Natural Gas and Hazardous Liquid Pipelines; A High Level Look

Borough of Watchung
Watchung, NJ
December 10, 2014

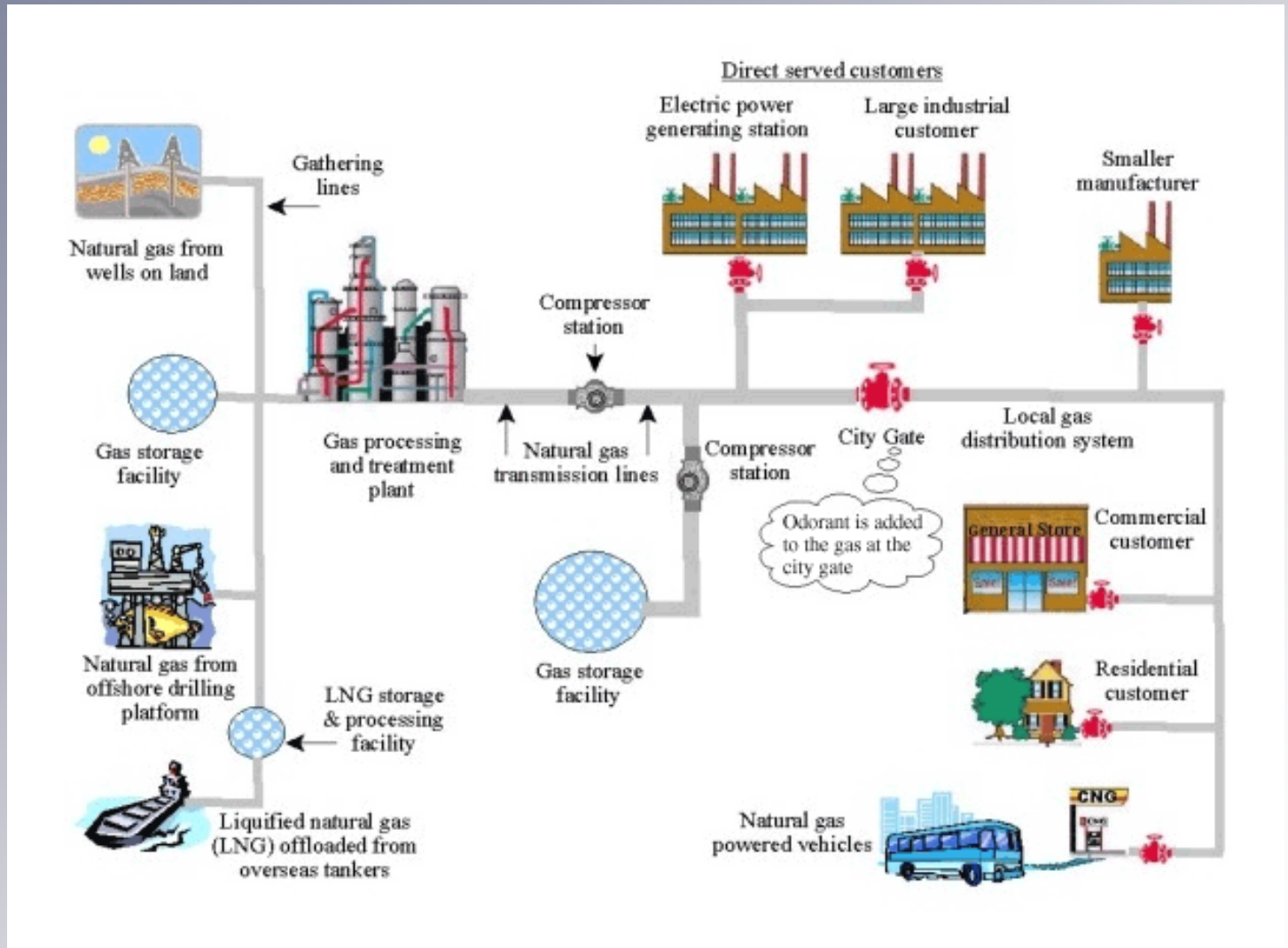
Presentation Overview

- Energy Pipelines
- PHMSA Organization
- State Involvement
- Keeping Pipelines Safe
- Pipeline Construction
- Available Resources and Links

