

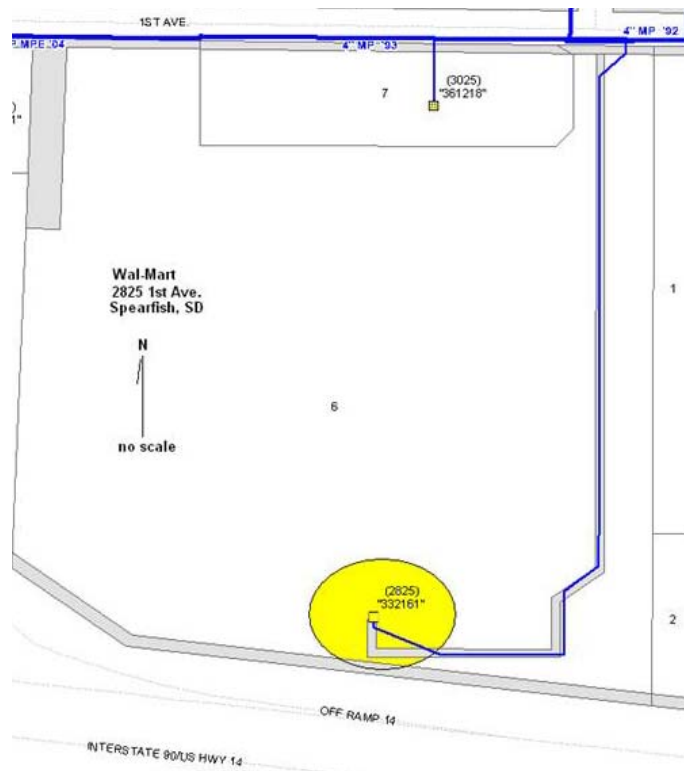
# Memo

To: Chairman Nelson, Vice-Chairman Fiegen, Commissioner Hanson  
From: Joshua Williams  
CC: Patricia Van Gerpen, Kara Semmler, Nathan Solem  
Date: 03/19/2012  
Re: SDPUC Pipeline Safety Staff Report on the Spearfish Pipeline Incident in Docket PS12-001

## Summary of Incident Facts

The following is a summary of the incident facts. The official PHMSA Incident report can be found in Appendix A.

At approximately 5:00am on February 10, 2012, MDU dispatch received a call that a logging truck's pup trailer had struck the Spearfish, SD Supercenter Wal-Mart's meter set and that gas was blowing. The trailer struck the building at approximately 4:50am. By 5:20am the on call technician arrived on scene to assess the damage. By 6:30am, the line had been squeezed off approximately 500' upstream of the meter set. The following is a map of the incident site:



**Figure 1 Pipeline Map**

The trailer, owned by MCS Trucking, traveled approximately 600' to the building through a chain link fence several trees and eventually into the building. Although there were snow flurries in the area that

morning, the road conditions were clear. The temperature was around 10 deg. F and the wind was blowing around 10-15mph. The following figures show the path of the trailer to the building.



**Figure 2 Path of the Trailer from Interstate 90 to Wal-Mart**

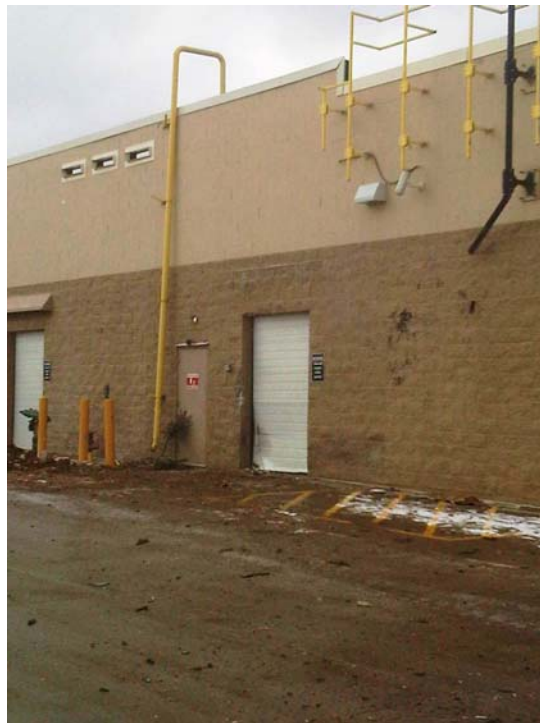


**Figure 3 Path of the Trailer to Wal-Mart from the Approximate Mid-Point**



**Figure 4 Path of the Trailer Viewed from the Approximate Mid-point to Interstate 90**

There were no injuries or deaths associated with this incident, but the property damages were estimated to be around \$100,000. The wall of the building was damaged in several places. These figures show the building damage.



**Figure 5 Customer Piping and Building Damage**

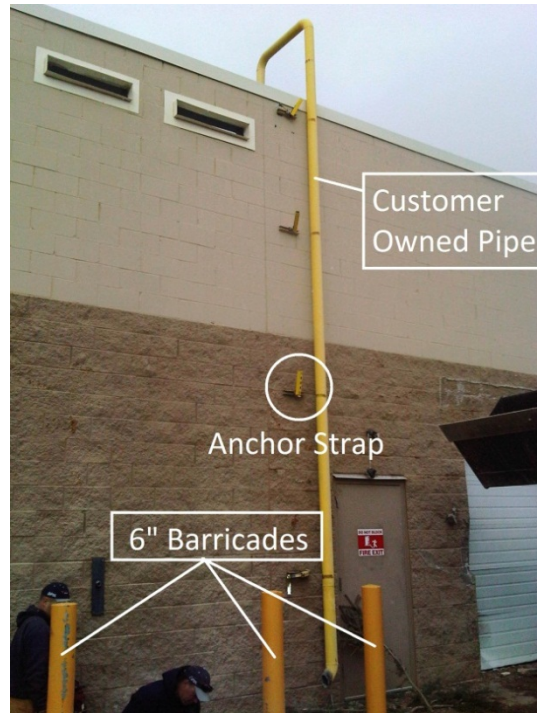


**Figure 6 Wall Damaged by Impact**

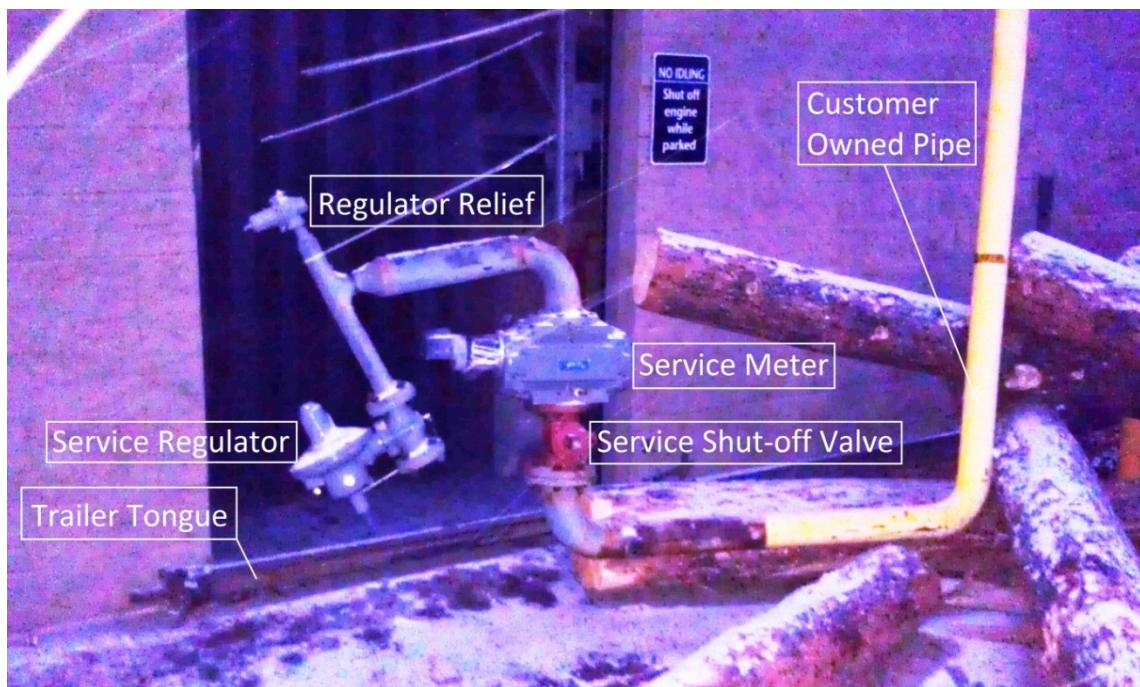


**Figure 7 Wall and Steel Door Damaged by Impact**

The force of the impact was such that all the support straps on the customer owned piping broke and even the mechanical units on the top of the building were shifted. The meter set had three 6" concrete barricades in place to protect it. The tongue of the trailer impacted the utility owned piping and the piping sheared off at the riser. The tongue was able to get behind the barricades while the logs were stopped by the barricades. The following photos illustrate the damage to the customer and utility owned piping.



**Figure 8 Damaged Piping**



**Figure 9 Damaged Piping**

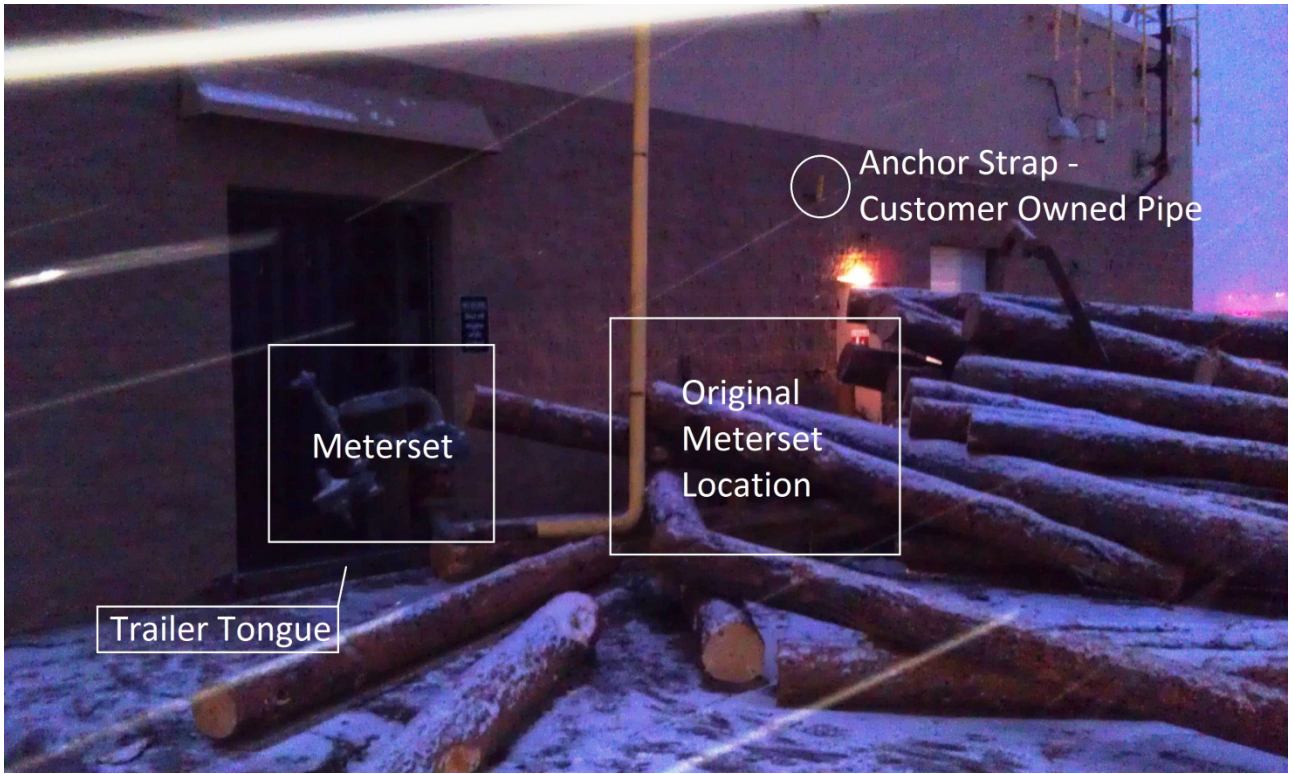
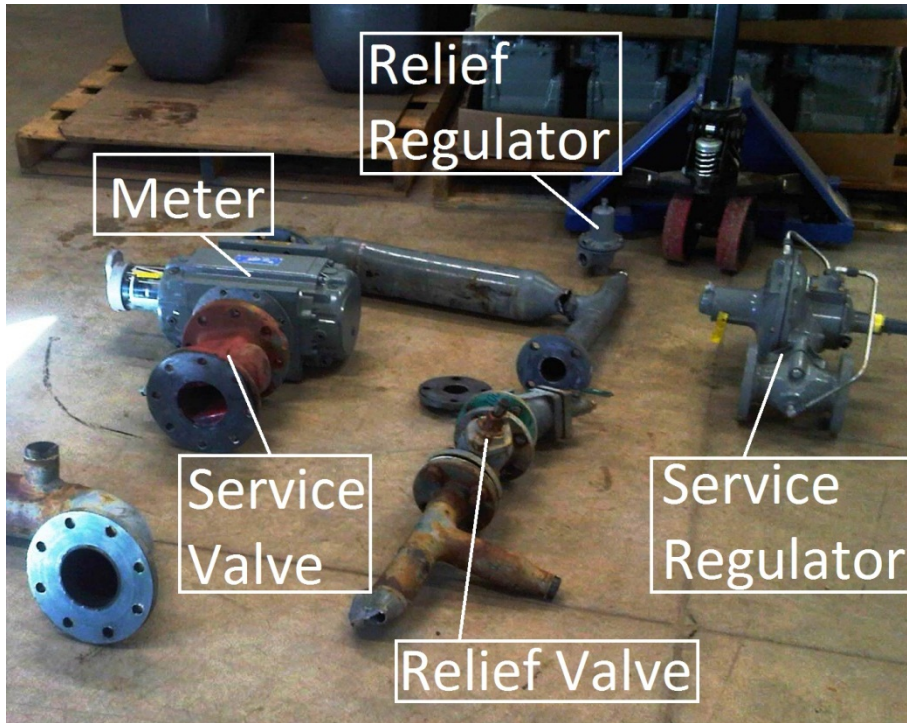


