

DOT U.S. Department of Transportation
PHMSA Pipeline and Hazardous Materials Safety Administration
OPS Office of Pipeline Safety
Central Region

Principal Investigator Roger Sneegas/Iowa Utilities Board (Interstate Agent)/Karen Butler
Region Director David Barrett/Allan Beshore
Date of Report 7/10/2015
Subject Failure Investigation Report—Northern Natural Gas Co.—Other Outside Force Damage

Operator, Location, & Consequences

Date of Failure 8/6/2010
Commodity Released Natural Gas
City/County & State Fairbank/Buchanan, Iowa
OpID & Operator Name 13750 Northern Natural Gas Co.
Unit # & Unit Name 9093 Waterloo [IA] (NNG)
SMART Activity # 130748
Milepost/Location MP 7.29
Type of Failure Leak, .25-inch fitting crack, other outside force damage
Fatalities 0
Injuries 0
Description of Area Impacted Non-HCA, Rural, Industrial, Class 1
Total Costs \$93,372

Failure Investigation Report—Northern Natural Gas Co.—Other Outside Force Damage

Failure Date 8/6/2010

Executive Summary

On August 6, 2010, at approximately 1:30 a.m.,¹ a driver lost control of a vehicle traveling at a high rate of speed on Highway 281 near Fairbank, Iowa. The vehicle left the road, struck and damaged the Hawkeye/Menlo town border station's above-ground facility piping and valves, and landed inside a fenced area of the facility. This facility is owned and operated by Northern Natural Gas Company (NNG), and the incident occurred in a Class 1 location just east of an HCA. A .25-inch diameter pipe fitting located between the station inlet filter and the filter inlet gauge was cracked, resulting in a release of natural gas, which did not ignite. The Iowa Utilities Board (IUB), the interstate agent for the Pipeline and Hazardous Materials Safety Administration (PHMSA), responded and investigated the incident on site.

The NNG Hawkeye/Menlo facility provides natural gas supply to ethanol plants owned by Hawkeye Renewables, LLC, located in Menlo and Fairbank, Iowa.² Ethanol plant workers reported the incident and subsequent gas release to emergency responders at approximately 5:30 a.m., and to NNG at 6:00 a.m. The facility piping was operating at approximately 740 psig, and an estimated 271 thousand cubic feet (Mcf) of natural gas was released from the pipe fitting as a result of the leak. An additional 456 Mcf was released intentionally during blowdown activities required to perform isolation, allow emergency response activities, and implement inspection of the piping facilities for other damage. The total cost of the incident was \$93,372.

Two fatalities occurred: the driver and a passenger. The fatalities were a result of the car accident and were not caused by the release of natural gas or impact to facility piping.

System Details

NNG operates over 15,000 miles of natural gas pipeline extending from the Permian Basin in Texas to the upper Midwest. The leak occurred at the Hawkeye/Menlo town border station that supplied natural gas from the Hawkeye/Menlo Ethanol Branch Line to the Hawkeye Renewables, LLC, ethanol plant. Menlo is an ethanol plant, opened in September 2008, located approximately 183 miles southwest of the Hawkeye plant in Fairbank, which began operating in May 2006.

The town border station piping, manufactured by Tenaris in 2005, was 6-inch nominal diameter pipe with a wall thickness of 0.280 inches. This pipe was electric resistance welded (ERW), had a specified minimum yield strength (SMYS) of 35,000, and all above-ground portions were painted with a material suitable for atmospheric corrosion protection. The Hawkeye/Menlo Ethanol Branch Line has a maximum allowable operating pressure (MAOP) of 1,000 psig as established under 49 CFR 192.619(a)(2), which calculates the MAOP by dividing the test pressure by a class location factor.

Events Leading Up to the Failure

The pressure in the impacted pipeline at the time of failure was approximately 740 psig. The facility is located at milepost 7.29 on the Hawkeye/Menlo Ethanol Branch Line, is in a Class 1 area, is not in an HCA, and was fenced at the time of the incident.

¹ All times referenced are in Central Daylight Time (CDT) unless specifically noted otherwise.

² As of February 17, 2011, the Fairbank, Iowa, ethanol facility was owned by Flint Hills Resources Renewables, LLC.

Failure Investigation Report—Northern Natural Gas Co.—Other Outside Force Damage

Failure Date 8/6/2010

Emergency Response

On August 6, 2010, at 6:00 a.m., a Hawkeye Ethanol Plant employee notified NNG of a passenger vehicle crash at the Hawkeye/Menlo town border station. NNG personnel were dispatched from the Waterloo work location in the Des Moines Region and arrived on site at 6:40 a.m. to investigate and assist in isolation activities. NNG called the incident into the National Response Center (NRC) at 7:41 a.m. (NRC Report No. 950103).

NNG personnel manually isolated the town border station piping by closing an upstream mainline valve. Once the valve was closed more than seven miles of pipeline were blown down to provide safe access to the site for emergency responders, who entered the facility and found the driver still alive but trapped in the vehicle.

Summary of Return to Service

After the field investigation was complete, replacement pipe, valves, and fittings were installed in the area where the damage occurred. The pipeline was purged, packed, and returned to service on August 6, 2010, at 4:40 p.m.

Investigation Details

On August 6, 2010, an IUB inspector conducted an on-site investigation of the incident. The inspector met with and interviewed NNG first responders and Buchanan County Emergency Response personnel.

Ethanol plant employees discovered the vehicle at 5:35 a.m. on August 6, 2010, and the Buchanan County Sheriff estimated that the incident occurred at 1:30 a.m. that day.

A driver and one passenger were riding in the vehicle at the time of the incident. The passenger was thrown from the vehicle and found dead at the scene. The driver was trapped in the vehicle and airlifted to a local hospital, where he later died. The vehicle was traveling west at a high rate of speed on 102nd Street (Highway 281) toward Fairbank, Iowa, and failed to negotiate a curve located approximately 500 feet east of the Hawkeye/Menlo town border station. The vehicle left the highway, rolled, hit a ditch, bounced several times, cleared the six-foot-high town border station security fence, and came to rest on the west side of the station inside the fenced area. The vehicle struck above-ground piping and fittings located inside the NNG facility, but this did not result in ignition or explosion.

