tested after removal? <input type="checkbox"/> Yes <input type="checkbox"/> No		
Method: 15 psig pressure after removal of stopples. Replacement pipe was pretested @ 100 psi.		
Describe any failures during the test.		

⁴ Obtain event logs and pressure recording charts

Soil/water Conditions @ Failure Site		___ N/A
Condition of and Type of Soil around Failure Site (Color, Wet, Dry, Frost Depth):		
Type of Backfill (Size and Description):		
Type of Water (Salt, Brackish):	Water Analysis ⁽⁵⁾ ___ Yes ___ No	

External Pipe or Component Examination		___
External Corrosion? ___ Yes ___x___ No ⁽¹⁾	Coating Condition (Disbonded, Non-existent): ⁽¹⁾ Good condition	
Description of Corrosion: No issue		
Description of Failure Surface (Gouges, Arc Burns, Wrinkle Bends, Cracks, Stress Cracks, Chevrons, Fracture Mode, Point of Origin): Not applicable.		
Above Ground: ___ Yes ___x___ No ⁽¹⁾	Buried: ___x___ Yes ___ No ⁽¹⁾	
Stress Inducing Factors: NA ⁽¹⁾	Depth of Cover: 40" ⁽¹⁾	

Cathodic Protection		___
P/S (Surface): -1.032	P/S (Interface): -1.025	
Soil Resistivity: _____	pH: _____	Date of Installation: 1959
Method of Protection: Galvanic Anode		
Did the Operator have knowledge of Corrosion before the Incident? ___x___ Yes ___ No		
How Discovered? (Close Interval Survey, Instrumented Pig, Annual Survey, Rectifier Readings, ECDA, etc): Corrosion not an issue, No failure.		

Internal Pipe or Component Examination		___ N/A
Internal Corrosion: ___ Yes ___x___ 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	

Internal Pipe or Component Examination		___ N/A
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:	Telephone No.:	
Address:		
Work Being Performed:		
Equipment Involved: ⁽¹⁾	Called One Call System? ___ Yes ___ No	
One Call Name:	One Call Report # ⁽⁸⁾	
Notice Date:	Time:	
Response Date:	Time:	
Details of Response:		
Was Location Marked According to Procedures? ___ Yes ___ No		
Pipeline Marking Type: ⁽¹⁾	Location: ⁽¹⁾	
State Law Damage Prevention Program Followed? ___ Yes ___ No ___ No State Law		
Notice Required: ___ Yes ___ No	Response Required: ___ Yes ___ No	
Was Operator Member of State One Call? ___ Yes ___ No	Was Operator on Site? ___ Yes ___ No	
Did a deficiency in the Public Awareness Program contribute to the accident? ___ Yes ___ No		
Is OSHA Notification Required? ___ Yes ___ No		

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

- 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

Failure Isolation		__ N/A
Squeeze Off/Stopple Location and Method: (1) Squeeze off on PE due west of interconnection. Stopple fitting on Steel each side of cut out.		
Valve Closed - Upstream: Time:	I.D.: M.P.:	
Valve Closed - Downstream: Time:	I.D.: 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:		
Performed By: BHE personnel	Valve Spacing:	

Odorization		__ N/A
Gas Odorized: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Concentration of Odorant (Post Incident at Failure Site):	
Method of Determination: <input type="checkbox"/> Yes <input type="checkbox"/> No	% LEL: <input type="checkbox"/> Yes <input type="checkbox"/> No	% Gas In Air: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
	Time Taken: <input type="checkbox"/> Yes <input 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):	
Odorant Manufacturer: Model:	Type of Odorant:	
Amount Injected:	Monitoring Interval (Weekly):	
Odorization History (Leaks Complaints, Low Odorant Levels, Monitoring Locations, Distances from Failure Site):		

Weather Conditions		__ N/A
Temperature: cold/warming	Wind (Direction & Speed): NNW >5 mph	
Climate (Snow, Rain): clear	Humidity: 50%	
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):		

Gas Migration Survey		__
Bar Hole Test of Area: <input type="checkbox"/> Yes <input type="checkbox"/> No	Equipment Used: Flame Ionization	
Method of Survey (Foundations, Curbs, Manholes, Driveways, Mains, Services) ⁽⁹⁾ (1) FI survey of area (5 square blocks, 2300' main and 31 associated services. One UG leak reported (screwed fitting on riser) leak repaired by tightening.		

Environment Sensitivity Impact		__ 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)		

Environment Sensitivity Impact		__ N/A
No issue		
OPA Contingency Plan Available? __ Yes __ No	Followed? __ Yes __ No	

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

Pressure Test History							__ N/A
<i>(Expand List as Necessary)</i>							
	Req'd ⁽¹⁰⁾ Assessment Deadline Date	Test Date	Test Medium	Pressure (psig)	Duration (hrs)	% SMYS	
Installation	2" mw	1959	Unk	Unk	Unk	unk	
Next MAOP Established	Operational MAOP			15	15	15 MAOP	
Next							
Most Recent	2" PE	9/30/11	Air	120	1	>20	
Describe any problems experienced during the pressure tests.							

Internal Line Inspection/Other Assessment History						__ 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.						

Pre-Failure Conditions and Actions		__ 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		

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.

Pre-Failure Conditions and Actions	___ 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.	

