

**U.S. DEPARTMENT OF COMMERCE
National Technical Information Service**

PB-284 470

Pipeline Accident Reports - Brief Format, Issue Number 1 - 1977

National Transportation Safety Board, Washington, D C

20 Jun 78

TECHNICAL REPORT DOCUMENTATION PAGE

1. Report No. NTSB-PAB-78-1		2. Government Accession No.		3. Recipient's Catalog No. 30470																									
4. Title and Subtitle Pipeline Accident Reports -- Brief Format, Issue Number 1 -- 1977				5. Report Date June 20, 1978																									
				6. Performing Organization Code																									
7. Author(s)				8. Performing Organization Report No.																									
9. Performing Organization Name and Address Bureau of Accident Investigation National Transportation Safety Board Washington, D.C. 20594				10. Work Unit No. 2374																									
				11. Contract or Grant No.																									
				13. Type of Report and Period Covered 17 U.S. Pipeline Accidents occurring in 1975, 1976 and 1977 in Brief Format																									
12. Sponsoring Agency Name and Address NATIONAL TRANSPORTATION SAFETY BOARD Washington, D. C. 20594				14. Sponsoring Agency Code																									
15. Supplementary Notes																													
16. Abstract <p>This publication contains briefs of selected pipeline accidents, occurring during the calendar years 1975, 1976, and 1977. The brief format presents basic facts, conditions, and probable cause(s) in each instance.</p> <p>File Numbers: P-75-004</p> <table border="0"> <tr> <td>DCA-76-FP-004</td> <td>FTW-77-FP-001</td> </tr> <tr> <td>DCA-76-FP-007</td> <td>DCA-77-FP-003</td> </tr> <tr> <td>DCA-76-FP-028</td> <td>DCA-77-FP-006</td> </tr> <tr> <td>DCA-76-FP-030</td> <td>DCA-77-FP-007</td> </tr> <tr> <td></td> <td>DCA-77-FP-008</td> </tr> <tr> <td></td> <td>DCA-77-FP-010</td> </tr> <tr> <td></td> <td>DCA-77-FP-019</td> </tr> <tr> <td></td> <td>DCA-77-FP-023</td> </tr> <tr> <td></td> <td>DCA-77-FP-024</td> </tr> <tr> <td></td> <td>DCA-77-FP-028</td> </tr> <tr> <td></td> <td>DCA-77-FP-029</td> </tr> <tr> <td></td> <td>DCA-77-FP-030</td> </tr> </table>						DCA-76-FP-004	FTW-77-FP-001	DCA-76-FP-007	DCA-77-FP-003	DCA-76-FP-028	DCA-77-FP-006	DCA-76-FP-030	DCA-77-FP-007		DCA-77-FP-008		DCA-77-FP-010		DCA-77-FP-019		DCA-77-FP-023		DCA-77-FP-024		DCA-77-FP-028		DCA-77-FP-029		DCA-77-FP-030
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	DCA-77-FP-030																												
17. Key Words Circumferential break, graphitization, material failure, improper procedures, external corrosion, internal corrosion, soil subsidence, outside human forces, construction defect, improper operating procedure, accidental damage, emergency procedures, inspection.				18. Distribution Statement This document is available to the public through the National Technical Information Service, 5285 Port Royal Road, Springfield, VA 22161																									
19. Security Classification (of this report) UNCLASSIFIED		20. Security Classification (of this page) UNCLASSIFIED		21. No. of Pages 24																									
				22. Price																									

FOREWORD

The National Transportation Safety Board, in accordance with the provisions of the Independent Safety Board Act of 1974, has determined the probable cause of the accidents reported herein.

This publication contains the reports of 17 pipeline accidents arranged in chronological order.

The enclosed briefs are the reports of the National Transportation Safety Board and are thereby subject to the limitations of 49 USC 1903(c):

"No part of any report or reports of the Board, relating to any accident or the investigation thereof, shall be admitted as evidence or used in any suit or action for damages growing out of any matter mentioned in such report or reports."

For those readers who wish more detailed information, the original factual reports are on file in the Washington, D.C., office of the National Transportation Safety Board and may be examined. These reports will be reproduced for a fee covering reproduction cost and postage. Orders for materials are also subject to a user charge by the Board for special services, and such charge will be included in the bill.

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EXPLANATORY NOTES

Scope

The accidents included herein are those occurrences incidental to pipeline operations which fall within the scope of Section 304 of the Independent Safety Board Act of 1974. As provided in this Section the Board shall investigate and determine facts, conditions, circumstances, and the probable cause of any pipeline accident in which there is a fatality, or substantial property damage.