Figure 10 Damaged Piping

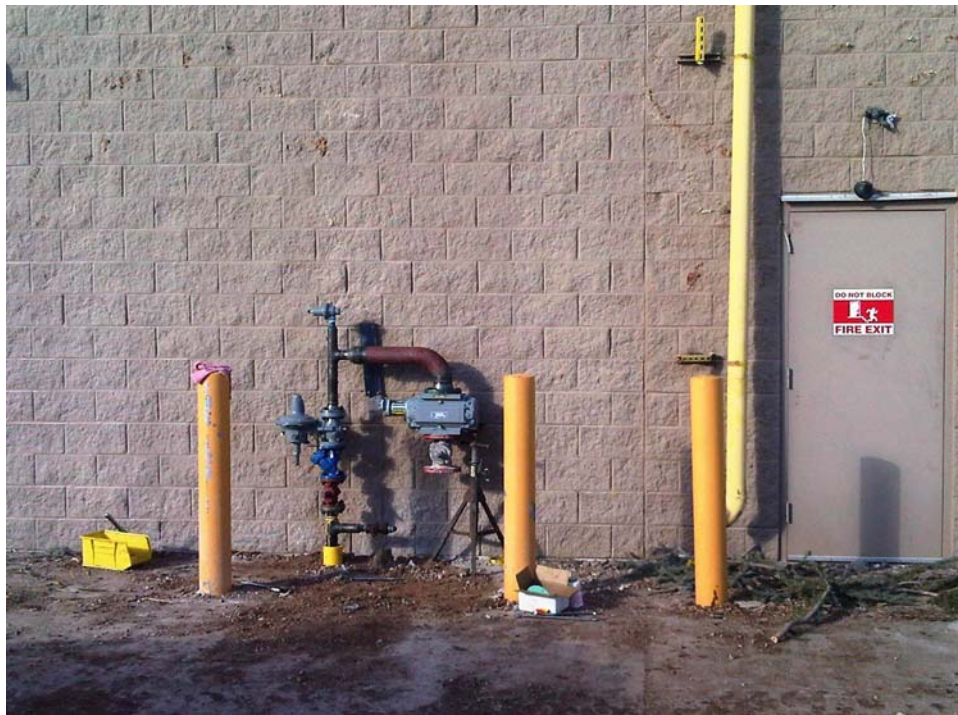


Figure 11 Trailer Tongue Behind the 6" Barricades

After the 2" line was pinched off to stop the flow of gas to the broken meter set, MDU crews removed all the damaged equipment so it could be inspected and replaced everything including the riser, valves, relief, and meter with new components. The following figures show damaged equipment broken down for inspection as well as the new equipment installed. The damaged equipment was broken down and inspected at the Spearfish shop.



**Figure 12 Damaged MDU Pipe Components**



**Figure 13 Repaired Meter set**

## Staff's Role

South Dakota gas pipeline safety staff has two roles in a natural gas incident investigation:

1. Monitor the operator's procedures for determining probable cause and prevention of reoccurrence under 49 CFR 192.617.
2. Determine operator compliance with both Parts 49 CFR 191 and 192 code section and the operator's operations and maintenance standards applicable to the incident.

## Background Information

### ***Definition of a Reportable Incident***

As stated earlier, there were no injuries or deaths associated with this incident, but property damages were estimated to be around \$100,000. It is the property damage that makes this incident reportable under federal code. The definition of a reportable incident can be found in 49 CFR 191.3. It is defined as follows:

"Incident" means any of the following events: (1) An event that involves a release of gas from a pipeline, or of liquefied natural gas, liquefied petroleum gas, refrigerant gas, or gas from an LNG facility, and that results in one or more of the following consequences: (i) A death, or personal injury necessitating in-patient hospitalization; (ii) Estimated property damage of \$50,000 or more, including loss to the operator and others, or both, but excluding cost of gas lost; (iii) Unintentional estimated gas loss of three million cubic feet or more; (2) An event that results in an emergency shutdown of an LNG facility. Activation of an emergency shutdown system for reasons other than an actual emergency does not constitute an incident; (3) An event that is significant in the judgment of the operator, even though it did not meet the criteria of paragraphs (1) or (2) of this definition.

### ***Log Weight Calculator***

While researching for information on logging trailers, a calculator for estimating the weight of a log was found. This calculator can be found using the following web address:

<http://www.woodweb.com/cgi-bin/calculators/calc.pl>

This calculator was created in conjunction with Dr. Gene Wengert, Professor Emeritus in Wood Processing, Department of Forestry, at the University of Wisconsin.

The most common tree logged in the Black Hills is the Ponderosa Pine. Each log was around 10-12 feet long and approximately 10-15" in diameter. Using this information in the calculator, each log weighed around 400-600 lbs. The pup trailer holds around 20-30 of these logs making the total weight of the logs around 5-10 tons.

## Probable Cause

### ***Direct Cause***

The direct cause of the gas release was the tongue of the pup trailer impacting the meter piping at the riser.

### ***MDU's Root Cause Analysis***

MDU filed a formal root cause analysis with the SDPUC and concluded its analysis with the following statement:



The root cause of the incident was a large uncontrolled vehicle striking a well-protected meter set. The primary focus of the investigation was the meter set protection. Although the protection met or exceeded all standards, the meter set was damaged and gas escaped into the atmosphere, including the interior of the store. The meter protection barrier was designed and installed to prevent damage in the event of an anticipated vehicle collision. The random nature of the collision defeated the barrier not because it was weak or misplaced but because of the extreme randomness of the crash.

Likewise, PUC staff conducted their own root cause analysis that can be found in the appendices at the end of this memo. It is staff's opinion that the root cause of the incident lies with MCS trucking and not the operator. The operator had appropriate procedures in place to protect the meter set from vehicular damage. These procedures were followed and the barriers were able to withstand the impact of the logs. Given that around 5-10 tons of logs impacted the barriers without their failing, it is safe to say that adequate barriers are in place. This is in line with MDU's conclusion.

### Prevention of Reoccurrence

MDU states in their analysis document that since this is an isolated incident that no changes to their vehicle protection standards and practices are warranted at this time. Staff concurs with this conclusion. In the event that a similar incident or near miss occurs at this same site, it is recommended that further actions be taken by the operator to further reduce the risk of reoccurrence.

### Compliance Review Results

An onsite inspection was conducted on the day of the incident (02/10/2012). The report is included in the appendices. No compliance violations were found during the investigation of the incident.

MDU filed its necessary reports according to 49 CFR 191. The official NRC and PHMSA reports are included in the appendices.

As a final note, the truck driver was cited with not having brake away brakes installed on the trailer. The Highway Patrol Accident Report is included in the appendices as well.

Appendix A – Hazard Barrier Target Analysis

|                |  |  |  |  |  |  |  |  |  |
|----------------|--|--|--|--|--|--|--|--|--|
| Title:         | PS12-001   |  |  |  |  |  |  |  |  |
| Author:        | Williams   |  |  |  |  |  |  |  |  |
| Status:        | 03/09/2012   |  |  |  |  |  |  |  |  |
| Date:          | 02/10/2012   |  |  |  |  |  |  |  |  |
| Description:   | At 04:50 am on 02/10/2012, a logging pup trailer impacted the meterset on the Spearfish, SD Wal-mart Supercenter. The logging truck was traveling west on I90. The trailer traveled around 600' from the interstate to the meterset. |  |  |  |  |  |  |  |  |
| Last Modified: | 03/05/2012   |  |  |  |  |  |  |  |  |

| Hazard          | Barriers/Controls        | SPS     | DNP | DNU | Fail | DNF | Target   | Evaluation or Comments |
|-----------------|--------------------------|---------|-----|-----|------|-----|----------|------------------------|
| Logging Trailer | 3 - 6" Concrete Barriers | 2, 4, 5 |     |     | X    |     | Meterset | See Comment Below      |
| Logs            | 4 - 6" Concrete Barriers | 2, 4, 5 |     |     |      | X   | Meterset | See Comment Below      |
| Logging Trailer | 600' Between I90 and     | 2, 4, 5 |     |     | X    |     | Meterset | See Comment Below      |
| Logs            | 600' Between I90 and     | 2, 4, 5 |     |     |      | X   | Meterset | See Comment Below      |

**Evaluation / Comment:**  
 There were two barriers barriers to protect against something like this occurring. The first were the three 6" concrete pillars set up in front of the meterset. The second was the fact that the Wal-mart building is around 600' from the interstate. The tongue of the trailer was able to impact the meterset from behind the concrete pillars. On the other hand, the logs impacted the barriers headon and not a single one bypassed the barrier. It is the opinion of the inspector that the barriers already set in place we're adequate to handle normal hazards and even some unique hazards (ie. the logs).

**Key:**  
 SPS - Safety Precedence Sequence Rating  
 DNP - Did Not Provide  
 DNU - Did Not Use  
 DNF - Did Not Fail

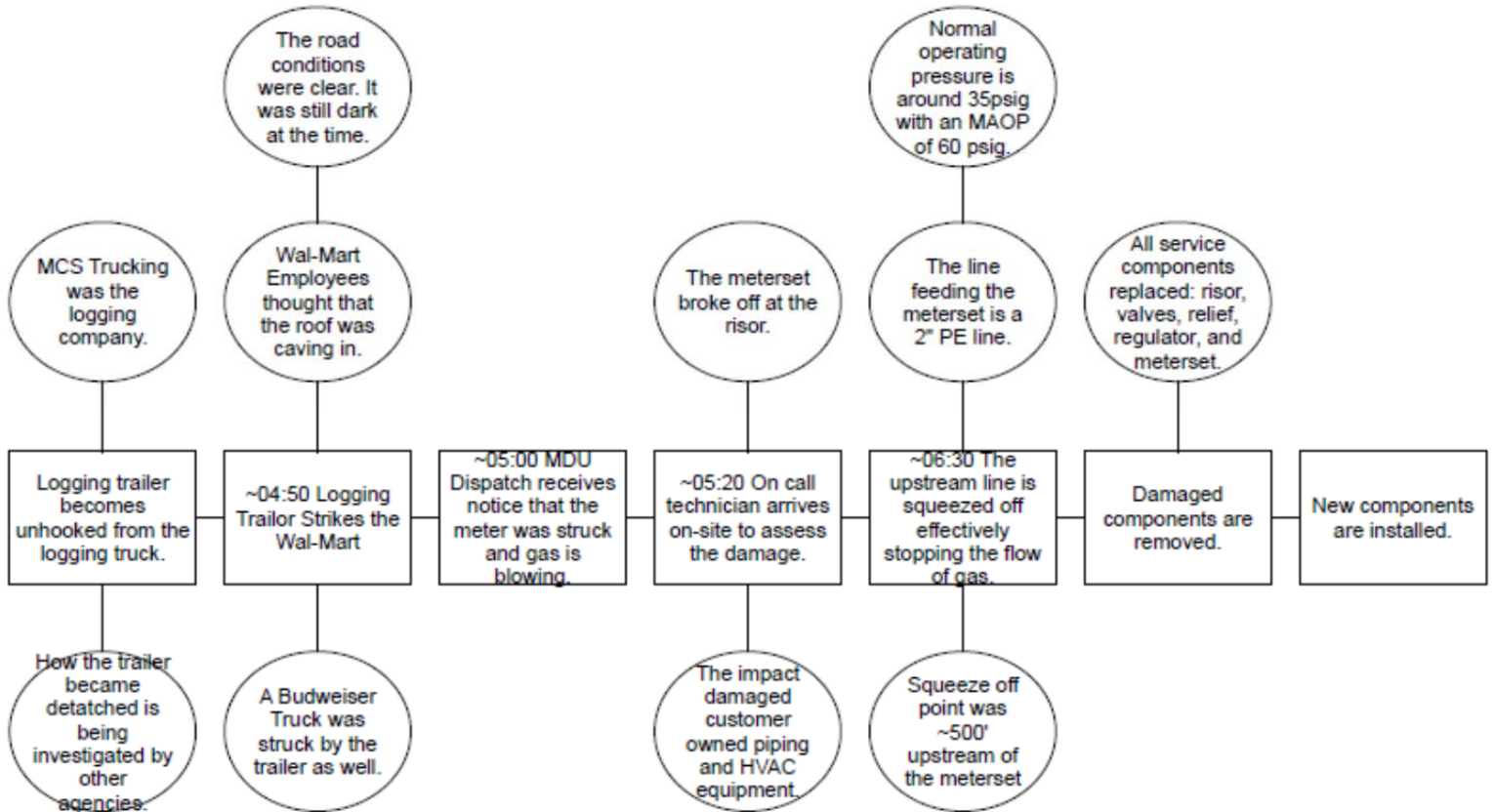
**Safety Precedence Sequence:**  
 1. Design for minimum hazard  
 2. Provide Safety Devices  
 3. Provide Warning Devices  
 4. Control with procedures and training  
 5. Accept remaining residual hazards