Maps & Records	___ N/A
Are Maps and Records Current? ⁽¹³⁾ ___x___ Yes ___ No	
Comments:	

Leak Survey History	___ N/A
Leak Survey History (Trend Analysis, Leak Plots):	
Leakage survey conducted 11/22/11. FI walking Previous leakage survey of area 7/30-8/11/09 with 0 leak reported.	

Pipeline Operation History	___ N/A
Description (Repair or Leak Reports, Exposed Pipe Reports):	
Distribution system has been operating at 15 psig for past 30 years	
Did a Safety Related Condition Exist Prior to Failure? ___ Yes ___x___ No Reported? ___ Yes ___x___ No	
Unaccounted For Gas: NA	
Over & Short/Line Balance (24 hr., Weekly, Monthly/Trend): NA	

Operator/Contractor Error		___ N/A
Name: Black Hills Energy personnel	Job Function: Ongoing investigation by BHE	
Title:	Years of Experience:	
Training (Type of Training, Background):		
Was the person "Operator Qualified" as applicable to a precursor abnormal operating condition? ___Yes ___ No ___ N/A		
Was qualified individual suspended from performing covered task ___ Yes ___ No ___x___ N/A		
Type of Error (Inadvertent Operation of a Valve): Failure to verify operational pressures of two different mains. Which led to the over pressurization of a segment of piping.		
Procedures that are required: Design/build review. Verification of pressures (hot tap) requirements.		
Actions that were taken: Prompt repair of piping when condition found.		
Pre-Job Meeting (Construction, Maintenance, Blow Down, Purging, Isolation): yes, pre tie-in.		

13 Obtain copies of maps and records

Operator/Contractor Error

___ N/A

Prevention of Accidental Ignition (Tag & Lock Out, Hot Weld Permit): yes

Procedures conducted for Accidental Ignition: Isolation of gas flow, grounding,

Was a Company Inspector on the Job? Yes No

Was an Inspection conducted on this portion of the job? Yes No

Additional Actions (Contributing factors may include number of hours at work prior to failure or time of day work being conducted): **It is suspected that decision to install and connect to specific pipeline did not include engineering.** AND did not include verification of operational pressures.

Training Procedures:

Operation Procedures: failed to verify operational pressures before connecting pipelines

Controller Activities: NA

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: Randy Wymore and Chad Hoffman (BHE personnel), completed a leakage survey of this segment of system. Wymore indicated that they had discovered several above grade leaks all class 3, and one underground leak on a riser (class 2), (leak was on a screwed coupling used to extend riser). Underground leak was repaired by tightening.

At approximately 12:55 BHE welder Dean Blazer arrived to complete tie in for 2" steel main. Preconstruction meeting for tie-in activity. At approximately 14:00 hours the existing caps were cut from 2" mw steel main. Visual inspection of these two welds indicated poor penetration of weld. Mick Porter will follow-up on the contract welder. (At this time the welder is believed to be Roger Carl). Was informed by Mick Porter at approximately 1430 hours that decision was made to pull welder certification and have him "re-qualify)

New pipeline segment added, approximately 24' of 2" A53 Grade B scd 40 black steel 24,000, pretested to 100 psig. Welded in place, visually inspected, purged to lower pressure to 15 psi, steel pipeline coated, anode attached. PE main cut and capped.

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):

Pipeline exposed and reconnected to proper feed. 15 psig system reinstated. 60 MAOP line capped.

During the month of September Kinder Morgan Interstate Gas Transmission Company (KMIGT) constructed at new Town Border Station (TBS) for Geneva NE.

In preparation of relocating existing facilities to new location, Black Hills Energy (BHE) personnel conducted construction activities to tie old system over to new town feeder.

On September 30, 2011 BHE personnel installed a segment of 2" PE 2406 gas main from east side of 11th Street, west approximately 165' to an existing 2" steel mill-wrapped (mw) gas main. The 2" 2406 PE gas main was connected to what was thought to be a 6" PE 3408 15 psig steel mw main. The 2" steel mw gas main was stoppled, cut and capped by BHE contractor, north side of 2" mw main connected to new 2" PE 2406 gas main.

In reality, the new 2" 2406 PE main was connected to a 6" PE 3408 gas main operating at 57 psig (60 MAOP)

Existing 2" system serves approximately 31 customers operating at 15 psig (which is the MAOP) System is steel main with combination steel and PE services. The existing 2" steel mw main was connected to a tap on a 4" bare steel main, located near "old" TBS.

In preparation of removing the old TBS, on 10/19/11 BHE personnel (Dean Blazer) stoppled, cut and capped a 4"mw steel main near old TBS. (this line was thought to be the main the 2" mw steel main was connected too!)

On November 18 BHE was contacted by KMIGT, indicating that there was still a "live" 4" bare steel gas main at the "old" TBS sight that needed to be terminated.

On November 21 after review of maps and records it was discovered and verified that an over pressurization had occurred. (15 psi MAOP system connected to a 60 psi MAOP main) and there was still a live 4" bare steel main at old TBS site.

This deputy contacted by phone on 11/22/11 by BHE indicating that an over pressurization had occurred and crews were being dispatched to correct the issue.

