Pipelines and Informed Planning Alliance (PIPA): Land-Use Planning for Schools Near Transmission Lines

Presented at NSBA's Annual Conference
April 12th, 2010

Presented by:
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Representing NAPSR
Director, Urbandale Community School District

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Why Should School Districts Be Interested in PIPA?

Energy Pipelines

Facts:

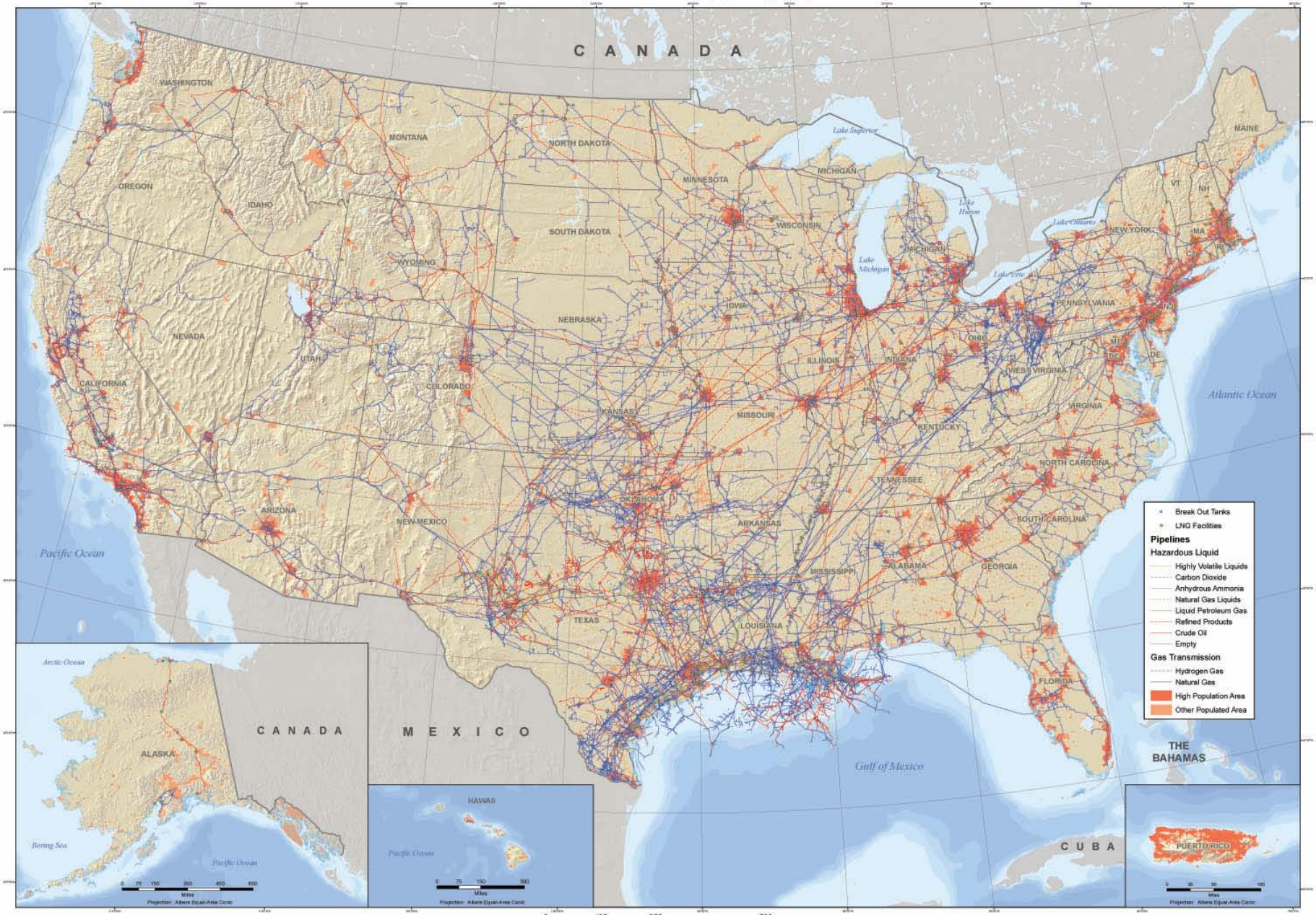
- Transmission pipelines that transport natural gas, crude oil and refined petroleum products extend across the U.S.
- Our national economy and security depend on these products.
- Pipelines are one of the safest, most efficient and most reliable means of transporting energy products.
- Transmission pipeline incidents can occur, although the number of serious incidents involving fatalities and injuries remains relatively low.
- PIPA is addressing the concerns of land use planning and development near transmission pipelines.