Appendix B – Change Analysis

|                |  |  |  |  |  |  |
|----------------|--|--|--|--|--|--|
| Title:         | PS12-001   |  |  |  |  |  |
| Author:        | Williams   |  |  |  |  |  |
| Status:        | 03/09/2012   |  |  |  |  |  |
| Date:          | 02/10/2012   |  |  |  |  |  |
| Description:   | Logging truck pup-trailer became unhooked and struck the meterset at the Spearfish Wal-mart. |  |  |  |  |  |
| Last Modified: | 03/05/2012   |  |  |  |  |  |

| Accident / Mishap Circumstances                            | Safe Circumstances                                    | Differences                        | Effects of Differences                     |
|--|---|------------------------------------|--|
| ---Who---  | ---Who---   | ---Who---                          | ---Who---                                  |
| MDU - Operator   |   | None                               |  |
| MCS Trucking - Logger                                      |   |                                    |  |
| ---What---   | ---What---  | ---What---                         | ---What---                                 |
| Meterset damaged by logging trailer that became unhitched. | Logging trailer stays connected to the logging truck. | Trailer does not become unhitched. | The meterset and building are not damaged. |
| ---When---   | ---When---  | ---When---                         | ---When---                                 |
| 04:50 am; 02/10/2012                                       |   | None                               |  |
| ---Where---  | ---Where---   | ---Where---                        | ---Where---                                |
| Spearfish Wal-Mart   |   |                                    |  |
| ---Ask About---  | ---Ask About---                                       | ---Ask About---                    | ---Ask About---                            |
| ---Work Conditions---                                      | ---Work Conditions---                                 | ---Work Conditions---              | ---Work Conditions---                      |
| Clear but dark at time of impact.                          |   |                                    |  |
| ---Procedures---   | ---Procedures---                                      | ---Procedures---                   | ---Procedures---                           |
| Barricade Procedure  |   |                                    |  |
| ---Hardware---   | ---Hardware---  | ---Hardware---                     | ---Hardware---                             |
| riser  |   |                                    |  |
| valves   |   |                                    |  |
| meter  |   |                                    |  |
| relief valve   |   |                                    |  |
| regulator  |   |                                    |  |
| 3 - 6" Barricades  |   |                                    |  |

# Appendix C – Events and Causal Factors Analysis



## Appendix D – PHMSA Incident Report

NOTICE: This report is required by 49 CFR Part 191. Failure to report can result in a civil penalty not to exceed 100,000 for each violation for each day that such violation persists except that the maximum civil penalty shall not exceed \$1,000,000 as provided in 49 USC 60122.

OMB NO: 2137-0522  
EXPIRATION DATE: 01/31/2014



U.S Department of Transportation  
Pipeline and Hazardous Materials Safety Administration

Report Date:

03/08/2012

No.

20120019- 15415

(DOT Use Only)

### INCIDENT REPORT - GAS DISTRIBUTION SYSTEM

A federal agency may not conduct or sponsor, and a person is not required to respond to, nor shall a person be subject to a penalty for failure to comply with a collection of information subject to the requirements of the Paperwork Reduction Act unless that collection of information displays a current valid OMB Control Number. The OMB Control Number for this information collection is 2137-0522. Public reporting for this collection of information is estimated to be approximately 10 hours per response, including the time for reviewing instructions, gathering the data needed, and completing and reviewing the collection of information. All responses to this collection of information are mandatory. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to: Information Collection Clearance Officer, PHMSA, Office of Pipeline Safety (PHP-30) 1200 New Jersey Avenue, SE, Washington, D.C. 20590.

#### INSTRUCTIONS

**Important:** Please read the separate instructions for completing this form before you begin. They clarify the information requested and provide specific examples. If you do not have a copy of the instructions, you can obtain one from the PHMSA Pipeline Safety Community Web Page at <http://www.phmsa.dot.gov/pipeline>.

#### PART A - KEY REPORT INFORMATION

| Report Type: <i>(select all that apply)</i>  | Original:                     | Supplemental: | Final: |
|--|-------------------------------|---------------|--------|
|  | Yes                           |               | Yes    |
| Last Revision Date   |                               |               |        |
| 1. Operator's OPS-issued Operator Identification Number (OPID):                                    | 12684                         |               |        |
| 2. Name of Operator  | MONTANA - DAKOTA UTILITIES CO |               |        |
| 3. Address of Operator:  |                               |               |        |
| 3a. Street Address   | 400 NORTH FOURTH STREET       |               |        |
| 3b. City   | BISMARCK                      |               |        |
| 3c. State  | North Dakota                  |               |        |
| 3d. Zip Code   | 58501                         |               |        |
| 4. Local time (24-hr clock) and date of the Incident:  | 02/10/2012 05:00              |               |        |
| 5. Location of Incident:   |                               |               |        |
| 5a. Street Address or location description   | 2825 1st Ave.                 |               |        |
| 5b. City   | Spearfish                     |               |        |
| 5c. County or Parish   | Lawrence                      |               |        |
| 5d. State:   | South Dakota                  |               |        |
| 5e. Zip Code:  | 57783                         |               |        |
| 5f. Latitude:  | 44.480445                     |               |        |
| Longitude:   | -103.812254                   |               |        |
| 6. National Response Center Report Number:   | 1002638                       |               |        |
| 7. Local time (24-hr clock) and date of initial telephonic report to the National Response Center: | 02/10/2012 09:41              |               |        |
| 8. Incident resulted from:   | Unintentional release of gas  |               |        |
| 9. Gas released:   | Natural Gas                   |               |        |
| - Other Gas Released Name:   |                               |               |        |
| 10. Estimated volume of gas released - Thousand Cubic Feet (MCF):                                  | 120.00                        |               |        |
| 11. Were there fatalities?   | No                            |               |        |
| - If Yes, specify the number in each category:   |                               |               |        |
| 11a. Operator employees  |                               |               |        |
| 11b. Contractor employees working for the Operator   |                               |               |        |
| 11c. Non-Operator emergency responders   |                               |               |        |
| 11d. Workers working on the right-of-way, but NOT associated with this Operator                    |                               |               |        |
| 11e. General public  |                               |               |        |
| 11f. Total fatalities (sum of above)   |                               |               |        |
| 12. Were there injuries requiring inpatient hospitalization?                                       | No                            |               |        |
| - If Yes, specify the number in each category:   |                               |               |        |
| 12a. Operator employees  |                               |               |        |
| 12b. Contractor employees working for the Operator   |                               |               |        |
| 12c. Non-Operator emergency responders   |                               |               |        |
| 12d. Workers working on the right-of-way, but NOT associated with this Operator                    |                               |               |        |
| 12e. General public  |                               |               |        |
| 12f. Total injuries (sum of above)   |                               |               |        |
| 13. Was the pipeline/facility shut down due to the incident?                                       | Yes                           |               |        |
| - If No, Explain:  |                               |               |        |

|  |  |
|--|--|
| - If Yes, complete Questions 13a and 13b: (use local time, 24-hr clock)  |  |
| 13a. Local time and date of shutdown:  | 02/10/2012 06:30   |
| 13b. Local time pipeline/facility restarted:   | 02/10/2012 17:00   |
| - Still shut down? (* Supplemental Report Required)  |  |
| 14. Did the gas ignite?  | No   |
| 15. Did the gas explode?   | No   |
| 16. Number of general public evacuated:  | 5  |
| 17. Time sequence (use local time, 24-hour clock):   |  |
| 17a. Local time operator identified Incident:  | 02/10/2012 05:00   |
| 17b. Local time operator resources arrived on site:  | 02/10/2012 05:20   |
| <b>PART B - ADDITIONAL LOCATION INFORMATION</b>  |  |
| 1. Was the Incident on Federal land?   | No   |
| 2. Location of Incident  | Private property   |
| 3. Area of Incident:   | Aboveground  |
| Specify:   | Typical aboveground facility piping or appurtenance (e.g. valve or regulator station, outdoor meter set) |
| If Other, Describe:  |  |
| Depth of Cover:  |  |
| 4. Did Incident occur in a crossing?   | No   |
| - If Yes, specify type below:  |  |
| - If Bridge crossing –   |  |
| Cased/ Uncased:  |  |
| - If Railroad crossing –   |  |
| Cased/ Uncased/ Bored/drilled  |  |
| - If Road crossing –   |  |
| Cased/ Uncased/ Bored/drilled  |  |
| - If Water crossing –  |  |
| Cased/ Uncased   |  |
| Name of body of water (If commonly known):   |  |
| Approx. water depth (ft):  |  |
| <b>PART C - ADDITIONAL FACILITY INFORMATION</b>  |  |
| 1. Indicate the type of pipeline system:   | Natural Gas Distribution, privately owned  |
| - If Other, specify:   |  |
| 2. Part of system involved in Incident:  | Outside Meter/Regulator set  |
| - If Other, specify:   |  |
| 2a. Year "Part of system involved in Incident" was installed:  | 2004   |
| Unknown?   |  |
| 3. When "Main" or "Service" is selected as the "Part of system involved in Incident" (from PART C, Question 2), provide the following: |  |
| 3a. Nominal diameter of pipe (in):   |  |
| 3b. Pipe specification (e.g., API 5L, ASTM D2513):   | Unknown?   |
| 3c. Pipe manufacturer:   | Unknown?   |
| 3d. Year of manufacture:   | Unknown?   |
| 4. Material involved in Incident:  | Steel  |
| - If Other, specify:   |  |
| 4a. If Steel, Specify seam type:   | None/Unknown?  |
| 4b. If Steel, Specify wall thickness (inches):   | Unknown?   |
| 4c. If Plastic, Specify type:  | Yes  |
| - If Other, describe:  |  |
| 4d. If Plastic, Specify Standard Dimension Ratio (SDR):  |  |
| Or wall thickness:   |  |
| Unknown?   |  |
| 4e. If Polyethylene (PE) is selected as the type of plastic in Part C, Question 4.c:   |  |
| - Specify PE Pipe Material Designation Code (i.e. 2406, 3408, etc.)  |  |
| Unknown?   |  |
| 5. Type of release involved :  | Other  |
| - If Mechanical Puncture - Specify Approx size:  |  |
| Approx. size: in. (axial):   |  |
| in. (circumferential):   |  |
| - If Leak - Select Type:   |  |

|   |   |
|---|---|
| - If Other, Describe:   |   |
| - If Rupture - Select Orientation:  |   |
| - If Other, Describe:   |   |
| Approx. size: (widest opening):<br>(length circumferentially or axially):   |   |
| - If Other - Describe:  | Meter/Regulator set crushed and pulled off riser by logging trailer.              |
| <b>PART D - ADDITIONAL CONSEQUENCE INFORMATION</b>  |   |
| 1. Class Location of Incident :   | Class 3 Location  |
| 2. Estimated Property Damage :  |   |
| 2a. Estimated cost of public and non-Operator private property damage   | \$ 100,000  |
| 2b. Estimated cost of Operator's property damage & repairs  | \$ 2,500  |
| 2c. Estimated cost of Operator's emergency response   | \$ 5,500  |
| 2d. Estimated other costs   | \$ 0  |
| - Describe:   |   |
| 2e. Total estimated property damage (sum of above)  | \$ 108,000  |
| <b>Cost of Gas Released</b>   |   |
| 2f. Estimated cost of gas released  | \$ 650  |
| 3. Estimated number of customers out of service:  |   |
| 3a. Commercial entities   | 0   |
| 3b. Industrial entities   | 0   |
| 3c. Residences  | 0   |
| <b>PART E - ADDITIONAL OPERATING INFORMATION</b>  |   |
| 1. Estimated pressure at the point and time of the Incident (psig):   | 35.00   |
| 2. Normal operating pressure at the point and time of the Incident (psig):  | 35.00   |
| 3. Maximum Allowable Operating Pressure (MAOP) at the point and time of the Incident (psig):  | 60.00   |
| 4. Describe the pressure on the system relating to the Incident:  | Pressure did not exceed MAOP  |
| 5. Was a Supervisory Control and Data Acquisition (SCADA) based system in place on the pipeline or facility involved in the Incident?   | No  |
| - If Yes:   |   |
| 5a. Was it operating at the time of the Incident?   |   |
| 5b. Was it fully functional at the time of the Incident?  |   |
| 5c. Did SCADA-based information (such as alarm(s), alert(s), event(s), and/or volume or pack calculations) assist with the detection of the Incident?   |   |
| 5d. Did SCADA-based information (such as alarm(s), alert(s), event(s), and/or volume calculations) assist with the confirmation of the Incident?  |   |
| 6. How was the Incident initially identified for the Operator?  | Notification from Emergency Responder   |
| 6a. If "Controller", "Local Operating Personnel, including contractors", "Air Patrol", or "Ground Patrol by Operator or its contractor" is selected in Question 6, specify the following:                   |   |
| - If Other, Specify:  |   |
| 7. Was an investigation initiated into whether or not the controller(s) or control room issues were the cause of or a contributing factor to the Incident?  | No, the facility was not monitored by a controller(s) at the time of the Incident |
| - If No, the operator did not find that an investigation of the controller(s) actions or control room issues was necessary due to: <i>(provide an explanation for why the operator did not investigate)</i> |   |
| - If Yes, Specify investigation result(s) <i>(select all that apply)</i> :  |   |
| - Investigation reviewed work schedule rotations, continuous hours of service (while working for the Operator), and other factors associated with fatigue   |   |
| - Investigation did NOT review work schedule rotations, continuous hours of service (while working for the Operator), and other factors associated with fatigue   |   |
| - Provide an explanation for why not:   |   |
| - Investigation identified no control room issues   |   |
| - Investigation identified no controller issues   |   |
| - Investigation identified incorrect controller action or controller error  |   |
| - Investigation identified that fatigue may have affected the controller(s) involved or impacted the involved controller(s) response  |   |
| - Investigation identified incorrect procedures   |   |
| - Investigation identified incorrect control room equipment operation   |   |