This deputy travel to Geneva to view construction activities, Met with Mick Porter and received maps of area. This area involved a section of Geneva bound on the east by 11th Street, on South by "O" Street, on west by 9th Street and north side being "Q" Street. System includes 31 services and meter sets.

At approximately 12:10 met with Randy Wymore and Chad Hoffman, who had completed a leakage survey of the system.

Randy indicated that they had discovered several above grade leaks and one underground leak on a riser (leak was on a screwed coupling used to extend riser). Underground leak had been repaired by tightening.

At approximately 12:55 BHE welder Dean Blazer arrived to complete tie in for 2" steel main.

At approximately 14:00 hours the existing caps were cut from 2" mw steel main. Visual inspection of these two welds indicated poor penetration of weld. Mick Porter will follow-up on the contract welder. (At this time the welder is believed to be Roger Carl).

Photo Documentation ⁽¹⁾ NA

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	

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
09/30/11	2" PE main extended to 2" steel 15 psi system, and connected to a 60 MAOP PE main.
11/21/11	First indicator that segment of system may be over pressurized. Confirmed MAOP and locations.
11/22/11	Crew dispatched. Repairs made to reinstate 15 psig MAOP operation.

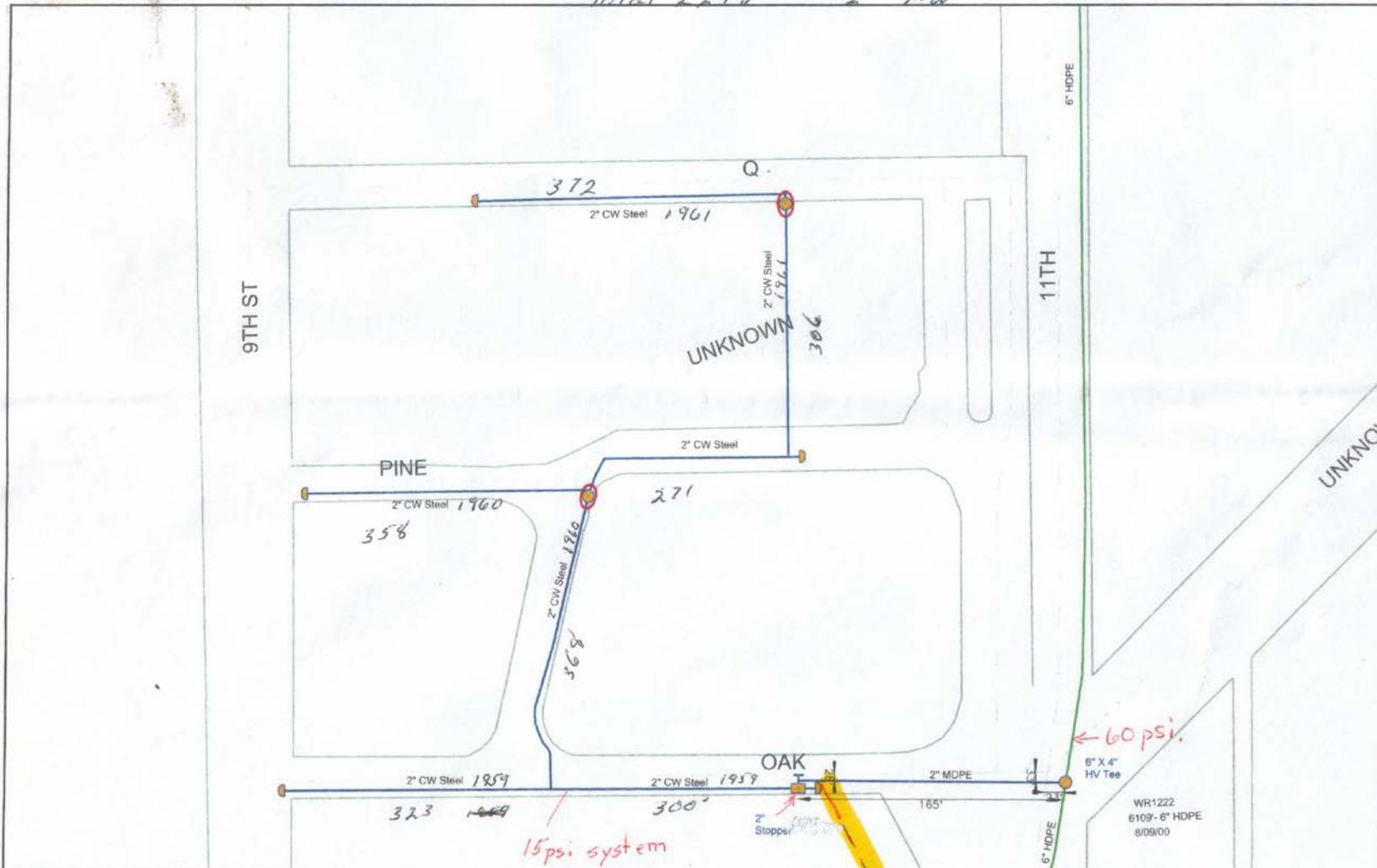
Failure Investigation Documentation Log

Operator:		Unit #:	CPF #:	Date:		
Appendix	Documentation Description	Date		FOIA		
Number		Received	Yes	No		
36-7N3W	BHE map Northwest Geneva (area effected)	11/22/11			X	
36-7N3W [2]	BHE map Northwest Geneva As built new 2" PE	11/22/11			X	
36-7N3W [3]	BHE map Northwest Geneva Original 2" install	11/22/11			X	
36-7N3W [4]	BHE map Northwest Geneva Abandonment as built	11/22/11			X	

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.