Pipeline and Hazardous Materials Safety Administration

Gas Transmission and Hazardous Liquid Pipelines in the United States

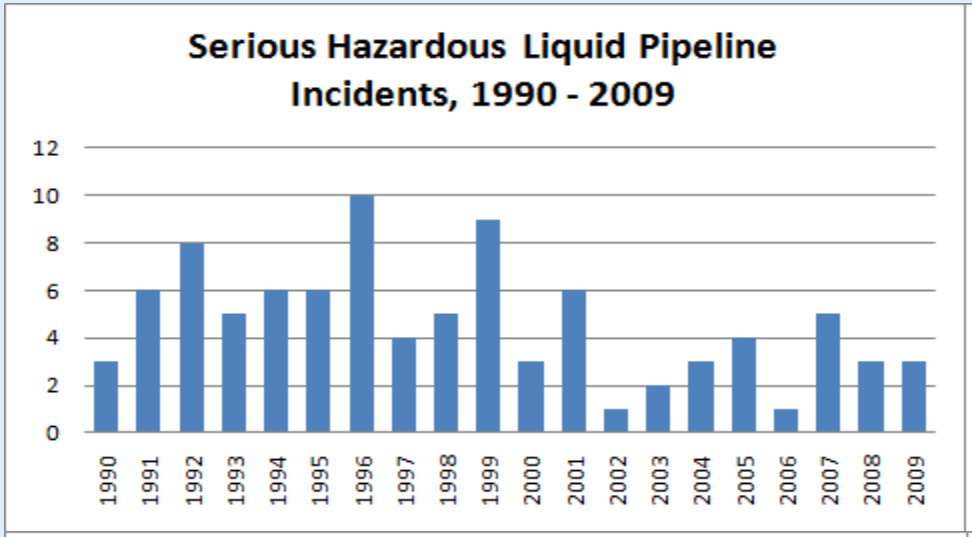
National Pipeline Mapping System

FOR OFFICIAL USE ONLY



U.S. Department of Transportation
Pipeline and Hazardous Materials Safety Administration
Projection: Albers Equal Area Conic
Map Produced: February 2009

Data Trends


Serious Hazardous Liquid Pipeline Incidents, 1990 - 2009
12
10
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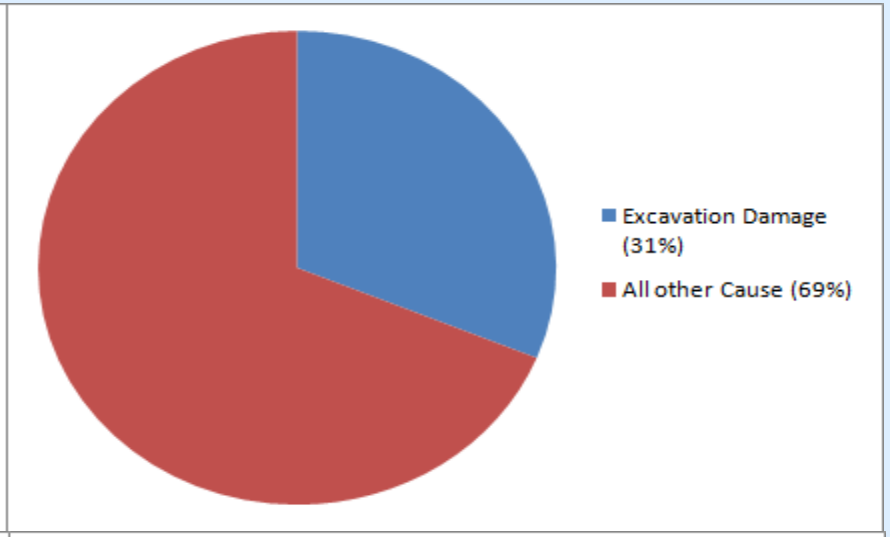
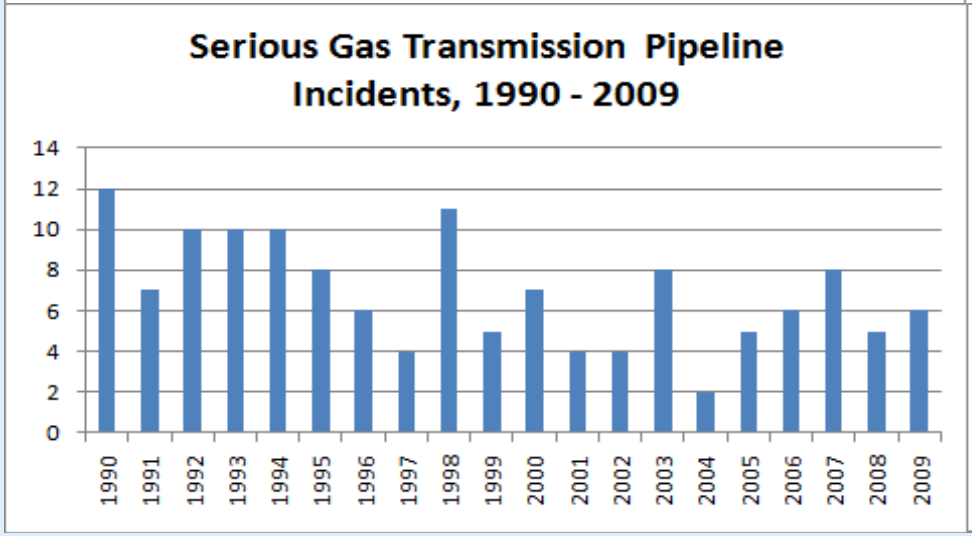

Excavation Damage (31%)
All other Cause (69%)