|   |                                 |
|---|---------------------------------|
| - Investigation identified maintenance activities that affected control room operations, procedures, and/or controller response   |                                 |
| - Investigation identified areas other than those above   |                                 |
| Describe:   |                                 |
| <b>PART F - DRUG &amp; ALCOHOL TESTING INFORMATION</b>  |                                 |
| 1. As a result of this Incident, were any Operator employees tested under the post-accident drug and alcohol testing requirements of DOT's Drug & Alcohol Testing regulations?  | No                              |
| - If Yes:   |                                 |
| 1a. Specify how many were tested:   |                                 |
| 1b. Specify how many failed:  |                                 |
| 2. As a result of this Incident, were any Operator contractor employees tested under the post-accident drug and alcohol testing requirements of DOT's Drug & Alcohol Testing regulations?   | No                              |
| - If Yes:   |                                 |
| 2a. Specify how many were tested:   |                                 |
| 2b. Specify how many failed:  |                                 |
| <b>PART G - CAUSE INFORMATION</b>   |                                 |
| <i>Select only one box from PART G in shaded column on left representing the Apparent Cause of the Incident, and answer the questions on the right. Describe secondary, contributing, or root causes of the Incident in the narrative (PART H).</i> |                                 |
| <b>Apparent Cause:</b>  | G4 - Other Outside Force Damage |
| <b>G1 - Corrosion Failure</b> – only one <b>sub-cause</b> can be picked from shaded left-hand column  |                                 |
| <b>Corrosion Failure Sub-Cause:</b>   |                                 |
| <b>- If External Corrosion:</b>   |                                 |
| 1. Results of visual examination:   |                                 |
| - If Other, Specify:  |                                 |
| 2. Type of corrosion:   |                                 |
| - Galvanic  |                                 |
| - Atmospheric   |                                 |
| - Stray Current   |                                 |
| - Microbiological   |                                 |
| - Selective Seam  |                                 |
| - Other   |                                 |
| - If Other, Describe:   |                                 |
| 3. The type(s) of corrosion selected in Question 2 is based on the following:   |                                 |
| - Field examination   |                                 |
| - Determined by metallurgical analysis  |                                 |
| - Other   |                                 |
| - If Other, Describe:   |                                 |
| 4. Was the failed item buried under the ground?   |                                 |
| - If Yes:   |                                 |
| 4a. Was failed item considered to be under cathodic protection at the time of the incident?   |                                 |
| - If Yes, Year protection started:  |                                 |
| 4b. Was shielding, tenting, or disbonding of coating evident at the point of the incident?  |                                 |
| 4c. Has one or more Cathodic Protection Survey been conducted at the point of the incident?   |                                 |
| If "Yes, CP Annual Survey" – Most recent year conducted:  |                                 |
| If "Yes, Close Interval Survey" – Most recent year conducted:   |                                 |
| If "Yes, Other CP Survey" – Most recent year conducted:   |                                 |
| - If No:  |                                 |
| 4d. Was the failed item externally coated or painted?   |                                 |
| 5. Was there observable damage to the coating or paint in the vicinity of the corrosion?  |                                 |
| 6. Pipeline coating type, if steel pipe is involved:  |                                 |
| - If Other, Describe:   |                                 |
| <b>- If Internal Corrosion:</b>   |                                 |
| 7. Results of visual examination:   |                                 |
| - If Other, Describe:   |                                 |
| 8. Cause of corrosion <i>(select all that apply)</i> :  |                                 |
| - Corrosive Commodity   |                                 |

|  |  |
|--|--|
| - Water drop-out/Acid  |  |
| - Microbiological  |  |
| - Erosion  |  |
| - Other  |  |
| - If Other, Specify:   |  |
| 9. The cause(s) of corrosion selected in Question 8 is based on the following: <i>(select all that apply)</i> :  |  |
| - Field examination  |  |
| - Determined by metallurgical analysis   |  |
| - Other  |  |
| - If Other, Describe:  |  |
| 10. Location of corrosion <i>(select all that apply)</i> :   |  |
| - Low point in pipe  |  |
| - Elbow  |  |
| - Drop-out   |  |
| - Other  |  |
| - If Other, Describe:  |  |
| 11. Was the gas/fluid treated with corrosion inhibitor or biocides?  |  |
| 12. Were any liquids found in the distribution system where the Incident occurred?   |  |
| <b>Complete the following if any Corrosion Failure sub-cause is selected AND the "Part of system involved in incident" (from PART C, Question 2) is Main, Service, or Service Riser.</b> |  |
| 13. Date of the most recent Leak Survey conducted  |  |
| 14. Has one or more pressure test been conducted since original construction at the point of the Incident?   |  |
| - If Yes:  |  |
| Most recent year tested:   |  |
| Test pressure:   |  |
| <b>G2 – Natural Force Damage – only one sub-cause can be picked from shaded left-handed column</b>   |  |
| <b>Natural Force Damage – Sub-Cause:</b>   |  |
| <b>- If Earth Movement, NOT due to Heavy Rains/Floods:</b>   |  |
| 1. Specify:  |  |
| - If Other, Specify:   |  |
| <b>- If Heavy Rains/Floods:</b>  |  |
| 2. Specify:  |  |
| - If Other, Specify:   |  |
| <b>- If Lightning:</b>   |  |
| 3. Specify:  |  |
| <b>- If Temperature:</b>   |  |
| 4. Specify:  |  |
| - If Other, Specify:   |  |
| <b>- If High Winds:</b>  |  |
|  |  |
| <b>- Other Natural Force Damage:</b>   |  |
| 5. Describe:   |  |
| <b>Complete the following if any Natural Force Damage sub-cause is selected.</b>   |  |
| 6. Were the natural forces causing the Incident generated in conjunction with an extreme weather event?  |  |
| 6.a If Yes, specify <i>(select all that apply)</i> :   |  |
| - Hurricane  |  |
| - Tropical Storm   |  |
| - Tornado  |  |
| - Other  |  |
| - If Other, Specify:   |  |
| <b>G3 – Excavation Damage – only one sub-cause can be picked from shaded left-hand column</b>  |  |
| <b>Excavation Damage – Sub-Cause:</b>  |  |
| <b>- If Excavation Damage by Operator (First Party):</b>   |  |
|  |  |
| <b>- If Excavation Damage by Operator's Contractor (Second Party):</b>   |  |
|  |  |
| <b>- If Excavation Damage by Third Party:</b>  |  |
|  |  |
| <b>- If Previous Damage due to Excavation Activity:</b>  |  |

|   |  |
|---|--|
| <b>Complete the following ONLY IF the "Part of system involved in Incident" (from Part C, Question 2) is Main, Service, or Service Riser.</b>   |  |
| 1. Date of the most recent Leak Survey conducted  |  |
| 2. Has one or more pressure test been conducted since original construction at the point of the Incident?   |  |
| - If Yes:   |  |
| Most recent year tested:  |  |
| Test pressure:  |  |
| <b>Complete the following if Excavation Damage by Third Party is selected.</b>  |  |
| 3. Did the operator get prior notification of the excavation activity?  |  |
| 3a. If Yes, Notification received from: <i>(select all that apply)</i> :  |  |
| - One-Call System   |  |
| - Excavator   |  |
| - Contractor  |  |
| - Landowner   |  |
| <b>Complete the following mandatory CGA-DIRT Program questions if any Excavation Damage sub-cause is selected.</b>  |  |
| 4. Do you want PHMSA to upload the following information to CGA-DIRT ( <a href="http://www.cga-dirt.com">www.cga-dirt.com</a> )?  |  |
| 5. Right-of-Way where event occurred <i>(select all that apply)</i> :   |  |
| - Public  |  |
| - If Public, Specify:   |  |
| - Private   |  |
| - If Private, Specify:  |  |
| - Pipeline Property/Easement  |  |
| - Power/Transmission Line   |  |
| - Railroad  |  |
| - Dedicated Public Utility Easement   |  |
| - Federal Land  |  |
| - Data not collected  |  |
| - Unknown/Other   |  |
| 6. Type of excavator :  |  |
| 7. Type of excavation equipment :   |  |
| 8. Type of work performed :   |  |
| 9. Was the One-Call Center notified?  |  |
| 9a. If Yes, specify ticket number:  |  |
| 9b. If this is a State where more than a single One-Call Center exists, list the name of the One-Call Center notified:  |  |
| 10. Type of Locator:  |  |
| 11. Were facility locate marks visible in the area of excavation?   |  |
| 12. Were facilities marked correctly?   |  |
| 13. Did the damage cause an interruption in service?  |  |
| 13a. If Yes, specify duration of the interruption:  |  |
| 14. Description of the CGA-DIRT Root Cause <i>(select only the one predominant first level CGA-DIRT Root Cause and then, where available as a choice, the one predominant second level CGA-DIRT Root Cause as well)</i> : |  |
| - Root Cause Description:   |  |
| - If One-Call Notification Practices Not Sufficient, specify:   |  |
| - If Locating Practices Not Sufficient, specify:  |  |
| - If Excavation Practices Not Sufficient, specify:  |  |
| - If Other/None of the Above (explain), specify:  |  |
| <b>G4 - Other Outside Force Damage</b> - only one <b>sub-cause</b> can be selected from the shaded left-hand column   |  |
| <b>Other Outside Force Damage – Sub-Cause:</b>  | Damage by Car, Truck, or Other Motorized Vehicle/Equipment NOT Engaged in Excavation |
| <b>- If Nearby Industrial, Man-made, or Other Fire/Explosion as Primary Cause of Incident:</b>  |  |
| <b>- If Damage by Car, Truck, or Other Motorized Vehicle/Equipment NOT Engaged in Excavation:</b>   |  |
| 1. Vehicle/Equipment operated by:   | Third Party  |
| <b>- If Damage by Boats, Barges, Drilling Rigs, or Other Maritime Equipment or Vessels Set Adrift or Which Have Otherwise Lost Their Mooring:</b>   |  |
| 2. Select one or more of the following IF an extreme weather event was a factor:  |  |
| - Hurricane   |  |
| - Tropical Storm  |  |
| - Tornado   |  |
| - Heavy Rains/Flood   |  |

|   |  |
|---|--|
| - Other   |  |
| - If Other, Specify:  |  |
| <b>- If Routine or Normal Fishing or Other Maritime Activity NOT Engaged in Excavation:</b>   |  |
| <b>- If Electrical Arcing from Other Equipment or Facility:</b>   |  |
| <b>- If Previous Mechanical Damage NOT Related to Excavation:</b>   |  |
| <i>Complete the following ONLY IF the "Part of system involved in Incident" (from Part C, Question 2) is Main, Service, or Service Riser.</i> |  |
| 3. Date of the most recent Leak Survey conducted:   |  |
| 4. Has one or more pressure test been conducted since original construction at the point of the Incident?                                     |  |
| - If Yes:   |  |
| Most recent year tested:  |  |
| Test pressure (psig):   |  |
| <b>- If Intentional Damage:</b>   |  |
| 5. Specify:   |  |
| - If Other, Specify:  |  |
| <b>- If Other Outside Force Damage:</b>   |  |
| 6. Describe:  |  |
| <b>G5 - Pipe, Weld, or Joint Failure</b> - only one <b>sub-cause</b> can be selected from the shaded left-hand column                         |  |
| <b>Pipe, Weld or Joint Failure – Sub-Cause:</b>   |  |
| <b>- If Body of Pipe:</b>   |  |
| 1. Specify:   |  |
| - If Other, Describe:   |  |
| <b>- If Butt Weld:</b>  |  |
| 2. Specify:   |  |
| - If Other, Describe:   |  |
| <b>- If Fillet Weld:</b>  |  |
| 3. Specify:   |  |
| - If Other, Describe:   |  |
| <b>- If Pipe Seam:</b>  |  |
| 4. Specify:   |  |
| - If Other, Describe:   |  |
| <b>- If Threaded Metallic Pipe:</b>   |  |
| <b>- If Mechanical Fitting:</b>   |  |
| 5. Specify the mechanical fitting involved:   |  |
| - If Other, Describe:   |  |
| 6. Specify the type of mechanical fitting:  |  |
| - If Other, Describe:   |  |
| 7. Manufacturer:  |  |
| 8. Year manufactured:   |  |
| 9. Year Installed:  |  |
| 10. Other attributes:   |  |
| 11. Specify the two materials being joined:   |  |
| 11a. First material being jointed:  |  |
| - Steel   |  |
| - Cast/Wrought Iron   |  |
| - Ductile Iron  |  |
| - Copper  |  |
| - Plastic   |  |
| - Unknown   |  |
| - Other   |  |
| - If Other, Specify:  |  |
| 11b. If Plastic, specify:   |  |
| - If Other Plastic, specify:  |  |
| 11c. Second material being joined:  |  |
| - Steel   |  |
| - Cast/Wrought Iron   |  |
| - Ductile Iron  |  |
| - Copper  |  |
| - Plastic   |  |