A .25-inch diameter pipe fitting located between the station inlet filter and the filter inlet gauge was cracked, resulting in a release of natural gas. The above-ground 6-inch diameter in-line inspection tool receiver inlet and the 4-inch diameter station inlet valves were also damaged and replaced, along with several fittings and minimal short pieces of pipe to allow for the valve replacements. The Hawkeye/Menlo town border station was operating at 740 psig at the time of the impact, and the Hawkeye/Menlo Branch Line had to be isolated from the facility as a result of the damage. A blowdown of more than 7 miles of pipeline was required, resulting in a total loss of 727 Mcf. NNG inspected the remaining facilities for leaks after the station piping was repaired, and the pipeline was returned to service in the evening on the same day.

The IUB's investigation determined that damage prevention provisions at the town border station were adequate under 49 CFR §192.317, and that the 49 CFR §192.615 Emergency Plans were appropriately implemented and adequate. Other provisions of 49 CFR §191 and 192 were also reviewed, but did not

Failure Investigation Report—Northern Natural Gas Co.—Other Outside Force Damage

Failure Date 8/6/2010

result in any enforcement actions. The IUB investigation, and that of law enforcement, concluded that the fatalities were not caused by the release of gas or by impact to facility piping.

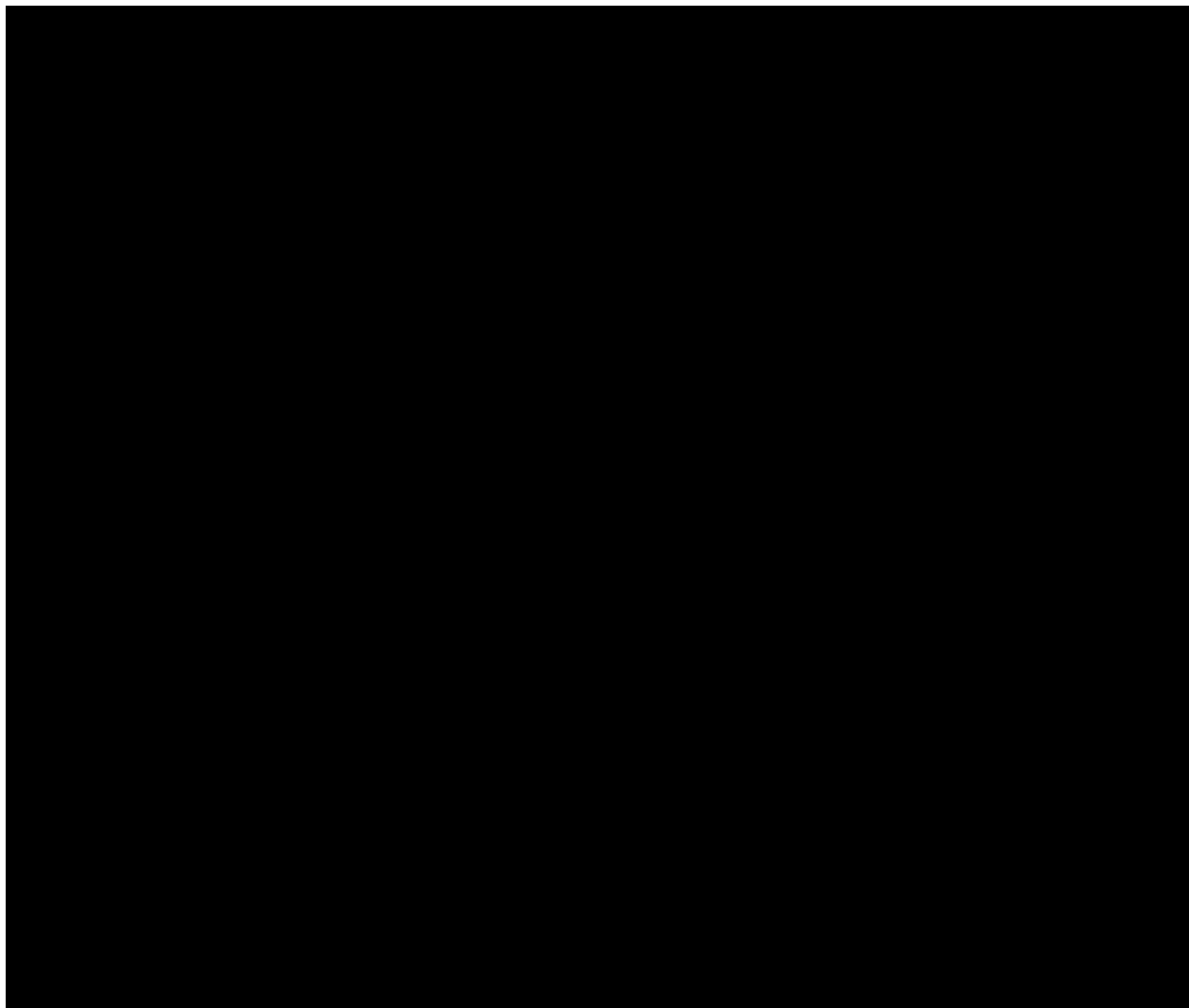
The only customer impacted was the Hawkeye Renewables, LLC, Fairbank ethanol plant.

Findings & Contributing Factors

The NNG Hawkeye/Menlo town border station incident was caused by other outside force damage. Specifically, a vehicle left a nearby highway at a high rate of speed, cleared the station security fencing, and crashed into the station's above-ground piping. The impact damaged the NNG Hawkeye/Menlo facility piping, resulting in a release of gas. There were two fatalities, but neither was the result of a release of gas or the impact to facility piping.

Appendices

- A Map and Photograph
- B NRC Report
- C Operator's Incident Report
- D Iowa DOT Motor Vehicle Accident Report



Appendix A - Map and Photograph

NNG Hawkeye Ethanol Town Border Station

(Outside Source Photo, Picture Taken Looking North, Vehicle Cleared Fencing)



Appendix B - NRC 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 # 950103

INCIDENT DESCRIPTION

*Report taken at 08:41 on 06-AUG-10

Incident Type: PIPELINE

Incident Cause: OTHER

Affected Area:

The incident occurred on 06-AUG-10 at 06:00 local time.