The following definitions, as set forth in Title 49 of the Code of Federal Regulations, Part 192 and 195 are used:

Transmission of Gas 192.3

"Transmission of Gas" means the gathering, transmission, or distribution of gas by pipeline or the storage of gas, in or affecting interstate or foreign commerce.

Transmission Line 192.3

"Transmission line" means a pipeline, other than a gathering line, that:

- (a) Transports gas from a gathering line or storage facility to a distribution center or storage facility;
- (b) Operates at a hoop stress of 20 percent or more of SMYS; or
- (c) Transports gas within a storage field.

Main 192.3

"Main" means a distribution line that serves as a common source of supply for more than one service line.

Service Line 192.3

"Service line" means a distribution line that transports gas from a common source of supply to (a) a customer meter or the connection to a customer's piping, whichever is farther downstream, or (b) the connection to a customer's piping if there is no customer meter. A customer meter is the meter that measures the transfer of gas from and operator to a consumer.

Gas 192.3

"Gas" means natural gas, flammable gas, or gas which is toxic or corrosive.

Pipeline 192.3

"Pipeline" means all parts of those physical facilities through which gas moves in transportation, including pipe, valves, and other appurtenance attached to pipe, compressor units, metering stations, regulator stations, delivery stations, holders, and fabricated assemblies.

Pipeline Facility 192.3

"Pipeline facility" means new and existing pipelines, rights-of-way, and any equipment, facility, or building used in the transportation of gas or in the treatment of gas during the course of transportation.

Liquid 195.2

"Commodity" means a hazardous material that is subject to Parts 172 and 173 of this chapter, petroleum, and petroleum products.

Pipeline System 195.2

"Pipeline system" or "pipeline" means all parts of a carrier's physical facilities through which commodities move in transportation that is subject to this part, including, but not limited to line pipe, valves and other appurtenances connected to line pipe, pumping units, fabricated assemblies associated with pumping units, metering and delivery stations and fabricated assemblies therein and carrier-controlled breakout tankage.

The following definitions, as set forth in Title III - the Independent Safety Board Act are used:

Fatality

"Fatality" means the death of a person either at the time a pipeline accident occurs or thereafter.

Substantial Damage

"Substantial damage" means damage of \$100,000 or more to pipeline and non-pipeline property.

Alphabetical List of Accidents

Location	Company	Date	Page
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Alphabetical List of Accidents

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NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C. 20594
Brief of Accident

P-75-004 _____ Pipeline Accident: FY 75, Qtr. 4th

Company	Type	Commodity	Date	Location
Stroudsburg Gas Co.	Distribution	Natural Gas	6/17/75	505 King Street
				Stroudsburg, Pennsylvania

Accident: Natural gas leaked from a corroded service line in the basement of a house that was no longer served by natural gas and was ignited by some unknown source. The house was destroyed. The gas service line was found upon excavation to be still connected to the gas main although maintenance records showed that it had been cut off and capped at the main previously. Previous gas odors in the neighborhood had been checked by the gas company, but they had not checked any of the houses for gas odors.

LOSSES: Fatalities 1; reportable injuries --; Pipeline Damage \$ --; Non-Pipeline Damage \$ 20,000

Probable Causes:

1. Component weakened by external corrosion
2. Inadequate inspection of system for maintenance work performed
3. Failure to execute emergency procedures properly

Other Factors:

- 1.
- 2.

Probable Cause of Casualties: 1. Critically burned

2.
3.

Other Casualty factors:

1. Physical disability of individual casualty
2. 82-year-old man had no sense of smell

Recommendations: P-75-12, P-75-13

NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C. 20594
Brief of Accident

DCA-75-FP-003

Pipeline Accident: FY 75, Qtr. 4th

Company	Type	Commodity	Date	Location
Sunset, Louisiana	Distribution	Natural Gas	6/15/75	Sunset, Louisiana
Municipal Gas Dept.				

Accident: The owner of a house trailer connected the trailer's natural gas service line to a gas meter and opened the unlocked valve on the gas regulator. The undetected accumulation of natural gas, which escaped from an open end of a gas pipe under the trailer, was ignited by a match. The trailer was destroyed. The gas company failed to padlock the valve on the unconnected meter as required by regulations before turning gas on to a customer facility.

