Nebraska State Fire Marshal
Pipeline Safety Section
Investigation Report

SFM Deputy Conducting Inspection:	Call#:	Report Date:
Arnie Bates	**8738**	11/23/11
Inspection Type:	**Inspection Date(s):**	
INCIDENT INVESTIGATION	11/22/2011	

Operator Name:	Unit:	Town/Site:	Facility ID:
Black Hills Energy	Southern	Geneva	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: _X_ State __ PHMSA __ NTSB __Other

	Company Reported Apparent Cause:	*Company Reported Sub-Cause (from PHMSA Form 7000-1/7100.2):*
	Corrosion	
	Natural Force Damage	
	Excavation Damage	
	Other Outside Force Damage	
	Material Failure (Pipe, Joint, Weld)	
	Equipment Failure	
x	Incorrect Operation	Failed to verify pressure in main before tie in
	Other	

	Accident/Incident Resulted in (check all that apply):	*Comments:*
	Rupture	Over pressurization of main and services
	Leak	
	Fire	
	Explosion	
	Evacuation	Number of Persons:_____ Area: _____

Failure Location & Response		
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 11th Street & "O" Street.		
Address or M.P. on Pipeline: (1) 1033 "O" Street	Type of Area (Rural, City): (1) City, class II	
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:

Gas Distribution	**Gas Transmission**	**Hazardous Liquid**	**___ LNG**
__ LP	__ Interstate Gas	__ Interstate Liquid	
__ Municipal	__ Intrastate Gas	__ Intrastate Liquid	
_X_ Public Utility	__ Gas Gathering	__ Offshore Liquid	

1 Photo documentation

Failure Location & Response		
__ Master Meter	__ Offshore Gas	__ Liquid Gathering
	__ Offshore Gas - High H_2S	__ CO_2
		__ Low Stress Liquid
		__ 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	Operator: Black Hills Energy
Address: 1102 East 1st Street Papillion NE 68046	Address: 510 North Commerce Street BEATRICE NE 68310
Company Official:	Company Official: Rick Schwartz
Phone No.: Fax No.:	Phone No. 402 332 3340 Fax No. 402 223 3397

Drug and Alcohol Testing Program Contacts __ N/A

Drug Program Contact & Phone:

Alcohol Program Contact & Phone:

Damages	
Product/Gas Loss or Spill(2)	Estimated Property Damage $
Amount Recovered	Associated Damages(3) $ Repair only
Estimated Amount $	

Description of Property Damage:
No property damage. Expense for repair and correction of system piping.

Customers out of Service: __ Yes __ No Number: na

Suppliers out of Service: __ Yes __ No Number: na

Fatalities and Injuries					***___ N/A***
Fatalities:	__ Yes	__ No	Company:	Contractor:	Public:
Injuries - Hospitalization:	__ Yes	__ No	Company:	Contractor:	Public:
Injuries - Non-Hospitalization:	__ Yes	__ 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 11th & 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): (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:	(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:

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

Joining	___
Type: welding	Procedure: API 1104
NDT Method: visual	Inspected: _x__ Yes ___No

Pressure @ Time of Failure @ Failure Site			___ *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

Upstream Pump Station Data	___ *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	___ *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	___
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? _x__ Yes ___ No

Integrity Test After Failure	___
Pressure test conducted in place? (Conducted on Failed Components or Associated Piping): _x__ Yes ___ No	
If No, tested after removal? ___ Yes ___ 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

5 Attach copy of water analysis report

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: _x_ Manual __ Automatic __ SCADA __ Controller __ ESD	
Failed Section Bypassed or Isolated:	
Performed By: BHE personnel	Valve Spacing:

Odorization		***__ N/A***
Gas Odorized: _x_ Yes __ No	Concentration of Odorant (Post Incident at Failure Site):	
Method of Determination: __ Yes __ No	% LEL: __ Yes __ No	% Gas In Air: _x_ Yes __ No
	Time Taken: __ Yes __ No	
Was Odorizer Working Prior to the Incident? _x_ Yes __ 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? __ Yes _x_ No	
Weather Conditions Prior to Incident (Cloud Cover, Ceiling Heights, Snow, Rain, Fog):	

Gas Migration Survey	***__***
Bar Hole Test of Area: __ Yes __ 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]	

9 Plot on site description page

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**

(Expand List as Necessary)

	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**

(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

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

10		25	
11		26	
12		27	
13		28	
14		29	
15		30	
Camera Type:			

Additional Information Sources			
Agency	Name	Title	Phone Number
Police:			
Fire Dept.:			
State Fire Marshall:			
State Agency:			
NTSB:			
EPA:			
USCG:			
FBI:			
ATF:			
OSHA:			
Insurance Co.:			
FRA:			
MMS:			
Television:			
Newspaper:			
Other:			