Affected Medium: AIR INTO THE AIR

SUSPECTED RESPONSIBLE PARTY

XX

Type of Organization: UNKNOWN

INCIDENT LOCATION

1277 102ND STREET-COUNTY ROAD 281 County: BUCHANAN

ETHANOL PLANT

City: FAIRBANK State: IA

Section: 4 Township: 90 NORTH Range: 10 WEST HAWKEYE RENEWABLES METERING STATION

RELEASED MATERIAL(S)

CHRIS Code: ONG Official Material Name: NATURAL GAS

Also Known As:

Qty Released: 0 UNKNOWN AMOUNT

DESCRIPTION OF INCIDENT

CALLER STATED VEHICLE STRUCK A PIPELINE RESULTING IN A RELEASE OF NATURAL GAS. CALLER STATED THE PRESSURE GAUGE GOT KNOCKED OFF AND THAT IS WHERE THE GAS IS RELEASING FROM. CALLER STATED THERE WAS POSSIBLY TWO FATALITIES DUE TO INCIDENT. NO FIRE REPORTED.

INCIDENT DETAILS

Pipeline Type: TRANSMISSION

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: YES

Empl/Crew:

Passenger:

Occupant: 2

EVACUATIONS: NO

Who Evacuated:

Radius/Area:

Damages: NO

<u>Closure Type</u>	<u>Description of Closure</u>	<u>Length of Closure</u>	<u>Direction of Closure</u>
Air:	N		
Road:	N		Major Artery: N
Waterway:	N		

Appendix B - NRC Report

Track: N

Passengers Transferred: NO
Environmental Impact: UNKNOWN
Media Interest: NONE Community Impact due to Material:

REMEDIAL ACTIONS

CALLER STATED THEY ARE PUTTING TOGETHER A PLAN TO ISOLATE THE RELEASE.

Release Secured: NO
Release Rate:
Estimated Release Duration:

WEATHER

Weather: PARTLY CLOUDY, °F Wind direction: NW

ADDITIONAL AGENCIES NOTIFIED

Federal: NONE
State/Local: NONE
State/Local On Scene: FIRE DEPT, AND COUNTY SHERIFF
State Agency Number: NONE

NOTIFICATIONS BY NRC


ATLANTIC STRIKE TEAM (MAIN OFFICE)
06-AUG-10 08:52
USCG ICC (ICC ONI)
06-AUG-10 08:52
DOT CRISIS MANAGEMENT CENTER (MAIN OFFICE)
06-AUG-10 08:52
U.S. EPA VII (MAIN OFFICE)
06-AUG-10 08:58
IOWA DEPT OF PUBLIC HEALTH (COMMAND CENTER)
06-AUG-10 08:52
INFO ANALYSIS & INFRA PROTECTION (MAIN OFFICE)
06-AUG-10 08:52
NE INFORMATION ANALYSIS CENTER (MAIN OFFICE)
06-AUG-10 08:52
NATIONAL INFRASTRUCTURE COORD CTR (MAIN OFFICE)
06-AUG-10 08:52
NATIONAL INFRASTRUCTURE COORD CTR (INFRASTRUCTURE PROTECTION)
06-AUG-10 08:52
NOAA RPTS FOR IA (MAIN OFFICE)
06-AUG-10 08:52
NTSB PIPELINE (MAIN OFFICE)
06-AUG-10 08:52
HOMELAND SEC COORDINATION CENTER (MAIN OFFICE)
06-AUG-10 08:52
PIPELINE & HAZMAT SAFETY ADMIN (OFFICE OF PIPELINE SAFETY (AUTO))
06-AUG-10 08:52
IA DEPT NAT RES ATTN: DUTY OFFICER (MAIN OFFICE)
06-AUG-10 08:52
DOI/OEPC DENVER (MAIN OFFICE)
06-AUG-10 08:52

ADDITIONAL INFORMATION

CALLER STATED THE IOWA UTILITY BOARD WILL BE CALLED NEXT.

*** END INCIDENT REPORT # 950103 ***

Appendix C - Operator's 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: 10/31/2016	
 U.S. Department of Transportation Pipeline and Hazardous Materials Safety Administration	Original Report Date:	08/31/2010	
	No.	20100052 - 16804 ----- (DOT Use Only)	
INCIDENT REPORT - GAS TRANSMISSION AND GATHERING PIPELINE SYSTEMS			
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. All responses to this collection of information are mandatory. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing the burden to: Information Collection Clearance Officer, PHMSA, Office of Pipeline Safety (PHP-30) 1200 New Jersey Avenue, SE, Washington, D.C. 20590.			
INSTRUCTIONS			
<i>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/library/forms.</i>			
PART A - KEY REPORT INFORMATION			
Report Type: (select all that apply)	Original:	Supplemental:	Final:
		Yes	Yes
Last Revision Date:	07/08/2015		
1. Operator's OPS-issued Operator Identification Number (OPID):	13750		
2. Name of Operator	NORTHERN NATURAL GAS CO		
3. Address of Operator:			
3a. Street Address	1111 SOUTH 103RD STREET		
3b. City	OMAHA		
3c. State	Nebraska		
3d. Zip Code:	68124		
4. Local time (24-hr clock) and date of the Incident:	08/06/2010 06:00		
5. Location of Incident:			
Latitude:	42.6404121		
Longitude:	-92.0274645		
6. National Response Center Report Number (if applicable):	950103		
7. Local time (24-hr clock) and date of initial telephonic report to the National Response Center (if applicable):	08/06/2010 08:41		
8. Incident resulted from:	Unintentional release of gas		
9. Gas released: (select only one, based on predominant volume released)	Natural Gas		
- Other Gas Released Name:			
10. Estimated volume of commodity released unintentionally - Thousand Cubic Feet (MCF):	271.00		
11. Estimated volume of intentional and controlled release/blowdown - Thousand Cubic Feet (MCF)	456.00		
12. Estimated volume of accompanying liquid release (Barrels):			
13. Were there fatalities?	No		
- If Yes, specify the number in each category:			
13a. Operator employees			
13b. Contractor employees working for the Operator			
13c. Non-Operator emergency responders			
13d. Workers working on the right-of-way, but NOT associated with this Operator			
13e. General public			
13f. Total fatalities (sum of above)			
14. Were there injuries requiring inpatient hospitalization?	No		
- If Yes, specify the number in each category:			
14a. Operator employees			
14b. Contractor employees working for the Operator			
14c. Non-Operator emergency responders			
14d. Workers working on the right-of-way, but NOT associated with this Operator			
14e. General public			
14f. Total injuries (sum of above)			
15. Was the pipeline/facility shut down due to the incident?	Yes		
- If No, Explain:			