Serious Gas Transmission Pipeline Incidents, 1990 - 2009
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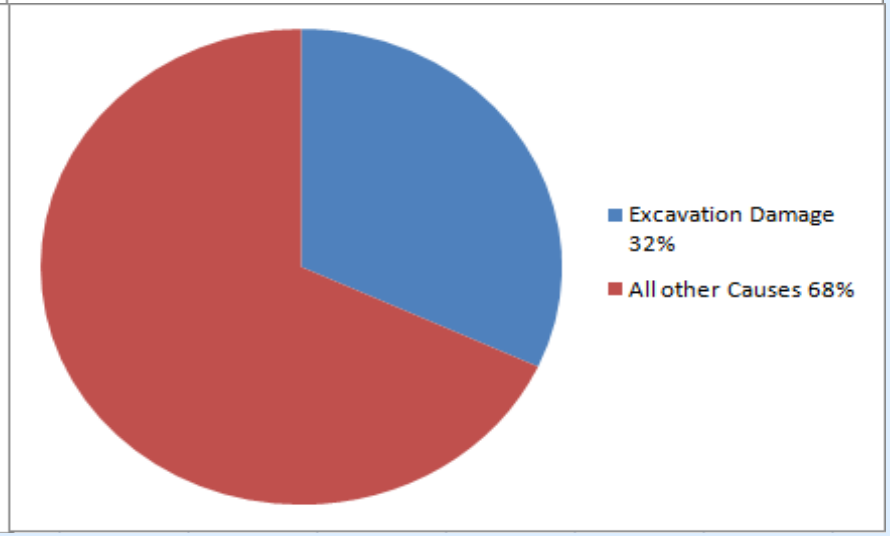
Excavation Damage 32%
All other Causes 68%

Transmission Pipelines and Land Use Planning

- Land use planning and development can have a direct impact on pipeline safety.
- PIPA goal is to enhance pipeline safety through communication of risks
- PIPA developed recommended practices for land use planning and property development near transmission pipelines
- ~130 stakeholder representatives: NACo, NLC, NAHB, PST, MRSC, APWA, NASFM, NAPSR, NARUC, FERC, PHMSA, & Industry

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Population Encroachment

Figure 1 - 1990

Figure 2 - 2002

Illustrated: Growth Along Pipeline in Washington State

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Pipelines and Informed Planning Alliance (PIPA)

PIPA recommended practices address:

- Need to educate planning and development stakeholders on transmission pipelines and associated risks
- Enabling these stakeholders to make risk-informed decisions about development along transmission pipeline ROW

A key finding is that communication between local planners and developers, local governments and transmission pipeline operators must be encouraged.

PIPA Task Teams

- Recommended practices were developed by three task teams:
  - Protecting Communities – Recommended practices for land use planning and development on lands **adjacent to** the transmission pipeline ROW
  - Protecting Transmission Pipelines – Recommended practices relating to land use and development activities **on** the pipeline ROW
  - Communication – Recommended practices for communicating information among pipeline safety stakeholders
- PIPA recommended practices were developed using a consensus approach.

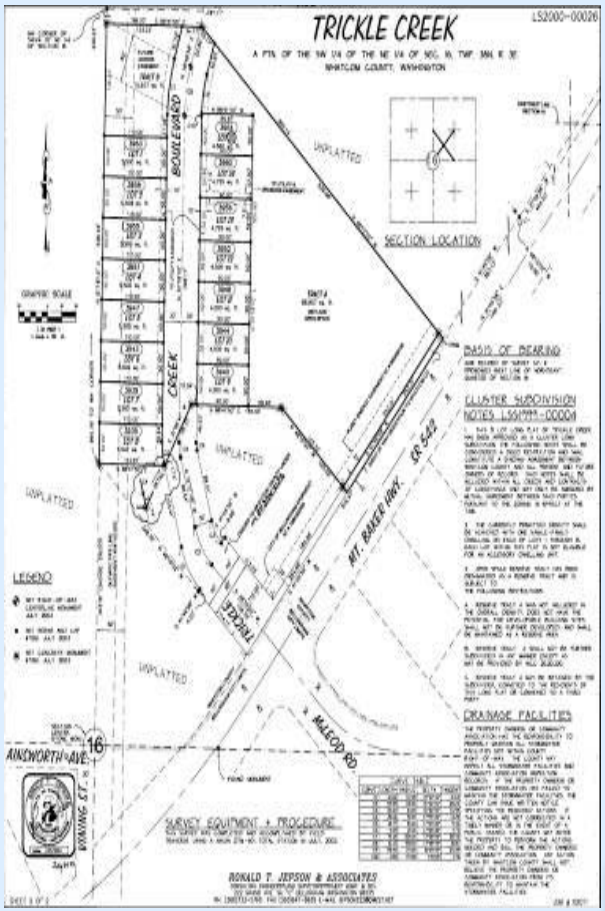
PIPA Report

Recommended Practice Scenarios:

- Baseline (BL)
- New Development (ND)

Stakeholder Audiences

- Local Government
- Property Developer / Owner
- Transmission Pipeline Operator
- Real Estate Commission



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Examples Of Recommended Practices

ND01	Pipeline Operators and Local Governments Should Provide Informat Developers/Owners
ND02	Gather Information for Design near Transmission Pipelines
ND03	Property Developer/Owner Review of Acceptability of Proposed Lar Way Prior to Design
ND04	Property Developer/Owner Coordination of Development Design ar Pipeline Operator
ND05	**n/a** – *Practice Deleted* –
ND06	Local Government Requires Consideration of Transmission Pipeline Development Design
ND07	Define Blanket Easement Agreements When Necessary
ND08	Developing the Pipeline Transmission Right-of-Way
ND09	Provide Flexibility to Property Developer for Providing Open Space In Close Proximity to the Right-of-Way of Transmission Pipeline
ND10	Record Transmission Pipeline Easements on Development Plans and Final Plats