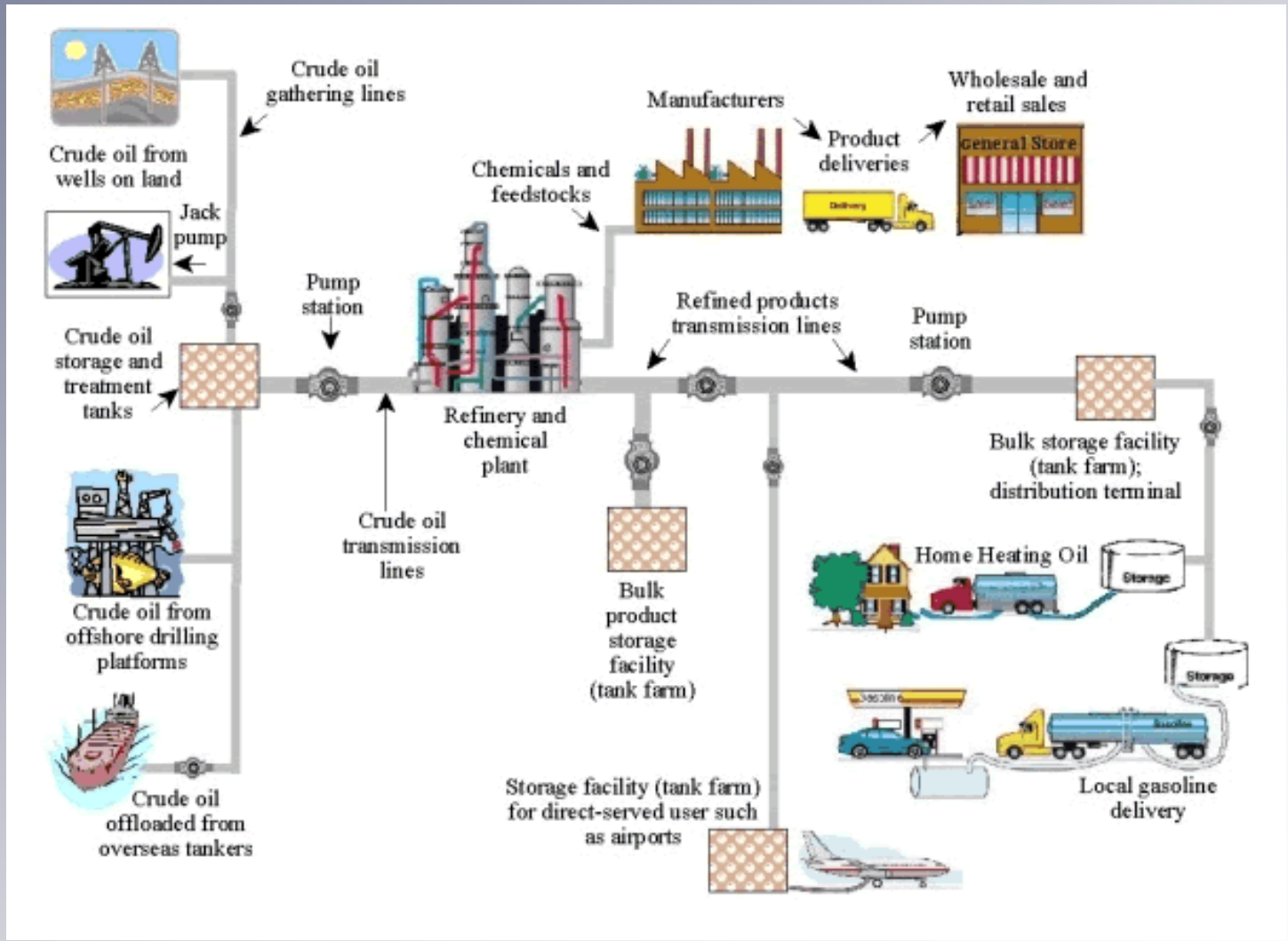
Energy Pipelines

- Natural gas, crude oil and petroleum product pipelines extend across and into a majority of cities and counties in the U.S.
- Our national economy and security depend on these products and our dependency on energy is growing
  - Energy from oil and natural gas essential to our daily lives
    - E.g., Transportation, heating, electricity generation
    - Oil and natural gas supply approx. 2/3 of U.S. energy needs
- Oil and natural gas are produced in specific regions
  - Crude oil must be moved to refineries
  - Refined oil products & natural gas must be moved to consumers
- Pipelines = primary means of transporting oil & natural gas
  - 100% of natural gas and approx. 67% of oil