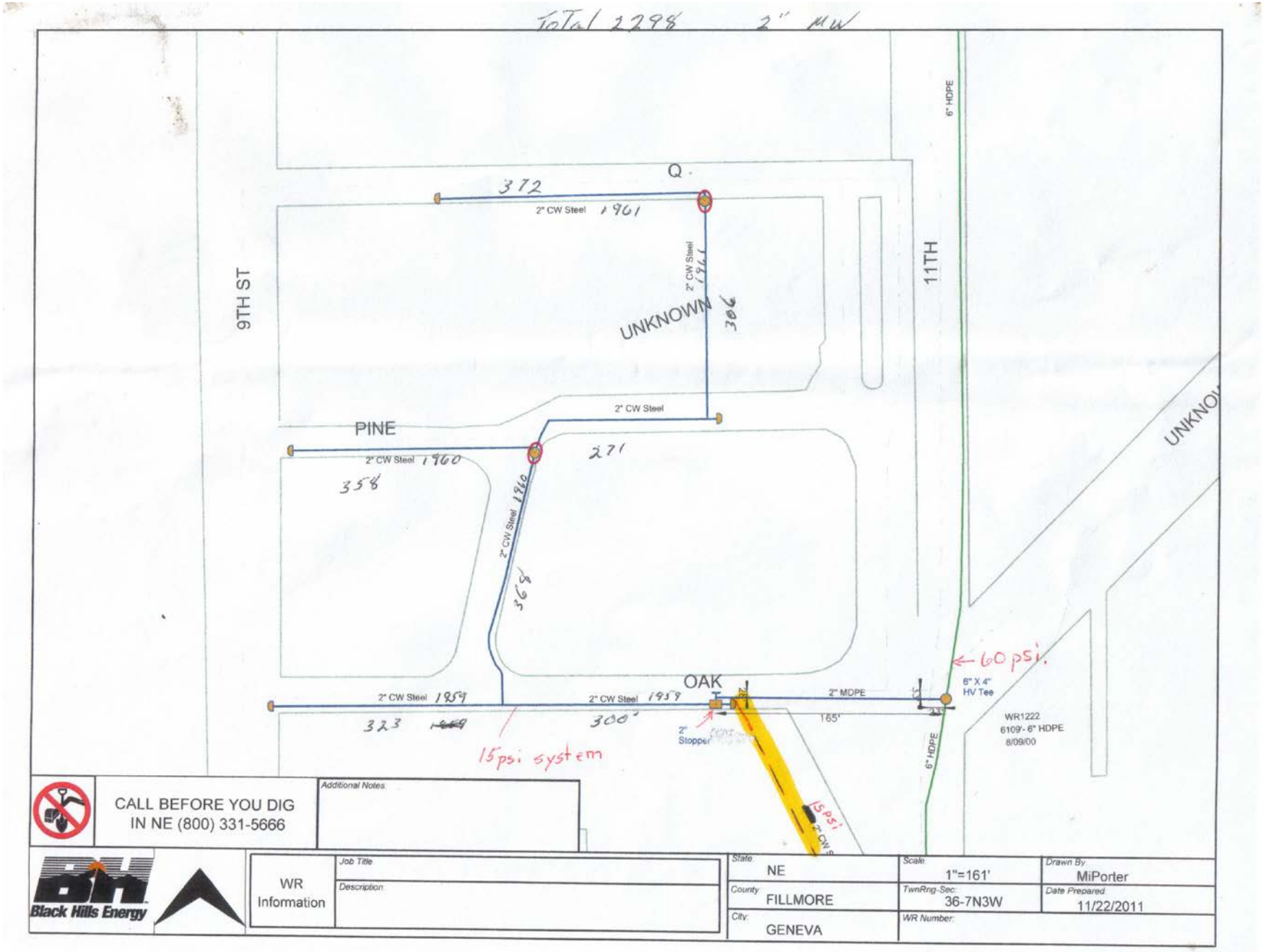
Persons Interviewed		
Name	Title	Phone Number
Rick Schwartz	**Operations Director Southern Unit**	**402 332 3340**
Mick Porter	**Construction Coordinator SU**	
Randy Wymore	**Operations Technician**	
Chad Hoffman	**Operations Technician**	
Dean Blazer	**Operations Technician/Welder**	

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 Number	Documentation Description	Date Received	FOIA Yes	FOIA 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
Q
372
2" CW Steel 1961
2" CW Steel 1961
306
UNKNOWN
9TH ST
11TH
6" HDPE
2" CW Steel
PINE
2" CW Steel 1960
358
271
2" CW Steel 1960
365
OAK
2" CW Steel 1959
323
2" CW Steel 1959
300'
2" MDPE
165'
2" Stopper
60 psi.
6" X 4" HV Tee
WR1222
6109'- 6" HDPE
8/09/00
6" HDPE
15psi system
15 psi
CALL BEFORE YOU DIG
IN NE (800) 331-5666
Additional Notes:
Black Hills Energy
WR Information
Job Title:
Description:
State: NE
County: FILLMORE
City: GENEVA
Scale: 1"=161'
TwnRng-Sec: 36-7N3W
WR Number:
Drawn By: MiPorter
Date Prepared: 11/22/2011

Black Hills Energy
Improving life with energy

ENGINEERING PAD

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

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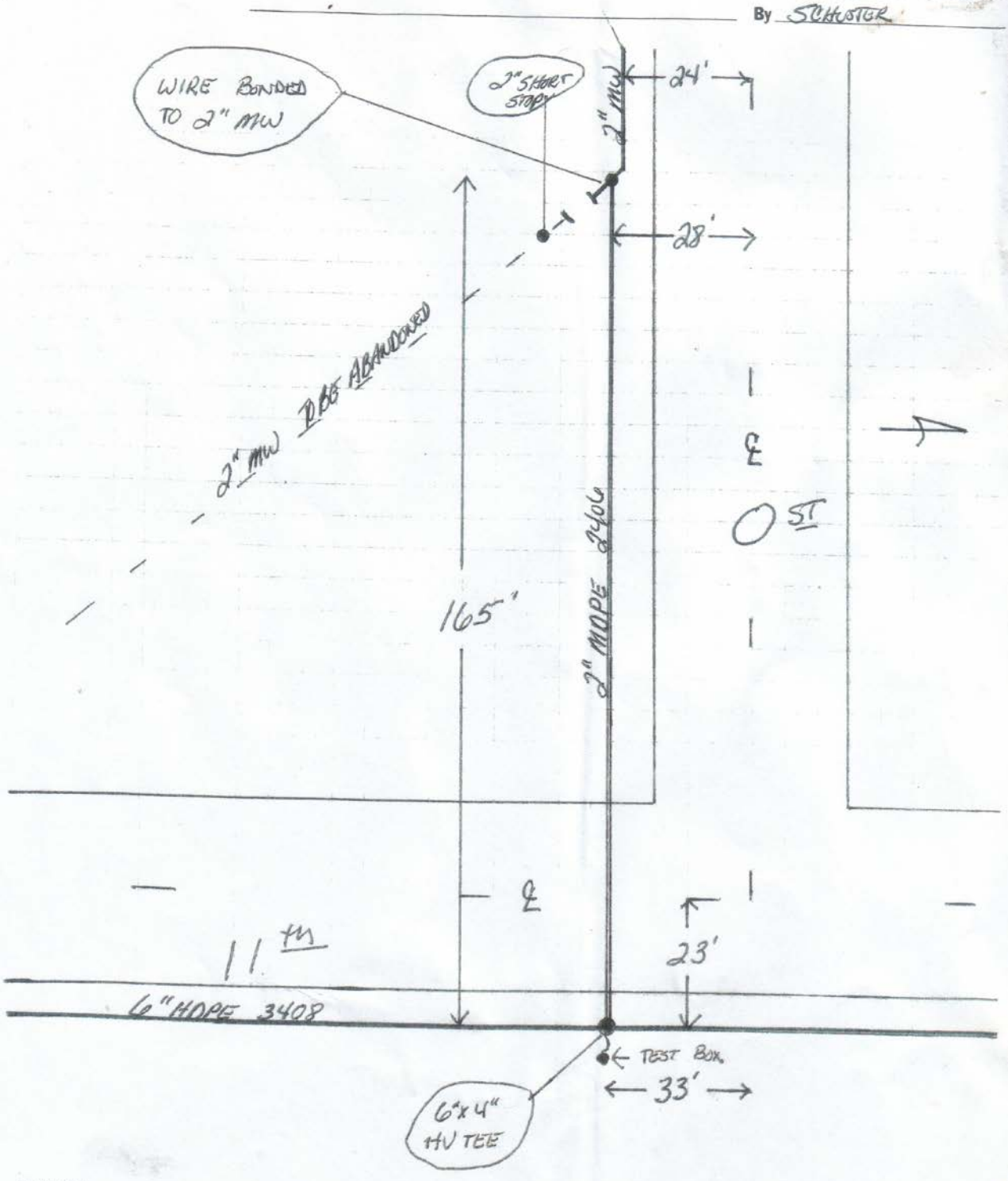
W.O./File # 471364