BL07	Understanding the Elements of a Pipeline Easement
BL08	Land Records Management
BL09	Documenting and Recording Easement Amendments
BL10	Implement Communications Plan
BL11	Effectively Communicate Pipeline Risk and Risk Management Information
BL12	Notification of Right-of-Way Maintenance Activities
BL13	Encroachment Prevention and Management
BL14	Participate in Organizations Pursuing Improved State Damage Prevention Programs
BL15	Enhanced Damage Prevention Practices for Excavation near High Priority Underground Facilities
BL16	Halting Dangerous Excavation Activities near Subsurface Installations
BL17	Mapping Abandoned Pipelines
BL18	Real Estate Disclosure

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A Few Recommended Practices

BL01 Transmission Pipeline Mapping Data

Practice Statement Local governments responsible for land use and development planning or the issuance of development permits should obtain mapping data for all transmission pipelines within their areas of jurisdiction…

BL04 Consultation Zone Ordinance

Practice Statement Local governments should adopt land development procedures requiring property developers/owners to consult with transmission pipeline operators early in the development process…

A Few Recommended Practices

BL05 Transmission Pipeline Consultation Zone
Practice Statement Local governments should define a "consultation zone"…for communication between property developers/owners and operators…when new land uses and property developments are being planned.

BL06 New Development Planning Area
Practice Statement Local governments should consider implementing "planning areas" to enhance safety when new land use and property development is planned near transmission pipelines.

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A Few Recommended Practices

BL07 Understanding the Elements of a Transmission Pipeline Easement

Practice Statement Property Developers/Owners should have an understanding of the elements of and rights conveyed in a transmission pipeline easement.

BL14 Participate in Organizations Pursuing Improved State Damage Prevention Programs

Practice Statement All pipeline safety stakeholders should participate in the work of organizations seeking to make improvements to state damage prevention programs, especially efforts to reduce exemptions from participation in one-call systems.

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A Few Recommended Practices

BL15 Enhanced Damage Prevention Practices for Excavation near High-Priority Subsurface Facilities

Practice Statement Transmission pipeline operators should implement enhanced damage prevention practices within the…right-of-way to ensure that pipeline operators and excavators meet on-site prior to excavation.

BL18 Real Estate Disclosure

Practice Statement As part of all real estate sales contracts, each state should require the disclosure of known transmission pipeline easements on the property.

A Few Recommended Practices

ND02 Gather Information for Design of Property Development near Transmission Pipelines

Practice Statement In designing a proposed property development the property developer/owner should use all reasonable means to obtain information about transmission pipeline facilities in the area of the proposed development

ND06 Local Government Requires Consideration of Transmission Pipeline Facilities in Land Development Design

Practice Statement Whenever development is proposed on property including transmission pipeline facilities, local governments should require that the submitted land development plans address in detail the steps necessary to safely integrate the transmission pipeline into the design of the project.

A Few Recommended Practices

ND10 Record Transmission Pipeline Easements on Development Plans and Final Plats

Practice Statement Local governments should require all recorded development plans and final plats to clearly show the location of transmission pipeline easements and identify the pipeline operators.

ND15 Plan and Locate Vegetation to Prevent Interference with Transmission Pipeline Activities

Practice Statement Trees and other vegetation should be planned and located to reduce the potential of interference with transmission pipeline operations, maintenance, and inspections.

PIPA Report

- Publish as a web-based document
- Printable – entire report or prepared reports of recommended practices, sorted by stakeholder audience taking action
  - Local Government
  - Property Developer/Owner
  - Pipeline Operator
  - Real Estate Commission
- Each recommended practice will have a brief Practice Statement and a Practice Description

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PIPA Status

- Consensus reached on majority of recommended practices
- Consultation Zone and Planning Area recommendations near final
- Supplemental paper being prepared comparing transmission pipeline risks with other hazardous materials transportation modes (highway, railway)
- Draft report will be circulated for final review by all PIPA participants when it is prepared.
- PIPA Report hopefully 2nd – 3rd quarter 2010
- Stakeholders are encouraged to begin consideration of the recommended practices as soon as they are published.

Active Communities

- City of Austin, TX, Hazardous Liquid Pipeline Ordinance
- Washington State Model Ordinance
- Municipal Code of Edison, NJ, Township

Complex Risk Assessments Required By One State

California Department of EDUCATION

Curriculum & Instruction | Testing & Accountability | Professional Development
Finance & Grants | Data & Statistics | Learning Support | Specialized Programs

Home » Learning Support » Facilities » School Facility

Guidance Protocol School Site Pipeline Risk

California Department of Education

PIPELINE RISK ANALYSIS PROTOCOL
TOTAL INDIVIDUAL RISK (TIR) ESTIMATING AID

To be used in conjunction with the CDE Guidance Protocol for School Site Pipeline Risk Analysis

March 2007

CDE provides this template for the convenience of Protocol users as a template. It is the responsibility of the user to ensure that calculations match and are appropriate for the risk analysis being conducted for a particular case. While both CDE and its contractor have sought to make this spreadsheet free of errors there is no expressed or implied warranty to that it is so.

TIR CALCULATIONS - BEGIN ZONE 1 - FRONT PROPERTY LINE

Green cells indicate data entry cells.