|   |  |
|---|--|
| - Unknown   |  |
| - Other   |  |
| - If Other, Specify:  |  |
| 11d. If Plastic, specify:   |  |
| - If Other Plastic, Specify:  |  |
| 12. If used on plastic pipe, did the fitting – as designed by the manufacturer – include restraint? |  |
| 12a. If Yes, specify:   |  |
| <b>- If Compression Fitting:</b>  |  |
| 13. Fitting type:   |  |
| 14. Manufacturer:   |  |
| 15. Year manufactured:  |  |
| 16. Year installed:   |  |
| 17. Other attributes:   |  |
| 18. Specify the two materials being joined:   |  |
| 18a. First material being joined:   |  |
| - Steel   |  |
| - Cast/Wrought Iron   |  |
| - Ductile Iron  |  |
| - Copper  |  |
| - Plastic   |  |
| - Unknown   |  |
| - Other   |  |
| - If Other, specify:  |  |
| 18b. If Plastic, specify:   |  |
| - If Other Plastic, specify:  |  |
| 18c. Second material being joined:  |  |
| - Steel   |  |
| - Cast/Wrought Iron   |  |
| - Ductile Iron  |  |
| - Copper  |  |
| - Plastic   |  |
| - Unknown   |  |
| - Other   |  |
| If Other, specify:  |  |
| 18d. If Plastic, specify:   |  |
| - Other Plastic, specify:   |  |
| <b>- If Fusion Joint:</b>   |  |
| 19. Specify:  |  |
| - If Other, Specify:  |  |
| 20. Year installed:   |  |
| 21. Other attributes:   |  |
| 22. Specify the two materials being joined:   |  |
| 22a. First material being joined:   |  |
| - If Other, Specify:  |  |
| 22b. Second material being joined:  |  |
| - If Other, Specify:  |  |
| <b>- If Other Pipe, Weld, or Joint Failure:</b>   |  |
| 23. Describe:   |  |
| <b>Complete the following if any Pipe, Weld, or Joint Failure sub-cause is selected.</b>            |  |
| 24. Additional Factors ( <i>select all that apply</i> ):  |  |
| - Dent  |  |
| - Gouge   |  |
| - Pipe Bend   |  |
| - Arc Burn  |  |
| - Crack   |  |
| - Lack of Fusion  |  |
| - Lamination  |  |
| - Buckle  |  |
| - Wrinkle   |  |
| - Misalignment  |  |
| - Burnt Steel   |  |
| - Other   |  |
| 25. Was the Incident a result of:   |  |
| - Construction defect   |  |
| Specify:  |  |
| - Material defect   |  |

|  |                               |  |
|--|-------------------------------|--|
|  | Specify:                      |  |
|  | - If Other, Specify:          |  |
|  | - Design defect               |  |
|  | - Previous damage             |  |
| 26. Has one or more pressure test been conducted since original construction at the point of the Incident?                           |                               |  |
|  | - If Yes:                     |  |
|  | Most recent year tested:      |  |
|  | Test pressure:                |  |
| <b>G6 - Equipment Failure</b> - only one <b>sub-cause</b> can be selected from the shaded left-hand column                           |                               |  |
| <b>Equipment Failure – Sub-Cause:</b>  |                               |  |
| <b>- If Malfunction of Control/Relief Equipment:</b>   |                               |  |
| 1. Specify:  |                               |  |
|  | - Control Valve               |  |
|  | - Instrumentation             |  |
|  | - SCADA                       |  |
|  | - Communications              |  |
|  | - Block Valve                 |  |
|  | - Check Valve                 |  |
|  | - Relief Valve                |  |
|  | - Power Failure               |  |
|  | - Stopple/Control Fitting     |  |
|  | - Pressure Regulator          |  |
|  | - Other                       |  |
|  | - If Other, Specify:          |  |
| <b>- If Threaded Connection Failure:</b>   |                               |  |
| 2. Specify:  |                               |  |
|  | - If Other, Specify:          |  |
| <b>- If Non-threaded Connection Failure:</b>   |                               |  |
| 3. Specify:  |                               |  |
|  | - If Other, Specify:          |  |
| <b>- If Valve:</b>   |                               |  |
| 4. Specify:  |                               |  |
|  | - If Other, Specify:          |  |
|  | 4a. Valve type:               |  |
|  | 4b. Manufactured by:          |  |
|  | 4c. Year manufactured:        |  |
| <b>- If Other Equipment Failure:</b>   |                               |  |
| 5. Describe:   |                               |  |
| <b>G7 - Incorrect Operation</b> - only one <b>sub-cause</b> can be selected from the shaded left-hand column                         |                               |  |
| <b>Incorrect Operation Sub-Cause:</b>  |                               |  |
| <b>- If Damage by Operator or Operator's Contractor NOT Related to Excavation and NOT due to Motorized Vehicle/Equipment Damage:</b> |                               |  |
| <b>- If Valve Left or Placed in Wrong Position, but NOT Resulting in an Overpressure:</b>  |                               |  |
| <b>- If Pipeline or Equipment Overpressured:</b>   |                               |  |
| <b>- If Equipment Not Installed Properly:</b>  |                               |  |
| <b>- If Wrong Equipment Specified or Installed:</b>  |                               |  |
| <b>- If "Other Incorrect Operation:</b>  |                               |  |
| 1. Describe:   |                               |  |
| <b>Complete the following if any Incorrect Operation sub-cause is selected.</b>  |                               |  |
| 2. Was this Incident related to: (select all that apply)   |                               |  |
|  | - Inadequate procedure        |  |
|  | - No procedure established    |  |
|  | - Failure to follow procedure |  |
|  | - Other                       |  |
|  | - If Other, Describe:         |  |
| 3. What category type was the activity that caused the Incident:   |                               |  |
| 4. Was the task(s) that led to the Incident identified as a covered task in your   |                               |  |

|   |                      |   |  |
|---|----------------------|---|--|
| Operator Qualification Program?   |                      |   |  |
| 4a. If Yes, were the individuals performing the task(s) qualified for the task(s)?  |                      |   |  |
| <b>G8 - Other Incident Cause</b> - only one <b>sub-cause</b> can be selected from the shaded left-hand column   |                      |   |  |
| <b>Other Incident Cause – Sub-Cause:</b>  |                      |   |  |
| <b>- If Miscellaneous:</b>  |                      |   |  |
| 1. Describe:  |                      |   |  |
| <b>- If Unknown:</b>  |                      |   |  |
| 2. Specify:   |                      |   |  |
| <b>PART H - NARRATIVE DESCRIPTION OF THE INCIDENT</b>   |                      |   |  |
| A logging truck was traveling west along I-90 thru Spearfish. The trailer de-coupled from the truck, careened down the off-ramp, down the ditch, thru the fence, and crashed into the Wal-Mart building and the meter/regulator set. The subsequent crashed broke the meter/regulator set off the riser and pulled on downstream piping moving and damaging rooftop HVAC units. |                      |   |  |
| <table border="1"> <tr> <td><b>File Full Name</b> Note: The users have to sign in to view the attachment if there is no current user session.</td> </tr> <tr> <td> </td> </tr> </table>   |                      | <b>File Full Name</b> Note: The users have to sign in to view the attachment if there is no current user session. |  |
| <b>File Full Name</b> Note: The users have to sign in to view the attachment if there is no current user session.   |                      |   |  |
|   |                      |   |  |
| <b>PART I - PREPARER AND AUTHORIZED SIGNATURE</b>   |                      |   |  |
| Preparer's Name   | Ricky Schatz         |   |  |
| Preparer's Title  | Staff Engineer       |   |  |
| Preparer's Telephone Number   | 701-222-7768         |   |  |
| Preparer's E-mail Address   | ricky.schatz@mdu.com |   |  |
| Preparer's Facsimile Number   | 701-222-7853         |   |  |
| Authorized Signature  |                      |   |  |
| Authorize Signature's Name  | Ricky Schatz         |   |  |
| Authorized Signature's Title  | Staff Engineer       |   |  |
| Authorized Signature Telephone Number   | 701-222-7768         |   |  |
| Authorized Signature's Email Address  | ricky.schatz@mdu.com |   |  |
| Date  | 03/08/2012           |   |  |

## Appendix E – NRC Incident Report



NATIONAL RESPONSE CENTER 1-800-424-8802

\*\*\* For Public Use \*\*\*

Information released to a third party shall comply with any applicable federal and/or state Freedom of Information and Privacy Laws

Incident Report # 1002638

INCIDENT DESCRIPTION

\*Report taken at 10:41 on 10-FEB-12

Incident Type: PIPELINE

Incident Cause: OTHER

Affected Area:

The incident was discovered on 10-FEB-12 at 06:00 local time.

Affected Medium: AIR

SUSPECTED RESPONSIBLE PARTY

XX

Type of Organization: UNKNOWN

INCIDENT LOCATION

2825 1ST AVE. County: LAWRENCE

City: SPEARFISH State: SD Zip: 57783

Latitude: 44° 28' 49" N

Longitude: 103° 48' 44" W

WALMART STORE

RELEASED MATERIAL(S)

CHRIS Code: ONG Official Material Name: NATURAL GAS

Also Known As:

Qty Released: 120000 CUBIC FEET

DESCRIPTION OF INCIDENT

//////WEB REPORT////// A LOGGING TRUCK DE-COUPLED VEERED OFF THE INTERSTATE AND CAREENED INTO THE METER/REGULATOR SET OF THE WALMART STORE IN SPEARFISH SD CAUSING A RELEASE OF NATURAL GAS TO ATMOSPHERE.

INCIDENT DETAILS

Pipeline Type: DISTRIBUTION

DOT Regulated: YES

Pipeline Above/Below Ground: ABOVE

Exposed or Under Water: NO

Pipeline Covered: UNKNOWN

DAMAGES

Fire Involved: NO Fire Extinguished: UNKNOWN

INJURIES: NO Hospitalized: Empl/Crew: Passenger:

FATALITIES: NO Empl/Crew: Passenger: Occupant:

EVACUATIONS: YES Who Evacuated: EMPLOYEES Radius/Area:

Damages: YES \$50000

| <u>Closure Type</u> | <u>Description of Closure</u> | <u>Length of Closure</u> | <u>Direction of Closure</u> |
|---------------------|-------------------------------|--------------------------|-----------------------------|
| Air:                | N                             |                          |                             |
| Road:               | N                             |                          | Major                       |

Major  
Antennae: N

Waterway: N

Track: N

Passengers Transferred: NO  
Environmental Impact: UNKNOWN

Media Interest: NONE Community Impact due to Material:

REMEDIAL ACTIONS

SERVICE LINE DUG UP IN REMOTE LOCATION AND SQUEEZED OFF.  
Release Secured: YES  
Release Rate: 60000 CUBIC FEET per HOUR  
Estimated Release Duration: 2 HOUR

WEATHER

Weather: SNOWY, 10°F Wind speed: 50 MPH Wind direction: W

ADDITIONAL AGENCIES NOTIFIED

Federal: N/A  
State/Local: SD PUC  
State/Local On Scene: NO  
State Agency Number: N/A

NOTIFICATIONS BY NRC

USCG ICC (ICC ONI)  
10-FEB-12 11:15  
CGIS RAO ST. LOUIS (COMMAND CENTER)  
10-FEB-12 11:15  
BUREAU OF LAND MANAGEMENT (SURFACE COMPLIANCE TECH)  
10-FEB-12 11:15  
DOT CRISIS MANAGEMENT CENTER (MAIN OFFICE)  
10-FEB-12 11:15  
U.S. EPA VIII (MAIN OFFICE)  
10-FEB-12 11:17  
USCG NATIONAL COMMAND CENTER (MAIN OFFICE)  
10-FEB-12 11:17  
NE INFORMATION ANALYSIS CENTER (MAIN OFFICE)  
10-FEB-12 11:15  
NATIONAL INFRASTRUCTURE COORD CTR (MAIN OFFICE)  
10-FEB-12 11:15  
NOAA RPTS FOR SD (MAIN OFFICE)  
10-FEB-12 11:15  
NATIONAL RESPONSE CENTER HQ (MAIN OFFICE)  
10-FEB-12 11:17  
NTSB PIPELINE (MAIN OFFICE)  
10-FEB-12 11:15  
PIPELINE & HAZMAT SAFETY ADMIN (OFFICE OF PIPELINE SAFETY (AUTO))  
10-FEB-12 11:15  
SOUTH DAKOTA DENR (MAIN OFFICE)  
10-FEB-12 11:15  
DOI/OEPC DENVER (MAIN OFFICE)  
10-FEB-12 11:15  
USCG DISTRICT 8 (MAIN OFFICE)  
10-FEB-12 11:15  
WEB REPORT (WEB REPORT SUBMITTER)  
10-FEB-12 11:15

ADDITIONAL INFORMATION

LOGGING TRAILER STRUCK AND BROKE THE THE METER SET OFF THE RISER AND PULLED  
DOWNSTREAM PIPING AWAY FROM BUILDING AND MOVED ROOFTOP HVAC UNITS. \*\*\*\*\*REPORT  
RECEIVED VIA NRC WEBSITE\*\*\*\*\*

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\*\*\* END INCIDENT REPORT # 1002638 \*\*\*

The National Response Center is strictly an initial report taking agency and does not participate in the investigation or incident response. The NRC receives initial reporting information only and notifies Federal and State On-Scene Coordinators for response. The NRC does not verify nor does it take follow-on incident information. Verification of data and incident response is the sole responsibility of Federal/State On-Scene Coordinators. Data contained within the FOIA Web Database is initial information only. All reports provided via this server are for informational purposes only. Data to be used in legal proceedings must be obtained via written correspondence from the NRC.