Date 9-30-11

By SCHUSTER

(2)



Feet	Size	Kind	Location
1064'	4"	M.J.	New addition in North Geneva

CENTRAL ELECTRIC & GAS

TOWN, Geneva

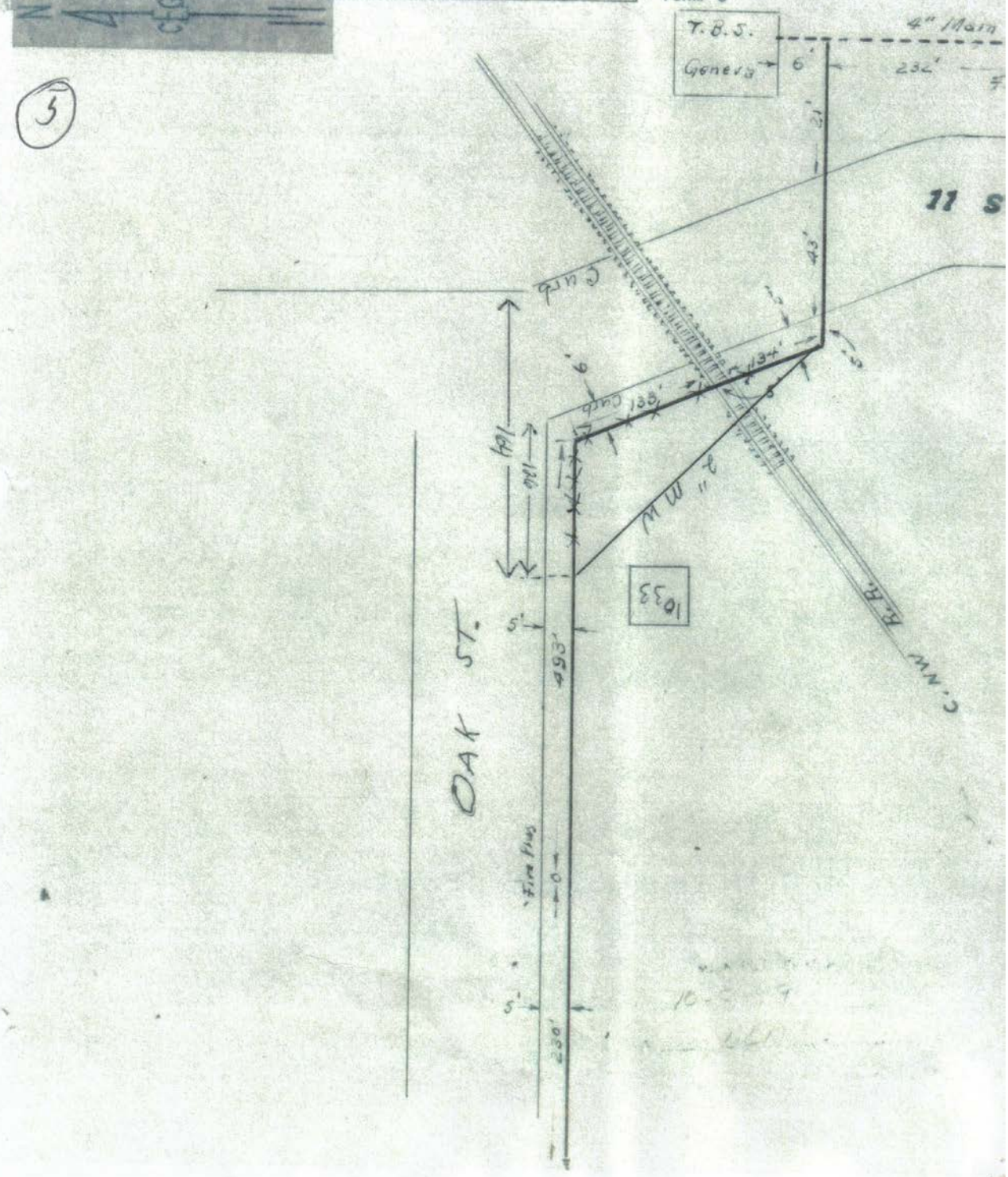
J.O. - W.O. 2707 Int. No.

Date Started 8-10-39 Date Finished 8-11

Construction and Completion Repo

FORM 6

(3)