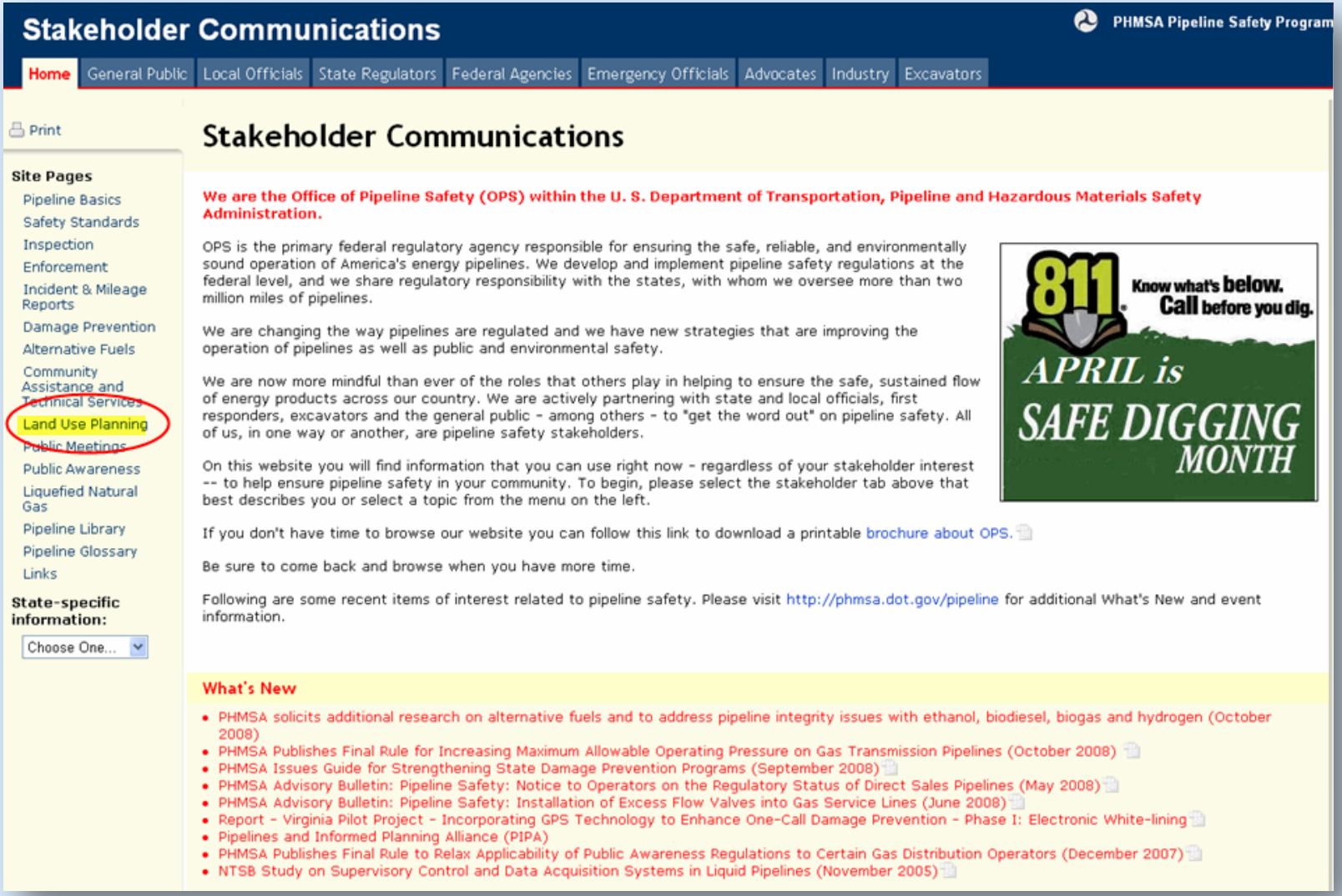
Input Data		
Product	natural gas	
Diameter	30	inches
Pressure	400	psig
R0	250	ft

XSEG	RX(1%)	Units
XSEG(LJF)	0	ft
XSEG(RJF)	1178	ft
XSEG(LFF)	0	ft
XSEG(RFF)	5979	ft
XSEG(LEX)	0	ft
XSEG(REX)	0	ft