Appendix C - Operator's Incident Report

- If Yes, complete Questions 15a and 15b: (use local time, 24-hr clock)	
15a. Local time and date of shutdown	08/06/2010 09:08
15b. Local time pipeline/facility restarted	08/06/2010 16:40
- Still shut down? (* Supplemental Report Required)	
16. Did the gas ignite?	No
17. Did the gas explode?	No
18. Number of general public evacuated:	0
19. Time sequence (use local time, 24-hour clock):	
19a. Local time operator identified Incident– effective 10-2014, changed from "Incident" to "failure"	08/06/2010 06:00
19b. Local time operator resources arrived on site	08/06/2010 06:40
PART B - ADDITIONAL LOCATION INFORMATION	
1. Was the origin of the Incident onshore?	Yes
- Yes (Complete Questions 2-12)	
- No (Complete Questions 13-15)	
If Onshore:	
2. State:	Iowa
3. Zip Code:	50629
4. City	Fairbank
5. County or Parish	Buchanan
6. Operator designated location	Milepost/Valve Station
Specify:	Milepost 7.29
7. Pipeline/Facility name:	Hawkeye/Menlo Ethanol town border station
8. Segment name/ID:	Hawkeye/Menlo Ethanol Branch line
9. Was Incident on Federal land, other than the Outer Continental Shelf (OCS)?	No
10. Location of Incident :	Operator-controlled property
11. Area of Incident (as found) :	Aboveground
Specify:	Inside other enclosed space
Other – Describe:	
Depth-of-Cover (in):	
12. 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) at the point of the Incident:	
Select:	
If Offshore:	
13. Approx. water depth (ft) at the point of the Incident:	
14. Origin of Incident:	
- If "In State waters":	
- State:	
- Area:	
- Block/Tract #:	
- Nearest County/Parish:	
- If "On the Outer Continental Shelf (OCS)":	
- Area:	
- Block #:	
15. Area of Incident:	
PART C - ADDITIONAL FACILITY INFORMATION	
1. Is the pipeline or facility: - Interstate - Intrastate	Interstate
2. Part of system involved in Incident:	Onshore Regulator/Metering Station Equipment and Piping
3. Item involved in Incident:	Pipe
- If Pipe – Specify:	Pipe Body
3a. Nominal diameter of pipe (in):	6
3b. Wall thickness (in):	.280
3c. SMYS (Specified Minimum Yield Strength) of pipe (psi):	35,000

Appendix C - Operator's Incident Report

3d. Pipe specification:	5L
3e. Pipe Seam – Specify:	Longitudinal ERW - Unknown Frequency
- If Other, Describe:	
3f. Pipe manufacturer:	Tenaris
3g. Year of manufacture:	2005
3h. Pipeline coating type at point of Incident – Specify:	Paint
- If Other, Describe:	
- If Weld, including heat-affected zone – Specify:	
- If Other, Describe:	
- If Valve – Specify:	
- If Mainline – Specify:	
- If Other, Describe:	
3i. Mainline valve manufacturer:	
3j. Year of manufacture:	
- If Other, Describe:	
4. Year item involved in Incident was installed:	2008
5. Material involved in Incident:	Carbon Steel
- If Material other than Carbon Steel or Plastic – Specify:	
6. Type of Incident involved:	Leak
- If Mechanical Puncture – Specify Approx. size:	
in. (axial) by	
in. (circumferential)	
- If Leak - Select Type:	Crack
- If Other – Describe:	
- If Rupture - Select Orientation:	
- If Other – Describe:	
Approx. size: in. (widest opening):	
by in. (length circumferentially or axially):	
- If Other – Describe:	
PART D - ADDITIONAL CONSEQUENCE INFORMATION	
1. Class Location of Incident:	Class 1 Location
2. Did this Incident occur in a High Consequence Area (HCA)?	No
- If Yes:	
2a. Specify the Method used to identify the HCA:	
3. What is the PIR (Potential Impact Radius) for the location of this Incident? Feet:	131
4. Were any structures outside the PIR impacted or otherwise damaged due to heat/fire resulting from the Incident?	No
5. Were any structures outside the PIR impacted or otherwise damaged NOT by heat/fire resulting from the Incident?	No
6. Were any of the fatalities or injuries reported for persons located outside the PIR?	No
7. Estimated Property Damage :	
7a. Estimated cost of public and non-Operator private property damage paid/reimbursed by the Operator – effective 6-2011, "paid/reimbursed by the Operator" removed	\$ 0
Estimated cost of gas released unintentionally – effective 6-2011, moved to item 7f	
Estimated cost of gas released during intentional and controlled blowdown – effective 6-2011, moved to item 7g	
7b. Estimated cost of Operator's property damage & repairs	\$ 13,371
7c. Estimated cost of Operator's emergency response	\$ 7,431
7d. Estimated other costs	\$ 69,372
Describe:	Contractor labor, equipment, sandblasting, x-ray, etc.
7e. Property damage subtotal (sum of above)	\$ 90,174
Cost of Gas Released	
7f. Estimated cost of gas released unintentionally	\$ 1,192
7g. Estimated cost of gas released during intentional and controlled blowdown	\$ 2,006
7h. Total estimated cost of gas released (sum of 7.f & 7.g above)	\$ 3,198
Total of all costs	\$ 93,372