Black Hills Energy
Improving life with energy

ENGINEERING PAD

Project Name: Cut off OLD TBS

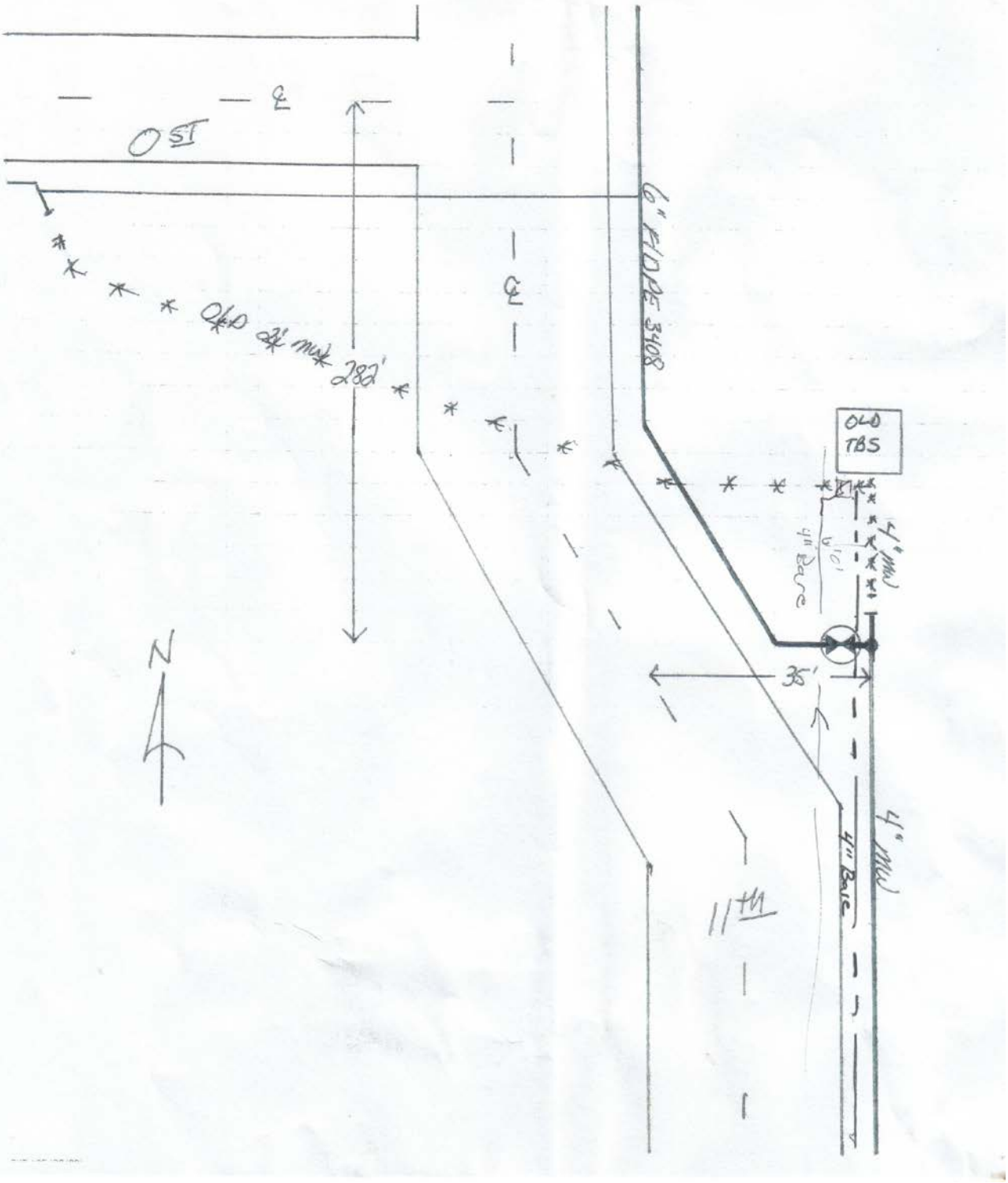
Page III Of III

W.O./File # 471364

Date 10-19-11

By SCHUSTER

(1)



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

Nebraska State Fire Marshal
Pipeline Safety Section
Investigation Supplemental

SFM Deputy Conducting Inspection:	Call#:	Report Date:
Arnie Bates	**8738**	01/20/2012
Inspection Type:	**Inspection Date(s):**	
INCIDENT INVESTIGATION SUPPLEMENTAL	01/20/2012	

Operator Name:	Unit:	Town/Site:	Facility ID:
Black Hills Energy	Southern	Geneva	02-02-128

NEBRASKA STATE FIRE MARSHAL'S OFFICE
SUPPLEMENTAL REPORT

Name of Operator:	Black Hills Energy **Unit #** Southern **Town ID** Geneva 02-02-128
Operator Address:	
Black Hills Energy 510 Commerce Street Beatrice NE 68	**Phone Number:** 402 332 3340 **Fax Number:** 402 233 3397 Emergency: 1-800-694-8989 Federal ID: 15359
Person conducting Inspection **Arnie Bates DSFM 8738**	Arnie Bates **Date:** January 20, 2012

DATE OF INCIDENT: 11/22/11
LOCATION: 1033 "O" Street, Geneva NE

DESCRIPTION: 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.

PERSONS MENTIONED IN THIS REPORT
Nathan Stewart, State Compliance Specialist, Black Hills Energy, Lincoln
Clark Conklin, Chief Fuels Division, State Fire Marshal- Pipeline Safety Section, Lincoln

BODY OF REPORT
On or about January 18, 2012 this deputy received an electronic copy of a reply from STEWART, Black Hills Energy NOPV dated January 13, 2012. This was a reply to a Notice of Violation dated November 28, 2011. (20111128-N) that requested a response for corresponding determination of cause for the actions that led to the over pressurization of the Geneva gas system within 30 days. Latter an extension of time for reply was granted, extending the date to January 15, 2012.

The response letter stated:
Black Hills has conducted an investigation into the events that led to an over pressurization of a residential section of the Geneva distribution system. During the course of this investigation three items were uncovered as being key factors that led to the over-pressure situation:
1) Inadequate pre-job planning
2) Gauges not being used during tie-in
3) Warning signs missed

Had any of these three items been handled differently than they were, it is likely that the event would not have occurred or would have been discovered much earlier. Each of these items will be discussed in turn.

Background

The overpressure occurred during the process of abandoning the town border station (owned by Kinder Morgan) and relocating it to the north side of Geneva on September 30, 2011. (See attachments I & 2) As a result of this project, several sections of main had to be abandoned inside the old town border station location. One of the sections of main being abandoned was a 2" mill wrapped main which ran northwest from the yard and served a residential section serving 31 customers. It was during the process of abandoning this line and installing a new one that the over-pressure occurred. (See attachment 3) This over pressure was discovered on November 21st during a review of records by area employees prompted by a call from Kinder Morgan regarding still "live" 4" main inside the old TBS location.

Inadequate pre-job planning

During the course of the investigation it was discovered that mapping and pressure databases were not consulted to verify either the operating pressures or MAOP of the Geneva system. Instead, long term employees and their knowledge of the system were relied upon exclusively. In this particular instance, it was assumed based on field employees knowledge of the system that the 2" mill wrapped line feeding the residential section had always been connected to a 57lb high pressure gas main running through town. In reality, the line had always been tied to a 15lb "low pressure" gas main which was also in the town border station's yard. As a result of this belief, a new 2" PE line was connected to the 57lb line north of the old town border station and run west to feed the residential neighborhood. This action resulted in the over-pressure.