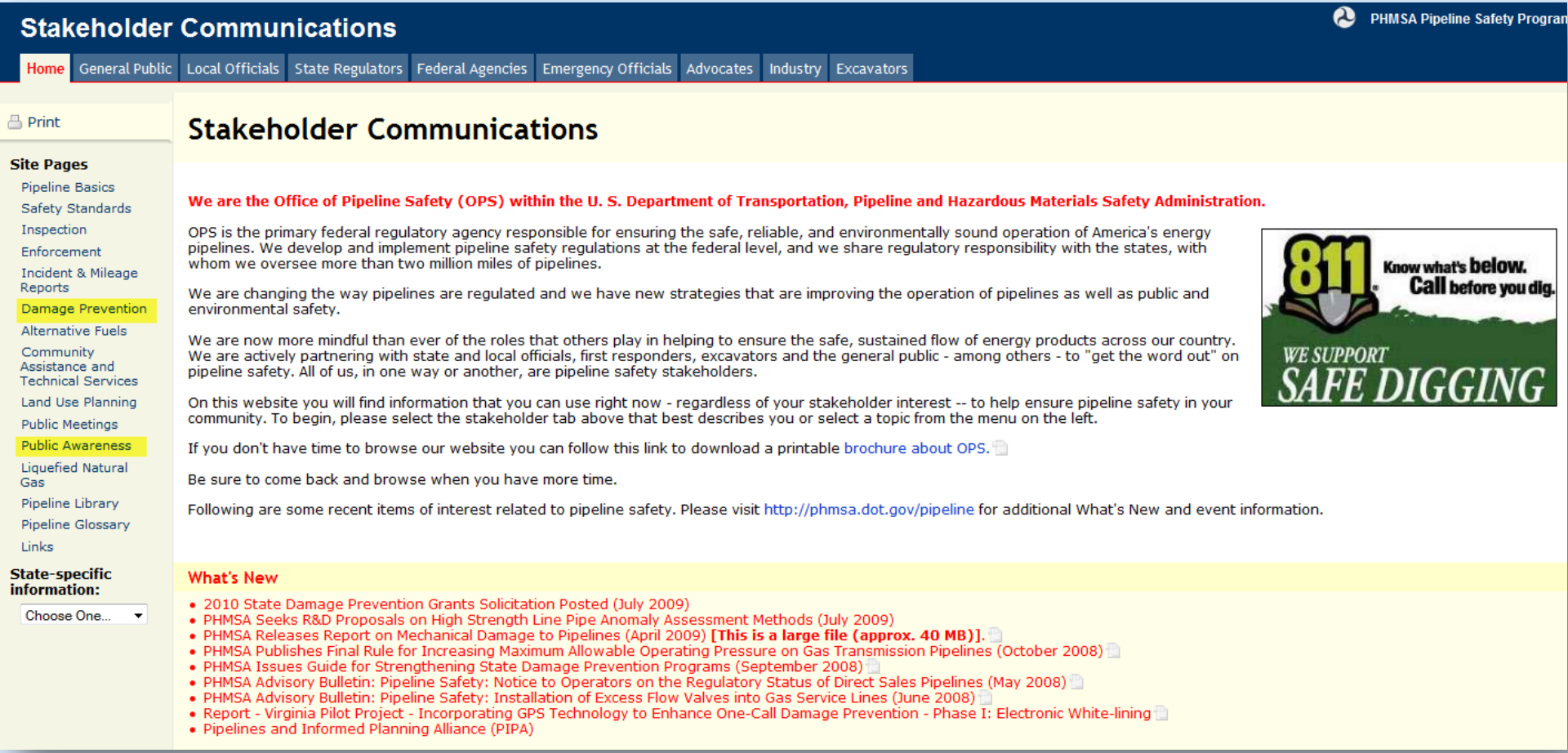
1. These instruction boxes apply to Worksheets TIR1, 2, 3, and 4.
2. Enter the Input Data indicated for the case under analysis.
3. Enter the XSEG values from Worksheet "XSEG Calculations".
4. In the table below enter the F0 data for the appropriate type pf pipeline from the failure frequency data in the Protocol, Chapter 4.
5.Enter a value for the other green cell variables as explained in Chapter 4.

Base and Conditional Probability Calculations

Base		Leak		Rupture		Exposure	
F0	1.2E-04	PC(L)	0.8	PC(R)	0.2	PC(OCC)	0.16
P0	1.2E-04	PC(LIG)	0.3	PC(RIG)	0.45	PC(OUT)	0.25
PAF	1.0	PC(FIG)	0.99	PC(FIG)	0.99		
PA	1.2E-04	PC(JF)	0.98	PC(JF)	0.98		
		PC(FF)	0.01	PC(FF)	0.01		
		PC(EIG)	0.01	PC(EIG)	0.01		
Calculated Values:							
PA(LJF)	0.0E+00	PCI(LJF)	0.233	PCI(RJF)	0.087		
PA(RJF)	2.7E-05	PCI(LFF)	0.002	PCI(RFF)	0.001		
PA(LFF)	0.0E+00	PCI(LEX)	0.002	PCI(REX)	0.001	PC(EXPO)	0.04
PA(RFF)	1.4E-04						
PA(LEX)	0.0E+00						
PA(REX)	0.0E+00						



http://primis.phmsa.dot.gov/comm



http://primis.phmsa.dot.gov/comm

Damage Prevention

When a pipeline is damaged during excavation, people are almost always nearby

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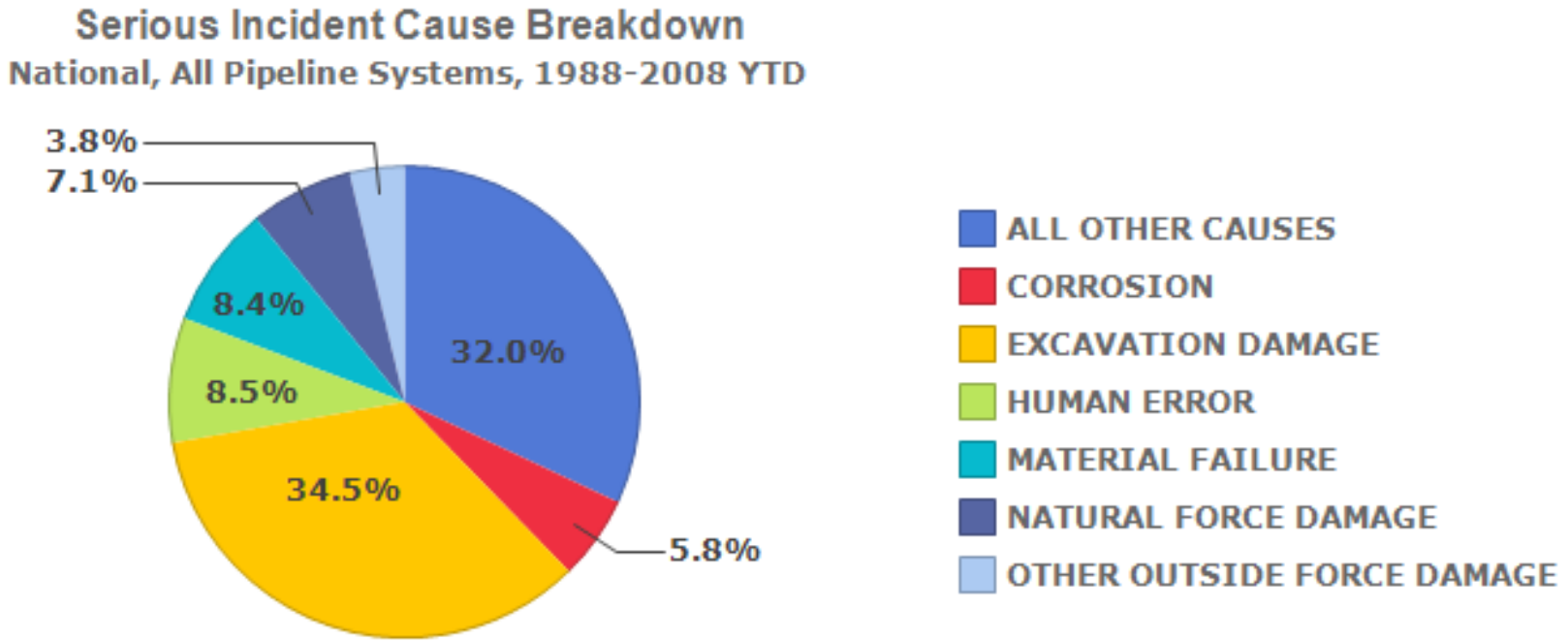
Data Trends: Past 20 Years (All Pipelines)