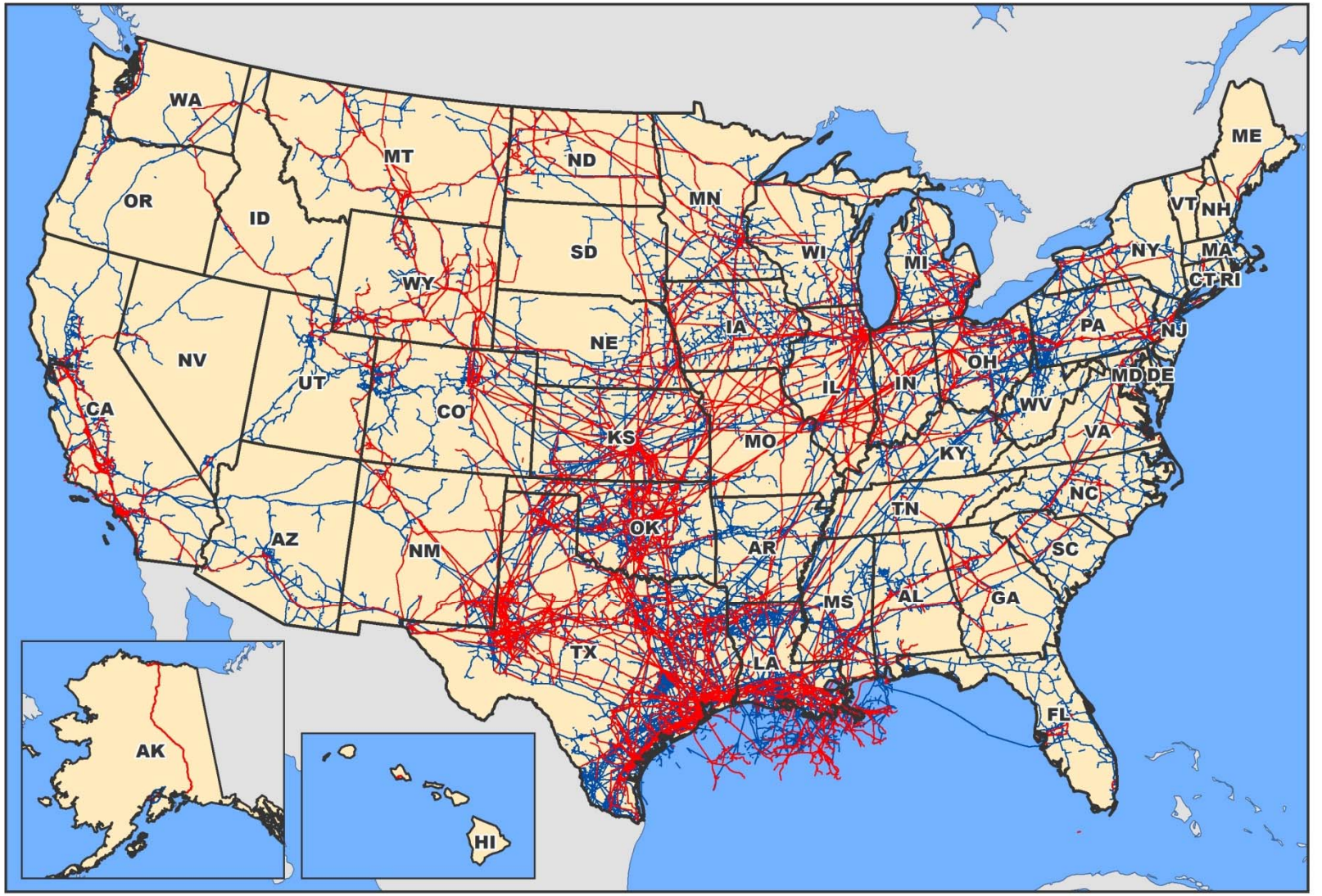
The Natural Gas Pipeline Network



The Hazardous Liquid Pipeline Network



Transmission Pipelines in the U.S.



Pipelines in the United States

- There are 2.6 million miles of natural gas and hazardous liquid pipelines in U.S. That's enough to circle the earth about 100 times.
  - There are about 2,066,000 miles of **smaller diameter, low-pressure** natural gas distribution mains and service pipelines
  - There are about 321,000 miles of onshore and offshore natural gas **transmission** pipelines
  - There are about 175,000 miles of onshore and offshore **hazardous liquid pipelines**
- These pipelines are operated by over 3,000 companies, large and small

