Pipeline Public Awareness
Strengths, Weaknesses, Opportunities, and Threats (SWOT)

Public Awareness Program Working Group

May 16, 2016

[FINAL REPORT]

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Table of Contents

Pipeline Public Awareness
Strengths, Weaknesses, Opportunities, Threats (SWOT)

Acronyms & Abbreviations

API – American Petroleum Institute
AOPL – Association of Oil Pipe Lines
APGA – American Public Gas Association
CFR – Code of Federal Regulations
ERG – Emergency Response Guidebook
EMS – Emergency Management Services
ER – Emergency Response
FEMA – Federal Emergency Management Agency
FEMA EMI – FEMA Emergency Management Institute
FERC – Federal Energy Regulatory Commission
INGAA – Interstate Natural Gas Association of America
LDC – Local Gas Distribution Company
LEPC – Local Emergency Planning Committee
NAPSR – National Association of Pipeline Safety Representatives
NEB – National Energy Board (Canada)
NPMS – National Pipeline Mapping System
PAP – Public Awareness Programs
PAPWG – Public Awareness Program Working Group
PERWG – Pipeline Emergency Response Working Group
PHMSA – Pipeline and Hazardous Materials Safety Administration
PIPA – Pipelines and Informed Planning Alliance
PSC – Public Service Commission
PST – Pipeline Safety Trust
PUC – Public Utilities Commission
NACo – National Association of Counties
QA/QC – Quality Assurance/Quality Control
RP – Recommended Practice
SWOT – Strengths, Weaknesses, Opportunities, and Threats
TAG – PHMSA Technical Assistance Grants

Pipeline Public Awareness
Strengths, Weaknesses, Opportunities, Threats (SWOT)

Executive Summary

The Pipeline and Hazardous Materials Safety Administration (PHMSA) convened a joint Public Awareness Program Working Group (PAPWG) in September 2013 to foster public awareness continuous improvements. The objective of the PAPWG was to share diverse perspectives and offer a greater awareness on the current state of pipeline public awareness efforts. The PAPWG's plan included reviewing pipeline public awareness data and information from various sources, identifying relevant topical review areas, performing "strengths, weaknesses, opportunities, and threats" (SWOT) analyses for each topical review area, and issuing a report of key findings.

This diverse working group of pipeline safety stakeholders included representation from Federal and State pipeline safety regulators, gas and hazardous liquid pipeline operator trade associations, municipal gas distribution system operators, emergency response organizations, public safety officials, excavators, and others representing public pipeline safety interests. This SWOT report describes the PAPWG initiative, identifies some key findings, and suggests some future uses of the report to support improving public awareness.

In open group discussions, the PAPWG identified topical review areas relevant to public awareness and pipeline operator public awareness programs, presented data and information, and shared diverse perspectives for SWOT attributes for each topical review area. The PAPWG derived topical review areas from cited data, regulations, and industry practices, as well as from individual experiences and perceptions.

Public awareness of pipeline locations and safety concerns is vital to the continued safe operation of pipelines. Collective public awareness efforts and pipeline operator public awareness programs are the key to communicating with affected stakeholders, ensuring public safety, reducing pipeline incidents, and protecting pipeline assets. Effective public awareness programs can enhance public safety, improve pipeline safety and environmental performance, build trust and better relationships with stakeholders along the pipeline route, and foster greater understanding of the need for pipeline maintenance and right-of-way activities, as well as preservation of pipeline rights-of-way to enhance maintenance and emergency response capabilities.

The intent of the PAPWG was not to prescribe requirements or mandates. The focus was to identify findings from SWOT results to foster continuous improvement in pipeline public awareness efforts. Pipeline safety stakeholders are encouraged to review this report and understand how they may use the information to determine where change is possible and strengthen future public awareness strategic efforts.

Findings

Key findings noted in this report as a result of the SWOT analyses conducted by the PAPWG include:

1. **Stakeholder input influenced the way pipeline operators implement public awareness programs and drive continuous improvement**. Operators see value in the consistency provided through regulations. They learned from experience and applied lessons learned to drive continuous improvement in their public awareness programs.

2. **API RP 1162, 1st Ed., provided a solid framework for operator public awareness program implementation and continuous improvement from which to build and increase pipeline safety awareness.** In some cases, existing operator programs provide a solid baseline from which to improve.

3. **There are some indications that collaborative public awareness efforts among stakeholders could be effective with the public.** Stakeholders share some common safety messages and collaborating may improve message recognition and reduce information overload. For example, in geographic areas where multiple pipeline operators have facilities located, there may be opportunities to conduct and engage in joint pipeline awareness meetings. However, there are concerns with how operators could implement collaborative efforts and demonstrate they are meeting regulatory requirements and measure program effectiveness.

4. **The national 811 "Call Before You Dig" number is a simple and effective consolidated message**. This widespread effort to promote the use of 811 and raise awareness among professional excavators, along with the safe digging message it imparts, is improving.

5. **There are numerous examples of operators communicating well with emergency responders; however, there are still weaknesses in the overall effectiveness of pipeline operators' outreach to emergency responders.** Operators are not consistent in adequately identifying, communicating with, and coordinating with all emergency response stakeholders within a community. This lack of emergency responder awareness may also be caused in part by ineffective dissemination of pipeline information within emergency responder organizations even when it is communicated to them by the pipeline operator.

6. **Measuring operator public awareness program effectiveness was challenging.** There are weaknesses in operator public awareness programs with measuring program effectiveness. Some operators experienced challenges with measuring behavioral change. This may result from a lack of clarity regarding effectiveness evaluation guidance and requirements and, perhaps, in the operator's ability to identify program goals and justify the use of specific program effectiveness criteria and methodology.

7. **Program documentation needs improvement in some operator public awareness programs.** Some areas of focus include: considerations for selecting specific methods,

messages, and materials; outreach efforts; results of annual audits and program improvements; and, consideration and effectiveness of supplemental efforts.

8. **Fundamental differences between interstate pipelines and distribution systems affect how public awareness programs are developed and implemented.** While interstate pipeline operators prefer to distance their facilities from populated areas, distribution operators must install distribution pipelines in developed areas to serve customers. The relationships between these differing categories of operators and their stakeholder audiences dictate differences in message-delivery methods and effectiveness evaluation processes that pose challenges to compliance with public awareness regulations.

9. **Affected stakeholders of small distribution pipeline operators, particularly municipally-owned systems, have unique awareness needs.** The level of awareness among these audiences is often relatively high due to a deep level of market penetration and decades of receiving services from the operators. This characteristic makes improving stakeholder awareness challenging.

Future Uses of This Report

Some potential uses for the information contained in this report are noted below.

1. Stakeholders may explore strengths and opportunities identified in this report to improve public awareness and/or operator public awareness programs.

2. Stakeholders may review this report to determine where pipeline safety regulations and/or API RP 1162 can be strengthened.

3. Opportunities identified in this report may drive regulators, industry associations, operators, and other stakeholders to identify improvements, take action and explore effective public awareness collaborative efforts. Like, for example, the development and implementation of the nationwide 811 call before you dig telephone number.

4. Operators may review this report to identify opportunities to improve effectiveness of their individual programs.

5. Stakeholders may provide this report to non-operator stakeholder associations to share with their memberships.

NOTE: All pipeline public awareness stakeholders can likely benefit from reviewing this report and considering how the identified strengths, weaknesses, opportunities and threats can be used to strengthen public awareness and operator public awareness programs. However, it should be noted that the information contained in this report does not prescribe specific recommendations or requirements for changes in public awareness programs, processes, or procedures for any stakeholder.
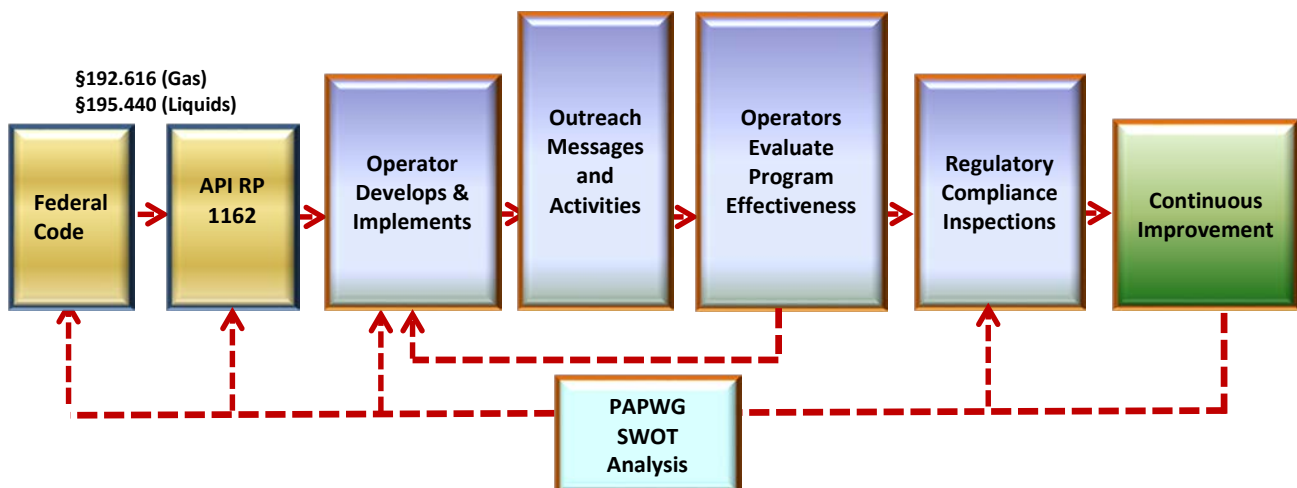
Pipeline Public Awareness
Strengths, Weaknesses, Opportunities, Threats (SWOT)

Introduction

Collaboration and open communication among all pipeline safety stakeholders is vital to fostering continuous improvement, enhancing public safety, improving emergency preparedness, eliminating pipeline incidents, protecting the environment, and preventing damage to property and facilities relevant to gas and hazardous liquid pipelines. Public awareness of where pipelines are located and an understanding of the safety concerns and risks associated with pipeline transportation are vital to the continued safe operation of pipelines.

Federal pipeline safety regulations for gas pipelines (49 CFR § 192.616) and hazardous liquid pipelines (49 CFR § 195.440) require pipeline operators to develop and implement continuing public awareness programs (PAP) to provide pipeline safety information to four specific stakeholder audiences: the affected public, emergency officials, local public officials, and excavators. In addition, operators are required to follow the guidance in the American Petroleum Institute's (API) Recommended Practice (RP) 1162, 1st Edition. Although, the 2nd Edition of API's RP 1162 was published, it is not currently incorporated by reference in the federal regulations; therefore, pipeline operators are still required to comply with the 1st Edition.

No more than every four years, pipeline operators are required to assess their public awareness programs for effectiveness. During the 2009-2010 timeframe, many operators conducted a public awareness effectiveness evaluation. Furthermore, in 2010, PHMSA and State pipeline safety regulators initiated targeted public awareness inspections of pipeline operators' public awareness program effectiveness to assess regulatory compliance. To further strengthen the understanding of public awareness requirements and outreach efforts, PHMSA convened and lead a joint Public Awareness Programs Working Group (PAPWG), in September 2013 to foster public awareness continuous improvements.

Objective

The objective of the PAPWG effort was to share diverse perspectives and offer a greater awareness on the current state of pipeline public awareness efforts to encourage continuous public awareness improvements in the pipeline industry.