Appendix C - Operator's Incident Report

PART E - ADDITIONAL OPERATING INFORMATION	
1. Estimated pressure at the point and time of the Incident (psig):	740.00
2. Maximum Allowable Operating Pressure (MAOP) at the point and time of the Incident (psig):	1,000.00
Added 10-2014 2a. MAOP established by 49 CFR section:	192.619(a)(2)
- If Other, specify:	
3. Describe the pressure on the system or facility relating to the Incident:	Pressure did not exceed MAOP
4. Not including pressure reductions required by PHMSA regulations (such as for repairs and pipe movement), was the system or facility relating to the Incident operating under an established pressure restriction with pressure limits below those normally allowed by the MAOP?	No
- If Yes - (Complete 4a and 4b below)	
4a. Did the pressure exceed this established pressure restriction?	
4b. Was this pressure restriction mandated by PHMSA or the State?	
5. Was "Onshore Pipeline, Including Valve Sites" OR "Offshore Pipeline, Including Riser and Riser Bend" selected in PART C, Question 2?	No
- If Yes - (Complete 5a. – 5e. below):	
5a. Type of upstream valve used to initially isolate release source:	
5b. Type of downstream valve used to initially isolate release source:	
5c. Length of segment isolated between valves (ft):	
5d. Is the pipeline configured to accommodate internal inspection tools?	
- If No – Which physical features limit tool accommodation? (select all that apply)	
- Changes in line pipe diameter	
- Presence of unsuitable mainline valves	
- Tight or mitered pipe bends	
- Other passage restrictions (i.e. unbarred tee's, projecting instrumentation, etc.)	
- Extra thick pipe wall (applicable only for magnetic flux leakage internal inspection tools)	
- Other	
- If Other, Describe:	
5e. For this pipeline, are there operational factors which significantly complicate the execution of an internal inspection tool run?	
- If Yes, which operational factors complicate execution? (select all that apply)	
- Excessive debris or scale, wax, or other wall build-up	
- Low operating pressure(s)	
- Low flow or absence of flow	
- Incompatible commodity	
- Other	
- If Other, Describe:	
5f. Function of pipeline system:	Transmission System
6. Was a Supervisory Control and Data Acquisition (SCADA)-based system in place on the pipeline or facility involved in the Incident?	Yes
- If Yes:	
6a. Was it operating at the time of the Incident?	Yes
6b. Was it fully functional at the time of the Incident?	Yes
6c. 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?	No
6d. Did SCADA-based information (such as alarm(s), alert(s), event(s), and/or volume calculations) assist with the confirmation of the Incident?	No
7. How was the Incident initially identified for the Operator?	Notification From Public
- If Other – Describe:	
7a. If "Controller", "Local Operating Personnel, including contractors", "Air Patrol", or "Ground Patrol by Operator or its contractor" is selected in Question 7, specify:	
8. 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 Operator did not find that an investigation of the controller(s) actions or control room issues was necessary due to: (provide an explanation for why the Operator did not investigate)

Appendix C - Operator's Incident Report

- 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>	Incident was caused by an outside party losing control of a vehicle, rolling and ending up inside the town border station facility. Controller(s) had no knowledge or control of any of the aforementioned circumstances.
- If Yes, Describe 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:	
PART F - DRUG & ALCOHOL TESTING INFORMATION	
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. How many were tested:	
1b. 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. How many were tested:	
2b. How many failed:	
PART G - APPARENT CAUSE	
<i>Select only one box from PART G in the shaded column on the 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>	
Apparent Cause:	G4 - Other Outside Force Damage
G1 - Corrosion Failure - only one sub-cause can be picked from shaded left-hand column	
Corrosion Failure – Sub-cause:	
- If External Corrosion:	
1. Results of visual examination:	
- If Other, Describe:	
2. Type of corrosion: <i>(select all that apply)</i>	
- 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: <i>(select all that apply)</i>	
- Field examination	
- Determined by metallurgical analysis	
- Other	
- If Other – Describe:	

Appendix C - Operator's Incident Report

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?	
- If Internal Corrosion:	
6. Results of visual examination:	
- If Other, Describe:	
7. Cause of corrosion <i>(select all that apply)</i> :	
- Corrosive Commodity	
- Water drop-out/Acid	
- Microbiological	
- Erosion	
- Other	
- If Other, Describe:	
8. The cause(s) of corrosion selected in Question 7 is based on the following <i>(select all that apply)</i> :	
- Field examination	
- Determined by metallurgical analysis	
- Other	
- If Other, Describe:	
9. Location of corrosion <i>(select all that apply)</i> :	
- Low point in pipe	
- Elbow	
- Drop-out	
- Other	
- If Other, Describe:	
10. Was the gas/fluid treated with corrosion inhibitors or biocides?	
11. Was the interior coated or lined with protective coating?	
12. Were cleaning/dewatering pigs (or other operations) routinely utilized?	
13. Were corrosion coupons routinely utilized?	
Complete the following if any Corrosion Failure sub-cause is selected AND the "Item Involved in Incident" (from PART C, Question 3) is Pipe or Weld.	
14. Has one or more internal inspection tool collected data at the point of the Incident?	
14a. If Yes, for each tool used, select type of internal inspection tool and indicate most recent year run:	
- Magnetic Flux Leakage Tool	Most recent year run:
- Ultrasonic	Most recent year run:
- Geometry	Most recent year run:
- Caliper	Most recent year run:
- Crack	Most recent year run:
- Hard Spot	Most recent year run:
- Combination Tool	Most recent year run:
- Transverse Field/Triaxial	Most recent year run:
- Other	Most recent year run:
If Other, Describe:	
15. Has one or more hydrotest or other pressure test been conducted since original construction at the point of the Incident?	

Appendix C - Operator's Incident Report

- If Yes,	
Most recent year tested:	
Test pressure (psig):	
16. Has one or more Direct Assessment been conducted on this segment?	
- If Yes, and an investigative dig was conducted at the point of the Incident:	
Most recent year conducted:	
- If Yes, but the point of the Incident was not identified as a dig site:	
Most recent year conducted:	
17. Has one or more non-destructive examination been conducted at the point of the Incident since January 1, 2002?	
17a. If Yes, for each examination conducted since January 1, 2002, select type of non-destructive examination and indicate most recent year the examination was conducted:	
- Radiography	
Most recent year examined:	
- Guided Wave Ultrasonic	
Most recent year examined:	
- Handheld Ultrasonic Tool	
Most recent year examined:	
- Wet Magnetic Particle Test	
Most recent year examined:	
- Dry Magnetic Particle Test	
Most recent year examined:	
- Other	
Most recent year examined:	
If Other, Describe:	
G2 - Natural Force Damage - only one sub-cause can be picked from shaded left-handed column	
Natural Force Damage – Sub-Cause:	
- If Earth Movement, NOT due to Heavy Rains/Floods:	
1. Specify:	
- If Other, Describe:	
- If Heavy Rains/Floods:	
2. Specify:	
- If Other, Describe:	
- If Lightning:	
3. Specify:	
- If Temperature:	
4. Specify:	
- If Other, Describe:	
- If Other Natural Force Damage:	
5. Describe:	
Complete the following if any Natural Force Damage sub-cause is selected.	
6. Were the natural forces causing the Incident generated in conjunction with an extreme weather event?	
6a. If yes, specify: (select all that apply):	
- Hurricane	
- Tropical Storm	
- Tornado	
- Other	
- If Other, Describe:	
G3 - Excavation Damage only one sub-cause can be picked from shaded left-hand column	
Excavation Damage – Sub-Cause:	
- If Previous Damage Due to Excavation Activity: Complete Questions 1-5 ONLY IF the "Item Involved in Incident" (From Part C, Question 3) is Pipe or Weld.	
1. Has one or more internal inspection tool collected data at the point of the Incident?	
1a. If Yes, for each tool used, select type of internal inspection tool and indicate most recent year run:	
- Magnetic Flux Leakage	
Year:	
- Ultrasonic	
Year:	
- Geometry	
Year:	