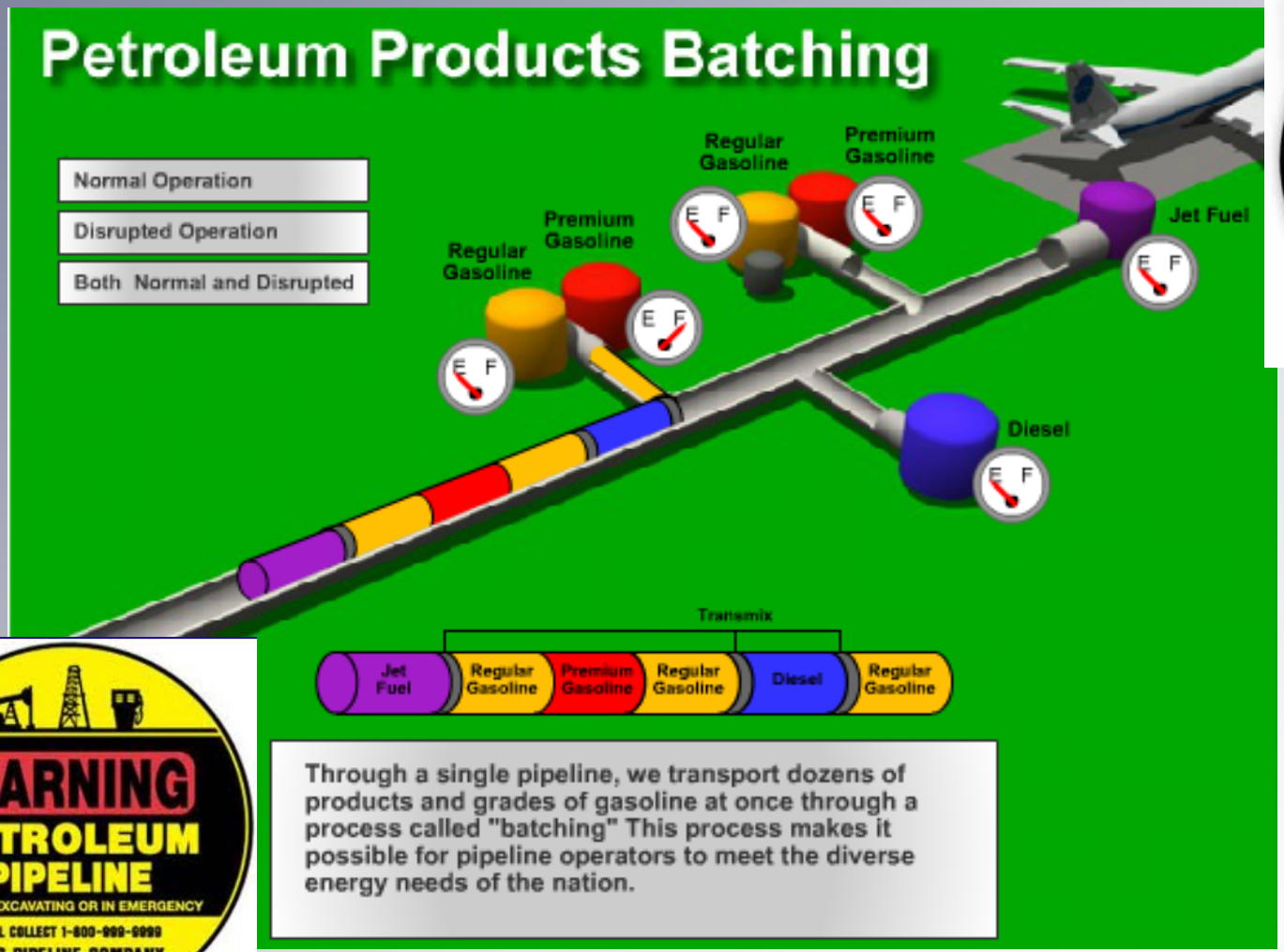
Hazardous Liquid Pipelines

Hazardous liquid pipelines, as defined in federal regulations, carry:

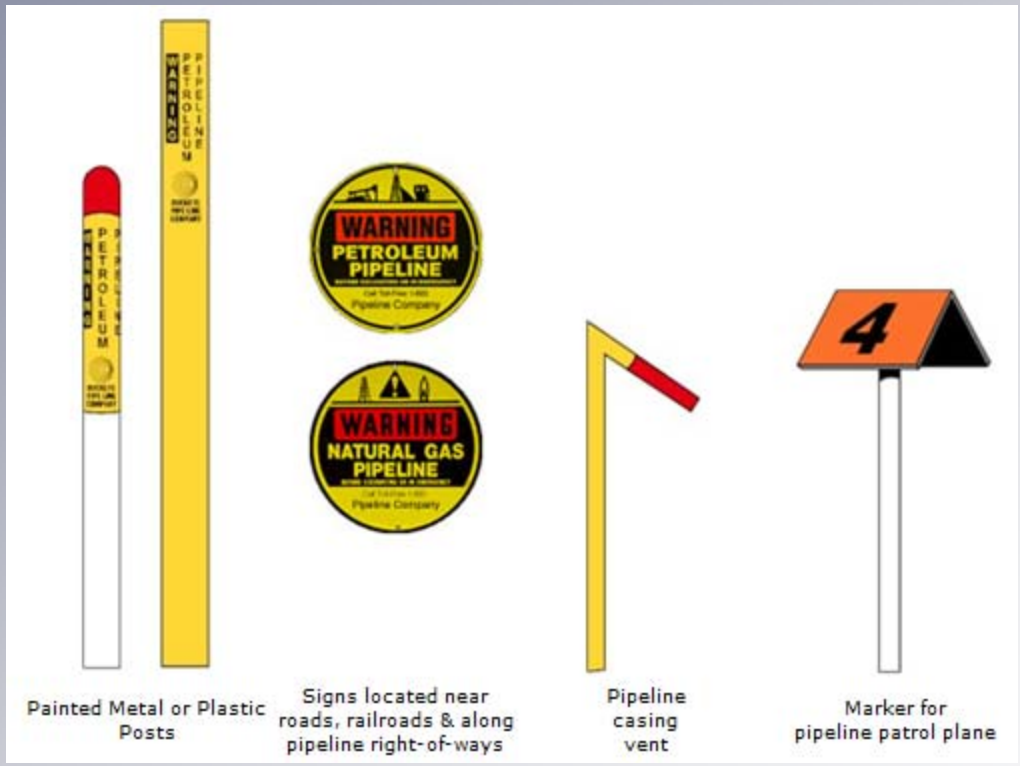
- **Crude oil**, with widely varying densities, viscosities, sulfur contents, and other properties, including bitumen (an extra heavy crude oil), which is typically diluted with condensates to make it flow through pipelines. "Sweet" crude refers to crude that contains little or no sulfur, while "sour" crude contains high concentrations of sulfur or hydrogen sulfide.
- **Refined petroleum products**, including gasoline, diesel, jet fuel, and home heating oil.
- **Highly Volatile Liquids** such as propane, butane, ethylene, condensates
- **Carbon dioxide**
- **Anhydrous Ammonia**

PHMSA's regulatory authority applies to pipeline facilities and the transportation of hazardous liquids or carbon dioxide associated with those facilities in or affecting interstate or foreign commerce, including pipeline facilities on the Outer Continental Shelf.