The PAPWG's mission and plan of action called for two distinct actions. First, the PAPWG would identify, review and conduct "strengths, weaknesses, opportunities, and threats" (SWOT) analyses of various aspects of pipeline safety public awareness, using existing data and information from a variety of sources. The SWOT analyses were conducted during numerous group meetings. Second, using the results of those SWOT analyses, the PAPWG would prepare a summary report of findings to support improvements to public awareness programs and outreach efforts. This final summary report was prepared by PHMSA with PAPWG input and review feedback.

The intent of the PAPWG efforts was not to prescribe requirements or mandates. The intent of the SWOT Report is to identify findings that may serve as a source of information for future consideration and/or action by various pipeline stakeholders. Pipeline safety stakeholders are encouraged to review this report and understand how they may use the information to determine where change is possible and strengthen future public awareness strategic efforts.

PAPWG Participants

The PAPWG participants included over 18 stakeholders sharing diverse perspectives on pipeline public awareness initiatives. These stakeholders included Federal and State pipeline safety regulators, gas and hazardous liquid pipeline trade associations, and municipally operated gas distribution operators. The PAPWG also included stakeholders representing public pipeline safety interests, emergency response and public safety officials, public safety advocates, and excavators. A list of organizations and stakeholder represented by the PAPWG are included in Appendix A.
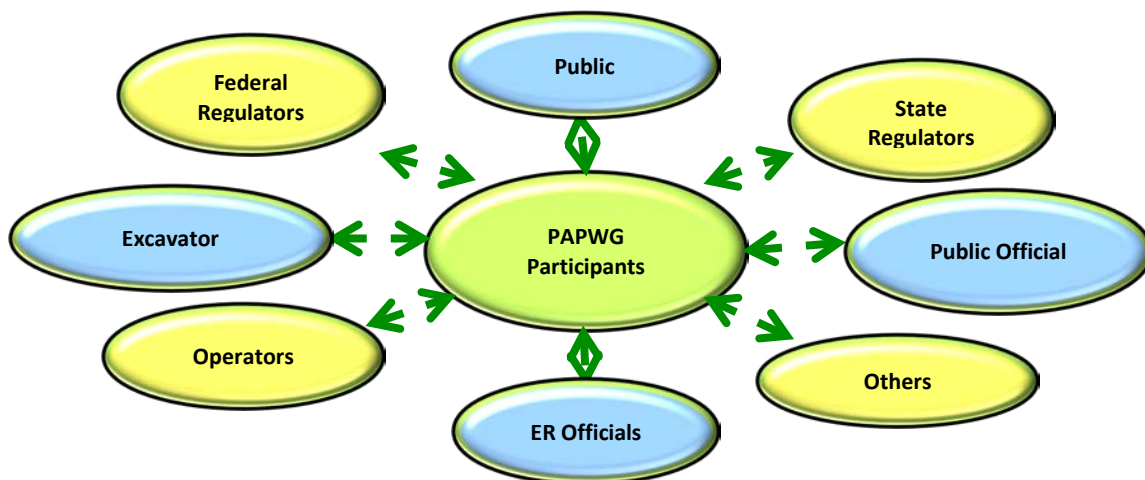
Pipeline Public Awareness
Strengths, Weaknesses, Opportunities, Threats (SWOT)

PAPWG participants came to the table prepared and empowered to attend the scheduled meetings and actively share perspectives during group discussions. Participants were encouraged to reach out to their represented constituent stakeholders to seek out data and information, as necessary, to accomplish the PAPWG's mission. Participants were also responsible for reviewing, analyzing, and sharing perspectives on information and data presented, gathering information, and drafting and reviewing the SWOT report in a timely manner.

Methodology and Information/Data Sources

Methodology

The PAPWG used a SWOT Analysis tool to understand diverse perspectives on strengths and weaknesses from current pipeline public awareness efforts to uncover potential public awareness opportunities and threats for future consideration. Moreover, collectively understanding internal and external factors may lead to improvements in awareness and communications that may reduce/eliminate pipeline safety risks.

The PAPWG analyzed internal and external factors and characteristics to identify:

- **Internal Factors:** Entities and groups responsible for providing/promoting enhanced pipeline safety and awareness information (e.g., regulators, pipeline operators). Also includes experiences, resources, or budgets.

  - **Strengths**: Internal factors, characteristics of current pipeline public awareness efforts deemed to be favorable to the topical review area and
  - **Weaknesses**: Internal factors or characteristics of current public awareness deemed to be unfavorable to the topical review area.

- **External Factors:** Individuals, groups, or affected stakeholders who receive pipeline safety and awareness information and communications (the public, local officials, emergency responders/public safety officials, excavators). Also, includes other factors such as legislation, economic trends, or environmental change.

  - **Opportunities**: External factors or characteristics that could be exploited to improve the effectiveness of public awareness efforts in the topical review area and
  - **Threats**: External factors or characteristics from outside influences that may impede the effectiveness of public awareness efforts within the topical review area.

In open group discussions, the PAPWG identified topical review areas general public awareness and pipeline operator public awareness programs, presented data and information, and shared diverse perspectives for SWOT attributes for each topical review area. The PAPWG derived topical review areas from cited data, regulations, industry practices, and individual experiences and perceptions. SWOT analyses were performed for each topical review areas. Some shared perspectives were applicable to more than one SWOT attribute area, such as a weakness that may also represent an opportunity.

Pipeline Public Awareness
Strengths, Weaknesses, Opportunities, Threats (SWOT)

	Topical Review Areas	**Description**
1	Objective of Pipeline Operator Public Awareness Programs	A review of objectives and outcomes of pipeline operators' individual public awareness programs.
2	Objective of Public Awareness for Pipeline Safety	A broad and general review of objectives and outcomes of pipeline safety stakeholders' collective efforts to improve public awareness.
3	Public Stakeholders	A review of public awareness efforts that affect the public.
4	Emergency Response Stakeholders	A review of public awareness efforts that affect emergency responders.
5	Excavator Stakeholders	A review of public awareness efforts that affect excavators.
6	Public Official Stakeholders	A review of public awareness efforts that affect public or local government officials.
7	Stakeholder Message Delivery Frequency	A review of message delivery frequency in public awareness programs.
8	Effectiveness Evaluation & Program Changes	A review of pipeline operators' effectiveness evaluation processes and the impact of program changes.
9	Annual Audit & Program Changes	A review of pipeline operators' annual audit process and program changes.
10	Stakeholder Identification	A review of pipeline operators' stakeholder audience identification processes requiring outreach.
11	Public Awareness Program Inspection Form (PHMSA Form 21) and Inspection Process	A review of the regulatory Public Awareness Program Inspection Form 21.
12	Public Awareness Federal Regulation	A review of the Public Awareness Federal regulations at 49 CFR § 192.616 and 49 CFR § 195.440, which incorporates by reference the 1st edition of American Petroleum Institute Recommended Practice 1162).
13	Operator Written Plan	A review of pipeline operators' written Public Awareness plans or programs.
14	API RP 1162, 2nd Edition	A review of the American Petroleum Institute's Recommended Practice 1162, 2nd Edition (not

		incorporated by reference in the Code of Federal Regulations).

All PAPWG participants were encouraged to provide input, participate in open discussions, offer counterpoints, and ask for clarifications. They were also encouraged to present and share information to the PAPWG and seek input from their own organizations and represented constituent stakeholders. The results from open group discussions and meetings were documents in a SWOT Matrix for each topical review area.

Information/Data Sources

The PAPWG members contributed information and data to support the discussions and SWOT analyses. Some discussion points were provided as individual perspectives from member experiences. Additionally, PAPWG members were invited to solicit feedback from the organization they represent on the working group and constituent stakeholders.

PAPWG members contributed relevant information and data from public awareness program inspection summaries, feedback and comments from public awareness workshops, industry standards and recommended practices, federal public awareness and related regulations, stakeholder and guest presentations, external working group information, and other relevant stakeholder sources.

Appendix B provides information on the Federal pipeline safety regulations pertaining to pipeline operator public awareness programs. It also provides information regarding American Petroleum Institute's (API) Recommended Practice (RP) 1162, 1st edition, which is incorporated by reference in the Federal pipeline safety regulations. These information/data sources are particularly relevant to pipeline operator public awareness programs, as pipeline operators must comply with the requirements specified therein.

Appendix C provides a listing of specific data and information sources presented and/or referenced in open group PAPWG group discussions.

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Results of SWOT Analyses

The SWOT analyses results from open PAPWG discussions are presented below. The results are organized first by topical review area then by each SWOT attribute (strengths, weaknesses, opportunities and threats). Following that, the results are then presented organized by SWOT attributes and within those attributes by topical review area.

Organized by Topical Review Area, Then by SWOT Attribute

Topical Review Area: Objective of Pipeline Operator Public Awareness Programs
Strengths (Internal)
• Some operators exceed compliance requirements to reach out to affected stakeholders.   • API RP 1162, 1st Ed. provides a solid framework for continuous improvement and stakeholder involvement, from which to build.   • Stakeholder input impacted the way operators develop and implement public awareness programs.
Weaknesses (Internal)
• Inadequate communication of the risks, hazards, and potential impacts from the type of commodities that could be released from pipelines.   • Some operators are driven by compliance requirements and not communication resonance.   • Some operators may not always ensure third-party vendor efforts meet requirements that operators are responsible for (can cross over to other areas).   • Lack of clarity on what "maintain liaison" with emergency officials means   • Some operators may not effectively leverage existing communication channels or outreach methods to promote public awareness.   • Field and technical operations personnel may not be able to support public awareness communications due to other job priorities.   • Multiple operators, within a corridor, may not coordinate public awareness efforts and may cause stakeholders to receive multiple messages, which may lead to confusion.   • Operators are concerned with how their collaborative efforts will support compliance to regulations. There is little guidance on how to structure collaborative messages and little assurance that operators will receive credit from regulators for collaborative messaging.   • Lack of common definitions and requirements for data collection and data reporting.   • Unclear on how to establish acceptable measures for outreach and awareness.
Opportunities (External)
• Move from compliance-driven programs toward programs embracing more corporate social responsibility.

Pipeline Public Awareness
Strengths, Weaknesses, Opportunities, Threats (SWOT)

Topical Review Area: Objective of Pipeline Operator Public Awareness Programs
• Leverage existing platforms/communication channels and outreach methods for stakeholder audiences.

- Leverage existing platforms/communication channels and outreach methods for stakeholder audiences.
- Explore ways field personnel can support public awareness efforts (e.g., develop an ambassador program).
- Train operator field personnel to support public awareness activities, where possible.
- Continue to share best practices among operators.
- Evaluate if the application of management system concepts could be beneficial to public awareness program efforts and, if so, identify where these would be appropriate (e.g., may not be applicable to small operators). For example, reference API RP 1173 (Safety Management Systems) when it is published.
- Leverage consolidated generic messaging (e.g., national messages in propane industry).
- Look at other public safety campaigns, where stakeholder penalties are not involved, to study how they are evaluated for effectiveness (e.g., emergency preparedness, wildfire preparedness, bullying, etc.).
- Consider developing a campaign or common messaging to communicate and increase public awareness about pipeline safety, for example for leak recognition and response.

Threats (External)

- Operators are required to take action but stakeholders are not required to listen, understand or take action.
- Compliance-driven programs may stifle innovation and creativity.
- Language translation of public awareness messages may be completed by translators unfamiliar with the industry.