LOSSES: Fatalities 1; reportable injuries 1; Pipeline Damage \$ --; Non-Pipeline Damage \$ 5,000

Probable Causes: 1. Unauthorized operation of meter valve by customer

2. Failure to execute installation procedures properly

3. Failure to detect escape of gas

Other Factors: 1.

2.

Probable Cause of Casualties: 1. Critically burned

2.

3.

Other Casualty factors: 1. None

2.

Recommendations: None

NATIONAL TRANSPORTATION SAFETY BOARD

WASHINGTON, D.C. 20594

Brief of Accident

DCA-76-FP-004

Pipeline Accident: FY 76, Qtr. 1st

Company	Type	Commodity	Date	Location
Atlantic Richfield Co.	Gas Gathering	Natural Gas	9/7/75	Kilgore, Texas
		Liquids		

Accident: Unodorized natural gas liquids leaked from an old, badly corroded gas-gathering pipeline which had recently been subjected to a higher-than-normal operating pressure. The accumulation of the natural gas liquids was ignited by a source in or under an automobile. The automobile was destroyed.

LOSSES: Fatalities 5; reportable injuries --; Pipeline Damage \$ 1,000; Non-Pipeline Damage \$ 3,000

Probable Causes: 1. Component weakened by internal corrosion

2. Component weakened by external corrosion

3. Material failure due to pressure over normal but within design limits

Other Factors: 1. Failure to recognize condition as hazardous

2. Failure to identify natural gas liquids

Probable Cause of Casualties: 1. Critically burned

2.

3.

Other Casualty factors: 1. None

2.

Recommendations: None

NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C. 20594
Brief of Accident

DCA-76-FP-007

Pipeline Accident: FY 76, Qtr. 2nd

Company	Type	Commodity	Date	Location
El Paso Natural	Gas Gathering	Natural Gas	10/13/75	Goldsmith, Texas
Transmission Gas Co.		Liquids		

Accident: A massive release and immediate ignition of natural gas at 550 psig pressure from the end of a section of 12-inch pipe, which had been weakened by internal corrosion and had failed, caused severe damage to a gas processing plant and killed three employees.

LOSSES: Fatalities 3; reportable injuries 2; Pipeline Damage \$2 million; Non-Pipeline Damage \$

Probable Causes: 1. Material failure due to corrosion which weakened material

2. Internal corrosion due to carrying corrosive commodity

3.

Other Factors: 1. None

2.

Probable Cause of Casualties: 1. Critically burned

2.

3.

Other Casualty factors: 1. None

2.

Recommendations: P-75-14, P-75-15

NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C. 20594
Brief of Accident

DCA-76-FP-028

Pipeline Accident: FY 76, Qtr. 4th

Company	Type	Commodity	Date	Location
Wisconsin Natural	Distribution	Natural Gas	8/29/76	Kenosha, Wisconsin
Gas Company				

Accident: While cleaning a sewer lateral with an machine driven auger, a 2-inch plastic gas main operating at 58 psig was ruptured. Gas entered the house through the sewer line and was ignited by an unknown source. The house was destroyed and two adjacent houses were damaged. The 2-inch gas main was installed by open trenching and by boring in areas under driveways and the gas main was bored through drain tiles in some of these locations. The people whose drain tile had been broken and had subsequently become plugged, tried to clean it out. People had evacuated premises at first sign of gas but returned to gather valuables before building was gas free.

LOSSES: Fatalities 2; reportable injuries 4; Pipeline Damage \$1,000; Non-Pipeline Damage \$70,000

Probable Causes: 1. Damage by human non pipeline forces due to machine operator error, unaware of pipeline location.
2.
3.

Other Factors: 1. Inadequate inspection procedures - inadequate ditch inspection during construction.
2.

Probable Cause of Casualties: 1. Fatalities from collapse of structure
2. Critically burned
3.

Other Casualty factors: 1. None
2.

Recommendations: P-76-83, P-76-84, P-76-85, P-76-86

NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C. 20594
Brief of Accident

DCA-76-FP-030

Pipeline Accident: FY 76, Qtr. 4th

Company	Type	Commodity	Date	Location
Northern Illinois Gas	Distribution	Natural Gas	9/10/76	Blue Island, Illinois
Company				

Accident: Natural gas leaked from a broken 6-inch cast-iron low pressure gas main and migrated into a building. Soil subsidence beneath the gas main caused by nearby sewer construction, and heavy equipment on the street above the gas main caused the cast-iron pipe to break in four places. The ignition was by an unknown source and the two-story building was destroyed.