Petroleum Product Pipelines



Identifying Pipelines in the Field



Markers provide an indication of the presence of pipelines, their location, product(s) carried and the name and contact information of the company that operates the pipeline.

Pipeline markers are generally yellow, black and red in color.

Hazardous Liquid Pipeline Markers

- Public Road Crossings
- Railroad Crossings
- At Sufficient number along ROW so location known
- **Not required offshore, at crossings of waterways, in heavily developed urban areas (ie downtown business centers) and local government maintains current substructure records

Energy Pipelines

- The safety risks of transmission pipelines are low due to low level of likelihood of pipeline incidents; however,
- Individual pipeline incidents hold the possibility of serious safety and economic consequences.
- Pipeline and Hazardous Materials Safety Administration and State Partners have programs and regulations in place focused on pipeline safety.

What is the Pipeline and Hazardous Materials Safety Administration?

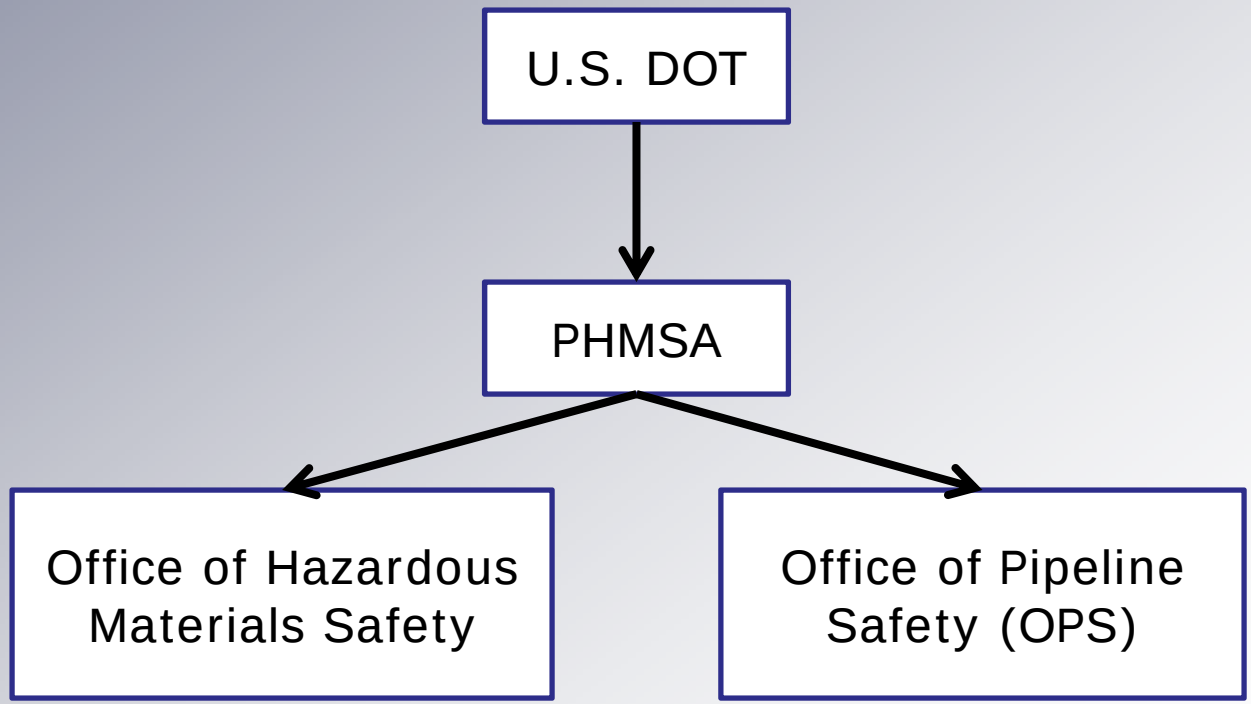
U.S. DOT Administrations

http://www.dot.gov

- OST — Office of the Secretary of Transportation (OST)
- NHTSA — National Highway Traffic Safety Administration (NHTSA)
- FAA — Federal Aviation Administration (FAA)
- OIG — Office of Inspector General (OIG)
- FHWA — Federal Highway Administration (FHWA)
- PHMSA — Pipeline and Hazardous Materials Safety Administration (PHMSA)
- FMCSA — Federal Motor Carrier Safety Administration (FMCSA)
- RITA — Research and Innovative Technology Administration (RITA)
- FRA — Federal Railroad Administration (FRA)
- SLSDC — Saint Lawrence Seaway Development Corporation (SLSDC)
- FTA — Federal Transit Administration (FTA)
- STB — Surface Transportation Board (STB)
- MARAD — Maritime Administration (MARAD)

PHMSA: Mission and Organization

PHMSA's mission is to protect people and the environment from the risks inherent in transportation of hazardous materials – by pipeline and other modes of transportation.