Total 2298 2" MW



CALL BEFORE YOU DIG
IN NE (800) 331-5666

Additional Notes



WR Information	Job Title
	Description

State	NE
County	FILLMORE
City	GENEVA

Scale	1"=161'
Twp/Rng/Sec	36-7N3W
WR Number	

Drawn By	MiPorter
Date Prepared	11/22/2011

ENGINEERING PAD

Project Name TIED 2" MW to 6" MOPE
for Switching over to NGW TBS

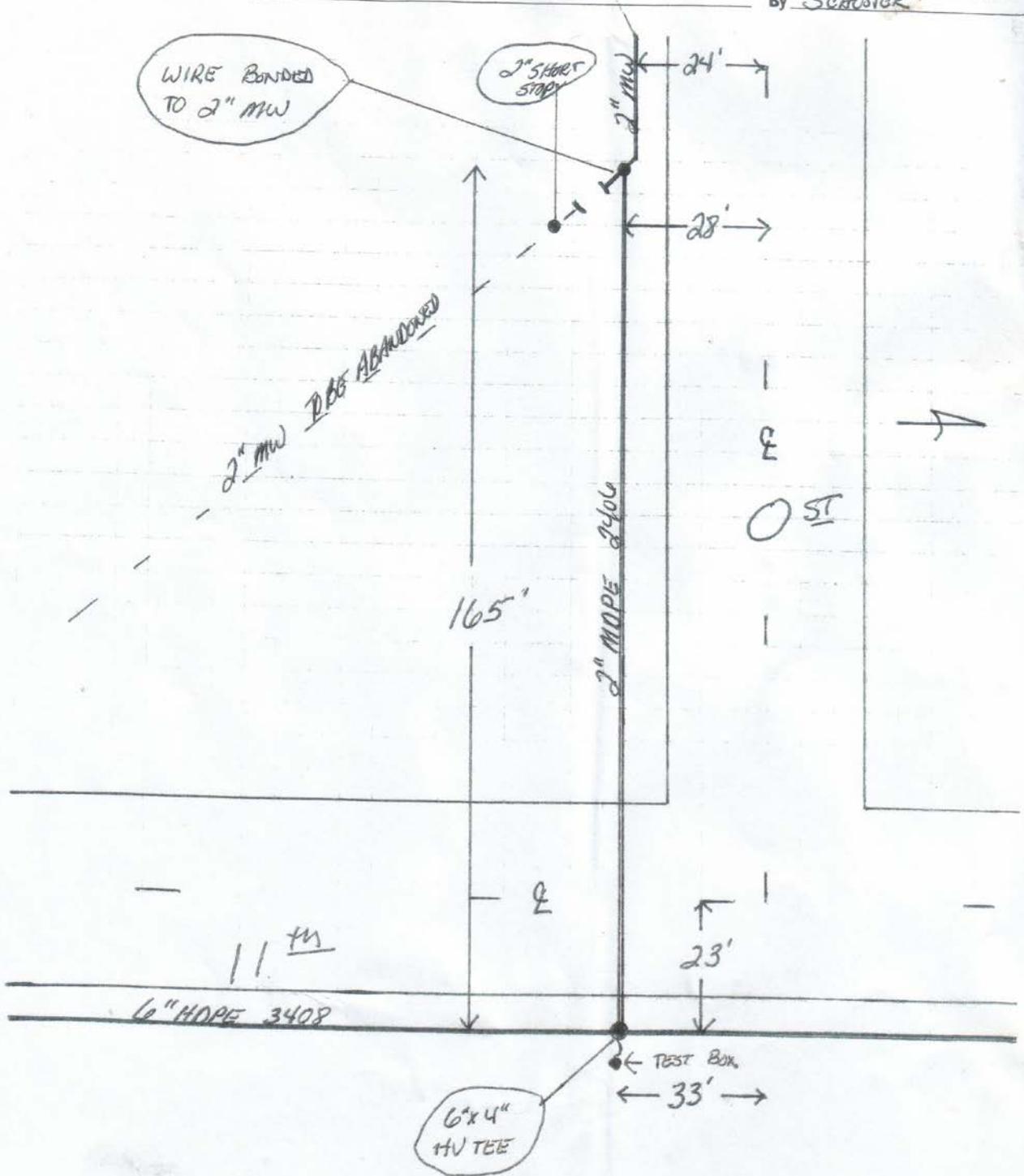
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W.O./File # 471364