LOSSES: Fatalities 1; reportable injuries 10; Pipeline Damage \$ 4,000; Non-Pipeline Damage \$ 100,000

Probable Causes:

1. Natural forces - soil subsidence
2. Damage by human forces, nonpipeline - overstressing of pipeline through heavy equipment above pipeline
- 3.

Other Factors:

1. None
- 2.

Probable Cause of Casualties:

1. Fatality from collapse of structure
2. Injuries from flying objects
- 3.

Other Casualty factors:

1. None
- 2.

Recommendations: None

NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C. 20594
Brief of Accident

FTW-77-FP-001

Pipeline Accident: FY 77, Qtr. 4th

Company	Type	Commodity	Date	Location
Southern Union Gas Co.	Distribution	Natural Gas	8/9/77	El Paso, Texas

Accident: Natural gas under high pressure (20 psig) entered a low-pressure (6 ounces per square inch) distribution line and overpressured more than 750 customer service lines in a seven-block area. Flames from gas pilots and the burners of appliances burned out of control and caused fires in nearby flammable materials. Gas company was replacing a section of 10-inch cast iron low pressure gas main and isolated it between two valves. The isolated sector contained the gas regulator pressure sensing control lines. When the pressure fell to 0 psig the gas regulators opened up to try to maintain its operating pressure and over pressured the rest of the affected system. Problem was corrected before any fatalities or injuries resulted.

LOSSES: Fatalities --; reportable injuries --; Pipeline Damage \$ 15,000; Non-Pipeline Damage \$ 15,000

Probable Causes: 1. Human failure - failure to execute maintenance procedures properly
2. - failure to detect hazardous condition
3.

Other Factors: 1. None
2.

Probable Cause of Casualties: 1. None
2.
3.

Other Casualty factors: 1. None
2.

Recommendations: P-77-43

NATIONAL TRANSPORTATION SAFETY BOARD

WASHINGTON, D.C. 20594

Brief of Accident

DCA-77-FP-006

Pipeline Accident: FY 77, Qtr. 2nd

Company	Type	Commodity	Date	Location
Public Service Electric	Distribution	Natural Gas	1/5/77	Fairview, New Jersey
& Gas Company				Kamena Street

Accident: Natural gas leaked from a circumferential break in 6-inch low pressure cast-iron main. The gas migrated under a paved street and adjoining sidewalk between the concrete slab foundation and a cinder block wall into a space under the flooring 13½ feet away. The gas was unable to escape to the atmosphere because of the pavement and frozen dirt. Ignition was by some unknown source; three buildings were destroyed. Odor of natural gas in affected building was thought to be sewer gas emanating from bathroom. Gas company was not notified of gas odors.

LOSSES: Fatalities 1; reportable injuries 13; Pipeline Damage \$3,000; Non-Pipeline Damage \$250,000

Probable Causes: 1. Material failure due to stresses built up by cold weather

2. Graphitization of cast-iron main

3.

Other Factors: 1. Frost in the ground prevented venting

2. Failure of individual to identify natural gas odor

Probable Cause of Casualties: 1. Critically burned

2.

3.

Other Casualty factors: 1. None

2.

Recommendations: None

NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C. 20594
Brief of Accident

DCA-77-FP-007

Pipeline Accident: FY 77, Qtr. 2nd

Company	Type	Commodity	Date	Location
Baltimore Gas & Electric,	Distribution	Natural Gas	1/13/77	Baltimore, Maryland
Company				Westwood Avenue

Accident: Natural gas leaked from a circumferential break in a 4-inch cast-iron low pressure gas main. The gas migrated under a paved street and adjoining sidewalk into the cellar and walls of the rowhouses 26 feet away. The gas was unable to escape to the atmosphere because of the pavement and frozen dirt. Ignition was probably by the oil burner motor. Inhabitant smelled gas in house prior to accident but failed to report this fact to the gas company.

LOSSES: Fatalities 1; reportable injuries ; Pipeline Damage \$; Non-Pipeline Damage \$ 5,000

Probable Causes: 1. Material failure due to stresses built up by cold weather

2. Graphitization of cast-iron main

3.

Other Factors:

1. Frost in the ground prevented venting

2. Failure of individual to notify officials of odor of gas

Probable Cause of Casualties: 1. Critically burned

2.

3.

Other Casualty factors:

1. None

2.