Source: PHMSA Significant Incidents Files October 14, 2008

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PHMSA DP Efforts: Laws and Legislation

- Currently working to track state laws, make information available and easily accessible

- Working with states pursuing changes to One Call laws
  - Letters to stakeholders
  - Meeting with stakeholders to provide PHMSA's perspective
  - May not lobby, but can educate

Damage Prevention

- A Shared Responsibility
- Pipelines are critical infrastructure that are essential to our way of life. They also carry hazardous materials that pose risks to people and the environment
- Damage prevention is a multi-faceted issue

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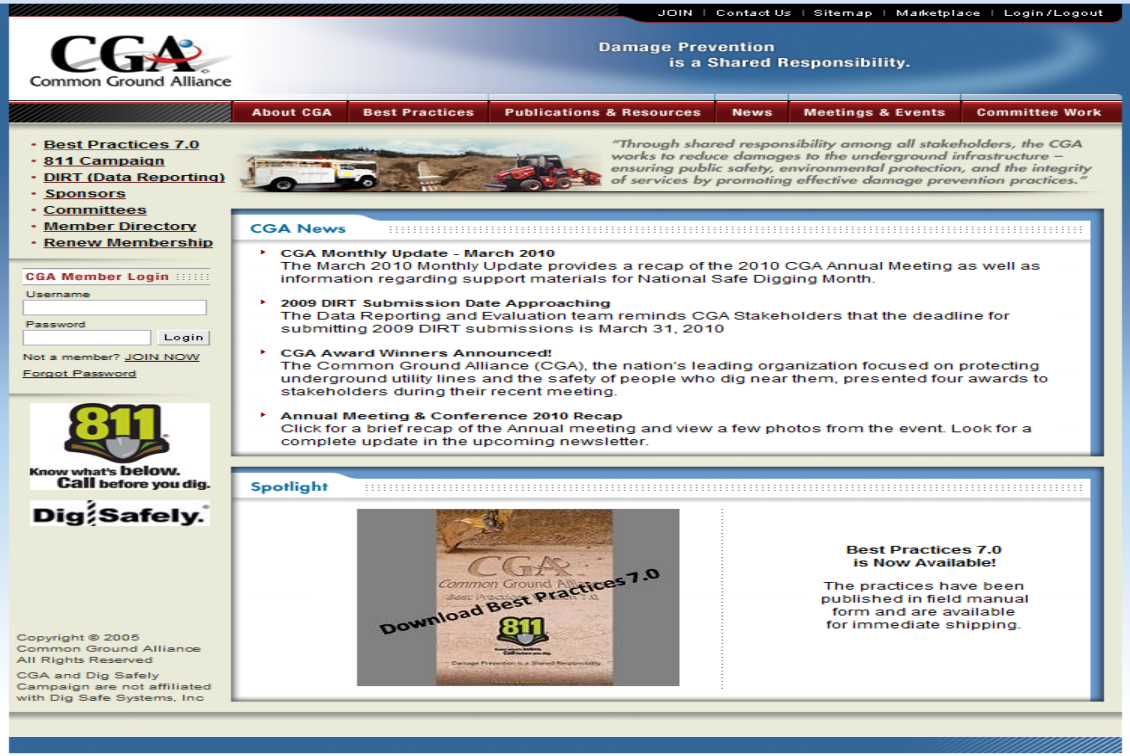
Common Ground Alliance (CGA)

- A member-driven association dedicated to ensuring public safety, environmental protection, and the integrity of services by promoting effective damage prevention practices.

- Purpose is to prevent damage to underground infrastructure by:
  - -Fostering a sense of shared responsibility for the protection of underground facilities;
  - -Supporting research;
  - -Developing and conducting public awareness and education programs;
  - -Identifying and disseminating the stakeholder best practices such as those embodied in the Common Ground Study; and,
  - -Serving as a clearinghouse for damage data collection, analysis, and dissemination.