## Appendix F – Highway Patrol Accident Report

1201313 02/10/2012 4:45:00AM City - Spearfish

LAWRENCE County

CHANSEY J FORD - South Dakota Highway Patrol

Photos taken

On I 90 W 0.33 Miles East of US HWY 14A

Road: I 90 W MRM: 0.00 Non-junction

Nearest crossing:

Intersection:

Latitude: 0.000000 Longitude: 0.000000

FHE: Parked motor vehicle

FHE Loc: Roadside

Road Cond: Snow

Manner of Collision: No collision between 2 MV in transport

Surface Type: Asphalt (blacktop)

Lighting: Dark - roadway not lighted

Trafficway: Two-way, divided, unprotected ( painted >4 feet ) median

School bus related: No (school bus not involved)

Road Alignment: Straight and level

Work zone related: No

Work zone location: Not applicable

Workers present: No

Work zone type: Not applicable

Weather

Snow

Unit: 1 1997 PET 378

Plate: PR20009

Plate State: SD

Owner: CURRIER, MICHAEL WILLIAM JR.  
1912 RIVERVIEW CIR  
SPEARFISH, SD 57783

Unit type: Motor vehicle in transport with driver

Cargo body: Flatbed

Occupants: 1

VIN: 1NPFLB9X0VD430696

Veh config: Truck pulling trailer(s) - GCWR 10,001 lbs or more

Maneuver: Straight ahead

Hit and run: No

Vehicle towed: Yes

Initial point of impact: Front

Most damaged area: Front

Damage extent: Disabling damage

Underride/override: None - no underride or override

Traffic device: No controls

Vision Contrib: None

MHE: Other fixed object ( wall, building, tunnel, etc. )

Veh Contrib: Truck coupling / trailer hitch / safety chains

Damage Amt: \$8,000.00

Road Contrib: None

Trailer: Pup trailer

Est Speed: 50 Driver statement Speed Limit: 75

Travel Dir: Westbound

Insurance: OTHER

Policy: GWP90019A

Effective: 10/24/2011

Expiration: 11/01/2012

Carrier: 2204644 MIKE CURRIER

1912 RIVERVIEW CIR

SPEARFISH SD 57783

Haz mat released: No

GVWR: 26,001 GCWR: 26,001

Events

Separation of units Cargo/equipment loss or shift Parked motor vehicle

Other fixed object ( wall, building, tunnel, etc. )

Unit: 2 1994 PET CONVENTIONAL

Plate: 23192C

Plate State: SD

Owner: ENGLE SALES OF THE BLACK HILLS,  
231 E. MAIN ST  
RAPID CITY, SD 57701

Unit type: Motor vehicle - parked

Cargo body: Van/enclosed box

Occupants: 0

VIN: 1XPNAD8X3XS502414

Veh config: Tractor/semi-trailer

Maneuver: Parked

Hit and run: Not applicable

Vehicle towed: Yes

Initial point of impact: Rear

Most damaged area: Rear

Damage extent: Disabling damage

Underride/override: Not applicable

Traffic device: Not applicable

Vision Contrib: Not applicable

MHE: Not applicable

Veh Contrib: Not applicable

Damage Amt: \$10,000.00  
Trailer: Semi-trailer/double/triple  
Travel Dir: Not on roadway/parked  
Insurance: OTHER  
Effective: 01/01/2012

Road Contrib: Not applicable  
Est Speed: Not applicable Speed Limit: 0  
Policy: L52583DND  
Expiration: 01/01/2013

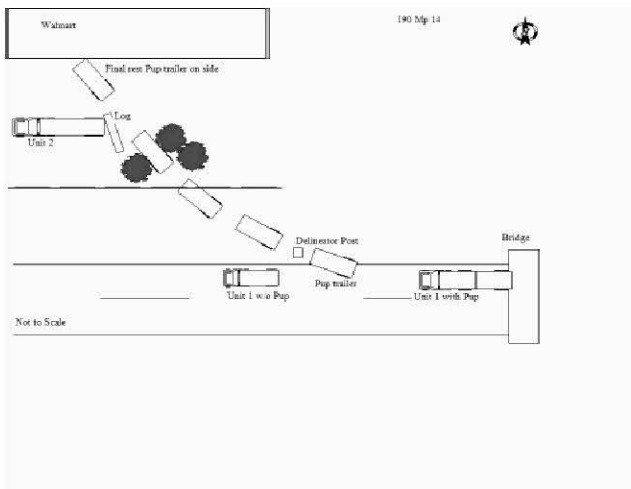
**Events**

Not applicable Not applicable Not applicable  
Not applicable

|   |   |  |
|---|---|--|
| <b>Unit 1</b> CURRIER, MICHAEL WILLIAM JR.<br>1912 RIVERVIEW CIR<br>SPEARFISH SD 57783<br>DL: SD *****3625<br><br>Age: 34<br>Airbag: Not deployed<br>Seating: Operator<br>No drug use<br>Drug test not given<br><br>Driver Contrib<br>None<br>Other | No injury<br>Phone: (605) 645-8899<br>DL Class: A3<br><br>DOB: 01/15/1978<br>Ejection: Not ejected<br>Safety Equip: Lap belt and shoulder harness used<br>No alcohol use<br>Test not given<br><br>Nonmot Contrib  | Male<br>Not transported<br><br>DL Status: Normal, w/in restrictions                |
| <b>Unit 2</b> PARKED,<br><br>DL:<br>Age: 111<br>Airbag: Not applicable<br>Seating: Not applicable<br>Drug use not reported<br>Drug test info not reported<br><br>Driver Contrib<br>Not applicable   | No injury<br>Phone:<br>DL Class:<br>DOB: 01/01/1901<br>Ejection: Not applicable ( motorcycle, snowmobile, ped. pedalcyclist, etc. )<br>Safety Equip: Not applicable<br>Alcohol use not reported<br>Alcohol test info not reported<br><br>Nonmot Contrib | Unknown<br>Not transported<br><br>DL Status: Not applicable<br><b>NO CITATIONS</b> |

**Unit 1** CURRIER, MICHAEL WILLIAM JR.  
49-28-63 Failure to follow Interstate Motor Carrier regulations.

| Damaged Objects   |                                 |
|---|---------------------------------|
| WALMART SUPERCENTER<br>2825 1ST AVE<br>SPEARFISH SD 57783 | \$25,000.00<br>WALMART BUILDING |
| SD DOT<br>700 E BROADWAY<br>PIERRE SD 57501               | \$300.00<br>FENCE               |
| SD DOT<br>700 E BROADWAY<br>PIERRE SD 57501               | \$75.00<br>DELINEATOR POST      |



UNIT ONE WAS TRAVELING WEST BOUND ON INTERSTATE 90 NEAR MILE MARKER 14. UNIT ONE IS LOG SEMI PULLING A PUP TRAILER LOADED WITH LOGS. THE DRIVER OF UNIT ONE STATED HE TRAVELED OVER A ROUGH BRIDGE. AS THE SEMI AND PUP TRAILER WENT OVER THE BRIDGE THE DRIVER STATED HE FELT THE PUP TRAILER BOUNCE AND JERK. THE DRIVER STATED HE CONTINUED TO EXIT FOURTEEN WHERE HE STOPPED TO CHECK HIS LOAD. AT THAT POINT THE DRIVER NOTICED THE PUP TRAILER HAD COME UNHOOKED AND WAS GONE. THE PUP TRAILER, LOADED WITH LOGS, CAME UNHOOKED NEAR MILE MARKER 14. THE TRAILER TRAVELED INTO THE NORTH DITCH STRIKING A DELINEATOR POST AND CONTINUED ON. THE TRAILER THEN WENT THROUGH A FENCE AND THE WALMART LANDSCAPING AREA. A LOG HAD FALLEN OFF AND COLLIDED WITH A PARKED BUD LIGHT TRAILER (UNIT TWO), NO DRIVER. CAUSING APPROXIMATELY \$10,000 DAMAGE TO THE BUD LIGHT TRAILER. THE PUP TRAILER THEN COLLIDED WITH THE WALMART BUILDING. WHEN THE TRAILER COLLIDED WITH THE BUILDING IT ALSO HIT THE GAS LINE. THE MANAGER OF WALMART STATED THERE WAS ABOUT \$250,000 DAMAGE DONE TO THE BUILDING. UNIT ONE IS INSURED WITH QUALITY TRUCKING INSURANCE. MOTOR CARRIER OFFICER MOSER CITED THE DRIVER OF UNIT ONE FOR NO BRAKE AWAY BRAKES ON THE PUP TRAILER. UNIT TWO IS INSURED WITH WESTERN DAKOTA INSURANCE. C & C TOWING TOWED THE DAMAGED TRAILER FROM THE SCENE.

## Appendix G – Staff On-site Investigation Report



# Pipeline Failure Investigation Report

Pipeline System: Service Riser and Meterset Operator: MDU  
Location: Spearfish, SD Date of Occurrence: 02/10/2012  
Medium Released: Natural Gas Quantity: 120 mcf (Approx)

PHMSA Arrival Time & Date: 13:30 MST Total Damages \$ >\$50,000

Investigation Responsibility:  State  PHMSA  NTSB Other \_\_\_\_\_

Company Reported Apparent Cause:  Corrosion  Excavation  
 Natural Forces  Incorrect Operation  Other Outside Force Damage  
 Material and/or Welds  Equipment and Operations  Other \_\_\_\_\_

Rupture  Yes  No  
Leak  Yes  No  
Fire  Yes  No  
Explosion  Yes  No  
Evacuation  Yes  No Number of Persons >20 Area Wal-Mart Supercenter

## Narrative Summary

Short summary of the incident/accident which will give interested persons sufficient information to make them aware of the basic scenario and facts.

Damage to the pipeline facilities occurred at approximately 04:50 MST. The damage was created by a logging truck's pup trailer that became detached on I90. The MDU call center received a call from emergency dispatch around 05:00 MST. On-call technician arrived on scene around 05:20 MST to assess the damages. Around 06:30 MST, the plastic service line was squeezed off approx. 500' upstream.

