

NENA

Pipeline Emergency Operations Standard/Model Recommendation



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TABLE OF CONTENTS

1 EXECUTIVE OVERVIEW5

2 INTRODUCTION.....5

2.1 PURPOSE AND SCOPE5

2.2 REASON TO IMPLEMENT.....6

2.3 BENEFITS6

2.4 TECHNICAL IMPACTS SUMMARY6

2.5 DOCUMENT TERMINOLOGY6

2.6 REASON FOR REISSUE6

2.7 COST FACTORS6

2.8 COST RECOVERY CONSIDERATIONS6

2.9 ACRONYMS/ABBREVIATIONS.....7

3 OPERATIONAL DESCRIPTION8

3.1 AWARENESS OF PIPELINES8

3.2 LEAK RECOGNITION AND RESPONSE.....8

3.3 ADDITIONAL NOTIFICATIONS.....8

4 REFERENCES.....8

5 EXHIBITS10

1 Executive Overview

On November 1, 2007 a 12 inch-diameter pipeline carrying liquid propane at about 1405 pounds per square inch, gauge, ruptured near Carmichael Mississippi. The resulting gas cloud expanded over nearby homes and ignited, creating a large fireball that was heard and seen from miles away. About 10,253 barrels (430,626 gallons) of propane were released. As a result of the ensuing fire, two people were killed and seven people sustained minor injuries. Four houses were destroyed, and several others were damaged. About 71.4 acres of grassland and woodland were burned. The reported property damage resulting from the accident, including the loss of product, was \$3,377,247.

The National Transportation Safety Board investigated the accident and made the following recommendation to the Clark County Board of Supervisors: “Require and document that the Clarke County Central Dispatch emergency 9-1-1 personnel receive regular training and participate in regional exercises and drills pertaining to pipeline safety.”

After consideration of the NTSB recommendation to the Clark County Board of Supervisors, NENA recognized the need for additional guidance concerning pipeline safety throughout the 9-1-1 community. A workgroup was organized to develop guidelines that could be used by any 9-1-1 Center. The workgroup included individuals from the 9-1-1 community, the pipeline industry, and the Pipeline and Hazardous Materials Safety Administration. This Operations Standard / Model Recommendations document is the result of their efforts.

This Standard was created to assist Public Safety Answering Points (PSAPs) in the development of their own internal emergency communications protocols pertaining to hazardous liquids and natural gas pipeline emergencies. It makes general recommendations in three critical areas:

1. Awareness of pipelines affecting the 9-1-1 Service Area,
2. Pipeline leak recognition and initial response actions, and,
3. Additional notifications to pipeline operators.

The focus of this Standard is on the first minute of the call intake process. Actions taken during this time frame significantly impact the effectiveness of the response and are critical to public safety.

2 Introduction

2.1 Purpose and Scope

This Standard is intended to aid Public Safety Answering Points (PSAP) in the development and implementation of emergency communications protocols pertaining to pipeline emergencies. It addresses common situations involving pipelines carrying non-toxic natural gas and hazardous liquid petroleum products. It does not address the release of toxic chemicals or other hazardous materials such as hydrogen sulfide. The release of these substances will require a more detailed analysis and are beyond the general recommendations contained in this Standard.

2.2 Reason to Implement

Pipeline emergencies can pose a significant threat to public safety. The actions taken by PSAP personnel are critical to the protection of life, property, and the environment. The establishment of structured call-taking protocols, scalable pre-planned responses, and agency-approved Pre-Arrival Instructions can greatly increase public safety and reduce the chances of a situation worsening before responders arrive. Having a structured call-taking protocol/guideline in place before the call comes into the PSAP or ECC enhances training, planning, and preparation for the real event. It also enables quality assurance and quality improvement measures to reinforce skills and identify response difficulties before they occur.

2.3 Benefits

The benefits gained from implementing this Standard include a greater assurance that pipeline emergencies will be recognized quickly and that the initial response efforts will be more effective. It will also facilitate the development of a periodic training plan and quality assurance processes to support call takers who might receive these high risk, low frequency events at any time.

2.4 Technical Impacts Summary

No new or special technologies are required by this Standard.

2.5 Document Terminology

The terms "shall ", "must" and "required" are used throughout this document to indicate required parameters and to differentiate from those parameters that are recommendations. Recommendations are identified by the words "desirable" or "preferably".

2.6 Reason for Reissue

NENA reserves the right to modify this document. Upon revision, the reason(s) will be provided in the table below.

Version	Approval Date	Reason For Changes
Original	(MM/DD/YYYY)	Initial Document

2.7 Cost Factors

The implementation costs involve the time and resources it takes to become aware of the hazards pipelines may pose to a 9-1-1 Service Area, appropriately modify existing protocols, and train personnel.

2.8 Cost Recovery Considerations

Not Applicable

2.9 Acronyms/Abbreviations

Some acronyms/abbreviations used in this document have not yet been included in the master glossary. After initial approval of this document, they will be included. See NENA 00-001 - NENA Master Glossary of 9-1-1 Terminology located on the NENA web site for a complete listing of terms used in NENA documents.