Topical Review Area: Objective of Public Awareness for Pipeline Safety (Broad)

Strengths (Internal)

- National communication messages and tools can be useful to communities and on a local level (like the National Pipeline Mapping System (NPMS), 811, PIPA).
- Multiple communication channels and methods and approaches available.
- Some operators' ability to leverage stakeholders' existing platforms/communication channels (e.g., fire service, LEPCs).
- Many stakeholders are clearly identified by operators.
- Common/shared vision and goals.
- Sharing best practices.
- Non-proprietary.
- Consistent baseline messages.
- The pipeline industry sees value in regulations.
- Effective public awareness is in best interest of all stakeholders and safety.
- Some operators have learned from implementation efforts and stakeholder feedback and have applied lessons learned for continuous improvement.

Pipeline Public Awareness
Strengths, Weaknesses, Opportunities, Threats (SWOT)

Topical Review Area: Objective of Public Awareness for Pipeline Safety (Broad)

- Sharing best practices.

Weaknesses (Internal)

- Missing additional stakeholders (e.g., other governmental organizations involved in incident response, operators of other critical infrastructure, environmental).
- Too many messages; similar messages.
- Stakeholder information overload.
- Traditionally, assumptions have been made on how to best communicate with stakeholders.
- Lack of clarity and consistency in measuring public awareness program effectiveness.
- Lack of common understanding of behavior change and how to effectively measure it.
- Lack of a public face/icon of pipeline public awareness (e.g., no national safety campaign or brand recognition).
- Some operators have not fully leveraged stakeholders' existing platforms/communication channels (e.g., fire service, LEPCs).
- Limited resources.

Opportunities (External)

- Understand what's important to stakeholder audiences.
- Maximize opportunities of receptive audiences after pipeline incidents.
- Utilize targeted stakeholder interactions (e.g., focus groups) to stimulate program feedback and establish two-way dialogues with stakeholders.
- Balance messages of "risk" versus "pipelines are safe."
- Use compelling messaging that focuses on generating interest and gaining stakeholder attention regarding pipeline awareness and safety rather than touting the benefits of pipelines.
- Elevate environmental protection messaging in public awareness programs.
- Re-word damage prevention messages to place more emphasis on benefits of calling 811.
- Target environmental audiences.
- Create a plan to sustain involvement of audiences after pipeline incidents.
- Give stakeholders information/data to help their planning (operators).
- Share best practices and lessons learned broadly.
- Leverage stakeholders' existing platforms/communication channels (e.g., fire service, LEPCs).
- Review Canada's National Energy Board (NEB) regulations to determine if they contain additional opportunities to improve public awareness for pipeline safety.
- Encourage existing stakeholder groups to champion aspects of pipeline safety awareness that are most important to their members.
- Focus on reaching the "gray zone" (unaware, un-opinionated groups).
- Establish a common objective among public awareness programs -- encourage pipeline safety.

Pipeline Public Awareness
Strengths, Weaknesses, Opportunities, Threats (SWOT)

Topical Review Area: Objective of Public Awareness for Pipeline Safety (Broad)
• Encourage operator collaborative efforts towards promoting consistent and cohesive messages to community stakeholders, in order to overcome compartmentalization (e.g., disconnect between large and small operators, and between transmission, gathering and distribution operators).
Threats (External)
• Credibility of the messenger may impact the receptiveness to public awareness messages.
• Lack of interest in communicated public awareness or pipeline safety messages by affected stakeholders.
• Stakeholders are likely to be unreceptive to pipeline awareness and safety messages unless it is shown to impact them directly.
• Compliance-driven programs may stifle innovation.
• Differing roles and a lack of role understanding between government entities in pipeline safety can confuse stakeholders.
• Limited resources.
• The success of public awareness programs may be impacted by human nature - resistant to change.
• Difficulty getting stakeholders' attention.

Topical Review Area: Public Stakeholders
Strengths (Internal)
• LDC customers are more likely to be aware of distribution pipeline systems.
• Multitude of media and methods.
• Collaborative outreach for common messaging reduces excessive communication with the public.
• National campaigns can be effective (e.g. promotion of 811).
• New technology is improving the ability to identify audiences for public awareness messages.
Weaknesses (Internal)
• Difficult to capture the immediate attention of stakeholders to compel them to read the public awareness materials.
• Public awareness content is not always pipeline specific.
• Perception that operators must communicate too many message topics.
• Gaps in outreach at the appropriate time in public awareness requirements for non-FERC new projects (not applicable to distribution systems).
Opportunities (External)
• Growing pipeline infrastructure drives the need for continuous improvement in public awareness programs.
• Strike a balance between informed and saturated.
• Strike a balance between information saturation and desensitization.
• Explore how to balance communication of risk versus benefits of pipelines.
• Provide more operator system-specific information.

Topical Review Area: Public Stakeholders
• Use multimedia and technology (future advancements).
• Leverage communications principles to develop effective public awareness programs (e.g., messaging consistency, research, repetition).
• Leverage past incidents to show where public awareness paid off in incident response or incident management.
Threats (External)
• Public may not embrace, as its responsibility, to report unsafe pipeline conditions or threats to pipeline operators.
• Public may view pipeline safety as out of their control.
• Public may experience information overload, at times.
• Perception that increased public awareness budgets are proportional to improved programs.
• Variable public perception of pipelines and operators, in general.
• Target populations are growing due to production areas.

Topical Review Area: Emergency Response Stakeholders
Strengths (Internal)
• Interested and engaged (want to know more).
• Some operator public awareness programs represent a concerted effort to engage key emergency response stakeholders.
• Some operators are proactively building relationships through a variety of methods.
• Findings from the Pipeline Emergency Response Working Group (PERWG) final report.
• Audit program is working and getting operators to increase outreach.
• There are a lot of resources available to emergency responders, such as NPMS, Emergency Response Guidebook, training curricula, portals, etc.
• Some states (e.g., Pennsylvania) have done a good job of getting messages out to all emergency responders.
• Constant communication has improved consistency and raised trust among operators and emergency responders.
• Some existing operator programs provide a solid base from which to improve.
Weaknesses (Internal)
• Lack of consolidation of common messages and individual resources.
• Operators are not, in all cases, adequately identifying and proactively working and coordinating with all emergency response stakeholders within a community.
• Emergency responders are not aware of differences in pipeline systems and potential impacts.
• Not all operators and emergency responders have an adequate understanding of the National Incident Management System (NIMS).
• Providing general messages for all emergency responders versus role specific-information.
• No assurance that pipeline information is appropriately disseminated within the emergency response community.

Topical Review Area: Emergency Response Stakeholders
• Sharing and understanding capabilities and gaps between operators and emergency responders.
Opportunities (External)
• Leverage and engage state training programs.
• Post incident response lessons learned online for other first responders to review.
• Identify if pooling resources among operators can create efficiencies and cost savings for operators and emergency responders.
• Finalize and promote inclusion of pipelines in Federal Emergency Management Agency (FEMA) all-hazards mitigation.
• Add pipeline scenarios into FEMA Emergency Management Institute (EMI) course on National Infrastructure Protection Plan (Class IS-860-B).
• Develop tools, such as a consistent pipeline incident checklist, for emergency responders.
• Simplify communication through the hierarchy of emergency response command in jurisdictions with pipelines.
• Provide role specific-information for emergency responders (e.g., fire services versus 9-1-1 versus law enforcement, as well as for different levels of technical expertise within these audience groups).
• Leverage pipeline operators who are also volunteer firefighters.
• Identify if 811 call centers can be leveraged for emergency response (e.g., identifying affected operators and other potentially affected utilities).
• Promote the expansion of mutual aid agreements among rural and municipal communities.
• Explore best practice initiatives and ways state emergency responder organizations taking a leading role in the delivery of pipeline awareness and emergency response training and certification (e.g. the Georgia Pipeline Emergency Response Initiative).
Threats (External)
• Emergency response stakeholders have information that would support more effective public awareness programs for emergency responders, that is not being shared or updated with operators.
• Volunteer firefighters have different needs than career firefighters and may lack preparation and training to respond to pipeline emergencies.
• Firefighters may not know the right questions to ask.
• Emergency responders have many responsibilities; pipelines may not be their highest priority.
• No uniform national training requirements for firefighters for pipeline incident response. Requirements are established at the state level.
• Information overload.
• Emergency response organizations lack time and other resources to prepare for pipeline emergencies.
• Emergency responders' "fear" of whom to answer to among multiple government entities.
• No requirements for emergency responders to meet with operators.

Pipeline Public Awareness
Strengths, Weaknesses, Opportunities, Threats (SWOT)

Topical Review Area: Emergency Response Stakeholders
• Lack of knowledge of the hierarchy of command responsibilities and jurisdictions associated with pipelines.   • Difficulty of identifying specific pipeline and who owns it during an emergency in a multi-line ROW.

Topical Review Area: Excavator Stakeholders
Strengths (Internal)
• Consolidated national effort to promote 811.   • 811 "Call Before You Dig" is a simple message.   • There is a wide variety of resources and tools to promote 811 (e.g., logos, videos, communications plans, etc.).   • Public awareness programs address a wide range of excavation-related pipeline safety issues, for example risks from specific types of excavation, excavation trends in specific areas, dangers to the excavators, etc.   • Promoting public awareness and damage prevention among excavators is ingrained in the culture of many operators.   • Professional excavator awareness of 811 and the need for safe digging is improving.
Weaknesses (Internal)
• Limited resources may not be targeted to the excavators who need the most education.   • The lack of adequate, specific data (e.g., impacts of exemptions) makes it difficult to know where to apply targeted outreach resources.   • Lack of knowledge about one-call laws and requirements.   • Excavators that do not perceive of themselves as excavators or subject to one-call requirements.
Opportunities (External)
• Reword damage prevention messages to place more emphasis on benefits of calling 811.   • Continuously evaluate the comprehensive opportunities for outreach to the excavator audience.   • Look at opportunities for a nationwide campaign for public awareness.   • Target excavator messages for specific excavator groups, such as landscapers, fencing companies, homeowners, construction communities, farmers, etc.   • Adopt a more data-driven, strategic approach to excavator outreach.   • Consolidate public awareness surveys, as appropriate.   • Improve gathering and development of adequate, specific data regarding exemptions, near misses, damages, etc.   • Emphasize to excavators that damage prevention is about their safety and their bottom line.
Threats (External)

Pipeline Public Awareness
Strengths, Weaknesses, Opportunities, Threats (SWOT)

Topical Review Area: Excavator Stakeholders
• Excavators travel between regions/states where the requirements of damage prevention laws vary.
• Lack of damage prevention program enforcement in some states.
• Non-justified exemptions and weak one-call laws and enforcement.
• To an excavator, time is money.
• Inaccurate and/or untimely locates lead to a lack of trust.

Topical Review Area: Public Official Stakeholders
Strengths (Internal)
• Most public officials are aware of distribution systems within their communities.
• PIPA Recommended Practices provide information and clarity on safe land use and development near transmission pipelines.
• The National Pipeline Mapping System (NPMS) is a resource.
• High interest on the part of local community organizations in receiving information.
• The PHMSA Technical Assistance Grant (TAG) program makes funding available, when funds are appropriated, to communities for pipeline safety initiatives.
Weaknesses (Internal)
• Identifying public official stakeholders.
• Public awareness message frequency.
• Lack of customization of messages to specific public officials based on roles and responsibilities.
• NPMS limitations.
Opportunities (External)
• Local public officials can be champions of pipeline safety when adequately engaged.
• Provide information related to land use and development planning near pipelines; reference the PIPA Recommended Practices.
• Promote PIPA Recommended Practices and NPMS.
• Provide information in a way that can be shared.
• Provide information on new pipelines near existing developments.
• Share pipeline centerline data for planning purposes.
• Better define local official audience relative to public awareness outreach.
• Every local official has a constituency that could be considered a captive audience.
• Consider consolidated, common messages.
• Leverage interest created by visibility of pipeline incidents; local officials affected by incidents could become proponents of expanded public awareness.
• Leverage high-interest community organizations.
• Review message delivery frequency due to political official turnover.
• Promote PHMSA's Technical Assistance Grant (TAG) program, when funds are appropriated.
Threats (External)
• Turnover in public officials and staffs.