Office of Pipeline Safety Mission

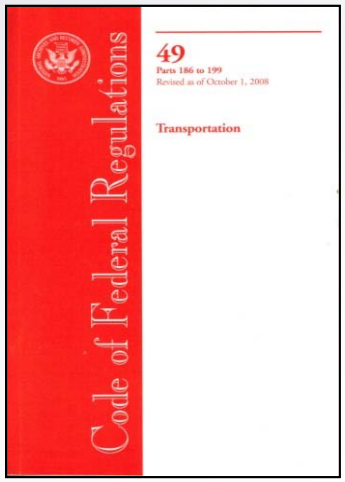
Office of Pipeline Safety

"To ensure the safe, reliable, and environmentally sound operation of the Nation's pipeline transportation system."

http://phmsa.dot.gov/pipeline

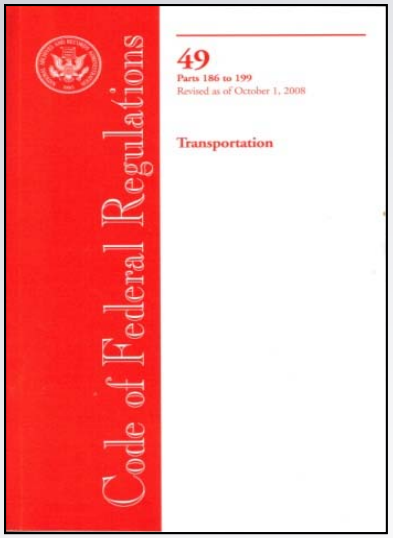
Some of PHMSA's Roles and Responsibilities

- Development and Implementation of Safety Regulations
  - Title 49 CFR Part 192 – Transportation of Natural and Other Gas by Pipeline
  - Title 49 CFR Part 195 – Transportation of Hazardous Liquids by Pipeline
- Perform Comprehensive Inspections
- Monitor and Enforce Compliance
  - Require remedial actions
  - Assess civil penalties
  - Initiate criminal action



Pipeline Safety Regulations

- Hazardous Liquid and Gas Pipeline Regulations address:
  - Materials
  - Design
  - Construction
  - Operations and Maintenance
    - Emergency preparedness plans
    - Public awareness programs
    - Damage prevention programs
  - Personnel Qualification, Drug and Alcohol programs
  - Integrity management programs, more….



Role of State Pipeline Regulators

- Federal pipeline safety laws – Congress determined that pipeline safety best promoted through PHMSA's minimum Federal standards.
- To ensure compliance with these standards, Federal safety laws (49 U.S.C. §§60101, *et seq.)* allow PHMSA and state regulators to share inspection and enforcement responsibilities (subject to PHMSA certification or agreement).

State Involvement

- States play a major role in regulation of pipeline operation
- PHMSA partners with State Pipeline Safety Programs providing oversight for the nations intrastate transmission pipelines and distribution systems.
- All States (except Alaska and Hawaii), the District of Columbia and the territory of Puerto Rico participate in the pipeline safety program with PHMSA.
  - Identify department, commission or agency responsible
  - Adopted pipeline safety laws for intrastate facilities (at minimum, must meet requirements codified in Federal Pipeline Safety Laws (49 U.S.C §§ 60101 et seq.) and Regulations (49 C.F.R. Parts 190-199)