The following Acronyms/Abbreviations are used in this document:		
Acronym	Description	** (N)ew (U)pdate
<i>HVL</i>	Highly Volatile Liquids	N
<i>LEPC</i>	Local Emergency Planning Committee	N
<i>LPG</i>	Liquefied Petroleum Gas	N

The following Terms and Definitions are used in this document:		
Term	Definition	** (N)ew (U)pdate
8-1-1	A three digit telephone number to facilitate notification of planned excavation activities to One Call Centers	N
Hazardous Liquids	Crude oil and other flammable liquid petroleum products that are obtained from distilling and processing crude oil, unfinished oils, natural gas liquids, blend stocks, and other miscellaneous hydrocarbon compounds	N
Highly Volatile Liquids	Petroleum products that are in the liquid form when under pressure but quickly turn to a gas when released to the atmosphere. They are heavier than air and commonly include propane or butane.	N
Liquefied Petroleum Gas	Petroleum products that are in the liquid form when under pressure but quickly turn to a gas when released to the atmosphere. They are heavier than air and commonly include propane or butane.	N
One Call Center	An entity that administers a system through which a person can notify owners/operators of lines or facilities of proposed excavations.	N

3 Operational Description

All agencies designated as a Public Safety Answering Point (PSAP) or operating as an Emergency Communication Center (ECC) shall establish and maintain operational procedures for handling pipeline emergencies. At a minimum, these procedures shall address: awareness of pipelines located in the 9-1-1 Service Area, recognition of pipeline leaks, initial response actions, and additional notifications that may be necessary.

3.1 Awareness of Pipelines

PSAPs/ECCs shall maintain information about the pipelines located in their communities and the potential hazards these pipelines may pose. Sources for this information include: Local Emergency Planning Committees (LEPCs), the National Pipeline Mapping System (NPMS) information provided by pipeline operators, and information obtained from other local authorities.

3.2 Leak Recognition and Response

Personnel shall be provided information about the physical signs of a pipeline release to enhance their ability to recognize that a pipeline is leaking from the information provided by a caller. Once it is realized a caller is describing a dangerous pipeline leak, personnel must immediately initiate a response. Exhibit 1 contains call intake guidelines, information about common indications of a pipeline leak, and the recommended initial response actions.

3.3 Additional Notifications

If a pipeline is leaking, it is very likely that the pipeline system will need to be shut down (even if the leak is minor). This usually involves valve closures and other actions that preferably should be performed only by pipeline company personnel. Many pipeline companies also have the ability to perform these actions remotely, thereby reducing the severity of the event and shortening the time it takes to stabilize the scene. Actions shall be taken to contact the appropriate pipeline company as soon as it is practical.

If emergency contact information for the pipeline company is unknown, 9-1-1 personnel may call 8-1-1 to reach the local One Call Center and request emergency contact information for pipeline operators with facilities near the incident location. Another way to obtain emergency contact information is to ask the responders to check for pipeline markers in the area. These markers normally contain: the company name, the product transported, and the emergency telephone number where the operator can be reached. Also, local natural gas companies are often times aware of other operators in their service area and have contact information for these companies.

4 References

National Fire Protection Association (NFPA) 1201: Standards for Providing Emergency Services to the Public

National Fire Protection Association (NFPA) 1600: Standard on Disaster/Emergency Management and Business Continuity

US Department of Transportation (DOT) ERG2008: 2008 Emergency Response Guidebook
Emergency Response Guidebook (ERG)

National Association of State Fire Marshalls (NASFM): Pipeline Emergencies Program
www.pipelineemergencies.com

Pipeline Association for Public Awareness (PAPA): Pipeline Emergency Response Guidelines
<http://www.pipelineawareness.org>

5 Exhibits

EXHIBIT 1 – Initial Intake and First Response Checklist

Goals for Initial Intake:

1. Obtain and Verify Incident Location, Callback and Contact Information
2. Maintain Control of the Call
3. Communicate the Ability to HELP the Caller
4. Methodically and Strategically Obtain Information through Systematic Inquiry to be Captured in the Agency's Intake Format
5. Recognize the potential urgency of situations involving the release of dangerous gases or liquids related to pipelines or similar events of this nature and immediately begin the proper notifications consistent with agency policy
6. Perform all Information Entries and Disseminations, Both Initial and Update

FIRST RESPONSE CALL INTAKE CHECK LIST

The following protocol is intended as a solid framework for call intake, but should not in any manner rescind or override agency procedures for the timing of broadcasts and messaging.

These procedures are established as recommended practices to consider with existing agency policy and procedure to ensure the most swift and accurate handling of every incident involving the release of dangerous gases or hazardous liquids.

All information should be simultaneously entered, as it is obtained by the telecommunicator, into an electronic format (when available) that will feed/populate any directed messages which will be sent to emergency responders in conjunction with on-air broadcasts.

LOCATION:

Request exact location of the incident (structure addresses, street names, intersections, directional identifiers, mile posts, etc.) and obtain callback and contact information.