Pipeline Public Awareness
Strengths, Weaknesses, Opportunities, Threats (SWOT)

Topical Review Area: Public Official Stakeholders
- Variability in the structure of local public governmental organizations and the roles and responsibilities of local public officials.   - Many local officials are not adequately engaged unless it is a 'hot' topic (competing priorities).   - Lack of interest in and awareness of pipelines.   - Local officials have interests that compete with zoning around pipelines, e.g., financial growth of communities.   - Implementation of PIPA practices is complex and can create disincentives.   - Political pressure may impact the level of information that is shared by public officials.

Topical Review Area: Stakeholder Message Delivery Frequency
Strengths (Internal)
Generally, operators are following or exceeding the message frequency requirements.
Weaknesses (Internal)
Public officials messaging frequency may be too long.
Opportunities (External)
- Expedite notifications for newly built and acquired pipelines.   - Clarify the message delivery frequency for idle lines.
Threats (External)
Potential conflict or confusion on contact information resulting from acquisitions.

Topical Review Area: Effectiveness Evaluation & Program Changes
Strengths (Internal)
- Operators use multiple data sources to determine effectiveness.   - Industry collaboration efforts create value in aggregate data and trending over time.
Weaknesses (Internal)
- Difficulty in selecting and measuring the effectiveness of the multitude of media and methods.   - Identifying and justifying public awareness program effectiveness criteria.   - Difficulty in measuring behavior changes as a bottom-line metric.   - Lack of clarity regarding entire effectiveness-evaluation requirements (e.g., PHMSA expectations and guidance in API RP 1162).
Opportunities (External)
- Develop a "toolbox" to promote effective program evaluation tools for use by pipeline operators.   - Consider the use of cooperative stakeholder surveys with other operators where appropriate.   - Perform root cause analyses of unsatisfactory effectiveness evaluations.   - Conduct more in-depth, segregated surveys of significant, specific subgroups where they exist within a stakeholder audience.

Topical Review Area: Effectiveness Evaluation & Program Changes
• Consider situations in which over-sampling or under-sampling should be used to represent the affected general population.
• Establish common industry definitions for bottom-line results like near misses and encroachment.
• Identify realistic components that can be measured and changed relative to bottom line results.
• Explore inspection practices that allow collaboration among operators in outreach efforts in common ROW and/or geographic areas.
• Provide more guidance on how to determine sample sizes, response rates, etc. and/or resources on where to obtain info.
• Consider ways to gather data and gauge effectiveness of public awareness programs nationwide.
• Identify ways to improve program effectiveness evaluation methods and metrics.
• Clarify that effectiveness evaluations should be performed on a frequency of no less than every four years.
• Specify that operators could include performance metrics in the written plan on how to evaluate their effectiveness.

Threats (External)
• Prescriptive evaluation approaches can impact operators' abilities to perform adequate evaluations, as flexibility is needed because a "one-size-fits all" approach doesn't work for the variety of systems and programs in place. However, too much flexibility can lead to inadequate evaluations resulting from a lack of rigor.
• Weakness in general awareness of pipelines in different geographic areas (e.g., rural and urban areas).
• Challenging to measure changes in behavior credited to specific influences, e.g., PAP versus other impacts.
• Effectiveness evaluation results are only as useful as the questions asked.

Topical Review Area: Annual Audit & Program Changes
Strengths (Internal)
• Most operators inspected attempted to conduct their annual audits and program changes.
• Operators have consistent guidance (e.g., API RP 1162) to help them plan and conduct annual audits of their public awareness programs and make changes as needed.
Weaknesses (Internal)
• Some operators did not have a good process to consider the need for supplemental requirements or the implementation of supplemental requirements previously determined to be needed.
• Inadequate documentation of annual audits and how they were conducted.
• Use of regulatory inspections as a method of performing annual audits.
Opportunities (External)
• Better documentation of program changes as a result of the annual audit.

Pipeline Public Awareness
Strengths, Weaknesses, Opportunities, Threats (SWOT)

Topical Review Area: Annual Audit & Program Changes
• Develop a consistent methodology and process for conducting annual audits.
Threats (External)
• Striking a balance between consistent methodology and flexibility for conducting annual audits.

Topical Review Area: Stakeholder Identification
Strengths (Internal)
• Current four stakeholder groups specified in API RP 1162 are broad enough to allow for appropriate flexibility.
Weaknesses (Internal)
• Some LDCs and regulators may interpret the requirement to identify LDC audiences differently, leading to confusion.
Opportunities (External)
• Identify stakeholder subgroups that might otherwise be included in broader stakeholder group communications, to address specific risks (e.g., subgroup farmers within the larger excavator group) • Identify and reach stakeholders that may be impacted but are difficult to reach, such as transients. • Better targeting of messages to stakeholder subgroups, such as law enforcement, EMS, 911, farmers, etc. • Distributing information through trusted channels (e.g., farm bureau, NACo, trade publications, etc.).
Threats (External)
• Expectation of "accuracy" with regard to identifying stakeholders. • Observations from PAP inspections by regulators may not apply to all pipeline types and must be carefully considered when trying to apply across the board. • Changes in population lead to difficulties in reaching all stakeholders within that population. • Information is not always read by the appropriate persons. • Transient people (campers, hunters, etc.).

Topical Review Area: PAP Inspection Form (Form 21) and Inspection Process
Strengths (Internal)
• Use of a standardized inspection form provides for better preparation and performance of audits.
Weaknesses (Internal)
• Inspection questions in Section 4 of Form 21 (Program Evaluation & Continuous Improvement) need clarification (ties to Section 8 of API RP 1162). • Inspection form imposes standards that are not spelled out in regulation or API RP 1162. • Inspection form does not provide for § 192.616(f) and § 195.440(f). • Although form used in inspections was same, process of inspection varied among states relative to time and complexity.

Pipeline Public Awareness
Strengths, Weaknesses, Opportunities, Threats (SWOT)

Topical Review Area: PAP Inspection Form (Form 21) and Inspection Process
• Management support requirements lacked clarity on whether signature, name, or titles/positions are required. Also, lack of clarity on what is required when management changes.
• More clarity is needed to define unique attributes and characteristics requirements.
• Difficult for distribution operators to know what information is required to be conveyed relative to pipeline facility locations.
• Regulatory requirement on outreach to municipalities, etc. is unclear of whether focus is on facility, pipeline, or the intended audiences.
• Some confusion about definition for "maintain liaison" with emergency officials in federal regulations.
• Some operators use regulatory inspections in lieu of conducting a required annual audit.
• Need clarity for "bottom line results" and how near misses and damages are evaluated.

Opportunities (External)
• Align inspection protocols with improvements in public awareness programs and outreach efforts. For example the use of public service announcements, mass media, social media, and stakeholder representatives.
• Better align questions with subject matter (e.g., move Question 1.06 to Section 4.0.)
• Better align effectiveness measure with appropriate outreach methods.
• Eliminate ambiguity of whether supplemental activity is needed and evaluating whether supplemental should be considered in the requirements.
• Encourage more joint/team inspections and/or inspector training.

Threats (External)
• Inspection form questions migrate into de facto requirements.
• Inspection form and process could hamper public awareness program effectiveness and innovation.
• Use of different forms by states.
• Requirements and recommended practices written vague may lead to challenges when assessing compliance.

Topical Review Area: PA Federal Regulation
(Note: This was a general analysis, not an in-depth analysis of the Federal regulations.)

Strengths (Internal)
• Regulations are driving improvements in public awareness.
• Code allows for justification of alternative methods in public awareness planning, implementation, and/or messaging.
• Regulation/code provides structure for a common understanding for plan development and implementation.
• Allows for the incorporation of API recommended practices.

Weaknesses (Internal)
• Some operators perceive that requirements may stifle innovation.

Pipeline Public Awareness
Strengths, Weaknesses, Opportunities, Threats (SWOT)

Topical Review Area: PA Federal Regulation
(Note: This was a general analysis, not an in-depth analysis of the Federal regulations.)

- Vague common understanding of "educate" and "advise" in the code. See: (§ 192.616(d) and (e), and § 195.440(d) and (e))
- Need common understanding of "commonly understood by a significantly number and concentration of the non-English speaking population…." See: (§ 192.616(g))
- PA code is a hybrid of prescriptive and performance-based requirements. Makes it more difficult for operators to understand what to do.
- Regulations/codes are enforced operator-by-operator for compliance. May lead to inconsistencies and/or duplication of messages.
- Regulations do not encourage/or provide provisions for collaborative approaches and how individual operator performance measures can be met (take credit).
- "Unique attributes and characteristics" (§ 192.616 (b)) not commonly defined, explained how to incorporate into messaging, or what/how much should be made available to public.
- Need language on how to address changes to "active" pipeline assets (new pipelines, transfers/acquisitions, idle/divestiture, conversion of service (gas to liquid or liquid to gas, changes to emergency #s, etc.).
- Evaluation expectations could benefit from universal standards (what's required and timing).

Opportunities (External)

- Determine balance between prescribed and performance-based requirements.
- Clarify or improve what "educate" means in the code and how to measure "educate."
- Clarify in the code (§ 192.616(g)) that operators should assess and/or consider other languages commonly understood and define a significant number.
- Address managing and communicating changes to "active" pipeline assets (new pipelines, transfers/acquisitions, idle/divestiture, conversion of service (gas to liquid or liquid to gas, changes to emergency #s, etc.) with affected stakeholders.
- To improve understanding and meaning, leverage other opportunities to disseminate results of Working Groups and educate stakeholders of changes/future plans.
- Clarify evaluation expectations (what's required and timing).

Threats (External)

- Federal public awareness program regulations currently do not apply to all gathering lines.
- Even if the audience is "educated" it still may not translate to a stakeholder taking an appropriate action (indirectly impacting an operator's bottom line results).
- Lack of thorough understanding of the code (subjective/interpretation) and what it really means (operators, regulators).
- Lengthy regulatory/rulemaking process to change public awareness requirements.

Topical Review Area: Operator Written Plan

Strengths (Internal)

- Operators have generally demonstrated they want to implement effective programs and implement continuous improvement.

Pipeline Public Awareness
Strengths, Weaknesses, Opportunities, Threats (SWOT)

Topical Review Area: Operator Written Plan
• Strong industry associations that work together and are committed to improvement as an industry.
• Operators generally have written programs structured according to API RP 1162.
• Operators are resourceful in leveraging various data sources to identify stakeholders.
• Operators generally understand the idea of evaluating bottom-line results.

Weaknesses (Internal)
• Unclear benefit of the management support statement (signature & date) when budgets and resources are allocated based on management approval.
• Unclear understanding of expectations with regard to management support/and or statement, and how often should it be updated.
• Unclear understanding of requirement for making pipeline operators' emergency response plans available to emergency response officials.
• Unclear understanding of regulators' expectations for QA/QC processes (mailers/vendor checking).
• Measuring behavioral change has been challenging.
• Reluctance of operators to try innovative implementation techniques if there will be no compliance benefit.
• Evaluation process and procedures in some plans lack objectives and goals to help evaluate effectiveness (justifying the goals may be subjective).