Date 9-30-11

By SCHUSTER

②



FEET	SIZE	KIND	LOCATION
1064'	6"	M.W.	New location in North Geneva

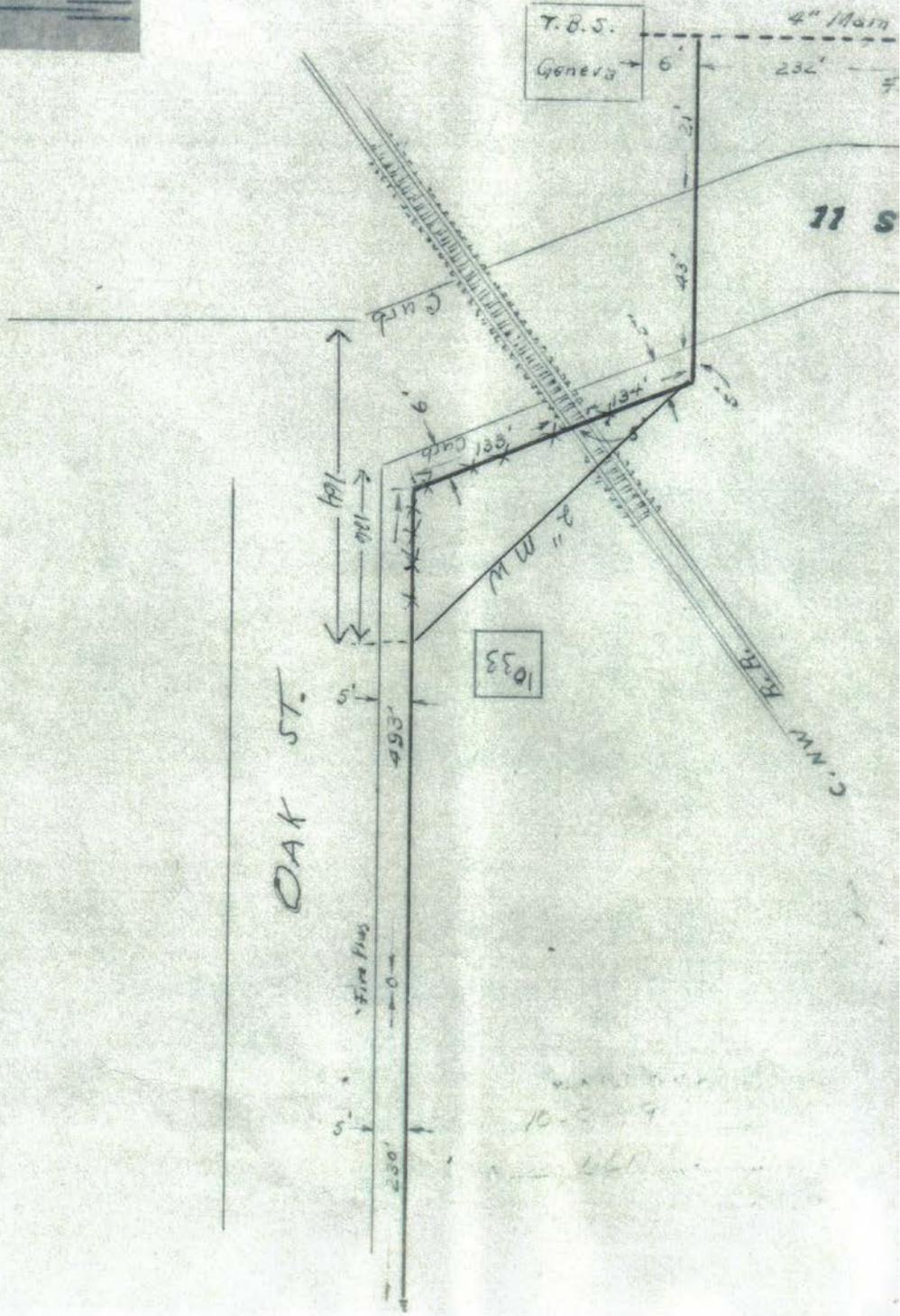
CENTRAL ELECTRIC & GAS TOWN, Geneva
 J.O. - W.O. 2707 Int. No.
 Date Started 8-10-29 Date Finished 8-11
 Construction and Completion Report

FORM 6

T.B.S.
Geneva

4" Main

3



1033

10-3-29

During the month of September of 2011 Kinder Morgan Interstate Gas Transmission Company (KMIGT) constructed at new Town Border Station (TBS) for Geneva NE.

In preparation of relocating existing facilities to new location, Black Hills Energy (BHE) personnel conducted construction activities to tie existing system over to town feeder.

On September 30, 2011 BHE personnel installed a segment of 2" PE 2406 gas main from east side of 11th Street, west approximately 165' to an existing 2" steel mill-wrapped (mw) gas main. The 2" 2406 PE gas main was connected to what was thought to be a 6" PE 3408 15 psig steel mw main. The 2" steel mw gas main was stopped, cut and capped by BHE contractor, north side of 2" mw main connected to new 2" PE 2406 gas main.

In reality, the new 2" 2406 PE main was connected to a 6" PE 3408 gas main operating at 57 psig (60 MAOP)

Existing 2" segment of system serves approximately 31 customers operating at 15 psig (which is the MAOP) System is steel main with combination steel and PE services. The existing 2" steel mw main was connected to a tap on a 4" bare steel main, located near "old" TBS.

In preparation of removing the old TBS, on 10/19/11 BHE personnel (Dean Blazer) stopped, cut and capped a 4"mw steel main near old TBS. (this line was thought to be the main the 2" mw steel main was connected too!). The existing 2" mw steel main was connected to a 4" bare steel main, located just feet from the 4" mw steel main.

On November 18 BHE was contacted by KMIGT, indicating that there was still a "live" 4" bare steel gas main at the "old" TBS sight that needed to be terminated.