DETERMINE EXACTLY WHAT HAS HAPPENED:

Common signs of a pipeline leak are contained in Table 1 below. If any of these conditions are reported, THIS IS A PIPELINE EMERGENCY.

Table 1

Common Indications of a Pipeline Leak

Condition	Natural Gas (lighter than air)	LPG & HVL (heavier than air)	Liquids
An odor like rotten eggs or a burnt match	X	X	
A loud roaring sound like a jet engine	X	X	
A white vapor cloud that may look like smoke		X	
A hissing or whistling noise	X	X	
The pooling of liquid on the ground			X
An odor like petroleum liquids or gasoline		X	X
Fire coming out of or on top of the ground	X	X	
Dirt blowing from a hole in the ground	X	X	
Bubbling in pools of water on the ground	X	X	
A sheen on the surface of water		X	X
An area of frozen ground in the summer	X	X	
An unusual area of melted snow in the winter	X	X	
An area of dead vegetation	X	X	X

IS THE CALLER IN IMMEDIATE DANGER?

1. If the caller is inside a building and is reporting;

- A strong odor inside the building like rotten eggs or a burnt match

THE CALLER IS IN IMMEDIATE DANGER!

An immediate directive shall be given to evacuate the building. Tell the caller to:

- Avoid any action that might create a spark:

- Do NOT start a vehicle - abandon all vehicles and equipment
- Do NOT turn on or off lights
- Do NOT open or close windows
- Do NOT attempt to shut any valves
- Do NOT hang up the phone - just set it down
- Do NOT carry a cordless phone with you – just set it down
- Do NOT use cell phones until you are in a safe location away from the leak
- Evacuate the building and walk at least two city blocks or approximately 1000 feet (300 meters) away (in an upwind direction, if possible). Please remember do NOT hang up the phone - just set it down
- Alert others to evacuate the building and keep people away,
- Wait for responders to arrive.
- If the situation worsens or changes in any way, and it is safe to do so, call 9-1-1 again.

2. If the caller is within two city blocks or approximately 1000 feet (300 meters) of:

- A large white vapor cloud that may look like smoke
- A loud roaring sound like a jet engine coming from the ground
- A large pool of liquids that smell like petroleum or gasoline
- Dirt blowing from a small hole in the ground with a hissing or whistling noise
- A large outside area where the odor of rotten eggs or a burnt match is strong

THE CALLER IS IN IMMEDIATE DANGER!

An immediate directive shall be given to evacuate the area. Tell the caller to:

- Avoid any action that might create a spark:
 - Do NOT start a vehicle - abandon all vehicles and equipment
 - Do NOT turn on or off lights
 - Do NOT open or close windows
 - Do NOT attempt to shut any valves
 - Do NOT hang up the phone – just set it down
 - Do NOT carry a cordless phone with you – just set it down
 - Do NOT use a cell phone until you are in a safe location away from the leak
- Evacuate the area on foot and move away from the leak (in an upwind and uphill direction if possible) at least four city blocks or approximately 2500 feet (750 meters)
- Alert others to evacuate the area and keep people away
- Wait for responders to arrive
- If the situation worsens or changes in any way, and it is safe to do so, call 9-1-1 again

3. If the caller is within one city block or approximately 500 feet (150 meters) of:

- An area of dead vegetation
- An unusual area of melted snow in the winter
- An area of frozen ground in the summer
- A sheen on the surface of water

- Bubbling in pools of water on the ground
- A small area of wet ground with an odor like petroleum liquids or gasoline
- An outside area where there is a faint odor like rotten eggs or a burnt match

THESE ARE POTENTIALLY DANGEROUS SITUATIONS THAT MAY ESCALATE

Get callback information and tell the caller to:

- If outside, stay at least 300 feet (100 meters) or a football field away and keep others away
- If they are inside a building, they should stay inside and close windows
- Wait for responders to arrive
- Do NOT attempt to shut any valves
- **If the situation worsens or changes in any way, call 9-1-1 again**

INITIATE THE RESPONSE:

If first responders request additional information before they arrive on scene, the following information may be helpful:

- Provide current temperature along with wind direction and wind speed - advise units to approach cautiously from an upwind or crosswind location
- If there is no fire, advise units that vapors may be present and they should keep vehicles a safe distance away, avoid ignition sources, and not to park vehicles over manholes or storm drains

After initiating the response, steps should be taken to evaluate the potential for escalation and a notification should be made to the pipeline company.

CONTACT THE PIPELINE COMPANY:

Pipeline companies will need specific information. This may include, but is not restricted to:

- Type of event (leak only, leak with fire, vapors)
- Exact location (state, county, city, street address, and coordinates if they are available)
- 9-1-1 Center contact name and phone number
- What responding units have been dispatched to the scene
- Local weather conditions
- Known injuries or property damage

9-1-1 personnel should obtain additional information that might be relevant to the response.

This may include, but is not restricted to:

- What additional hazards might be present at this location?
- What specific actions will the pipeline company be taking?
- When can pipeline company personnel be expected to arrive on scene?
- Can this situation escalate? If so, what is the maximum potential impact?