Opportunities (External)
• Encourage message mapping as a best practice to ensure all baseline messages are in outreach materials.
• Clarify management accountability for the operator's written public awareness plan. This would include senior management review and sign-off of the plan and the results.
• Clarify what should be included in the operator's management support statement and how often should it be updated (e.g., position title, not specific name).
• Provide clarity on appropriate and useful information (when and how) for ER officials (not necessarily an operator's full ER plan).
• Provide more guidance on what should be included an operator's QA/QC process (mailers/vendor checking).
• Standardized method to capture hits, near misses, and encroachment (part of bottom-line results measurement).
• Clarify evaluation expectations (what's required and timing).

Threats (External)
• Over reliance on third-party vendors may create false compliance security.
• Using API RP 1162 tables (delivery methods/frequency/message) in a prescriptive manner rather than tailoring implementation to operator's specific program.
• Number of messages required to communicate in a single document/media (information overload/confusion).
• Measuring program outreach makes it difficult to use mass media because it is difficult to prove who was reached (performance vs. flexibility).

Pipeline Public Awareness
Strengths, Weaknesses, Opportunities, Threats (SWOT)

Topical Review Area: API RP 1162, 2nd Edition

Strengths (Internal)

- API RP 1162 provides consistent guidance to help operators plan and conduct their public awareness programs.
- Less prescriptive and adds more flexibility for operators.
- Section 5.5, "Identify Stakeholder Audiences," is an improvement from API RP 1162 1st Edition, particularly for smaller operators, because it provides a more detailed audience description.
- Section 9.3.1, "Measuring Outreach," provides more flexibility for using mass media than API RP 1162 1st Edition.

Weaknesses (Internal)

- Ability of operators to meet the requirement to demonstrate that messages are sent and delivered.
- API RP 1162 needs clarity of guidance for performing public awareness program evaluations.
- API RP 1162 section on program evaluation needs clearer guidance in what to measure for behavioral change and how to measure.
- "Minimum requirement" could use further defining to benefit compliance.
- Section 9.1, "Pre-Test Effectiveness of Materials," is prescriptive; there may be other methods available other than the use of a focus group.
- Less prescriptive guidance, compared to API RP 1162 1st Ed. offers more flexibility for operators but could result in less effective programs.
- API RP 1162, Page 8 (second paragraph) "…a distance of 660 ft…" does not clarify the minimum requirement.
- Needs clarity for managing changes to "active" pipeline assets (new pipelines, transfers/acquisitions, idle/divestiture, conversion of service (gas to liquid or liquid to gas, changes to emergency #s, etc...).
- Section 5.3 discusses roles and responsibilities but does not adequately discuss accountabilities (could be different).

Opportunities (External)

- Determine if behavior change should be a goal of public awareness programs and, if so, identify and describe examples of how to measure it, for all stakeholder audiences.
- Include messages for stakeholders to "spread the word" about pipeline public awareness among their families, friends, neighbors, and peers.
- Review API RP 1162 for consistency in usage of "annual audit" versus "annual implementation evaluation" terminology.
- Construction of new pipelines (gathering systems, shale systems) is not always supported by adequate public awareness outreach.
- Clarify annual audit and effectiveness evaluation frequencies for applicability to regulated gas gathering lines.
- Reduce number of key messages in baseline communication.
- Clarify minimum requirements with API recommended practices and/or rulemaking (shall, should, may, etc…).

Topical Review Area: API RP 1162, 2nd Edition
• Identify improvements to baseline and enhancement message content (e.g., enhance ER information as required by emergency responders).
• Strike a balance between prescriptive and performance based.
• Include "recognition and response" in Section 5.1.3 (already included in the baseline message).
• Evaluate if the application of management systems concepts could be beneficial to public awareness programs and, if so, where these would be appropriate (e.g., may not be applicable to small operators).
• Better communications on benefits of calling or implications of not calling 811 (operator plans and messaging).
• Reword damage prevention messages to place more emphasis on benefits of calling 811.
• Revisit "Farmers" in affected public or excavator stakeholder audience group.
• Address managing changes to "active" pipeline assets (new pipelines, transfers/acquisitions, idle/divestiture, conversion of service (gas to liquid or liquid to gas, changes to emergency #s, etc.).
• Provide examples of behavioral changes (positive and negative).
• Revisit and clarify record documentation vs record retention requirements (last 5 years or documentation to support effectiveness and implementation). May consider extending evaluation period to 5 years (instead of "no more than 4 years).
• Management accountability (senior management review and sign-off on results).
• Revise guidance to include consideration of program enhancements during program planning and, separately, following program audits and evaluations.

Threats (External)
• Unclear on the rationale for "how to get additional information" moved to enhanced messages from baseline messages for all stakeholder audiences (risk).
• Public Official baseline delivery frequency is an ongoing threat. Could miss elected officials.
• Annex A: Baseline and Enhanced Program Summary Tables may give the impression messages, frequencies, and methods are optional and not enforceable.

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Pipeline Public Awareness
Strengths, Weaknesses, Opportunities, Threats (SWOT)

Organized by SWOT Attribute, Then by Topical Review Area

Strengths

Attribute	Topical Review Area	Comment
Strengths	**1. Objective of Pipeline Operator Public Awareness Programs**	- Some operators exceed compliance requirements to reach out to affected stakeholders. - API RP 1162, 1st Ed. provides a solid framework for continuous improvement and stakeholder involvement, from which to build. - Stakeholder input impacted the way operators develop and implement public awareness programs.
Strengths	**2. Objective of Public Awareness for Pipeline Safety (Broad)**	- National communication messages and tools can be useful to communities and on a local level (like the National Pipeline Mapping System (NPMS), 811, PIPA). - Multiple communication channels and methods and approaches available. - Some operators' ability to leverage stakeholders' existing platforms/communication channels (e.g., fire service, LEPCs). - Many stakeholders are clearly identified by operators. - Common/shared vision and goals. - Sharing best practices. - Non-proprietary. - Consistent baseline messages. - The pipeline industry sees value in regulations. - Effective public awareness is in best interest of all stakeholders and safety. - Some operators have learned from implementation efforts and stakeholder feedback and have applied lessons learned for continuous improvement. - Sharing best practices.
Strengths	**3. Public Stakeholders**	- LDC customers are more likely to be aware of distribution pipeline systems. - Multitude of media and methods. - Collaborative outreach for common messaging reduces excessive communication with the public. - National campaigns can be effective (e.g. promotion of 811).

Attribute	Topical Review Area	Comment
		• New technology is improving the ability to identify audiences for public awareness messages.
Strengths	**4. Emergency Response Stakeholders**	• Interested and engaged (want to know more). • Some operator public awareness programs represent a concerted effort to engage key emergency response stakeholders. • Some operators are proactively building relationships through a variety of methods. • Findings from the Pipeline Emergency Response Working Group (PERWG) final report. • Audit program is working and getting operators to increase outreach. • There are a lot of resources available to emergency responders, such as NPMS, Emergency Response Guidebook, training curricula, portals, etc. • Some states (e.g., Pennsylvania) have done a good job of getting messages out to all emergency responders. • Constant communication has improved consistency and raised trust among operators and emergency responders. • Some existing operator programs provide a solid base from which to improve.
Strengths	**5. Excavator Stakeholders**	• Consolidated national effort to promote 811. • 811 "Call Before You Dig" is a simple message. • There is a wide variety of resources and tools to promote 811 (e.g., logos, videos, communications plans, etc.). • Public awareness programs address a wide range of excavation-related pipeline safety issues, for example risks from specific types of excavation, excavation trends in specific areas, dangers to the excavators, etc. • Promoting public awareness and damage prevention among excavators is ingrained in the culture of many operators. • Professional excavator awareness of 811 and the need for safe digging is improving.

Pipeline Public Awareness
Strengths, Weaknesses, Opportunities, Threats (SWOT)

Attribute	Topical Review Area	Comment
Strengths	6. Public Official Stakeholders	• Most public officials are aware of distribution systems within their communities. • PIPA Recommended Practices provide information and clarity on safe land use and development near transmission pipelines. • The National Pipeline Mapping System (NPMS) is a resource. • High interest on the part of local community organizations in receiving information. • The PHMSA Technical Assistance Grant (TAG) program makes funding available, when funds are appropriated, to communities for pipeline safety initiatives.
Strengths	7. Message Delivery Frequency	• Generally, operators are following or exceeding the message frequency requirements.
Strengths	8. Effectiveness Evaluation & Program Changes	• Operators use multiple data sources to determine effectiveness. • Industry collaboration efforts create value in aggregate data and trending over time.
Strengths	9. Annual Audit & Program Changes	• Most operators inspected attempted to conduct their annual audits and program changes. • Operators have consistent guidance (e.g., API RP 1162) to help them plan and conduct annual audits of their public awareness programs and make changes as needed.
Strengths	10. Stakeholder Identification	• Current four stakeholder groups specified in API RP 1162 are broad enough to allow for appropriate flexibility.
Strengths	11. PAP Inspection Form (Form 21) and Inspection Process	• Use of a standardized inspection form provides for better preparation and performance of audits.
Strengths	12. PA Federal Regulation (Note: This was a general analysis, not an in-depth analysis of the Federal regulations.)	• Regulations are driving improvements in public awareness. • Code allows for justification of alternative methods in public awareness planning, implementation, and/or messaging. • Regulation/code provides structure for a common understanding for plan development and implementation. • Allows for the incorporation of API recommended practices.
Strengths	13. Operator Written Plan	• Operators have generally demonstrated they want to implement effective programs and implement continuous improvement.

Pipeline Public Awareness
Strengths, Weaknesses, Opportunities, Threats (SWOT)

Attribute	Topical Review Area	Comment
		• Strong industry associations that work together and are committed to improvement as an industry. • Operators generally have written programs structured according to API RP 1162. • Operators are resourceful in leveraging various data sources to identify stakeholders. • Operators generally understand the idea of evaluating bottom-line results.
Strengths	**14. API RP 1162, 2nd Edition**	• API RP 1162 provides consistent guidance to help operators plan and conduct their public awareness programs. • Less prescriptive and adds more flexibility for operators. • Section 5.5, "Identify Stakeholder Audiences," is an improvement from API RP 1162 1st Edition, particularly for smaller operators, because it provides a more detailed audience description. • Section 9.3.1, "Measuring Outreach," provides more flexibility for using mass media than API RP 1162 1st Edition.

Weaknesses

Attribute	Topical Review Area	Comment
Weaknesses	**1. Objective of Pipeline Operator Public Awareness Programs**	- Inadequate communication of the risks, hazards, and potential impacts from the type of commodities that could be released from pipelines. - Some operators are driven by compliance requirements and not communication resonance. - Some operators may not always ensure third-party vendor efforts meet requirements that operators are responsible for (can cross over to other areas). - Need clarity on what "maintain liaison" with emergency officials means. - Some operators may not effectively leverage existing communication channels or outreach methods to promote public awareness. - Field and technical operations personnel may not be able to support public awareness communications due to other job priorities. - Multiple operators, within a corridor, may not coordinate public awareness efforts and may cause stakeholders to receive multiple messages, which may lead to confusion. - Operators are concerned with how their collaborative efforts will support compliance to regulations. There is little guidance on how to structure collaborative messages and little assurance that operators will receive credit from regulators for collaborative messaging. - Need common definitions and requirements for data collection and data reporting. - Unclear on how to establish acceptable measures for outreach and awareness.