Appendix C - Operator's Incident Report

- Caliper	
Year:	
- Crack	
Year:	
- Hard Spot	
Year:	
- Combination Tool	
Year:	
- Transverse Field/Triaxial	
Year:	
- Other:	
Year:	
Describe:	
2. Do you have reason to believe that the internal inspection was completed BEFORE the damage was sustained?	
3. Has one or more hydrotest or other pressure test been conducted since original construction at the point of the Incident?	
- If Yes:	
Most recent year tested:	
Test pressure (psig):	
4. Has one or more Direct Assessment been conducted on the pipeline segment?	
- If Yes, and an investigative dig was conducted at the point of the Incident:	
Most recent year conducted:	
- If Yes, but the point of the Incident was not identified as a dig site:	
Most recent year conducted:	
5. Has one or more non-destructive examination been conducted at the point of the Incident since January 1, 2002?	
5a. If Yes, for each examination conducted since January 1, 2002, select type of non-destructive examination and indicate most recent year the examination was conducted:	
- Radiography	
Year:	
- Guided Wave Ultrasonic	
Year:	
- Handheld Ultrasonic Tool	
Year:	
- Wet Magnetic Particle Test	
Year:	
- Dry Magnetic Particle Test	
Year:	
- Other	
Year:	
Describe:	
Complete the following if Excavation Damage by Third Party is selected as the sub-cause.	
6. Did the operator get prior notification of the excavation activity?	
6a. If Yes, Notification received from <i>(select all that apply)</i> :	
- One-Call System	
- Excavator	
- Contractor	
- Landowner	
Complete the following mandatory CGA-DIRT Program questions if any Excavation Damage sub-cause is selected.	
7. Do you want PHMSA to upload the following information to CGA-DIRT (www.cga-dirt.com)?	
8. 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	
9. Type of excavator :	
10. Type of excavation equipment :	
11. Type of work performed :	

Appendix C - Operator's Incident Report

12. Was the One-Call Center notified? - Yes - No	
12a. If Yes, specify ticket number:	
12b. If this is a State where more than a single One-Call Center exists, list the name of the One-Call Center notified:	
13. Type of Locator:	
14. Were facility locate marks visible in the area of excavation?	
15. Were facilities marked correctly?	
16. Did the damage cause an interruption in service?	
16a. If Yes, specify duration of the interruption: (hours)	
17. Description of the CGA-DIRT Root Cause (select only the one predominant first level CGA-DIRT Root Cause and then, where available as a choice, then one predominant second level CGA-DIRT Root Cause as well):	
- Predominant first level CGA-DIRT Root Cause:	
- 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:	
G4 - Other Outside Force Damage - only one sub-cause can be selected from the shaded left-hand column	
Other Outside Force Damage – Sub-Cause:	Damage by Car, Truck, or Other Motorized Vehicle/Equipment NOT Engaged in Excavation
- If Damage by Car, Truck, or Other Motorized Vehicle/Equipment NOT Engaged in Excavation:	
1. Vehicle/Equipment operated by:	Third Party
- If Damage by Boats, Barges, Drilling Rigs, or Other Maritime Equipment or Vessels Set Adrift or Which Have Otherwise Lost Their Mooring:	
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, Describe:	
- If Previous Mechanical Damage NOT Related to Excavation: Complete Questions 3-7 ONLY IF the "Item Involved in Incident" (from PART C, Question 3) is Pipe or Weld.	
3. Has one or more internal inspection tool collected data at the point of the Incident?	
3a. If Yes, for each tool used, select type of internal inspection tool and indicate most recent year run:	
- Magnetic Flux Leakage	
Most recent year run:	
- Ultrasonic	
Most recent year run:	
- Geometry	
Most recent year run:	
- Caliper	
Most recent year run:	
- Crack	
Most recent year run:	
- Hard Spot	
Most recent year run:	
- Combination Tool	
Most recent year run:	
- Transverse Field/Triaxial	
Most recent year run:	
- Other:	
Most recent year run:	
Describe:	
4. Do you have reason to believe that the internal inspection was completed BEFORE the damage was sustained?	
5. Has one or more hydrotest or other pressure test been conducted since original construction at the point of the Incident?	
- If Yes:	
Most recent year tested:	
Test pressure (psig):	
6. Has one or more Direct Assessment been conducted on the pipeline segment?	

Appendix C - Operator's Incident Report

- If Yes, and an investigative dig was conducted at the point of the Incident :	
Most recent year conducted:	
- If Yes, but the point of the Incident was not identified as a dig site:	
Most recent year conducted:	
7. Has one or more non-destructive examination been conducted at the point of the Incident since January 1, 2002?	
7a. If Yes, for each examination conducted since January 1, 2002, select type of non-destructive examination and indicate most recent year the examination was conducted:	
- Radiography	
Most recent year conducted:	
- Guided Wave Ultrasonic	
Most recent year conducted:	
- Handheld Ultrasonic Tool	
Most recent year conducted:	
- Wet Magnetic Particle Test	
Most recent year conducted:	
- Dry Magnetic Particle Test	
Most recent year conducted:	
- Other	
Most recent year conducted:	
Describe:	
- If Intentional Damage:	
8. Specify:	
- If Other, Describe:	
- If Other Outside Force Damage:	
9. Describe:	
G5 - Pipe, Weld, or Joint Failure	Use this section to report material failures ONLY IF the "Item Involved in Incident" (from PART C, Question 3) is "Pipe" or "Weld."
	Only one sub-cause can be selected from the shaded left-hand column
Pipe, Weld or Join Failure – Sub-Cause:	
1. The sub-cause shown above is based on the following (<i>select all that apply</i>):	
- Field Examination	
- Determined by Metallurgical Analysis	
- Other Analysis	
- If "Other Analysis", Describe	
- Sub-cause is Tentative or Suspected; Still Under Investigation (<i>Supplemental Report required</i>)	
- If Construction-, Installation- or Fabrication	
2. List contributing factors: (<i>select all that apply</i>)	
- Fatigue or Vibration related:	
Specify:	
- If Other, Describe:	
- Mechanical Stress	
- Other	
- If Other, Describe:	
- If Environmental Cracking-related:	
3. Specify:	
- If Other, Describe:	
Complete the following if any Material Failure of Pipe or Weld sub-cause is selected.	
4. 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	
- If Other, Describe:	