811 Pirate Video

Common Ground Alliance (CGA)



http://www.commongroundalliance.com

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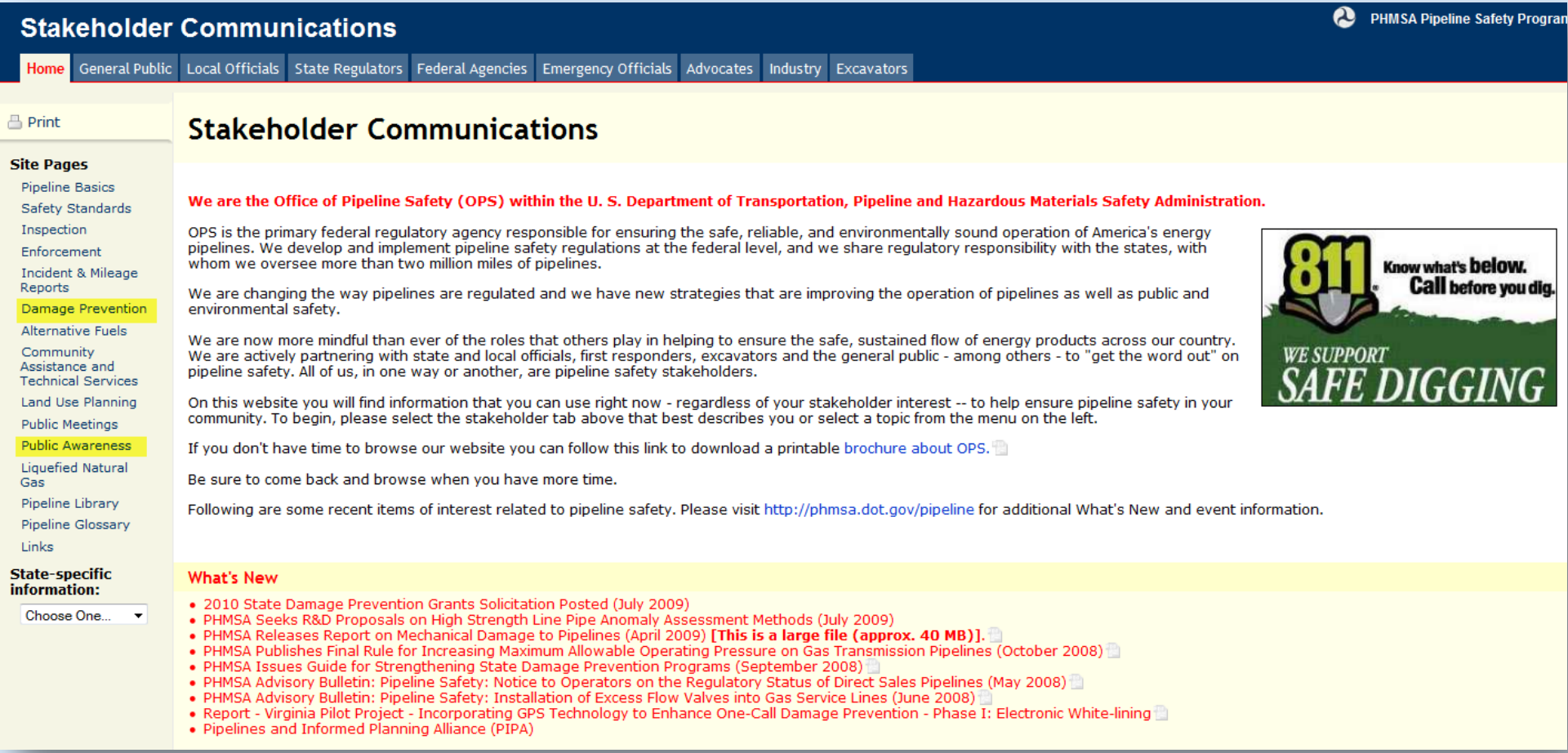

http://primis.phmsa.dot.gov/comm

Why Public Awareness?

"Those who cannot learn from history are doomed to repeat it."

George Santayana

"History is a race between education and catastrophe."

H.G. Wells

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Significant Incidents Caused By Excavation Damage

2000 thru 2009

- Gas Distribution Pipelines
  - -32% of Significant Incidents
  - -19% of Fatalities and 29% Injuries
- Gas Transmission Pipelines
  - -14% of Significant Incidents
  - -38% of Fatalities and 21% Injuries
- Liquid Pipelines
  - -16% of Significant Incidents
  - -32% of Fatalities and 22% Injuries

P-Rex

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Why Public Awareness?

Why Public Awareness?

It's the Law!

Pipeline Safety Improvement Act (PSIA) of 2002

Requires owners or operators of a gas or hazardous liquid pipeline facility to carry out a continuing program to educate the public on:

- Use of a One-Call notification system prior to excavation
- Possible hazards associated with unintended releases from pipeline facility
- Physical indications that a release may have occurred
- Steps that should be taken for public safety in the event of a pipeline release
- Procedures to report such an event

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Public Awareness

Benefits!

- ✓Enhanced public safety
- ✓Decreased third party damage
- ✓Improved performance
- ✓Enhanced emergency response coordination
- ✓Improved relationships with affected public
- ✓Less resistance to pipeline activities
- ✓Preservation of Right Of Way from encroachments

Thank you for your time and consideration

Cynthia Munyon

Iowa Utilities Board

Questions?