Pipeline Public Awareness
Strengths, Weaknesses, Opportunities, Threats (SWOT)

Attribute	Topical Review Area	Comment
Weaknesses	2. Objective of Public Awareness for Pipeline Safety (Broad)	• Missing additional stakeholders (e.g., other governmental organizations involved in incident response, operators of other critical infrastructure, environmental). • Too many messages; similar messages. • Stakeholder information overload. • Traditionally, assumptions have been made on how to best communicate with stakeholders. • Need clarity and consistency in measuring public awareness program effectiveness. • Need common understanding of behavior change and how to effectively measure it. • Lack of a public face/icon of pipeline public awareness (e.g., no national safety campaign or brand recognition). • Some operators have not fully leveraged stakeholders' existing platforms/communication channels (e.g., fire service, LEPCs). • Limited resources.
Weaknesses	3. Public Stakeholders	• Difficult to capture the immediate attention of stakeholders to compel them to read the public awareness materials. • Public awareness content is not always pipeline specific. • Perception that operators must communicate too many message topics. • Gaps in outreach at the appropriate time in public awareness requirements for non-FERC new projects (not applicable to distribution systems).
Weaknesses	4. Emergency Response Stakeholders	• Lack of consolidation of common messages and individual resources. • Operators are not, in all cases, adequately identifying and proactively working and coordinating with all emergency response stakeholders within a community. • Emergency responders are not aware of differences in pipeline systems and potential impacts.

Attribute	Topical Review Area	Comment
		• Not all operators and emergency responders have an adequate understanding of the National Incident Management System (NIMS). • Providing general messages for all emergency responders versus role specific-information. • No assurance that pipeline information is appropriately disseminated within the emergency response community. • Sharing and understanding capabilities and gaps between operators and emergency responders.
Weaknesses	5. Excavator Stakeholders	• Limited resources may not be targeted to the excavators who need the most education. • The lack of adequate, specific data (e.g., impacts of exemptions) makes it difficult to know where to apply targeted outreach resources. • Lack of knowledge about one-call laws and requirements. • Excavators that do not perceive of themselves as excavators or subject to one-call requirements.
Weaknesses	6. Public Official Stakeholders	• Identifying public official stakeholders. • Public awareness message frequency. • Lack of customization of messages to specific public officials based on roles and responsibilities. • NPMS limitations.
Weaknesses	7. Message Delivery Frequency	• Public officials messaging frequency may be too long.
Weaknesses	8. Effectiveness Evaluation & Program Changes	• Difficulty in selecting and measuring the effectiveness of the multitude of media and methods. • Identifying and justifying public awareness program effectiveness criteria. • Difficulty in measuring behavior changes as a bottom-line metric. • Need clarity regarding entire effectiveness evaluation requirements (e.g., PHMSA expectations and guidance in API RP 1162).

Pipeline Public Awareness
Strengths, Weaknesses, Opportunities, Threats (SWOT)

Attribute	Topical Review Area	Comment
Weaknesses	9. Annual Audit & Program Changes	• Some operators did not have a good process to consider the need for supplemental requirements or the implementation of supplemental requirements previously determined to be needed. • Inadequate documentation of annual audits and how they were conducted. • Use of regulatory inspections as a method of performing annual audits.
Weaknesses	10. Stakeholder Identification	• Some LDCs and regulators may interpret the requirement to identify LDC audiences differently, leading to confusion.
Weaknesses	11. PAP Inspection Form (Form 21) and Inspection Process	• Inspection questions in Section 4 of Form 21 (Program Evaluation & Continuous Improvement) need clarification (ties to Section 8 of API RP 1162). • Inspection form imposes standards that are not spelled out in regulation or API RP 1162. Inspection form does not provide for § 192.616(f) and § 195.440(f). • Although form used in inspections was same, process of inspection varied among states relative to time and complexity. • Management support requirements lacked clarity on whether signature, name, or titles/positions are required. Also, lack of clarity on what is required when management changes. • More clarity is needed to define unique attributes and characteristics requirements. • Difficult for distribution operators to know what information is required to be conveyed relative to pipeline facility locations. • Regulatory requirement on outreach to municipalities, etc. is unclear of whether focus is on facility, pipeline, or the intended audiences. • Some confusion about definition for "maintain liaison" with emergency officials in federal regulations. • Some operators use regulatory inspections in lieu of conducting a required annual audit.

Attribute	Topical Review Area	Comment
		• Need clarity for "bottom line results" and how near misses and damages are evaluated.
Weaknesses	**12. PA Federal Regulation (Note: This was a general analysis, not an in-depth analysis of the Federal regulations.)**	• Some operators perceive that requirements may stifle innovation. • Need common understanding of "educate" and "advise" in the code. See: (§ 192.616(d) and (e), and § 195.440(d) and (e)) • Need common understanding of "commonly understood by a significantly number and concentration of the non-English speaking population…." See: (§ 192.616(g)) • PA code is a hybrid of prescriptive and performance based requirements. Makes it more difficult for operators to understand what to do. • Regulations/codes are enforced operator-by-operator for compliance. May lead to inconsistencies and/or duplication of messages. • Regulations do not encourage/or provide provisions for collaborative approaches and how individual operator performance measures can be met (take credit). • "Unique attributes and characteristics" (§ 192.616 (b)) not commonly defined, explained how to incorporate into messaging, or what/how much should be made available to public. • Need language on how to address changes to "active" pipeline assets (new pipelines, transfers/acquisitions, idle/divestiture, conversion of service (gas to liquid or liquid to gas, changes to emergency #s, etc.). • Evaluation expectations could benefit from universal standards (what's required and timing).
Weaknesses	**13. Operator Written Plan**	• Unclear benefit of the management support statement (signature & date) when budgets and resources are allocated based on management approval.

Attribute	Topical Review Area	Comment
		- Unclear understanding of expectations with regard to management support/and or statement, and how often should it be updated. - Unclear understanding of requirement for making pipeline operators' emergency response plans available to emergency response officials. - Unclear understanding of regulators' expectations for QA/QC processes (mailers/vendor checking). - Measuring behavioral change has been challenging. - Reluctance of operators to try innovative implementation techniques if there will be no compliance benefit. - Evaluation process and procedures in some plans lack objectives and goals to help evaluate effectiveness (justifying the goals may be subjective).
Weaknesses	14. API RP 1162, 2nd Edition	- Ability of operators to meet the requirement to demonstrate that messages are sent and delivered. - API RP 1162 needs clarity of guidance for performing public awareness program evaluations. - API RP 1162 section on program evaluation needs clearer guidance in what to measure for behavioral change and how to measure. "Minimum requirement" could use further defining to benefit compliance. - API RP 1162, Section 9.1, "Pre-Test Effectiveness of Materials," is prescriptive; there could be methods available other than the use of a focus group. - Less prescriptive guidance, compared to API RP 1162 1st Ed. offers more flexibility for operators but could result in less effective programs. - API RP 1162, Page 8 (second paragraph) "…a distance of 660 ft.…" does not clarify the minimum requirement.

Attribute	Topical Review Area	Comment
		- Needs clarity on managing changes to "active" pipeline assets (new pipelines, transfers/acquisitions, idle/divestiture, conversion of service (gas to liquid or liquid to gas, changes to emergency #s, etc.). - Section 5.3 discusses roles and responsibilities but does not adequately discuss accountabilities (could be different).

Pipeline Public Awareness
Strengths, Weaknesses, Opportunities, Threats (SWOT)

Opportunities

Attribute	Topical Review Area	Comment
Opportunities	**1. Objective of Pipeline Operator Public Awareness Programs**	• Move from compliance-driven programs toward programs embracing more corporate social responsibility. • Leverage existing platforms/communication channels and outreach methods for stakeholder audiences. • Explore ways field personnel can support public awareness efforts (e.g., develop an ambassador program). • Train operator field personnel to support public awareness activities, where possible. • Continue to share best practices among operators. • Evaluate if the application of management system concepts could be beneficial to public awareness program efforts and, if so, identify where these would be appropriate (e.g., may not be applicable to small operators). For example, reference API RP 1173 (Safety Management Systems) when it is published. • Leverage consolidated generic messaging (e.g., national messages in propane industry). • Look at other public safety campaigns, where stakeholder penalties are not involved, to study how they are evaluated for effectiveness (e.g., emergency preparedness, wildfire preparedness, bullying, etc.). • Consider developing a campaign or common messaging to communicate and increase public awareness about pipeline safety, for example for leak recognition and response.
Opportunities	**2. Objective of Public Awareness for Pipeline Safety (Broad)**	• Understand what's important to stakeholder audiences. • Maximize opportunities of receptive audiences after pipeline incidents. • Utilize targeted stakeholder interactions (e.g., focus groups) to stimulate program feedback and establish two-way dialogues with stakeholders. • Balance messages of "risk" versus "pipelines are safe."

Attribute	Topical Review Area	Comment
		• Use compelling messaging that focuses on generating interest and gaining stakeholder attention regarding pipeline awareness and safety rather than touting the benefits of pipelines. • Elevate environmental protection messaging in public awareness programs. • Reword damage prevention messages to place more emphasis on benefits of calling 811. • Target environmental audiences. • Create a plan to sustain involvement of audiences after pipeline incidents. • Give stakeholders information/data to help their planning (operators). • Share best practices and lessons learned broadly. • Leverage stakeholders' existing platforms/communication channels (e.g., fire service, LEPCs). • Review Canada's National Energy Board (NEB) regulations to determine if they contain additional opportunities to improve public awareness for pipeline safety. • Encourage existing stakeholder groups to champion aspects of pipeline safety awareness that are most important to their members. • Focus on reaching the "gray zone" (unaware, un-opinionated groups). • Establish a common objective among public awareness programs -- encourage pipeline safety. • Encourage operator collaborative efforts towards promoting consistent and cohesive messages to community stakeholders, in order to overcome compartmentalization (e.g., disconnect between large and small operators, and between transmission, gathering and distribution operators).
Opportunities	**3. Public Stakeholders**	• Growing pipeline infrastructure drives the need for continuous improvement in public awareness programs. • Strike a balance between informed and saturated.

Pipeline Public Awareness
Strengths, Weaknesses, Opportunities, Threats (SWOT)

Attribute	Topical Review Area	Comment
		• Strike a balance between information saturation and desensitization. • Explore how to balance communication of risk versus benefits of pipelines. • Provide more operator system-specific information. • Use multimedia and technology (future advancements). • Leverage communications principles to develop effective public awareness programs (e.g., messaging consistency, research, repetition). • Leverage past incidents to show where public awareness paid off in incident response or incident management.
Opportunities	**4. Emergency Response Stakeholders**	• Leverage and engage state training programs. • Post incident response lessons learned online for other first responders to review. • Identify if pooling resources among operators can create efficiencies and cost savings for operators and emergency responders. • Finalize and promote inclusion of pipelines in Federal Emergency Management Agency (FEMA) all-hazards mitigation. • Add pipeline scenarios into FEMA Emergency Management Institute (EMI) course on National Infrastructure Protection Plan (Class IS-860-B). • Develop tools such as a consistent pipeline incident checklist, for emergency responders. • Simplify communication through the hierarchy of emergency response command in jurisdictions with pipelines. • Provide role specific-information for emergency responders (e.g., fire services versus 9-1-1 versus law enforcement, as well as for different levels of technical expertise within these audience groups). • Leverage pipeline operators who are also volunteer firefighters.