Region/State South Dakota Reviewed by: \_\_\_\_\_  
Principal Investigator: Joshua Williams Title: \_\_\_\_\_  
Date: 02/10/2012 Date: \_\_\_\_\_

# Pipeline Failure Investigation Report

| Failure Location & Response  |  |  |                                       |                         |                         |            |                             |   |  |                                       |                                    |   |  |  |  |   |  |  |                                       |                                       |  |  |  |   |  |  |
|--|--|--|---------------------------------------|-------------------------|-------------------------|------------|-----------------------------|---|--|---------------------------------------|------------------------------------|---|--|--|--|---|--|--|---------------------------------------|---------------------------------------|--|--|--|---|--|--|
| Location (City, Township, Range, County/Parish):<br><span style="color: red;">Spearfish, SD</span>   |  | (Acquire Map)  |                                       |                         |                         |            |                             |   |  |                                       |                                    |   |  |  |  |   |  |  |                                       |                                       |  |  |  |   |  |  |
| Address or M.P. on Pipeline: <sup>(1)</sup><br><span style="color: red;">2825 1st Avenue</span>  | Type of Area (Rural, City): <sup>(1)</sup><br><span style="color: red;">City</span>            |  |                                       |                         |                         |            |                             |   |  |                                       |                                    |   |  |  |  |   |  |  |                                       |                                       |  |  |  |   |  |  |
| Date: <span style="color: red;">02/10/2012</span>  | Time of Failure: <span style="color: red;">04:47 MST</span>                                    |  |                                       |                         |                         |            |                             |   |  |                                       |                                    |   |  |  |  |   |  |  |                                       |                                       |  |  |  |   |  |  |
| Time Detected: <span style="color: red;">04:47 MST</span>  | Time Located: <span style="color: red;">04:47 MST</span>                                       |  |                                       |                         |                         |            |                             |   |  |                                       |                                    |   |  |  |  |   |  |  |                                       |                                       |  |  |  |   |  |  |
| How Located:<br><span style="color: red;">Damage occurred on above ground facilities.</span>   |  |  |                                       |                         |                         |            |                             |   |  |                                       |                                    |   |  |  |  |   |  |  |                                       |                                       |  |  |  |   |  |  |
| NRC Report #: <span style="color: red;">1002638</span>   | (Attach Report) Time Reported to NRC:<br><span style="color: red;">02/10/2012 09:41 MST</span> | Reported by:   |                                       |                         |                         |            |                             |   |  |                                       |                                    |   |  |  |  |   |  |  |                                       |                                       |  |  |  |   |  |  |
| <b>Type of Pipeline:</b> <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><b>Gas Distribution</b></td> <td style="text-align: center;"><b>Gas Transmission</b></td> <td style="text-align: center;"><b>Hazardous Liquid</b></td> <td style="text-align: center;"><b>LNG</b></td> </tr> <tr> <td><input type="checkbox"/> LP</td> <td><input type="checkbox"/> Interstate Gas</td> <td><input type="checkbox"/> Interstate Liquid</td> <td><input type="checkbox"/> LNG Facility</td> </tr> <tr> <td><input type="checkbox"/> Municipal</td> <td><input type="checkbox"/> Intrastate Gas</td> <td><input type="checkbox"/> Intrastate Liquid</td> <td></td> </tr> <tr> <td><input checked="" type="checkbox"/> Public Utility</td> <td><input type="checkbox"/> Jurisdictional Gas Gathering</td> <td><input type="checkbox"/> Offshore Liquid</td> <td></td> </tr> <tr> <td><input type="checkbox"/> Master Meter</td> <td><input type="checkbox"/> Offshore Gas</td> <td><input type="checkbox"/> Jurisdictional Liquid Gathering</td> <td></td> </tr> <tr> <td></td> <td><input type="checkbox"/> Offshore Gas - High H<sub>2</sub>S</td> <td><input type="checkbox"/> CO<sub>2</sub></td> <td></td> </tr> </table> |  |  | <b>Gas Distribution</b>               | <b>Gas Transmission</b> | <b>Hazardous Liquid</b> | <b>LNG</b> | <input type="checkbox"/> LP | <input type="checkbox"/> Interstate Gas | <input type="checkbox"/> Interstate Liquid | <input type="checkbox"/> LNG Facility | <input type="checkbox"/> Municipal | <input type="checkbox"/> Intrastate Gas | <input type="checkbox"/> Intrastate Liquid |  | <input checked="" type="checkbox"/> Public Utility | <input type="checkbox"/> Jurisdictional Gas Gathering | <input type="checkbox"/> Offshore Liquid |  | <input type="checkbox"/> Master Meter | <input type="checkbox"/> Offshore Gas | <input type="checkbox"/> Jurisdictional Liquid Gathering |  |  | <input type="checkbox"/> Offshore Gas - High H <sub>2</sub> S | <input type="checkbox"/> CO <sub>2</sub> |  |
| <b>Gas Distribution</b>  | <b>Gas Transmission</b>  | <b>Hazardous Liquid</b>                                  | <b>LNG</b>                            |                         |                         |            |                             |   |  |                                       |                                    |   |  |  |  |   |  |  |                                       |                                       |  |  |  |   |  |  |
| <input type="checkbox"/> LP  | <input type="checkbox"/> Interstate Gas  | <input type="checkbox"/> Interstate Liquid               | <input type="checkbox"/> LNG Facility |                         |                         |            |                             |   |  |                                       |                                    |   |  |  |  |   |  |  |                                       |                                       |  |  |  |   |  |  |
| <input type="checkbox"/> Municipal   | <input type="checkbox"/> Intrastate Gas  | <input type="checkbox"/> Intrastate Liquid               |                                       |                         |                         |            |                             |   |  |                                       |                                    |   |  |  |  |   |  |  |                                       |                                       |  |  |  |   |  |  |
| <input checked="" type="checkbox"/> Public Utility   | <input type="checkbox"/> Jurisdictional Gas Gathering  | <input type="checkbox"/> Offshore Liquid                 |                                       |                         |                         |            |                             |   |  |                                       |                                    |   |  |  |  |   |  |  |                                       |                                       |  |  |  |   |  |  |
| <input type="checkbox"/> Master Meter  | <input type="checkbox"/> Offshore Gas  | <input type="checkbox"/> Jurisdictional Liquid Gathering |                                       |                         |                         |            |                             |   |  |                                       |                                    |   |  |  |  |   |  |  |                                       |                                       |  |  |  |   |  |  |
|  | <input type="checkbox"/> Offshore Gas - High H <sub>2</sub> S                                  | <input type="checkbox"/> CO <sub>2</sub>                 |                                       |                         |                         |            |                             |   |  |                                       |                                    |   |  |  |  |   |  |  |                                       |                                       |  |  |  |   |  |  |
| Pipeline Configuration (Regulator Station, Pump Station, Pipeline, etc.):<br><span style="color: red;">Service Riser and Meterset for the Wal-Mart Service Center</span>   |  |  |                                       |                         |                         |            |                             |   |  |                                       |                                    |   |  |  |  |   |  |  |                                       |                                       |  |  |  |   |  |  |

| Operator/Owner Information  |   |
|---|---|
| Owner: <span style="color: red;">Montana Dakota Utilities</span><br>Address: <span style="color: red;">400 North 4th Street<br/>Bismarck, SD 58501</span> | Operator: <span style="color: red;">Montana Dakota Utilities</span><br>Address: <span style="color: red;">718 Steele Avenue<br/>Rapid City, SD 57709</span> |
| Company Official: <span style="color: red;">Jay Skabo - VP of Operations</span><br>Phone No.: <span style="color: red;">701-222-7900</span> Fax No.:      | Company Official: <span style="color: red;">Ron Blum - Gas Superintendent</span><br>Phone No. <span style="color: red;">605-355-4021</span> Fax No.         |
| <u>Drug and Alcohol Testing Program Contacts</u> <span style="float: right;"><input checked="" type="checkbox"/> N/A</span>                               |   |
| Drug Program Contact & Phone: <span style="color: red;">LeDonna Emineth - Engineer Associate, 701-222-7924</span>   |   |
| Alcohol Program Contact & Phone: <span style="color: red;">Same as above.</span>  |   |

| Damages   |  |
|---|--|
| Product/Gas Loss or Spill <sup>(2)</sup><br>Amount Recovered<br>Estimated Amount \$ <span style="color: red;">650.00</span> | Estimated Property Damage \$ <span style="color: red;">100,000</span><br>Associated Damages <sup>(3)</sup> \$ <span style="color: red;">8,000</span> |

- 1 Photo documentation
- 2 Initial volume lost or spilled
- 3 Including cleanup cost

# Pipeline Failure Investigation Report

| <b>Damages</b>   |   |  |                     |
|--|---|--|---------------------|
| Description of Property Damage:<br><span style="color: red;">Meterset sheared off at the riser.</span> |   |  |                     |
| Customers out of Service:  | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No            | Number: <u>1</u>    |
| Suppliers out of Service:  | <input type="checkbox"/> Yes            | <input checked="" type="checkbox"/> No | Number: <u>    </u> |

| <b>Fatalities and Injuries</b>                  |                              |  |                      |                         |                     |
|---|------------------------------|--|----------------------|-------------------------|---------------------|
| Fatalities:                                     | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No | Company: <u>    </u> | Contractor: <u>    </u> | Public: <u>    </u> |
| Injuries - Hospitalization:                     | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No | Company: <u>    </u> | Contractor: <u>    </u> | Public: <u>    </u> |
| Injuries - Non-Hospitalization:                 | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No | Company: <u>    </u> | Contractor: <u>    </u> | Public: <u>    </u> |
| Total Injuries (including Non-Hospitalization): |                              |  | Company: <u>    </u> | Contractor: <u>    </u> | Public: <u>    </u> |

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

| <b>Drug/Alcohol Testing</b>  |  |  |  |  |
|--|--|--|--|--|
| <input checked="" type="checkbox"/> N/A  |  |  |  |  |
| Were all employees that could have contributed to the incident, post-accident tested within the 2 hour time frame for alcohol or the 32 hour time frame for all other drugs? |  |  |  |  |
| <input type="checkbox"/> Yes <input type="checkbox"/> No   |  |  |  |  |

| Job Function | Test Date & Time | Location | Results                  |                          | Type of Drug |
|--------------|------------------|----------|--------------------------|--------------------------|--------------|
|              |                  |          | Pos                      | Neg                      |              |
|              |                  |          | <input type="checkbox"/> | <input type="checkbox"/> |              |
|              |                  |          | <input type="checkbox"/> | <input type="checkbox"/> |              |
|              |                  |          | <input type="checkbox"/> | <input type="checkbox"/> |              |
|              |                  |          | <input type="checkbox"/> | <input type="checkbox"/> |              |
|              |                  |          | <input type="checkbox"/> | <input type="checkbox"/> |              |

# Pipeline Failure Investigation Report

| <i>System Description</i>       |
|---------------------------------|
| Describe the Operator's System: |

| <i>Pipe Failure Description</i>   |   | <input checked="" type="checkbox"/> 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: <input type="checkbox"/> Yes <input type="checkbox"/> No   |   |   |
| Performed by:   |   |   |
| Preservation of Failed Section or Component: <input type="checkbox"/> Yes <input type="checkbox"/> No   |   |   |
| If Yes - Method:  |   |   |
| In Custody of:  |   |   |
| Develop 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. Direction of Flow. |   |   |

| <i>Component Failure Description</i>        |        | <input checked="" type="checkbox"/> N/A |
|---|--------|---|
| Component Failed:                           | (1)    |   |
| Manufacturer:                               | Model: |   |
| Pressure Rating:                            | Size:  |   |
| Other (Breakout Tank, Underground Storage): |        |   |

| <i>Pipe Data</i>                              |                         | <input type="checkbox"/> N/A |
|---|-------------------------|------------------------------|
| Material: 2" PE into an Anodeless Riser       | Wall Thickness/SDR:     |                              |
| Diameter (O.D.):                              | Installation Date: 2004 |                              |
| SMYS:   | Manufacturer:           |                              |
| Longitudinal Seam:                            | Type of Coating:        |                              |
| Pipe Specifications (API 5L, ASTM A53, etc.): |                         |                              |

| <i>Joining</i> |   | <input checked="" type="checkbox"/> N/A |
|----------------|---|---|
| Type:          | Procedure:  |   |
| NDT Method:    | Inspected: <input type="checkbox"/> Yes <input type="checkbox"/> No |   |

# Pipeline Failure Investigation Report

| <i>Pressure @ Time of Failure @ Failure Site</i> <input checked="" type="checkbox"/> 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> <input checked="" type="checkbox"/> N/A |                           |
|---|---------------------------|
| Type of Product:  | API Gravity:              |
| Specific Gravity:   | Flow Rate:                |
| Pressure @ Time of Failure <sup>(4)</sup>                                 | Distance to Failure Site: |
| High Pressure Set Point:  | Low Pressure Set Point:   |

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

| <i>Operating Pressure</i> <input type="checkbox"/> N/A |  |
|--|--|
| Max. Allowable Operating Pressure: 60 psig             | Determination of MAOP:<br>Pressure Test (11/2004)                                      |
| Actual Operating Pressure: 35 psig                     |  |
| Method of Over Pressure Protection: Regulator Relief   |  |
| Relief Valve Set Point: 10 psig (32,000 cfh)           | Capacity Adequate? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |

| <i>Integrity Test After Failure</i> <input type="checkbox"/> N/A   |   |
|--|---|
| Pressure Test Conducted in place? (Conducted on Failed Components or Associated Piping):   | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |
| If NO, Tested after removal?   | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |
| Method: N/A  |   |
| Describe any failures during the test.<br>Damaged components were not reused but rather removed and replaced. Damaged components were not a factor in the incident's occurrence. |   |

| <i>Soil/water Conditions @ Failure Site</i> <input type="checkbox"/> N/A                            |  |
|---|--|
| Condition of and Type of Soil around Failure Site (Color, Wet, Dry, Frost Depth):<br>Sandy / Gravel |  |
| Type of Backfill (Size and Description):<br>Same as above.  |  |