Appendix C - Operator's Incident Report

5. Has one or more internal inspection tool collected data at the point of the Incident?	
5a. If Yes, for each tool used, select type of internal inspection tool and indicate most recent year run:	
- Magnetic Flux Leakage	
Most recent year run:	
- Ultrasonic	
Most recent year run:	
- Geometry	
Most recent year run:	
- Caliper	
Most recent year run:	
- Crack	
Most recent year run:	
- Hard Spot	
Most recent year run:	
- Combination Tool	
Most recent year run:	
- Transverse Field/Triaxial	
Most recent year run:	
- Other	
Most recent year run:	
Describe:	
6. Has one or more hydrotest or other pressure test been conducted since original construction at the point of the Incident?	
- If Yes:	
Most recent year tested:	
Test pressure (psig):	
7. Has one or more Direct Assessment been conducted on the pipeline segment?	
- If Yes, and an investigative dig was conducted at the point of the Incident:	
Most recent year conducted:	
- If Yes, but the point of the Incident was not identified as a dig site:	
Most recent year conducted:	
8. Has one or more non-destructive examination(s) been conducted at the point of the Incident since January 1, 2002?	
8a. If Yes, for each examination conducted since January 1, 2002, select type of non-destructive examination and indicate most recent year the examination was conducted:	
- Radiography	
Most recent year conducted:	
- Guided Wave Ultrasonic	
Most recent year conducted:	
- Handheld Ultrasonic Tool	
Most recent year conducted:	
- Wet Magnetic Particle Test	
Most recent year conducted:	
- Dry Magnetic Particle Test	
Most recent year conducted:	
- Other	
Most recent year conducted:	
Describe:	
G6 - Equipment Failure - only one sub-cause can be selected from the shaded left-hand column	
Equipment Failure – Sub-Cause:	
- If Malfunction of Control/Relief Equipment:	
1. Specify:	
- Control Valve	
- Instrumentation	
- SCADA	
- Communications	
- Block Valve	
- Check Valve	
- Relief Valve	

Appendix C - Operator's Incident Report

- Power Failure	
- Stopple/Control Fitting	
- Pressure Regulator	
- ESD System Failure	
- Other	
- If Other, Describe:	
- If Compressor or Compressor-related Equipment:	
2. Specify:	
- If Other, Describe:	
- If Threaded Connection/Coupling Failure:	
3. Specify:	
- If Other, Describe:	
- If Non-threaded Connection Failure:	
4. Specify:	
- If Other, Describe:	
- If Other Equipment Failure:	
5. Describe:	
Complete the following if any Equipment Failure sub-cause is selected.	
6. Additional factors that contributed to the equipment failure <i>(select all that apply)</i>	
- Excessive vibration	
- Overpressurization	
- No support or loss of support	
- Manufacturing defect	
- Loss of electricity	
- Improper installation	
- Mismatched items (different manufacturer for tubing and tubing fittings)	
- Dissimilar metals	
- Breakdown of soft goods due to compatibility issues with transported gas/fluid	
- Valve vault or valve can contributed to the release	
- Alarm/status failure	
- Misalignment	
- Thermal stress	
- Other	
- If Other, Describe:	
G7 – Incorrect Operation - only one sub-cause can be selected from the shaded left-hand column	
Incorrect Operation – Sub-Cause:	
- If Underground Gas Storage, Pressure Vessel, or Cavern Allowed or Caused to Overpressure:	
1. Specify:	
- If Other, Describe:	
- If Other Incorrect Operation:	
2. Describe:	
Complete the following if any Incorrect Operation sub-cause is selected.	
3. Was this Incident related to: <i>(select all that apply)</i>	
- Inadequate procedure	
- No procedure established	
- Failure to follow procedure	
- Other:	
- If Other, Describe:	
4. What category type was the activity that caused the Incident:	
5. Was the task(s) that led to the Incident identified as a covered task in your Operator Qualification Program?	
5a. If Yes, were the individuals performing the task(s) qualified for the task(s)?	
G8 - Other Incident Cause - only one sub-cause can be selected from the shaded left-hand column	
Other Incident Cause – Sub-Cause:	
- If Miscellaneous:	
1. Describe:	

Appendix C - Operator's Incident Report

- If Unknown:	
2. Specify:	
PART - H NARRATIVE DESCRIPTION OF THE INCIDENT	
<p>In the early morning hours of August 6, 2010, a local resident lost control of his vehicle. The vehicle left the road, rolled numerous times and finally ended up inside the fencing of the Hawkeye/Menlo Renewables ethanol plant town border station, which is owned and operated by Northern Natural Gas Company and supplies natural gas to the ethanol plant. One individual was dead at the site and one was transported by life flight to a hospital and died shortly thereafter. The vehicle struck and damaged high-pressure natural gas piping in several places in the town border station. A 1/4-inch diameter pipe fitting, between the station inlet filter and the filter inlet gauge isolation valve was broken, causing the release of high pressure gas. The station piping was isolated and blown down to zero pressure and upon closer observation it was decided that the 7.5 mile long, 6-inch branch line to the station needed to be isolated and blown down in order to ensure safety for all personnel while inspecting for damage and repairing piping within the town border station. There were no defects found but the 6-inch diameter in-line inspection tool receiver inlet and the 4-inch diameter station inlet valves were found to be damaged. Both the 6 and 4-inch valves were replaced as well as three fittings and various small lengths of pipe to facilitate replacement of the valves. There was no fire, explosion or evacuations because of the incident. Upon completion of repairs the branch line and the town border station were purged, re-pressurized with natural gas and service was restored to the ethanol plant. The vehicle crash was investigated by the Iowa State Highway Patrol and local county law enforcement officials.</p> <p>Final report: The total cost of repairs was revised to calculate the final total of \$93,372. This report is considered complete with no further actions pending.</p> <p>Supplemental/final: Update part E5f with transmission per PHMSA request on report 20100052 dated 8/31/2010.</p> <p>Supplemental/Final: Update on timeline of events. The individuals crashed into the town border station around 01:30. Local police did not arrive at the station until 05:35 the same morning. Northern was not notified until 06:00 as shown in Part A4.</p>	
PART I - PREPARER AND AUTHORIZED SIGNATURE	
Preparer's Name	Byron Wood
Preparer's Title	Sr. Pipeline Safety Specialist
Preparer's Telephone Number	402-398-7396
Preparer's E-mail Address	byron.wood@nngco.com
Preparer's Facsimile Number	402-398-7606
Authorized Signature Title	Director Pipeline Safety and Integrity
Authorized Signature Telephone Number	402-398-7715
Authorized Signature Email	thomas.correll@nngco.com
Date	07/08/2015