Recommendations: None

NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C. 20594
Brief of Accident

DCA-77-FP-008

Pipeline Accident: FY 77, Qtr. 2nd

Company	Type	Commodity	Date	Location
New Bedford Gas & Edison	Distribution	Natural Gas	1/18/77	New Bedford, Massachusetts
Light Company				

Accident: Natural gas at 80 psig leaked from a fractured 18-inch steel main into the electric and telephone conduit system. Three explosions destroyed five buildings and windows four blocks away were blown out. An eight-block area was evacuated. Source of ignition is unknown. Excavation of the failed pipe revealed it had been bent by cutting a notch out of it, bending it to the required degree and welding the notch shut. Although no federal regulations were in effect in 1950 when the pipe was installed, notch welding of pipe was contrary to pipe welding standards which were in effect.

LOSSES: Fatalities 0; reportable injuries 0; Pipeline Damage \$50,000; Non-Pipeline Damage \$1,000,000

Probable Causes: 1. Construction defect - failure of substandard weld

2. - improper pipe bending

3.

Other Factors: 1. Overstressing of pipeline through heavy equipment above pipeline

2. Inadequate welding inspection during construction

Probable Cause of Casualties: 1. None

2.

3.

Other Casualty factors: 1. None

2.

Recommendations: None

NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C. 20594
Brief of Accident

DCA-77-FP-010

Pipeline Accident: FY 77, Qtr. 2nd

Company	Type	Commodity	Date	Location
Baltimore Gas & Electric	Distribution	Natural Gas	1/24/77	Baltimore, Maryland
				Mayfield Avenue

Accident: Natural gas leaked from a 1½-inch low pressure galvanized steel service line that fractured at a threaded coupling 9 feet from the foundation of a rowhouse. The gas migrated under a concrete pad and into the cellar. The source of ignition is unknown. The 1½-inch steel service line had been bent at the coupling to allow alignment of the pipe through the foundation wall. No gas odors had been detected or reported to the gas company prior to the explosion.

LOSSES: Fatalities 2; reportable injuries 0; Pipeline Damage \$ 1,600; Non-Pipeline Damage \$ 50,000

Probable Causes: 1. Construction defect - material failure due to bending stress

2. - improper pipe bending

3.

Other Factors: 1. None

2.

Probable Cause of Casualties: 1. Critically burned

2.

3.

Other Casualty factors: 1. None

2.

Recommendations: None

NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C. 20594
Brief of Accident

DCA-77-FP-019

Pipeline Accident: FY 77 , Qtr. 2nd

Company	Type	Commodity	Date	Location
Equitable Gas Company	Distribution	Natural Gas	3/13/77	Monongahela, Pennsylvania

Accident: Natural gas leaked primarily from a corroded 3/4-inch bare steel service line 1-foot from the foundation of a one family dwelling. The gas migrated under a concrete sidewalk and into the basement. The explosion destroyed the house but there was no fire. Another leak was also found on the 3-inch gas main located 20 feet from the house. Gas company was notified of accident at 3:31 p.m., but did not notify Office of Pipeline Safety Operations until 11:40 a.m.; 20 hours afterwards. Federal regulations require immediate telephonic notification if a fatality is involved. The late notification hampered the NTSB accident investigation.

LOSSES: Fatalities 1; reportable injuries 2; Pipeline Damage \$; Non-Pipeline Damage \$ 30,000

Probable Causes: 1. External corrosion - pit holes

2.

3.

Other Factors: 1. Failure to transmit proper communications - late notification

2.

Probable Cause of Casualties: 1. Injuries from flying debris

2.

3.

Other Casualty factors: 1. None

2.

Recommendations: P-77-15

NATIONAL TRANSPORTATION SAFETY BOARD

WASHINGTON, D.C. 20594

Brief of Accident

DCA-77-FP-023

Pipeline Accident:

FY 77, Qtr. 3rd

Company	Type	Commodity	Date	Location
Connecticut Natural Gas	Distribution	Natural Gas	5/25/77	Greenwich, Connecticut
Company				

Accident: Gas company employees installed a hot tap insulator on what was thought to be a 3-inch pipe, but which was actually a 2-inch carrier pipe in a 3-inch sleeve. Natural gas was allowed to escape from the unsealed ends of the sleeve. The gas migrated through the soil and entered the basement of a building 5½ feet away. Source of ignition is unknown. Gas main atlas did not show the 3-inch sleeve and gas company records of facilities were incomplete. Gas company employees made the tap without verifying precisely the size line they were working on.

LOSSES: Fatalities _____; reportable injuries 10; Pipeline Damage \$10,000; Non-Pipeline Damage \$ 500,00

Probable Causes: 1. Failure to identify pipeline facility positively

2. Inadequate pipeline facility records

3.