On November 21 after review of maps and records it was discovered and verified that an over pressurization had occurred. (15 psi MAOP system connected to a 60 psi MAOP main) and there was still a live 4" bare steel main at old TBS site.

This deputy was contacted by phone on 11/22/11 by BHE indicating that an over pressurization had occurred and crews were being dispatched to correct the issue.

This deputy travel to Geneva to view construction activities, Met with Mick Porter and received maps of area. This area involved a section of Geneva bound on the east by 11th Street, on South by "O" Street, on west by 9th Street and north side being "Q" Street. System includes 31 services and meter sets.

At approximately 12:10 met with Randy Wymore and Chad Hoffman, who had completed a leakage survey of the system. Randy indicated that they had discovered several above grade leaks and one underground leak on a riser (leak was on a screwed coupling used to extend riser). Underground leak had been repaired by tightening.

At approximately 12:55 BHE welder Dean Blazer arrived to complete tie in for 2" steel main.

At approximately 14:00 hours the existing caps were cut from 2" mw steel main. Visual inspection of these two welds indicated poor penetration of weld. Mick Porter will follow-up on the contract welder. (At this time the welder is believed to be Roger Carl). Was informed by Mick Porter at approximately 1430 hours that a decision was made to pull welder certification and have him "re-qualify".

New pipeline segment added, approximately 24" of 2" A53 Grade B schd 40 black steel 24,000 SMYS pretested to 100 psig. Welded in place, visually inspected, purged to lower pressure to 15 psi, anode attached, steel pipeline coated,. 2" 2406 PE main cut and capped.

Departed 16:15

STATE OF NEBRASKA



Notice of Probable Violation

Dave Heineman
Governor

STATE FIRE MARSHAL
John Falgione
Fire Marshal

January 25, 2012

Rick Schwartz
Black Hills Energy
510 North Commerce Street
Beatrice, NE 68310

RE: Over pressurization of main and services in Geneva, Nebraska.

The State Fire Marshal Office, Fuels Division, Pipeline Safety Section has received the information that was requested in the November 23, 2011 Notice of Probable Violation that was sent to Black Hills Energy regarding the event at Geneva, Nebraska on November 21, 2011. The information was reviewed and the results require further action by the State Fire Marshal – Pipeline Safety Section.

It has been found that Black Hills Energy was in violation of Title 155 Nebraska Administrative Code Chapter 1.001 adopting by reference Pipeline Safety Regulations Title 49, Code of Federal Regulations, Part 192 as follows:

192.605 Procedural manual for operations, maintenance, and emergencies (a) General
Each operator shall prepare and follow for each pipeline, a manual of written procedures for conducting operations and maintenance activities and for emergency response.

Black Hills Energy personnel failed to follow Operation and Maintenance Procedures when conducting a tie-in. *Black Hills Energy Operation and Maintenance Manual 61.22*

192.195 Protection against accidental over pressuring. (b) Additional requirements for distribution systems. Each distribution system that is supplied from a source of gas that is at a higher pressure than the maximum allowable operating pressure for the system must (2) Be designed so as to prevent accidental over pressuring.

Black Hills Energy personnel failed to design a repair to the Geneva distribution system that would have prevented accidental over-pressurization. A part of this design process should have included multiple independent department checks to ensure the proposed alterations would not result in an over pressurization. *Black Hills Energy Operation and Maintenance Manual 52.3.1 & 52.3.2*

□ MAIN OFFICE
□ DISTRICT A
246 South 14th Street
Lincoln, NE 68508-1804
(402) 471-2027

□ DISTRICT B
438 West Market
Albion, NE 68620-1241
(402) 395-2164

□ DISTRICT C
200 South Silber
North Platte, NE 69101-4219
(308) 535-8181

■ FUELS DIVISION
□ FLST ■ Pipeline
246 South 14th Street
Lincoln, NE 68508-1804
(402) 471-9465

□ TRAINING DIVISION
2410 North Wheeler Avenue
Suite 112
Grand Island, NE 68801-2376
(308) 385-6892

Thankfully, while this situation did not lead to an incident, there is a concern that a reoccurrence of this nature could result in catastrophic events.

This letter shall serve as notice to Black Hills Energy of the consequences of the additional violations concerning the event. Black Hills Energy may respond to this notice within 30 days of receipt of this letter. Black Hills Energy may accept or deny the violations. If you elect to respond, please reference 20120125-N in the response.

Due to the nature of this event and the hazardous conditions that existed the Agency will be forwarding the results of the investigation to the Attorney General's Office per the statutory requirements.

§81-546 Whenever the State Fire Marshal has reason to believe any person is violating any provision of subsection (1) of section 81-545 or any regulation under the Nebraska Natural Gas Pipeline Safety Act of 1969, the State Fire Marshal shall give notice to such person and permit such person reasonable opportunity to achieve compliance. If compliance has not been achieved in a reasonable time, the State Fire Marshal may request the Attorney General to bring an action under section 81-547 in the district court for the county in which the defendant's principal place of business is located, and the district court may impose a civil penalty of not to exceed ten thousand dollars for each violation for each day that such violation persists, except that the maximum civil penalty shall not exceed five hundred thousand dollars for any related series of violations.