Gauges

While tying the new 2" PE main to the 57lb mill wrapped main, no gauges were used to verify pressures on both sides of the tie-in. This procedure is outlined in Black Hills O&M 61.22. This procedure was not followed and the over-pressure occurred as a result. Had the procedure been followed, the difference in pressure between the two systems being tied together would have been discovered and over pressure would not have occurred.

Warning signs

The process for installing the new feed to the residential section was to first install the new 2" feed and then abandon the existing 2" feed. Approximately 30 minutes elapsed between the time the connection of the new feed was made and when the old feed was cut and capped. For these 30 minutes until the abandonment was completed, the Geneva system was over-pressured from the residential section to the district regulator station in Geneva. This caused the regulator station to function properly and relieve the excess pressure from the piping.
This fact was noted by nearby bank employees who contacted Black Hills at I:15pm (September 30) about a smell of gas in the area. A service technician was dispatched at I:19pm to investigate. The technician arrived on site at 2:05pm and began his investigation. However, by the time he arrived at 2:05pm the station was no longer relieving pressure due to the fact that the abandonment of the 2" mill wrapped line had been completed by that time and pressure had gone back to its normal operating range. Responding service technician contacted operations personnel performing work in Geneva and informed them of the situation. Operations personnel investigated situation by verifying that the station was in fact no longer relieving pressure and by checking the pressure chart on the station. Not noting any significant anomalies on the chart, they concluded that the situation was not dangerous and did not investigate further.

Had this situation been investigated further, the over-pressure situation would have been discovered within a few hours and could have been corrected.

Preventative measures

Black Hills will take the following actions to prevent such an occurrence from happening in the future:

1) O&M sections regarding proper construction practices will be covered with all coordinators and operations employees during upcoming fusion ceiiification training in February and March. Special attention will be given to the use of gauges during tie ins and proper use of mapping databases during the job planning
process.

Additionally, the Geneva incident will be reviewed with all field employees during annual Emergency plan training conducted in February.

2) Educating field employees on proper use of gauges and following our existing standards regarding pressure monitoring while performing tie-ins.

3) Education will be held for all employees on proper investigation and follow up when district regulator stations are relieving pressure. This would involve contacting a supervisor who will then contact measurement department so that a full investigation of the event can be conducted.

Initial 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.

Addition Findings: 1)Black Hills Energy did conduct an investigation into the over-pressurization event in Geneva NE, with findings of Three key factors.

2) The actual investigation by Black Hills Energy had started prior to this deputy being notified of the event on Novemebr 22, or by a Notice letter of November 28, 2011, from State Fire Marshal - Pipeline Safety Section.

In review of BHE investigation, this deputy learned that over pressurization on gas mains and service was much larger in area than first indicated by this deputy. The area extend to a larger portion of the 15 psi system for up to 30 minutes on September 30, 2011. While the over-pressurization, of 31 services and associated main, investigated by this deputy continued for 53 days before being corrected.

The BHE report also indicated it was discovered that mapping and pressure databases were not consulted to verify either the operating pressures or MAOP of the Geneva system. Instead, long term employees and their knowledge of the system were relied upon exclusively.

The BHE report indicated that "no gauges were used to verify pressures on both sides of the tie-in. This procedure is outlined in Black Hills O&M 61.22."

The BHE reprt also concluded that "had initial indications of a problem been investigated further, the over-pressure situation would have been discovered within a few hours and could have been corrected. Initial indication was the operation of relief device at District Regulator Station.

The BHE letter proposed 3 preventive measures to be taken to prevent such an occurrence from happening in the future.
1) O&M sections regarding proper construction practices will be covered with all coordinators and operations employees during upcoming fusion ceiiification training in February and March. Special attention will be given to the use of gauges during tie ins and proper use of mapping databases during the job planning process. Additionally, the Geneva incident will be reviewed with all field employees during annual Emergency plan training conducted in February.

2) Educating field employees on proper use of gauges and following our existing standards regarding pressure monitoring while performing tie-ins.

3) Education will be held for all employees on proper investigation and follow up when district regulator stations are relieving pressure. This would involve contacting a supervisor who will then contact measurement department so that a full investigation of the event can be conducted.

Initial Violation: 49 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).

Additional violation as a result of insvestigation by Black Hills Energy.

Failur to follow Operation and Maintenance Procedures BHE O&M 61.22
§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.

Failed to design a system to prevent accidentail over-pressurization.
§192.195 Protection against accidental overpressuring.
(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 overpressuring.

CONCLUSION: The root cause of the event rests solely with Black Hills Energy, the failure to follow operating procedures caused the pressure within the mains and services to exceed the maximum allowable operating pressure designation. Black Hills Energy did not deny that their actions caused this to happen.

It appears that a lack of recognition of a abnormal operating condition and an incomplete reaction to that condition caused the condition to continue for 53 days. On the surface there may be an issue with qualification of personnel concerning to ability to recognize and react to an

SFM Deputy Conducting Inspection:	Call#:	Report Date:
Arnie Bates	**8738**	Jan. 25, 2012

Inspection Type:	Inspection Date(s):
INCIDENT INVESTIGATION SUPPLEMENTAL	Jan. 23-24-25, 2012

Operator Name:	Unit:	Town/Site:	Facility ID:
Black Hills Energy	Southern	Geneva	02-02-128

SUPPLEMENTAL REPORT

Name of Operator:	Black Hills Energy **Unit #** Southern **Town ID** Geneva 02-02-128
Operator Address:	
Black Hills Energy 510 Commerce Street Beatrice NE 68	**Phone Number:** 402 332 3340 **Fax Number:** 402 233 3397 Emergency: 1-800-694-8989 Federal ID: 15359
Person conducting Inspection **Arnie Bates DSFM 8738**	Arnie Bates **Date:** January 23-24 & 25, 2012

DATE OF INCIDENT: 11/22/11
LOCATION: 1033 "O" Street, Geneva NE

DESCRIPTION: On going investigation into the over pressurization of the Geneva distribution system. Found Nov 21, 2011

January 23, 2012 This deputy met with Clark Conklin and Regina Shields to discuss events concerning the vents concerning the over-pressurization of the Geneva gas distribution system.

Initial NOPV (20111123-N) was issued to Black Hills Energy for failing to verify pressures within the natural gas distribution system and caused pressures within the piping to exceed the current Maximum Allowable Operating Pressure (MAOP) for a segment of natural gas main and services.

> 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).