Other Factors: 1. None

2.

Probable Cause of Casualties: 1. Direct effect of fire (burns)

2. Injuries from collapse of structure

3.

Other Casualty factors: 1. None

2.

Recommendations: P-77-24, P-77-25, P-77-26

NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C. 20594
Brief of Accident

DCA-77-FP-024

Pipeline Accident: FY 77, Qtr. 3rd

Company	Type	Commodity	Date	Location
Alabama Gas Corporation	Distribution-	Natural Gas	6/26/77	Birmingham, Alabama
	Transmission			

Accident: While modifying a meter stand, a 250-lb section of the stand containing a compression-type coupling was left unsupported or strapped. The section was blown out of the compression coupling by gas at a pressure of 111 psig and struck a gas employee on the chest.

LOSSES: Fatalities 1; reportable injuries _____; Pipeline Damage \$7,000; Non-Pipeline Damage \$ _____

Probable Causes: 1. Improper operating procedures

2. Failure of personnel to recognize condition as hazardous

3.

Other Factors: 1. None

2.

Probable Cause of Casualties: 1. Injury from flying object

2.

3.

Other Casualty factors: 1. None

2.

Recommendations: None

NATIONAL TRANSPORTATION SAFETY BOARD

WASHINGTON, D.C. 20594

Brief of Accident

DCA-77-FP-028

Pipeline Accident: FY 77, Qtr. 4th

Company	Type	Commodity	Date	Location
Cherokee Water and Gas	Distribution	Natural Gas	7/30/77	Cherokee, Alabama
Board				

Accident: Contractor, while installing a sewer service to a house, exposed a 2 1/4-inch cast-iron main. The gas main was not supported or the backfill material compacted and it broke after 2 inches of rain caused the backfill material to subside. Gas migrated along the new sewer trench and through the foundation. Ignition source was a cigarette lighter. The gas company had experienced previous cast iron main failures in areas of recent sewer construction work, but did not take any protective measures.

LOSSES: Fatalities 1; reportable injuries ; Pipeline Damage \$ 20,000; Non-Pipeline Damage \$ 45,000

Probable Causes: 1. Damage by human forces; nonpipeline - damage by failure to make proper support or backfill

2.

3.

Other Factors: 1. Pipeline company failed to properly inspect outside party construction.

2.

Probable Cause of Casualties: 1. Direct effects of fire (burns)

2.

3.

Other Casualty factors: 1. None

2.

Recommendations: P-77-18, P-77-19, P-77-20

NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C. 20594
Brief of Accident

DCA-77-PP-029 Pipeline Accident: FY 77, Qtr. 4th
Company Type Commodity Date Location
Central Hudson Gas & Electric Corporation Natural Gas 8/16/77 Newburgh, New York
Electric Corporation

Accident: A 4-inch bull plug on a compression-type coupling installed on a service riser blew off while the service line was being pressure tested with air at 140 psig. The bull plug struck the gas employee on the forehead.

LOSSES: Fatalities 1; reportable injuries 0; Pipeline Damage \$ 0; Non-Pipeline Damage \$ 0

Probable Causes: 1. Improper operating procedures

2. Failure of personnel to recognize conditions as hazardous

3.

Other Factors: 1. None

2.

Probable Cause of Casualties: 1. Injury from flying object

2.

3.

Other Casualty factors: 1. None

2.

Recommendations: None

NATIONAL TRANSPORTATION SAFETY BOARD

WASHINGTON, D.C. 20594

Brief of Accident

DCA-77-FP-030

Pipeline Accident: FY 77, Qtr. 4th

Company	Type	Commodity	Date	Location
Columbia Gas Company	Distribution	Natural Gas	9/15/77	New Sewickley, Pennsylvania
of Pennsylvania, Inc.				

Accident: Automobile lost control and struck a telephone pole and an adjacent outside meter and regulator set. Gas at 12 to 15 psig entered the car and was ignited, probably by the motor. Fire engulfed the victim.

LOSSES: Fatalities 1; reportable injuries 0; Pipeline Damage \$50. Non-Pipeline Damage \$3,000

Probable Causes: 1. Damage by human forces; nonpipeline - accidental damage, facility struck by vehicle

2.

3.

Other Factors: 1. None

2.

Probable Cause of Casualties: 1. Critically burned

2.

3.

Other Casualty factors: 1. None

2.

Recommendations: None