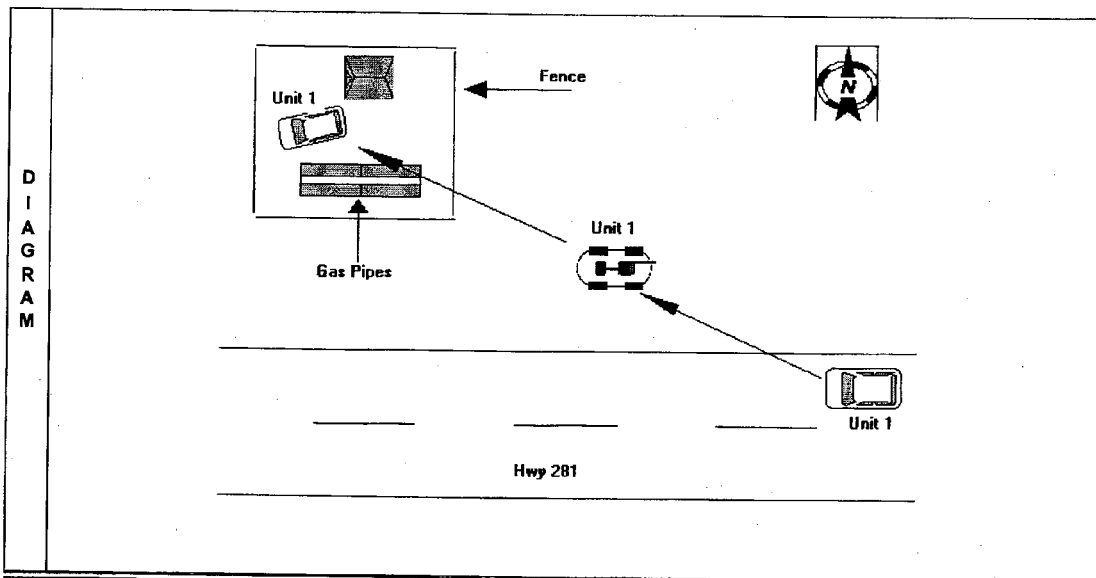
Appendix D - Iowa DOT Motor Vehicle Accident Report

MARS
5/03MAIL REPORTS TO:
Iowa Department of Transportation
Office of Driver Services
P.O. Box 9204
Des Moines, Iowa 50306-9204Iowa Department of Transportation
INVESTIGATING OFFICERS REPORT
OF MOTOR VEHICLE ACCIDENT

Law Enforcement Case Number: 2010046269	
Legal Intervention? <input type="checkbox"/>	Private Property? <input type="checkbox"/>
Location Literal Description 281 EAST OF FAIRBANK	
X-Coordinate: 00580121	
Y-Coordinate: 04721533	
If Divided Highway, Provide Route (Cardinal) Travel Direction "N/A"	

L O C A T I O N	Date of Accident 08/06/2010	Time of Accident 05:35 Hrs.	County Buchanan - 10	Accident occurred within corporate limits of (city)
	If accident occurred outside of city limits show general vicinity: "N/A" of nearest city "N/A"			
	On Road, Street, or Highway: "N/A"		At Intersection with: "N/A"	
	Note: Unless accident occurred at an intersection which is completely described above, use the space below to give the exact location from a milepost or definable intersection, bridge, or railroad crossing, using two distances and directions if necessary.			
	Distance "N/A"	Direction "N/A"	Distance "N/A"	Direction "N/A"
Milepost Number "N/A"		Or Definable Intersection, bridge, or railroad crossing "N/A"		

If Property other than vehicles damaged explain	Object Damaged FENCE	Estimate of Damage \$1,000.00	Was owner or tenant notified? Yes
Owner's Name - Last First Middle Suffix		Company Owner Name	
		NORTHERN NATURAL GAS COMPANY	
Street or RFD 1111 SOUTH 103RD ST		City OMAHA	State Zip Code NE 68124
If Property other than vehicles damaged explain	Object Damaged GAS PIPE	Estimate of Damage \$1,000.00	Was owner or tenant notified? Yes
Owner's Name - Last First Middle Suffix		Company Owner Name	
		NORTHERN NATURAL GAS COMPANY	
Street or RFD 1111 SOUTH 103RD ST		City OMAHA	State Zip Code NE 68124

**NARRATIVE**

Describe what happened (refer to vehicles by number)

UNIT ONE WAS TRAVELING WEST ON HIGHWAY 281 WHEN IT LOST CONTROL AND ENTERED THE NORTH DITCH. UNIT ONE ROLLED SEVERAL TIMES AND CLEARED A CHAIN LINK FENCE THAT WAS SURROUNDING SOME EXPOSED GAS PIPES. UNIT ONE CAME TO REST ON ALL FOUR TIRES INSIDE THE FENCE.

Officer TRIMBLE MICHAEL	Badge No. 312	Time Officer Notified of Accident 07:30 Hrs.	Time Officer Arrived At Scene 08:08 Hrs.
Name of Agency Iowa State Patrol - Dist 10	Date of Report 08/06/2010	Investigation made at scene? Yes	T.I. #
Report Reviewed By: MARKER, TERRY	Date Reviewed 08/14/2010	Agency Specific	Other Technical Investigation Agency