During subsequent investigation and as a result of review of the Black Hills Energy incident investigation (response from Black Hills Energy dated January 13, 2012 and received January 18, 2012). It was not contended that Black Hills Energy was not 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§619(a)(3) above.
In addition this deputy has reason to believe that actions by Black Hills Energy personnel (BHE) did not follow basic Operations and Maintenance Procedures which could have prevented the over-pressurization from happening. **A violation of Part 192.605(a).**

§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.

Specifically, Black Hills Energy personnel failed to follow Operation and Maintenance Procedures when conducting a tie-in (starting up new segment of pipeline between two existing pipe systems). Black Hills Energy personnel did not follow the procedures required by 192.605(b)(5) which are stated in *Black Hills Energy Operation and Maintenance Manual 61.22,* that requires gauges to be installed to verify pressures in the piping system. Part 192.605(b)(5) requires that the Operation and Maintenance manual have procedures.

§192.605 Procedural manual for operations, maintenance, and emergencies (b) Maintenance and normal operations. The manual required by paragraph (a) of this section must include procedures for the following, if applicable, to provide safety during maintenance and operations. (5) Starting up and shutting down any part of the pipeline in a manner designed to assure operation within the MAOP limits prescribed by this part, plus the build-up allowed for operation of pressure-limiting and control devices.

Reference: ***Black Hills Energy Operation and Maintenance Manual 61.22***

BHE O&M section 61 General Construction Practices

61.22 STARTING UP AND SHUTTING DOWN A PIPELINE DURING NORMAL OPERATION

When a pipeline is put into service, it shall have pressure-limiting, and/or control devices, and gauges connected to the pipeline, so that the MAOP plus allowable buildup will not be exceeded.

In addition this deputy believes that 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. **A violation of 192.195(b)(2)**

In this particular instance, Black Hills Energy assumed based on field employees knowledge of the system that the 2" mill wrapped line feeding the residential section had always been connected to a 57lb high pressure gas main running through town. In reality, the line had always been tied to a 15lb "low pressure" gas main which was also in the town border station's yard. Without visually inspecting maps, consultation of pressure data system, or verification of actions through Black Hills Energy "STORMS" system (a computer program that is utilized by Black Hills Energy to create mapping, a part of which can flow model existing pipeline systems) which can show the results of tying two pipelines together.

Black Hills Energy Operation and Maintenance Manual 52.3.1 & 52.3.2

Section 52 : Project Preparation

52.1 SCOPE

This section presents Company standards dealing with the location of distribution, transmission and gathering systems and facilities, as well as pre-construction requirements and related planning efforts to aid in resolving potential problems that can be identified in advance of actual construction activity. Consideration of pre-construction requirements and related planning efforts will aid in resolving potential problems that can be identified in advance of actual construction activity.

52.3 FACTORS TO CONSIDER PRIOR TO CONSTRUCTION

Consider the following factors prior to starting construction.

52.3.1 JOB DRAWINGS

As soon as the drawings and/or work order information is received, examine in detail the print of the proposed installation and all other specific information. The drawings and other specific information on the job must always be available to the inspector before the beginning of construction.

52.3.2 IDENTIFY THE GEOGRAPHICAL LAYOUT OF THE INSTALLATION

1. What part of the system does this installation tie into?
2. Will the project affect normal operation of the system?
3. Are there likely to be any foot or vehicular traffic problems?
4. Will this job create problems for commercial or civic establishments during construction?

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
4) Recommendations to the operator to prevent reoccurrence. On going

Findings: Black Hills Energy personnel failed to verify pressures within existing segment of system before interconnecting to an existing elevated pressure main. (original violation Part 192.619(a))

Black Hills Energy personnel failed to follow their own procedures when (a) starting up a system, a violation of Part192.605(a).

Black Hills Energy personnel failed to follow procedures in designing a repair (addition) to the Geneva distribution system, a violation of Part192.195(b)(2).

On a subsequent thoughts there maybe underlying issues with OQ.

(1) The process for installing the new feed to the residential section was to first install the new 2" feed and then abandon the existing 2" feed. Approximately 30 minutes elapsed between the time the

connection of the new feed was made and when the old feed was cut and capped. For these 30 minutes until the abandonment was completed, the Geneva system was over-pressured from the residential section to the district regulator station in Geneva. This caused the regulator station to function properly and relieve the excess pressure from the piping.

This fact was noted by nearby bank employees who contacted Black Hills at I:15pm

(September 30) about a smell of gas in the area.

A service technician was dispatched at I:19pm to investigate.

The technician arrived on site at 2:05pm and began his investigation. However, by the time he arrived at 2:05pm the station was no longer relieving pressure due to the fact that the abandonment of the 2" mill wrapped line had been completed by that time and pressure had gone back to its normal operating range. Responding service technician contacted operations personnel performing work in Geneva and informed them of the situation. Operations personnel investigated situation by verifying that the station was in fact no longer relieving pressure and by checking the pressure chart on the station. Not noting any significant anomalies on the chart, they concluded that the situation was not dangerous and did not investigate further.

Had this situation been investigated further, the over-pressure situation would have been discovered within a few hours and could have been corrected.

As a result of not following up a section of Geneva distribution system was exceeding the MAOP for 52 days.

Depending upon the location of the pressure taps, it is possible that the "Chart" never registered the over pressure event. The relief functioned (did its job) but how much of the system was over-pressurized? That is a guess at this time.

END OF REPORT

abnormal operating condition. Underlying may be a need to more throughly investigate WHY an event occurred.

While the event did not lead to an "incident" as defined by CFR 29 Part 191, the situation did put the public at a considerably higher risk. The resulting consiquences of that hightened risk could have resulted in loss of life, injury to public, large loss of revenue because of resulting damages to both public and Company, and damage to reputation of personnel and Black Hills Energy as a Company.

With these issues presented, it is the belief of this deputy that actions should be persued and information forwarded to the Attorney Generals Office.

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
4) Recommendations to the operator to prevent reoccurrence: YES

Application of Black Hills Energy investigation findings and suggested preventative measures;

1) O&M sections regarding proper construction practices will be covered with all coordinators and operations employees during upcoming fusion certification training in February and March. Special attention will be given to the use of gauges during tie-ins and proper use of mapping databases during the job planning process.

   Additionally, the Geneva incident will be reviewed with all field employees during annual Emergency plan training conducted in February.

2) Educating field employees on proper use of gauges and following our existing standards regarding pressure monitoring while performing tie-ins.

3) Education will be held for all employees on proper investigation and follow up when district regulator stations are relieving pressure. This would involve contacting a supervisor who will then contact measurement department so that a full investigation of the event can be conducted.