If you have any questions regarding the substance or propriety of this notice, please contact our office at, Nebraska State Fire Marshal, Pipeline Safety, 246 South 14th Street, Lincoln, NE 68508-1804 or telephone 402-471-9664.



Arnie Bates,
Deputy Fire Marshal
Pipeline Safety Section
308-390-0460



Clark Conklin,
Chief Deputy Fire Marshal
Fuels Safety Division
402-471-9467

cc: Donald Nordell, P. O. Box 83008, Lincoln, NE 68501-3008
Nathan Stewart, P. O. Box 83008, Lincoln, NE 68501-3008

Received on:

MAR 06 2012

NE State Fire Marshal



Arnie Bates
Deputy Fire Marshal
Nebraska State Fire Marshal
Pipeline Safety Division
246 South 14th Street
Lincoln, NE 68508-1804

March 5, 2012

RE: 20120125--N

Dear Mr. Bates,

Enclosed please find Black Hills/Nebraska Gas Utility Company, LLC's response to the letter sent from your office on January 25th 2012 in regard to an overpressure of the Geneva system in 2011.

If you have questions regarding this response, please feel free to contact me at (402) 437-1734 or email at nathan.stewart@blackhillscorp.com.

Sincerely,

A handwritten signature in black ink, appearing to read "Nathan Stewart", written over a large, light-colored oval shape.

Nathan Stewart
State Compliance Specialist

Violation #1:

It has been found that Black Hills Energy was in violation of Title 155 Nebraska Administrative Code Chapter 1.001 adopting by reference Pipeline Safety Regulations Title 49, Code of Federal Regulations, Part 192 as follows:

192.605 Procedural manual for operations, maintenance, and emergencies (a) General Each operator shall prepare and follow for each pipeline, a manual of written procedures for conducting operations and maintenance activities and for emergency response.

Black Hills Energy personnel failed to follow Operation and Maintenance Procedures when conducting a tie-in. *Black Hills Energy Operation and Maintenance Manual 61.22*

Response:

Black Hills does not oppose the finding set forth above. However, Black Hills has reinforced its training and operations procedures and notes other mitigating factors in responding to State Fire Marshall findings.

- Black Hills' system is safe. Leak surveys which were conducted in the over-pressured area revealed no leaks or problems with the system which affected the safety of Black Hills customers.
- The problem was corrected in a prompt manner once the violation was realized.
- The violation was reported by Black Hills to the Fire Marshal's office. Black Hills communicated all relevant facts in relation to the investigation in the spirit of full cooperation and transparency.
- Black Hills holds its safety record and the safety of its customers in the highest regard. This violation did not occur as a result of inadequate procedures. Black Hills has strong procedures in place to avoid safety related incidents. Unfortunately, despite a thorough training program and communication of these procedures to employees, on rare occasions these procedures may not be followed completely.

Violations of procedure are taken very seriously at Black Hills and disciplinary measures are taken in cases where procedures are violated. In this instance, the employees involved in the incident have been dealt with internally and appropriate discipline has been administered.

- The OQ credentials of the employee involved in the overpressure have been revoked and employee will not be permitted to perform any similar field work until he is requalified on all related tasks.
- Subsequent training is being administered and special emphasis placed on the proper use of gauges for all Black Hills employees involved in construction work.

Violation #2:

192.195 Protection against accidental over pressuring. (b) Additional requirements for distribution systems. Each distribution system that is supplied from a source of gas that is at a higher pressure than the maximum allowable operating pressure for the system must (2) Be designed so as to prevent accidental over pressuring.

Black Hills Energy personnel failed to design a repair to the Geneva distribution system that would have prevented accidental over-pressurization. A part of this design process should have included multiple independent department checks to ensure the proposed alterations would not result in an over pressurization. *Black Hills Energy Operation and Maintenance Manual 52.3.1 & 52.3.2*

Response:

Black Hills accepts that in this instance the system may have been improperly designed to prevent over-pressuring. However, Black Hills would note the following:

- Black Hills disagrees with the characterization that a proper design would have included "multiple independent department checks to ensure the proposed alterations would not result in an over pressurization".

Black Hills maintains many layers of planning in relation to construction projects. All construction projects are given the appropriate design and oversight. It is always required that anyone planning a job (engineer, construction coordinator, supervisor, crew leader) consult all mapping and pressure databases before performing any work.

- In this particular instance the planning process was not followed and the over-pressure occurred as a result. Black Hills does not feel that this over-pressure occurred as a result of a lack of "independent department" checks but as the result of employees involved in the project failing to consult mapping databases.
- Black Hills has emphasized the importance of using all available reference databases when planning jobs with all of its engineers, construction coordinators, supervisors and crew leaders. This information was also presented in the light of this incident to avoid any future occurrences of this kind.