Pipeline Public Awareness
Strengths, Weaknesses, Opportunities, Threats (SWOT)

Attribute	Topical Review Area	Comment
		• Identify if 811 call centers can be leveraged for emergency response (e.g., identifying affected operators and other potentially affected utilities). • Promote the expansion of mutual aid agreements among rural and municipal communities. • Explore best practice initiatives and ways state emergency responder organizations taking a leading role in the delivery of pipeline awareness and emergency response training and certification (e.g. the Georgia Pipeline Emergency Response Initiative).
Opportunities	5. Excavator Stakeholders	• Reword damage prevention messages to place more emphasis on benefits of calling 811. • Continuously evaluate the comprehensive opportunities for outreach to the excavator audience. • Look at opportunities for a nationwide campaign for public awareness. • Target excavator messages for specific excavator groups, such as landscapers, fencing companies, homeowners, construction communities, farmers, etc. • Adopt a more data-driven, strategic approach to excavator outreach. • Consolidate public awareness surveys, as appropriate. • Improve gathering and development of adequate, specific data regarding exemptions, near misses, damages, etc. • Emphasize to excavators that damage prevention is about their safety and their bottom line.
Opportunities	6. Public Official Stakeholders	• Local public officials can be champions of pipeline safety when adequately engaged. • Provide information related to land use and development planning near pipelines; reference the PIPA Recommended Practices. • Promote PIPA Recommended Practices and NPMS. • Provide information in a way that can be shared.

Pipeline Public Awareness
Strengths, Weaknesses, Opportunities, Threats (SWOT)

Attribute	Topical Review Area	Comment
		• Provide information on new pipelines near existing developments. • Share pipeline centerline data for planning purposes. • Better define local official audience relative to public awareness outreach. • Every local official has a constituency that could be considered a captive audience. • Consider consolidated, common messages. • Leverage interest created by visibility of pipeline incidents; local officials affected by incidents could become proponents of expanded public awareness. • Leverage high-interest community organizations. • Review message delivery frequency due to political official turnover. • Promote PHMSA's Technical Assistance Grant (TAG) program, when funds are appropriated.
Opportunities	7. Message Delivery Frequency	• Expedite notifications for newly built and acquired pipelines. • Clarify the message delivery frequency for idle lines.
Opportunities	8. Effectiveness Evaluation & Program Changes	• Develop a "toolbox" to promote effective program evaluation tools for use by pipeline operators. • Consider the use of cooperative stakeholder surveys with other operators where appropriate. • Perform root cause analyses of unsatisfactory effectiveness evaluations. • Conduct more in-depth, segregated surveys of significant, specific subgroups where they exist within a stakeholder audience. • Consider situations in which oversampling or under sampling should be used to represent the affected general population. • Establish common industry definitions for bottom-line results like near misses and encroachment. • Identify realistic components that can be measured and changed relative to bottom line results.

Pipeline Public Awareness
Strengths, Weaknesses, Opportunities, Threats (SWOT)

Attribute	Topical Review Area	Comment
		- Explore inspection practices that allow collaboration among operators in outreach efforts in common ROW and/or geographic areas. - Provide more guidance on how to determine sample sizes, response rates, etc. and/or resources on where to obtain info. - Consider ways to gather data and gauge effectiveness of public awareness programs nationwide. - Identify ways to improve program effectiveness evaluation methods and metrics. - Clarify that effectiveness evaluations should be performed on a frequency of no less than every four years. - Specify that operators could include performance metrics in the written plan on how to evaluate their effectiveness.
Opportunities	9. Annual Audit & Program Changes	- Better documentation of program changes as a result of the annual audit. - Develop a consistent methodology and process for conducting annual audits.
Opportunities	10. Stakeholder Identification	- Identify stakeholder subgroups that might otherwise be included in broader stakeholder group communications, to address specific risks (e.g., subgroup farmers within the larger excavator group) - Identify and reach stakeholders that may be impacted but are difficult to reach, such as transients. - Better targeting of messages to stakeholder subgroups, such as law enforcement, EMS, 911, farmers, etc. - Distributing information through trusted channels (e.g., farm bureau, NACo, trade publications, etc.).
Opportunities	11. PAP Inspection Form (Form 21) and Inspection Process	- Align inspection protocols with improvements in public awareness programs and outreach efforts. For example the use of public service announcements, mass media, social media, and stakeholder representatives. - Better align questions with subject matter (e.g., move Question 1.06 to Section 4.0).

Attribute	Topical Review Area	Comment
		• Better align effectiveness measure with appropriate outreach methods. • Eliminate ambiguity of whether supplemental activity is needed and evaluating whether supplemental should be considered in the requirements. • Encourage more joint/team inspections and/or inspector training.
Opportunities	**12. PA Federal Regulation** **(Note: This was a general analysis, not an in-depth analysis of the Federal regulations.)**	• Determine balance between prescribed and performance-based requirements. • Clarify or improve what "educate" means in the code and how to measure "educate." • Clarify in the code (§ 192.616(g)) that operators should assess and/or consider other languages commonly understood and define a significant number. • Address managing and communicating changes to "active" pipeline assets (new pipelines, transfers/acquisitions, idle/divestiture, conversion of service (gas to liquid or liquid to gas, changes to emergency #s, etc.) with affected stakeholders. • To improve understanding and meaning, leverage other opportunities to disseminate results of Working Groups and educate stakeholders of changes/future plans. • Clarify evaluation expectations (what's required and timing).
Opportunities	**13. Operator Written Plan**	• Encourage message mapping as a best practice to ensure all baseline messages are in outreach materials. • Clarify management accountability for the operator's written public awareness plan. This would include senior management review and sign-off of the plan and the results. • Clarify what should be included in the operator's management support statement and how often should it be updated (e.g., position title, not specific name). • Provide clarity on appropriate and useful information (when and how) for ER officials (not necessarily an operator's full ER plan). • Provide more guidance on what should be included an operator's QA/QC process (mailers/vendor checking).

Attribute	Topical Review Area	Comment
		• Standardized method to capture hits, near misses, and encroachment (part of bottom-line results measurement). • Clarify evaluation expectations (what's required and timing).
Opportunities	**14. API RP 1162, 2nd Edition**	• Determine if behavior change should be a goal of public awareness programs and, if so, identify and describe examples of how to measure it, for all stakeholder audiences. • Include messages for stakeholders to "spread the word" about pipeline public awareness among their families, friends, neighbors, and peers. • Review API RP 1162 for consistency in usage of "annual audit" versus "annual implementation evaluation" terminology. • Construction of new pipelines (gathering systems, shale systems) is not always supported by adequate public awareness outreach. • Clarify annual audit and effectiveness evaluation frequencies for applicability to regulated gas gathering lines. • Reduce number of key messages in baseline communication. • Clarify minimum requirements with API recommended practices and/or rulemaking (shall, should, may…). • Identify improvements to baseline and enhancement message content (e.g., enhance ER information as required by emergency responders). • Strike a balance between prescriptive and performance based. • Include "recognition and response" in Section 5.1.3 (already included in the baseline message). • Evaluate if the application of management systems concepts could be beneficial to public awareness programs and, if so, where these would be appropriate (e.g., may not be applicable to small operators). • Better communications on benefits of calling or implications of not calling 811 (operator plans and messaging). • Reword damage prevention messages to place more emphasis on benefits of calling 811.

Pipeline Public Awareness
Strengths, Weaknesses, Opportunities, Threats (SWOT)

Attribute	Topical Review Area	Comment
		- Revisit "Farmers" in affected public or excavator stakeholder audience group. - Address managing changes to "active" pipeline assets (new pipelines, transfers/acquisitions, idle/divestiture, conversion of service (gas to liquid or liquid to gas, changes to emergency #s, etc.). - Provide examples of behavioral changes (positive and negative). - Revisit and clarify record documentation vs record retention requirements (last 5 years or documentation to support effectiveness and implementation). May consider extending evaluation period to 5 years (instead of "no more than 4 years). - Management accountability (senior management review and sign-off on results). - Revise guidance to include consideration of program enhancements during program planning and, separately, following program audits and evaluations.

Pipeline Public Awareness
Strengths, Weaknesses, Opportunities, Threats (SWOT)

Threats

Attribute	Topical Review Area	Comment
Threats	**1. Objective of Pipeline Operator Public Awareness Programs**	• Operators are required to take action but stakeholders are not required to listen, understand or take action. • Compliance-driven programs may stifle innovation and creativity. • Language translation of public awareness messages may be completed by translators unfamiliar with the industry.
Threats	**2. Objective of Public Awareness for Pipeline Safety (Broad)**	• Credibility of the messenger may impact the receptiveness to public awareness messages. • Lack of interest in communicated public awareness or pipeline safety messages by affected stakeholders. • Compliance-driven programs may stifle innovation. • Differing roles and a lack of role understanding between government entities in pipeline safety can confuse stakeholders. • Limited resources. • The success of public awareness programs may be impacted by human nature - resistant to change. • Stakeholders are likely to be unreceptive to pipeline awareness and safety messages unless it is shown to impact them directly. • Difficulty getting stakeholder attention.
Threats	**3. Public Stakeholders**	• Public may not embrace, as its responsibility, to report unsafe pipeline conditions or threats to pipeline operators. • Public may view pipeline safety as out of their control. • Public may experience information overload, at times. • Perception that increased public awareness budgets are proportional to improved programs. • Variable public perception of pipelines and operators, in general. • Target populations are growing due to production areas.

Attribute	Topical Review Area	Comment
Threats	**4. Emergency Response Stakeholders**	• Emergency response stakeholders have information that would support more effective public awareness programs for emergency responders, that is not being shared or updated with operators. • Volunteer firefighters have different needs than career firefighters and they may lack preparation and training to respond to pipeline emergencies. • Firefighters may not know the right questions to ask. • Emergency responders have many responsibilities; pipelines may not be their highest priority. • No uniform national training requirements for fire fighters for pipeline incident response. Requirements are established at the state level. • Information overload. • Emergency response organizations lack time and other resources to prepare for pipeline emergencies. • Emergency responders "fear" of who to answer to among multiple government entities • No requirements for emergency responders to meet with operators. • Lack of knowledge of the hierarchy of command responsibilities and jurisdictions associated with pipelines. • Difficulty of identifying specific pipeline and who owns it during an emergency in a multi-line ROW.
Threats	**5. Excavator Stakeholders**	• Excavators travel between regions/states where the requirements of damage prevention laws vary. • Lack of damage prevention program enforcement in some states. • Non-justified exemptions and weak one-call laws and enforcement. • To an excavator, time is money. • Inaccurate and/or untimely locates lead to a lack of trust.
Threats	**6. Public Official Stakeholders**	• Turnover in public officials and staffs.

Pipeline Public Awareness
Strengths, Weaknesses, Opportunities, Threats (SWOT)

Attribute	Topical Review Area	Comment
		• Variability in the structure of local public governmental organizations and the roles and responsibilities of local public officials. • Many local officials are not adequately engaged unless it is a "hot topic" (competing priorities). • Lack of interest in and awareness of pipelines. • Local officials have interests that compete with zoning around pipelines (e.g., financial growth of communities). • Implementation of PIPA practices is complex and can create disincentives. • Political pressure may impact the level of information that is shared by public officials.
Threats	7. Message Delivery Frequency	• Potential conflict or confusion on contact information resulting from acquisitions.
Threats	8. Effectiveness Evaluation & Program Changes	• Prescriptive evaluation approaches can impact operators' abilities to perform adequate evaluations, as flexibility is needed because a "one-size-fits all" approach doesn't work for the variety of systems and programs in place. However, too much flexibility can lead to inadequate evaluations resulting from a lack of rigor. • Weakness in general awareness of pipelines in different geographic areas (e.g., rural and urban areas). • Challenging to measure changes in behavior credited to specific influences, e.g., PAP versus other impacts. • Effectiveness evaluation results are only as useful as the questions asked.
Threats	9. Annual Audit & Program Changes	• Striking a balance between consistent methodology and flexibility for conducting annual audits.
Threats	10. Stakeholder Identification	• Expectation of "accuracy" with regard to identifying stakeholders. • Observations from PAP inspections by regulators may not apply to all pipeline types and must be carefully considered when trying to apply across the board.