END OF REPORT

Black Hills Energy

January 13, 2011

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

RE: 20111123--N

Dear Mr. Bates,

Enclosed you will find a response to a letter sent to our office on November 23, 2011 in regard to an overpressure of part of the Geneva system.

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

Sincerely,

Nathan Stewart
State Compliance Specialist

Black Hills has conducted an investigation into the events that led to an over pressurization of a residential section of the Geneva distribution system. During the course of this investigation three items were uncovered as being key factors that led to the over-pressure situation:

1) Inadequate pre-job planning

2) Gauges not being used during tie-in

3) Warning signs missed

Had any of these three items been handled differently than they were, it is likely that the event would not have occurred or would have been discovered much earlier. Each of these items will be discussed in turn.

Background

The overpressure occurred during the process of abandoning the town border station (owned by Kinder Morgan) and relocating it to the north side of Geneva on September 30, 2011. *(See attachments 1 & 2)* As a result of this project, several sections of main had to be abandoned inside the old town border station location. One of the sections of main being abandoned was a 2" mill wrapped main which ran northwest from the yard and served a residential section serving 31 customers. It was during the process of abandoning this line and installing a new one that the over-pressure occurred. *(See attachment 3)* This over pressure was discovered on November 21st during a review of records by area employees prompted by a call from Kinder Morgan regarding still "live" 4" main inside the old TBS location.

Inadequate pre-job planning

During the course of the investigation it was discovered that mapping and pressure databases were not consulted to verify either the operating pressures or MAOP of the Geneva system. Instead, long term employees and their knowledge of the system were relied upon exclusively.
In this particular instance, it was assumed based on field employees knowledge of the system that the 2" mill wrapped line feeding the residential section had always been connected to a 57lb high pressure gas main running through town. In reality, the line had always been tied to a 15lb "low pressure" gas main which was also in the town border station's yard. As a result of this belief, a new 2" PE line was connected to the 57lb line north of the old town border station and run west to feed the residential neighborhood. This action resulted in the over-pressure.

Gauges

While tying the new 2" PE main to the 57lb mill wrapped main, no gauges were used to verify pressures on both sides of the tie-in. This procedure is outlined in Black Hills O&M 61.22. This procedure was not followed and the over-pressure occurred as a result. Had the procedure been followed, the difference in pressure between the two systems being tied together would have been discovered and over pressure would not have occurred.

Warning signs

The process for installing the new feed to the residential section was to first install the new 2" feed and then abandon the existing 2" feed. Approximately 30 minutes elapsed between the time the connection of the new feed was made and when the old feed was cut and capped. For these 30 minutes until the abandonment was completed, the Geneva system was over-pressured from the residential section to the district regulator station in Geneva. This caused the regulator station to function properly and relieve the excess pressure from the piping.

This fact was noted by nearby bank employees who contacted Black Hills at 1:15pm (September 30) about a smell of gas in the area. A service technician was dispatched at 1:19pm to investigate. The technician arrived on site at 2:05pm and began his investigation. However, by the time he arrived at 2:05pm the station was no longer relieving pressure due to the fact that the abandonment of the 2" mill wrapped line had been completed by that time and pressure had gone back to its normal operating range. Responding service technician contacted operations personnel performing work in Geneva and informed them of the situation. Operations personnel investigated situation by verifying that the station was in fact no longer relieving pressure and by checking the pressure chart on the station. Not noting any significant anomalies on the chart, they concluded that the situation was not dangerous and did not investigate further.

Had this situation been investigated further, the over-pressure situation would have been discovered within a few hours and could have been corrected.

Preventative measures

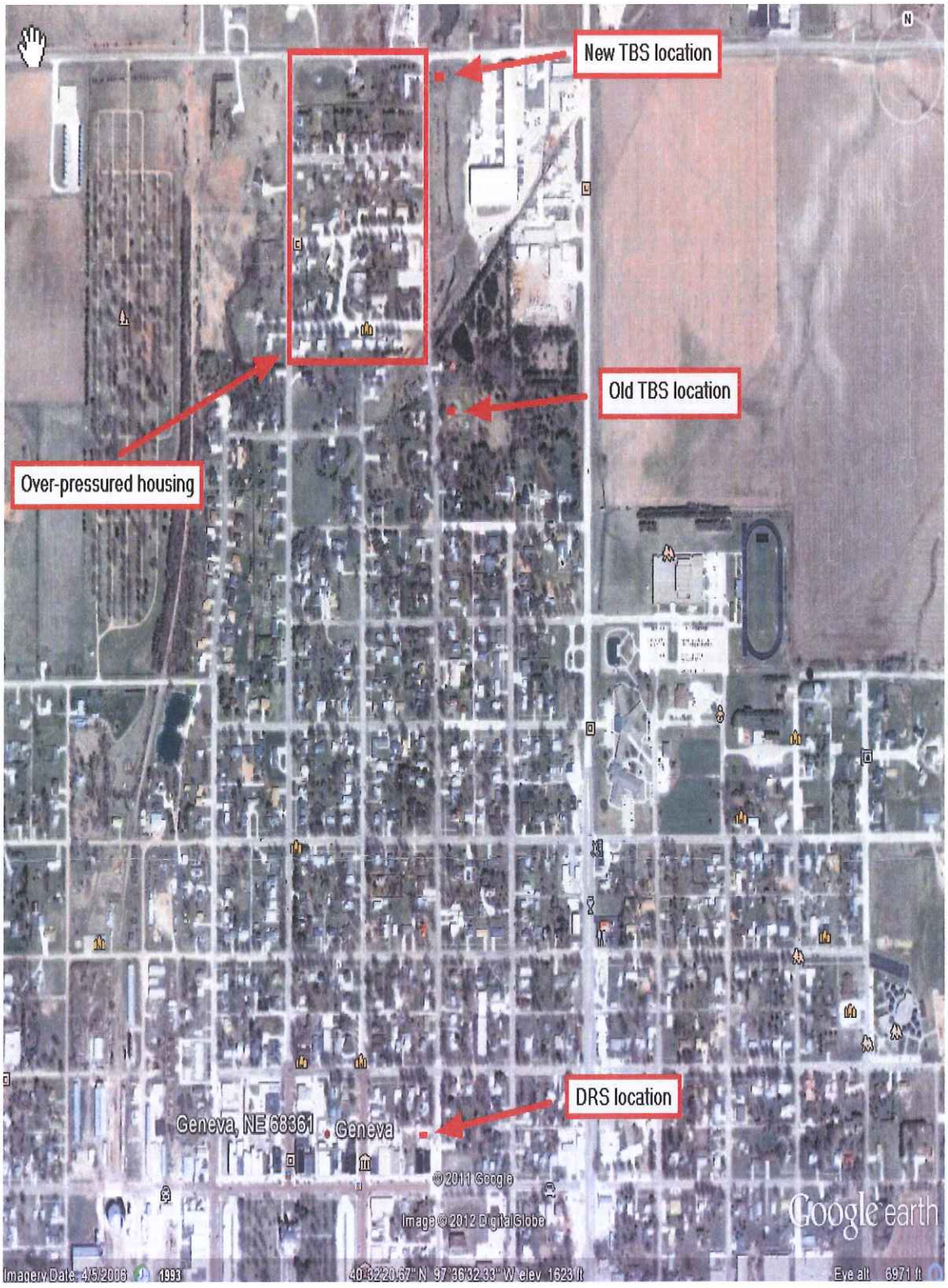
Black Hills will take the following actions to prevent such an occurrence from happening in the future:

1) O&M sections regarding proper construction practices will be covered with all coordinators and operations employees during upcoming fusion certification training in February and March. Special attention will be given to the use of gauges during tie ins and proper use of mapping databases during the job planning process.

Additionally, the Geneva incident will be reviewed with all field employees during annual Emergency plan training conducted in February.

2) Educating field employees on proper use of gauges and following our existing standards regarding pressure monitoring while performing tie-ins.

3) Education will be held for all employees on proper investigation and follow up when district regulator stations are relieving pressure. This would involve contacting a supervisor who will then contact measurement department so that a full investigation of the event can be conducted.


New TBS location
Old TBS location
Over-pressured housing
DRS location
Geneva, NE 68361
Geneva
© 2011 Google
Image © 2012 DigitalGlobe
Google earth
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1993
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Eye alt 6971 ft
N


New TBS location
Over-pressured housing
Old TBS location
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Image © 2012 DigitalGlobe
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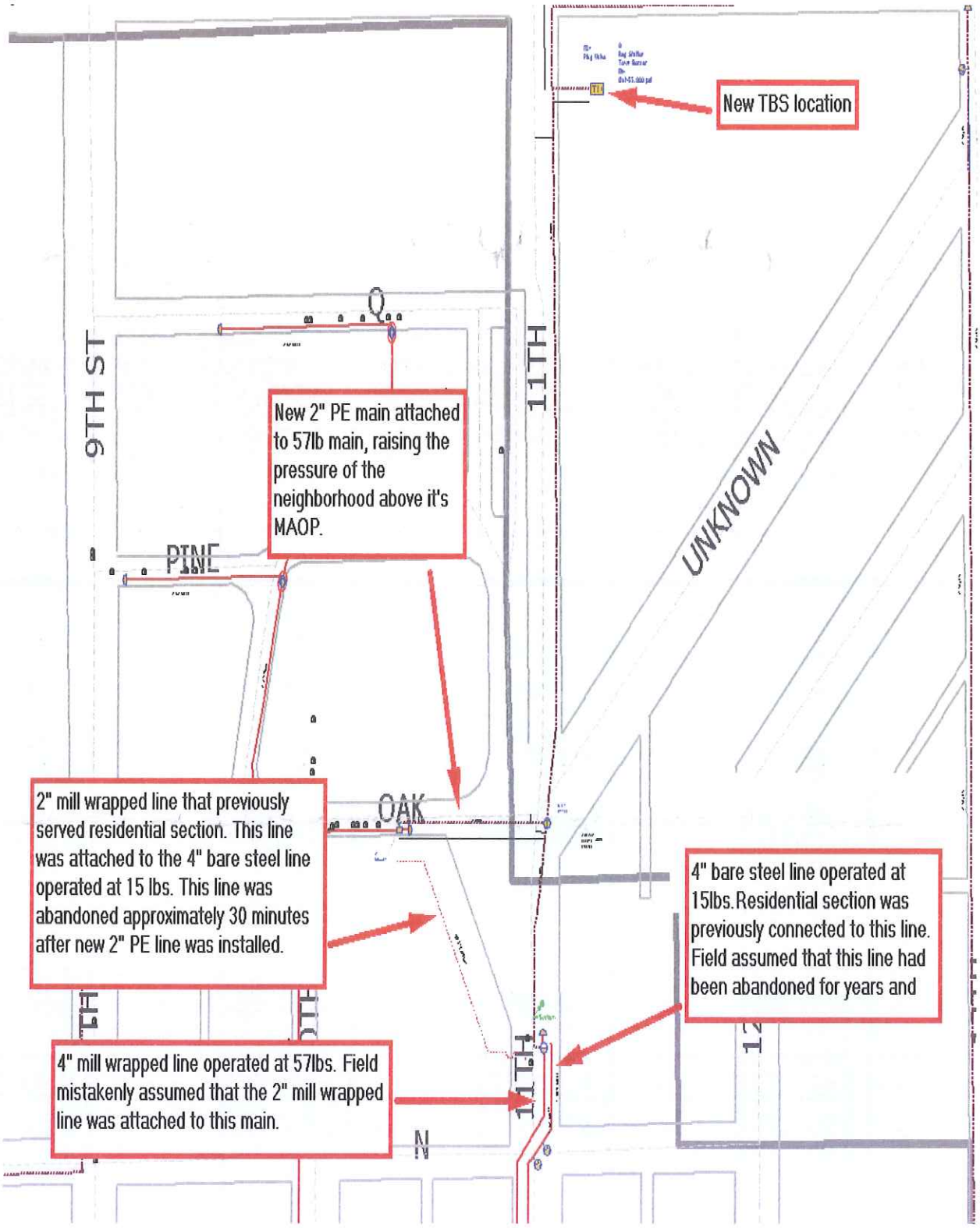
New TBS location
Q
9TH ST
11TH
New 2" PE main attached to 57lb main, raising the pressure of the neighborhood above it's MAOP.
PINE
UNKNOWN
OAK
2" mill wrapped line that previously served residential section. This line was attached to the 4" bare steel line operated at 15 lbs. This line was abandoned approximately 30 minutes after new 2" PE line was installed.
4" bare steel line operated at 15lbs. Residential section was previously connected to this line. Field assumed that this line had been abandoned for years and
4" mill wrapped line operated at 57lbs. Field mistakenly assumed that the 2" mill wrapped line was attached to this main.
11TH
N

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