Nebraska State Fire Marshal Pipeline Safety Section Inspection Report

SFM Deputy Conducting Inspection:

Arnie Bates

Inspection Type:

Compliance FOLLOW-UP

Operator Name:

Black Hills Energy

Unit:

Southern

Call#:

8738

Inspection Date(s):

9/14/2012

Town/Site:

Geneva

Report Date:

9/14/2012

Facility ID:

02-02-128

**NEBRASKA STATE FIRE MARSHAL - PIPELINE SAFETY SECTION
FOLLOW-UP INSPECTION:**

Name of Operator:	Black Hills Energy	Location:	Geneva
Operator Address: Black Hills Energy 510 Commerce Street Beatrice NE 68310	Phone Number: 402 332 3340 Fax Number: 402 233 3397 Emergency: 1-800-694-8989 Federal ID: 15359		
Persons Interviewed	Title	Phone No.	
Nathan Stewart	NE Compliance Specialist	402.471.1734	
Person conducting Inspection: DSFM <i>Amie Bates</i>		Date: Sept. 14, 2013	
Description: Procedures Code 192.605 (a) Date of Letter: 01/25/12 Type: NOPV Design for Overpressure Code 192.195(b)2 Date of Letter: 01/25/12 Type: NOPV Exceeding MAOP Code 192.619 (a)3 Date of Letter: 11/23/11 Type: NOPV			
Portion of Unit Inspected: Follow-up on actions from an issue in Geneva NE on 09/30/2011 resulting in NOPV.			

FINDINGS: On November 11, 2011 actions by Black Hills Energy personnel led to a safety related condition in a northwest section of the Geneva distribution system. As a result of this investigation, findings are that Black Hills Energy failed to verify pressures within the natural gas distribution system and caused pressures within the piping to exceed the current Maximum Allowable Operating Pressure for a segment of natural gas main and services. An NOPV was issued for this situation (20111123-N) Continued follow up and investigation by State Fire Marshal -Pipeline Safety and Black Hills Energy resulted in another NOPV (20120125-N) codifying investigations

CONCLUSION: The State Fire Marshal Office, Fuels Division, Pipeline Safety has conducted follow-up investigation of actions that led to a safety related condition in a northwest section of the Geneva distribution system. As a result of this investigation and the response provided by Black Hills Energy, the Pipeline Safety Section will close action on these violations of Title 155 Nebraska Administrative Code Chapter 1.001 adopting by reference Pipeline Safety Regulations Title 49, Code of Federal Regulations, Part 192.

Specifically: subsection 619 Maximum allowable operating pressure - Steel or plastic pipelines. subsection 605(a) Procedural manual for operations, and subsection 195(b)(2) Design of repairs to prevent accidental overpressureization.

BODY of Report:

In closing this action, we have considered the following actions of Black Hills Energy in resolving this issue:

The initial reporting by Black Hills Energy of the condition of over pressurization.

**NEBRASKA STATE FIRE MARSHAL - PIPELINE SAFETY SECTION
FOLLOW-UP INSPECTION:**

Internal investigation of actions of personnel that led to the event of over pressurization and the resulting clarification to personnel, on duties during design, construction and tie-in of pipeline segments.

Revised training for Black Hills Energy personnel and contractors in the process of tapping and tie-in of pipeline segments including specific pressure checks.

Implementation of redundant checks during design and construction of pipeline segments with possible different maximum allowable operating pressures (MAOP).

Field inspections by Pipeline Safety, during construction activities to verify that Black Hills Energy and contractor personnel are conducting pressure checks within the pipeline segment.

End of Report

STATE OF NEBRASKA



Letter of Approval

Dave Heineman
Governor

STATE FIRE MARSHAL
John Falgione
Fire Marshal

September 14, 2012

Rick Schwartz
Black Hills Energy
510 North Commerce Street
Beatrice, NE 68310

RE: Notice of Probable Violation – #20111128-N, Over pressurization of main and services in Geneva NE.

The State Fire Marshal Office, Fuels Division, Pipeline Safety has conducted follow-up investigation of actions that led to a safety related condition in a northwest section of the Geneva distribution system. As a result of this investigation the Pipeline Safety Section will close additional action on this violation of Title 155 Nebraska Administrative Code Chapter 1.001 adopting by reference Pipeline Safety Regulations Title 49, Code of Federal Regulations, Part 192, subsection 619 Maximum allowable operating pressure - Steel or plastic pipelines.

In closing this action, we have considered the following actions of Black Hills Energy in resolving this issue:

- The initial reporting of the condition of over pressurization.
- Internal investigation of actions of personnel that led to the event of over pressurization and the resulting clarification to personnel, on duties during design, construction and tie-in of pipeline segments.
- Revised training for Black Hills Energy personnel and contractors in the process of tapping and tie-in of pipeline segments including specific pressure checks.
- Implementation of redundant checks during design and construction of pipeline segments with possible different maximum allowable operating pressures (MAOP).
- Field inspections during construction activities to verify personnel are conducting pressure checks within the pipeline segment.

We appreciate your attention to this matter and steps taken to eliminate future reoccurrence of this nature. If you have any questions regarding the substance or propriety of this letter, please contact our office at, Nebraska State Fire Marshal, Pipeline Safety Section, 246 South 14th Street, Lincoln NE 68508-1804 or telephone 402 471 9664.

Arnie Bates,
Deputy Fire Marshal
Pipeline Safety Section
308-390-0460

Clark Conklin,
Chief Deputy Fire Marshal
Fuels Safety Division
402- 471-9465

cc: Nathan Stewart, P. O. Box 83008, Lincoln, NE 68501-3008
Cullen Sila, P. O. Box 548, 720 South Lincoln Avenue, York, NE 68467-0548
Mick Porter, 510 North Commerce Street, Beatrice, NE 68310

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