State Pipeline Safety Oversight

84% intrastate HL lines

8% interstate HL lines

99% intrastate gas transmission lines

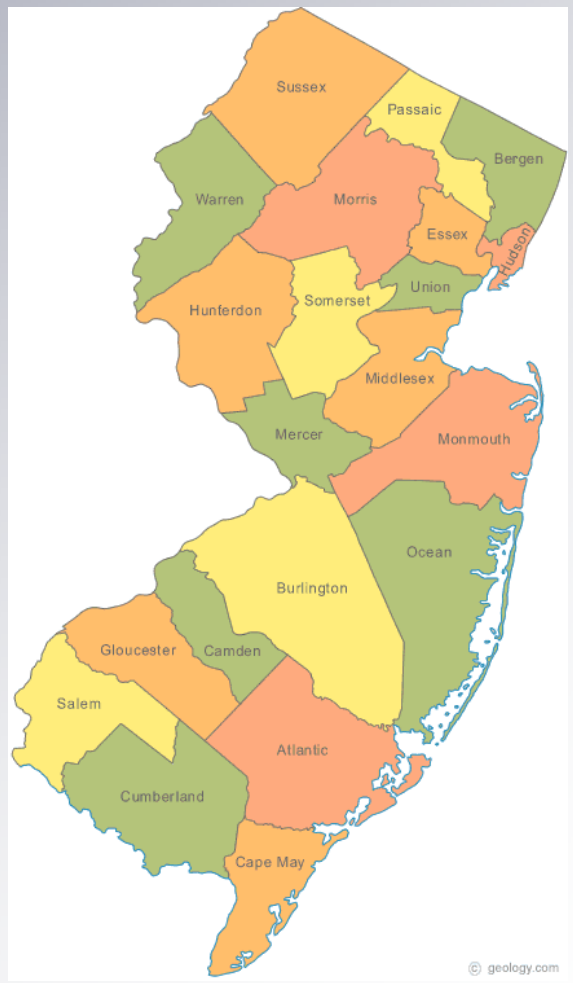
19% interstate gas lines

99.7% gas distribution lines

95% gas gathering lines

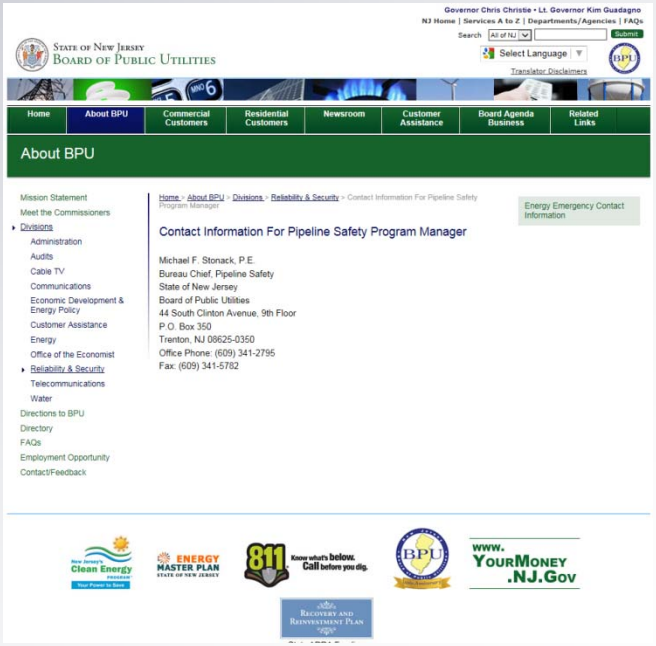
Jurisdiction in NJ

- Hazardous Liquid Pipelines
  - Intrastate – Federal
  - Interstate – Federal
  - Gathering - Federal
- Natural Gas Pipelines
  - Interstate Transmission – Federal
  - Intrastate Transmission – State
  - Distribution – State

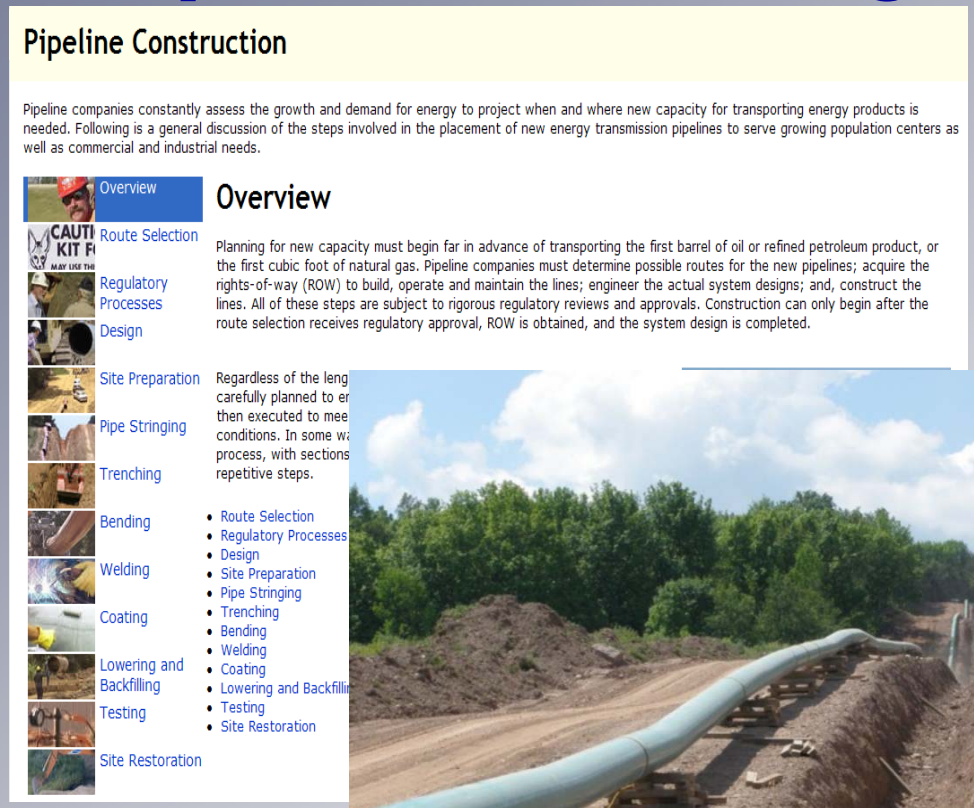


NJ BPU Information

- New Jersey Board of Public Utilities
  Bureau of Pipeline Safety
  Phone: 609-341-2795
  Program Manager/Bureau Chief: Michael Stonack
  E-mail: michael.stonack@bpu.state.nj.us
- New Jersey Board of Public Utilities: www.state.nj.us/bpu/



Pipeline Planning & Construction



Pipeline Construction

Pipeline companies constantly assess the growth and demand for energy to project when and where new capacity for transporting energy products is needed. Following is a general discussion of the steps involved in the placement of new energy transmission pipelines to serve growing population centers as well as commercial and industrial needs.