4 Obtain event logs and pressure recording charts



## Pipeline Failure Investigation Report

| Internal Pipe or Component Examination <span style="float: right;"><input checked="" type="checkbox"/> N/A</span>          |                        |
|--|------------------------|
| Results of Gas and/or Liquid Analysis <sup>(6)</sup>   |                        |
| Internal Inspection Survey: <input type="checkbox"/> Yes <input type="checkbox"/> No                                       | Results <sup>(7)</sup> |
| Did the Operator have knowledge of Corrosion before the Incident? <input type="checkbox"/> Yes <input type="checkbox"/> No |                        |
| How Discovered? (Instrumented Pig, Coupon Testing, ICDA, etc.):  |                        |

| Outside Force Damage <span style="float: right;"><input type="checkbox"/> N/A</span>  |  |
|---|--|
| Responsible Party: MCS Trucking; Driver: Mike Currier   | Telephone No.: 605-645-8897  |
| Address: 1912 Riverview Circle, Spearfish, SD 58501   |  |
| Work Being Performed: N/A   |  |
| Equipment Involved: <sup>(1)</sup><br>Logging Truck Pup-Trailer   | Called One Call System? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No<br>N/A |
| One Call Name: N/A  | One Call Report # <sup>(8)</sup> N/A   |
| Notice Date: N/A  | Time: N/A  |
| Response Date: N/A  | Time: N/A  |
| Details of Response:<br>N/A   |  |
| Was Location Marked According to Procedures? <input type="checkbox"/> Yes <input type="checkbox"/> No <span style="float: right;">N/A</span>            |  |
| Pipeline Marking Type: <sup>(1)</sup><br>N/A  | Location: <sup>(1)</sup><br>N/A  |
| State Law Damage Prevention Program Followed? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> No State Law |  |
| Notice Required: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No  | Response Required: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No             |
| Was Operator Member of State One Call? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No  | Was Operator on Site? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No          |
| Did a deficiency in the Public Awareness Program contribute to the accident? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No        |  |
| Is OSHA Notification Required? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No  |  |

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

# Pipeline Failure Investigation Report

| <i>Natural Forces</i> <span style="float: right;"><input checked="" type="checkbox"/> N/A</span> |
|--|
| Description (Earthquake, Tornado, Flooding, Erosion):  |
|  |

| <i>Failure Isolation</i> <span style="float: right;"><input type="checkbox"/> N/A <sup>(1)</sup></span>   |                |
|---|----------------|
| Squeeze Off/Stopple Location and Method:<br>Squeeze Off ~500' upstream on the east end of the Wal-Mart property   |                |
| Valve Closed - Upstream:<br>Time: N/A   | I.D.:<br>M.P.: |
| Valve Closed - Downstream:<br>Time:   | I.D.:<br>M.P.: |
| Pipeline Shutdown Method: <input checked="" type="checkbox"/> Manual <input type="checkbox"/> Automatic <input type="checkbox"/> SCADA <input type="checkbox"/> Controller <input type="checkbox"/> ESD |                |
| Failed Section Bypassed or Isolated: Isolated   |                |
| Performed By: Bruce Spryncznatyk;<br>Russel Murphy; Keith Schroeder; Jason Swanson  | Valve Spacing: |

| <i>Odorization</i> <span style="float: right;"><input type="checkbox"/> N/A</span>                                 |   |
|--|---|
| 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 type="checkbox"/> Yes <input type="checkbox"/> No |
| Odorized by transmission company per tariff  | Time Taken: <input type="checkbox"/> Yes <input type="checkbox"/> No  |
| Was Odorizer Working Prior to the Incident?<br><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Type of Odorizer (Wick, By-Pass):   |
| Odorant Manufacturer:<br>Model:  | Type of Odorant:  |
| Amount Injected:   | Monitoring Interval (Weekly):   |
| Odorization History (Leaks Complaints, Low Odorant Levels, Monitoring Locations, Distances from Failure Site):     |   |



# Pipeline Failure Investigation Report

|                    |                              |
|--------------------|------------------------------|
| <b>Odorization</b> | <input type="checkbox"/> N/A |
|                    |                              |

|  |  |                              |
|--|--|------------------------------|
| <b>Weather Conditions</b>  |  | <input type="checkbox"/> N/A |
| Temperature: 10 deg F  | Wind (Direction & Speed): 5-15 mph; W>E am; E>W pm |                              |
| Climate (Snow, Rain): snow flurries  | Humidity:  |                              |
| 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):<br>Cloudy and dark.            |  |                              |

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

|  |  |   |
|--|--|---|
| <b>Environment Sensitivity Impact</b>  |  | <input checked="" type="checkbox"/> N/A |
| Location (Nearest Rivers, Body of Water, Marshlands, Wildlife Refuge, City Water Supplies that could be or were affected by the medium loss): <sup>(1)</sup> |  |   |
|  |  |   |
| OPA Contingency Plan Available? <input type="checkbox"/> Yes <input type="checkbox"/> No   | Followed? <input type="checkbox"/> Yes <input type="checkbox"/> No |   |

|  |  |                              |
|--|--|------------------------------|
| <b>Class Location/High Consequence Area</b>  |  | <input type="checkbox"/> N/A |
| Class Location: 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input checked="" type="checkbox"/> 4 <input type="checkbox"/> | HCA Area? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A |                              |
| Determination: _____   | Determination: Distribution Service Line   |                              |
| Odorization Required? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A                 |  |                              |

|  |                              |
|--|------------------------------|
| <b>Pressure Test History</b><br>(Expand List as Necessary) | <input type="checkbox"/> N/A |
|--|------------------------------|

# Pipeline Failure Investigation Report

| <b>Pressure Test History</b> <span style="float: right;"><input type="checkbox"/> N/A</span><br><i>(Expand List as Necessary)</i> |   |           |             |                    |                   |         |
|---|---|-----------|-------------|--------------------|-------------------|---------|
|   | Req'd <sup>(10)</sup> Assessment<br>Deadline Date | Test Date | Test Medium | Pressure<br>(psig) | Duration<br>(hrs) | % SMYS  |
| Installation  | N/A   | 11/2004   | unknown     | unknown            | unknown           | unknown |
| Next  |   |           |             |                    |                   |         |
| Next  |   |           |             |                    |                   |         |
| Most Recent   |   | 02/2012   | Air         | 120psig            | 120 min           |         |
| Describe any problems experienced during the pressure tests.  |   |           |             |                    |                   |         |

| <b>Internal Line Inspection/Other Assessment History</b> <span style="float: right;"><input checked="" type="checkbox"/> N/A</span><br><i>(Expand List as Necessary)</i> |   |                    |                                     |  |  |
|--|---|--------------------|-------------------------------------|--|--|
|  | Req'd <sup>(10)</sup> Assessment<br>Deadline Date | Assessment<br>Date | Type of ILI<br>Tool <sup>(11)</sup> | Other Assessment<br>Method <sup>(12)</sup> | Indicated Anomaly<br>If yes, describe below              |
| Initial  |   |                    |                                     |  | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| Next   |   |                    |                                     |  | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| Next   |   |                    |                                     |  | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| Most Recent  |   |                    |                                     |  | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| Describe any previously indicated anomalies at the failed pipe, and any subsequent pipe inspections (anomaly digs) and remedial actions.                                 |   |                    |                                     |  |  |

| <b>Pre-Failure Conditions and Actions</b> <span style="float: right;"><input checked="" type="checkbox"/> N/A</span>  |  |
|---|--|
| Was there a known pre-failure condition requiring <sup>(10)</sup> the operator to schedule evaluation and remediation?<br><input type="checkbox"/> Yes (describe below or on attachment) <input type="checkbox"/> No  |  |
| If there was such a known pre-failure condition, had the operator established and adhered to a required <sup>(10)</sup> evaluation and remediation schedule? Describe below or on attachment. <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A |  |
| Prior to the failure, had the operator performed the required <sup>(10)</sup> actions to address the threats that are now known to be related to the cause of this failure? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> 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.  |  |

| <b>Maps &amp; Records</b> <span style="float: right;"><input type="checkbox"/> N/A</span> |
|---|
|---|

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

11 MFL, geometry, crack, etc.

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

## Pipeline Failure Investigation Report

|   |   |                             |
|---|---|-----------------------------|
| Are Maps and Records Current? <sup>(13)</sup> | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |
| Comments:                                     |   |                             |

|   |   |
|---|---|
| <i>Leak Survey History</i>                        | <input checked="" type="checkbox"/> N/A |
| Leak Survey History (Trend Analysis, Leak Plots): |   |

|   |  |
|---|--|
| <i>Pipeline Operation History</i>                           | <input checked="" type="checkbox"/> N/A                  |
| Description (Repair or Leak Reports, Exposed Pipe Reports): |  |
| Did a Safety Related Condition Exist Prior to Failure?      | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| Reported?   | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| Unaccounted For Gas:  |  |
| Over & Short/Line Balance (24 hr., Weekly, Monthly/Trend):  |  |

|  |                      |   |
|--|----------------------|---|
| <i>Operator/Contractor Error</i>   |                      | <input checked="" type="checkbox"/> N/A |
| Name:  | Job Function:        |   |
| Title:   | Years of Experience: |   |
| Training (Type of Training, Background):   |                      |   |
| Was the person "Operator Qualified" as applicable to a precursor abnormal operating condition? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A |                      |   |
| Was qualified individual suspended from performing covered task <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A                                |                      |   |
| Type of Error (Inadvertent Operation of a Valve):  |                      |   |
| Procedures that are required:  |                      |   |
| Actions that were taken:   |                      |   |
| Pre-Job Meeting (Construction, Maintenance, Blow Down, Purging, Isolation):  |                      |   |
| Prevention of Accidental Ignition (Tag & Lock Out, Hot Weld Permit):   |                      |   |
| Procedures conducted for Accidental Ignition:  |                      |   |
| Was a Company Inspector on the Job? <input type="checkbox"/> Yes <input type="checkbox"/> No   |                      |   |
| Was an Inspection conducted on this portion of the job? <input type="checkbox"/> Yes <input type="checkbox"/> No   |                      |   |

13 Obtain copies of maps and records

## Pipeline Failure Investigation Report

| <i>Operator/Contractor Error</i>  |       |                  |                                |       | <input checked="" type="checkbox"/> N/A |
|---|-------|------------------|--------------------------------|-------|---|
| Additional Actions (Contributing factors may include number of hours at work prior to failure or time of day work being conducted): |       |                  |                                |       |   |
| Training Procedures:  |       |                  |                                |       |   |
| Operation Procedures:   |       |                  |                                |       |   |
| Controller Activities:  |       |                  |                                |       |   |
| 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:   |       |                  |                                |       |   |

| <i>Additional Actions Taken by the Operator</i>  | <input type="checkbox"/> 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 Failure Investigation Report

### *Additional Actions Taken by the Operator*

N/A

- \* All damaged equipment was removed and replaced including the service riser, meter, and all valves.
- \* There was damage to the downstream customer owned piping and HVAC equipment.
- \* Gas service will remain shut-off until City Building Inspectors can okay the repair of the customer owned piping and equipment.

## Pipeline Failure Investigation Report

| Photo Documentation <sup>(1)</sup>   |                  |          |           |             |          |
|--|------------------|----------|-----------|-------------|----------|
| 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      | Roll No. | Photo No. | Description | Roll No. |
| 1  | * See note below |          | 1         |             |          |
| 2  |                  |          | 2         |             |          |
| 3  |                  |          | 3         |             |          |
| 4  |                  |          | 4         |             |          |
| 5  |                  |          | 5         |             |          |
| 6  |                  |          | 6         |             |          |
| 7  |                  |          | 7         |             |          |
| 8  |                  |          | 8         |             |          |
| 9  |                  |          | 9         |             |          |
| 10   |                  |          | 10        |             |          |
| 11   |                  |          | 11        |             |          |
| 12   |                  |          | 12        |             |          |
| 13   |                  |          | 13        |             |          |
| 14   |                  |          | 14        |             |          |
| 15   |                  |          | 15        |             |          |
| 16   |                  |          | 16        |             |          |
| 17   |                  |          | 17        |             |          |
| 18   |                  |          | 18        |             |          |
| 19   |                  |          | 19        |             |          |
| 20   |                  |          | 20        |             |          |
| 21   |                  |          | 21        |             |          |
| 22   |                  |          | 22        |             |          |
| 23   |                  |          | 23        |             |          |
| 24   |                  |          | 24        |             |          |
| 25   |                  |          | 25        |             |          |
| 26   |                  |          | 26        |             |          |
| 27   |                  |          | 27        |             |          |
| 28   |                  |          | 28        |             |          |
| 29   |                  |          | 29        |             |          |
| 30   |                  |          | 30        |             |          |
| Type of Camera: Digital Camera   |                  |          |           |             |          |
| Film ASA: ** Photographic Documentation is included in the final report **   |                  |          |           |             |          |
| Video Counter Log (Attach Copy):   |                  |          |           |             |          |

# Pipeline Failure Investigation Report

| <i>Additional Information Sources</i> |                |                   |              |
|---------------------------------------|----------------|-------------------|--------------|
| Agency                                | Name           | Title             | Phone Number |
| Police:                               | Chansey J Ford | SD Highway Patrol |              |
| Fire Dept.:                           |                |                   |              |
| State Fire Marshall:                  |                |                   |              |
| State Agency:                         |                |                   |              |
| NTSB:                                 |                |                   |              |
| EPA:                                  |                |                   |              |
| FBI:                                  |                |                   |              |
| ATF:                                  |                |                   |              |
| OSHA:                                 |                |                   |              |
| Insurance Co.:                        |                |                   |              |
| FRA:                                  |                |                   |              |
| MMS:                                  |                |                   |              |
| Television:                           |                |                   |              |
| Newspaper:                            |                |                   |              |
| Other:                                |                |                   |              |











# Pipeline Failure Investigation Report

## *Site Description*

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