Attribute	Topical Review Area	Comment
		• Changes in population lead to difficulties in reaching all stakeholders within that population. • Information is not always read by the appropriate persons. • Transient people (campers, hunters, etc.).
Threats	**11. PAP Inspection Form (Form 21) and Inspection Process**	• Inspection form questions migrate into de facto requirements. • Inspection form and process could hamper public awareness program effectiveness and innovation. • Use of different forms by states. • Requirements and recommended practices written vague may lead to challenges when assessing compliance.
Threats	**12. PA Federal Regulation (Note: This was a general analysis, not an in-depth analysis of the Federal regulations.)**	• Federal public awareness program regulations currently do not apply to all gathering lines. • Even if the audience is "educated" it still may not translate to a stakeholder taking an appropriate action (indirectly impacting an operator's bottom line results). • Lack of thorough understanding of the code (subjective/interpretation) and what it really means (operators, regulators). • Lengthy regulatory/rulemaking process to change public awareness requirements.
Threats	**13. Operator Written Plan**	• Over reliance on third party vendors may create false compliance security. • Using API RP 1162 tables (delivery methods/ frequency/message) in a prescriptive manner rather than tailoring implementation to operator specific program. • Number of messages required to communicate in a single document/media (information overload/confusion). • Measuring program outreach makes it difficult to use mass media because it is difficult to prove who was reached (performance vs. flexibility).
Threats	**14. API RP 1162, 2nd Edition**	• Unclear on the rationale for "how to get additional information" moved to enhanced messages from baseline messages for all stakeholder audiences (risk).

Attribute	Topical Review Area	Comment
		• Public Official baseline delivery frequency is an ongoing threat. Could miss elected officials. • Annex A: Baseline and Enhanced Program Summary Tables may give the impression messages, frequencies, and methods are optional and not enforceable.

Appendix A: PAPWG Represented Stakeholder Groups and Organizations

Over 18 participants from the following stakeholder groups and were represented by one or more participating members of the PAPWG.

Stakeholder Group	Organization
Pipeline Operators (Industry)	American Public Gas Association
Public Official / Local Government	Brookings County, SD
Excavators	Distribution Construction Company
Interstate Natural Gas Association of America (Industry)	Enbridge
American Petroleum Institute (Industry)	Enterprise Products
National Association of Pipeline Safety Representatives (NAPSR) (State Pipeline Safety Regulator)	Georgia PSC
Municipal Gas Distribution (Industry)	Municipal Gas Authority, GA
Public Official / Local Government	National Association of Counties
Public / PIPA	Pipeline Safety Trust
National Association of Pipeline Safety Representatives (NAPSR) (State Pipeline Safety Regulator)	Rhode Island PUC
Pipeline Emergency Response Working Group (PERWG)	Spectra Energy
Association of Oil Pipe Lines (Industry)	TransCanada
Federal Pipeline Safety Regulator	Pipeline and Hazardous Materials Safety Administration
Emergency Response / Public Safety	Volunteer Fire Department, Sissonville, WV
American Gas Association (Industry)	Washington Gas

Appendix B: Federal Regulations and API RP 1162

The following is information on the Federal pipeline safety regulations pertaining to pipeline operator public awareness programs. Also, discussed below is information regarding the American Petroleum Institute's (API) Recommended Practice (RP) 1162, 1st Edition. These two information/data sources are particularly relevant to pipeline operator public awareness programs, as pipeline operators must comply with the requirements specified therein.

Federal Pipeline Safety Public Awareness Regulations

Pipeline safety public education and communication requirements for pipeline operators are found in Title 49 of the Code of Federal Regulations (CFR). Gas pipeline regulations are found in 49 CFR § 192.616, "Public Awareness" regulations for hazardous liquid pipelines are found in 49 CFR § 195.440.

Regulatory Provisions

With some exceptions, each pipeline operator must "develop and implement a written continuing public education program that follows the guidance" provided in API RP 1162, 1st Edition, which is incorporated by reference into the regulations (see § 192.7 and § 195.3). An operator's program must follow the general program recommendations, of API RP 1162, including baseline and supplemental requirements, "unless the operator provides justification in its program or procedural manual as to why compliance with all or certain provisions of the recommended practice is not practicable and not necessary for safety."

Each operator must assess the unique attributes and characteristics of its pipelines and facilities to determine the approach, methodologies, and materials to use in its public awareness program. The operator may cover all of its facilities under one program, or it may establish and carry out individual, asset-specific programs for one or more specific pipeline systems, one or more pipeline segments, one or more facilities, or one or more geographic areas. The program and the media used "must be as comprehensive as necessary to reach all areas in which the operator transports gas, hazardous liquid or carbon dioxide."

Each operator's program must be conducted in English "and in other languages commonly understood by a significant number and concentration of the non-English speaking population in the operator's area."

Under the regulations, operator public awareness programs must specifically include provisions to educate the public, appropriate government organizations, and persons engaged in excavation-related activities on:

- Use of a one-call notification system prior to excavation and other damage prevention activities;

- Possible hazards associated with an unintended releases from pipeline facilities;

- Physical indications that such a release may have occurred;

- Steps that should be taken for public safety in the event of a release; and

- Procedures to report such an event.

The programs must also include activities to advise affected municipalities, school districts, businesses, and residents of pipeline facility locations.

Related Regulations

Under 49 CFR § 192.7 and § 195.3, any documents or portions thereof incorporated by reference in either § 192 or § 195 are included as though set out in full. When only a portion of a document is referenced, the remainder is not incorporated. This addresses the incorporation by reference of API RP 1162 (1st Edition) into § 192.616 and § 195.440.

API Recommended Practice 1162 (1st Edition)

Currently, under the regulations in § 192.616 and § 195.440, pipeline operator public awareness programs must follow the guidance provided in API RP 1162, "Public Awareness Programs for Pipeline Operators," (1st Edition, December 2003)[1].

API RP 1162 Development

API RP 1162 (1st Edition) was developed for pipeline operators to use in their development and management of public awareness programs. The goal of the RP is to establish guidelines for operators on the development, implementation, and evaluation of their public awareness programs in an effort to raise the effectiveness of those programs throughout the pipeline industry.

API RP 1162 was developed by a working group established in early 2002. Representatives from natural gas and hazardous liquid transmission pipeline companies, local natural gas distribution companies, gathering systems operators, and industry trade associations constituted the working group. Federal and State regulators, as well as representatives of the public and other interested parties, participated in the working group and/or provided input at each stage of the development. Feedback from interested stakeholders was solicited through a wide variety of sources and surveys.

API RP 1162 Content

API RP 1162 (1st Edition) further defines specific information that pipeline operators, under the jurisdiction of Federal pipeline safety regulations, must communicate to affected stakeholder audiences. This includes, for example, information regarding:

- How community decisions about land use and land use practices may affect community safety along pipeline rights-of-way (ROW);

- How individuals can prevent undesirable encroachments upon a pipeline ROW; and

- How to contact the pipeline operator with questions or comments about public safety, land use practices, integrity management, emergency preparedness or other matters.

Additionally, under API RP 1162 (1st Edition) each operator's public awareness program must establish:

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[1] API issued API RP 1162, 2nd Ed. in December 2010. However, it has not been incorporated by reference (IBR) into Federal pipeline safety regulations. Initial Federal and State public awareness program effectiveness inspections for pipeline operators were not complete at the time API RP 1162 2nd Ed. was issued. PHMSA has not reviewed the 2nd Ed. to determine if it should be IBR.

- Methods to identify and contact affected members of the stakeholder audiences;

- Methods to determine the message types and message content for each audience; and

- The media and methods of communication to be used and the frequency of delivery for each audience and message type.

All of this information must be documented, along with the basis for each decision made by the operator regarding its program.

Each operator must establish a process for the management of feedback related to its public awareness program. This would include the management of program evaluation data submitted in response to the operator's program evaluation efforts.

API RP 1162 - Program Evaluation

Consistent with the guidance provided in API RP 1162 (1st Edition), under the Federal regulations each operator's public awareness program must include a written program evaluation process, the results of which are to be used as the basis for continuous program improvements. The evaluation process must establish the objectives, methodology, and criteria for program improvement. It must evaluate the operator's implementation of the program, as well as the effectiveness of the program in increasing public awareness. Data sources used in the evaluation process must be identified and documented. Outside surveys used in the program evaluation must be assessed for applicability to the operator's program. Finally, results of the operator's program evaluation and continuous improvement process must be documented.

Availability of Program Documentation for Inspection

Upon request, operators must submit their completed programs to PHMSA or the appropriate State entity. Each operator's program documentation and evaluation results must be available for periodic review by appropriate regulatory entities.

Appendix C: Data and Information Sources

PAPWG members contributed information and data from public awareness program inspection summaries, feedback and comments from public awareness workshops, industry standards, federal public awareness and related regulations, stakeholder and guest presentations, and other relevant stakeholder sources. SWOT analysis discussions and reviews included data and information from the several specific data and information sources identified below.

This Report is available online. The individual source references noted below can be accessed from the online report.

- Federal Pipeline Safety Regulations
    - 49 CFR § 192.616 – Public Awareness (Gas Pipelines)
    - 49 CFR § 195.440 – Public Awareness (Hazardous Liquid Pipelines)
    - 49 CFR § 192.7 – Documents Incorporated by Reference (Gas Pipelines)
    - 49 CFR § 195.3 – Documents Incorporated by Reference (Hazardous Liquid Pipelines)
    - Final Rule for Pipeline Safety Public Awareness Regulations 49 CFR § 192.616 and 49 CFR § 195.440 (Includes Preamble)
    - Presentation – Comments to Rulemaking: Pipeline Operator Public Awareness Programs: 49 CFR § 192.616, 49 CFR § 195.440. Herb Wilhite, Cycla Corporation, 2/4/2015.
- PHMSA Public Awareness Program Inspection Form (PHMSA Form 21) and Inspection Process
- PHMSA Public Awareness Enforcement Guidance
- API RP 1162, 1st Edition (Online, Read Only Version)
- API RP 1162, 2nd Edition, (Search for "RP 1162") – Issued in December 2010, API RP 1162 Second Edition has not been adopted into Federal pipeline safety regulations at this time.
- Presentations, Materials, and Proceedings – Pipeline Safety Public Awareness Workshop, Dallas, Texas, June 19-20, 2013.
- Presentation – PAPWG Inaugural Meeting. Christie Murray, PHMSA, 9/25/2013.
- Presentation – APGA GOAL Program. John Erickson, APGA, 6/10/2014.
- Presentation – Everything You Wanted To Know About the PAPERS Study. David Beinhacker, CCMC, 6/26/2014.
- Presentation – Measuring Public Awareness Program Effectiveness. Gina Greenslate, Energy Transfer, 6/26/2014.
- Presentation – Ways Operators Conducted Effectiveness Evaluations, What Worked Well, What Areas They Struggled With. Jim Antonevich, Metrix Matrix Inc., 6/26/2014.
- Presentation – Public Awareness Program Inspection Status. Harold Winnie, PHMSA, 2/4/2014.
- Presentation – Observations of Pipeline Operator Public Awareness Programs. Harold Winnie, PHMSA, 10/23/2014.

- Presentation – API Recommended Practice 1162. Mike McLaughlin, Enterprise Products, 2/4/2015.
- Summary of Lessons Learned from the Pipeline Emergency Response Working Group (PERWG).
- National Pipeline Mapping System
- Emergency Response Guidebook
- Pipeline Emergencies