Overview
Route Selection
Regulatory Processes
Design
Site Preparation
Pipe Stringing
Trenching
Bending
Welding
Coating
Lowering and Backfilling
Testing
Site Restoration

Overview

Planning for new capacity must begin far in advance of transporting the first barrel of oil or refined petroleum product, or the first cubic foot of natural gas. Pipeline companies must determine possible routes for the new pipelines; acquire the rights-of-way (ROW) to build, operate and maintain the lines; engineer the actual system designs; and, construct the lines. All of these steps are subject to rigorous regulatory reviews and approvals. Construction can only begin after the route selection receives regulatory approval, ROW is obtained, and the system design is completed.

Regardless of the leng
carefully planned to er
then executed to mee
conditions. In some w
process, with sections
repetitive steps.

- Route Selection
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- **Must meet federal and state requirements and obtain necessary permits**
- **PHMSA has no authority to approve projects, issue permits or prescribe location or routing of pipeline facilities**

http://primis.phmsa.dot.gov/comm/construction/index.htm?nocache=9978#Overview

Pipeline Planning & Construction

- Interstate Natural Gas Transmission Pipelines – FERC has exclusive authority to regulate siting
  - 1993 MOU between DOT and FERC regarding natural gas transportation facilities
  - Notify DOT of future pipeline construction projects (Notices of Applications for construction certification, certificate orders issued, etc.)
  - Upon request from FERC, PHMSA participates as a cooperating agency on pipeline safety related items
- Hazardous Liquid Pipelines – No federal agency has power for siting; siting rests with individual states through which the lines will operate and is governed by state law.

Required Construction Notification

§195.64 National Registry of Pipeline and LNG Operators.

§195.64(c) Changes. Each operator must notify PHMSA electronically through the National Registry of Pipeline and LNG Operators at http://opsweb.phmsa.dot.gov, of certain events.

(1) An operator must notify PHMSA of any of the following events not later than 60 days before the event occurs:

(i) Construction or any planned rehabilitation, replacement, modification, upgrade, uprate, or update of a facility, other than a section of line pipe, that costs $10 million or more. If 60 day notice is not feasible because of an emergency, an operator must notify PHMSA as soon as practicable;

(ii) Construction of 10 or more miles of a new hazardous liquid pipeline; or

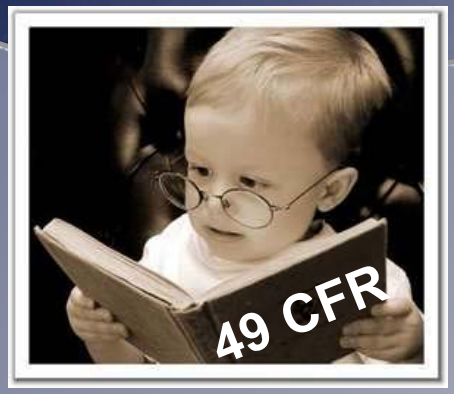
ADB-2014-03

- Provides further clarification regarding notification(s) required prior to certain construction-related events
- Strongly encourages operators to provide required construction-related notification(s)
  - not later than 60 days prior to whichever of the following activities occurs fist: material purchasing and manufacturing; ROW acquisition; construction equipment move-in activities; onsite or offsite fabrications; or ROW clearing, grading, and ditching
  - For construction of 10 or more miles of new pipeline for a pipeline that
    1. Did not previously exist; and
    2. For the replacement of 10 or more contiguous miles of line pipe in an existing pipeline

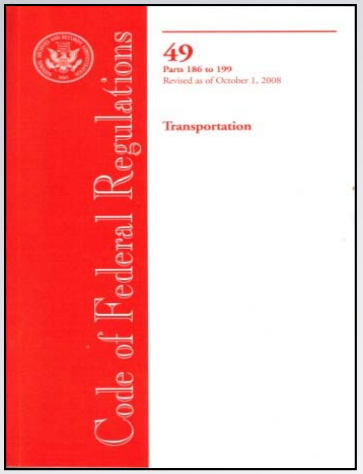
Things Local Governments Have Done for Pipeline Safety

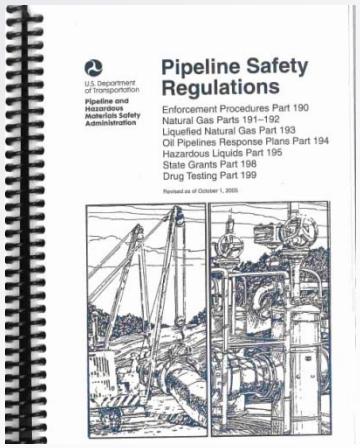
- Controlling excavation activity near pipelines
- Limiting certain land use along pipeline ROWs
- Restricting land use and development along pipeline ROWs through zoning, setbacks, and similar measures
- Requiring consideration of pipeline facilities in proposed local development plans
- Designing emergency response plans and training
- Requiring specific building code design or construction standards near pipelines
- Participating in environmental studies conducted under National Environmental Policy Act (NEPA) and similar State laws for new construction

Resources



Important Links





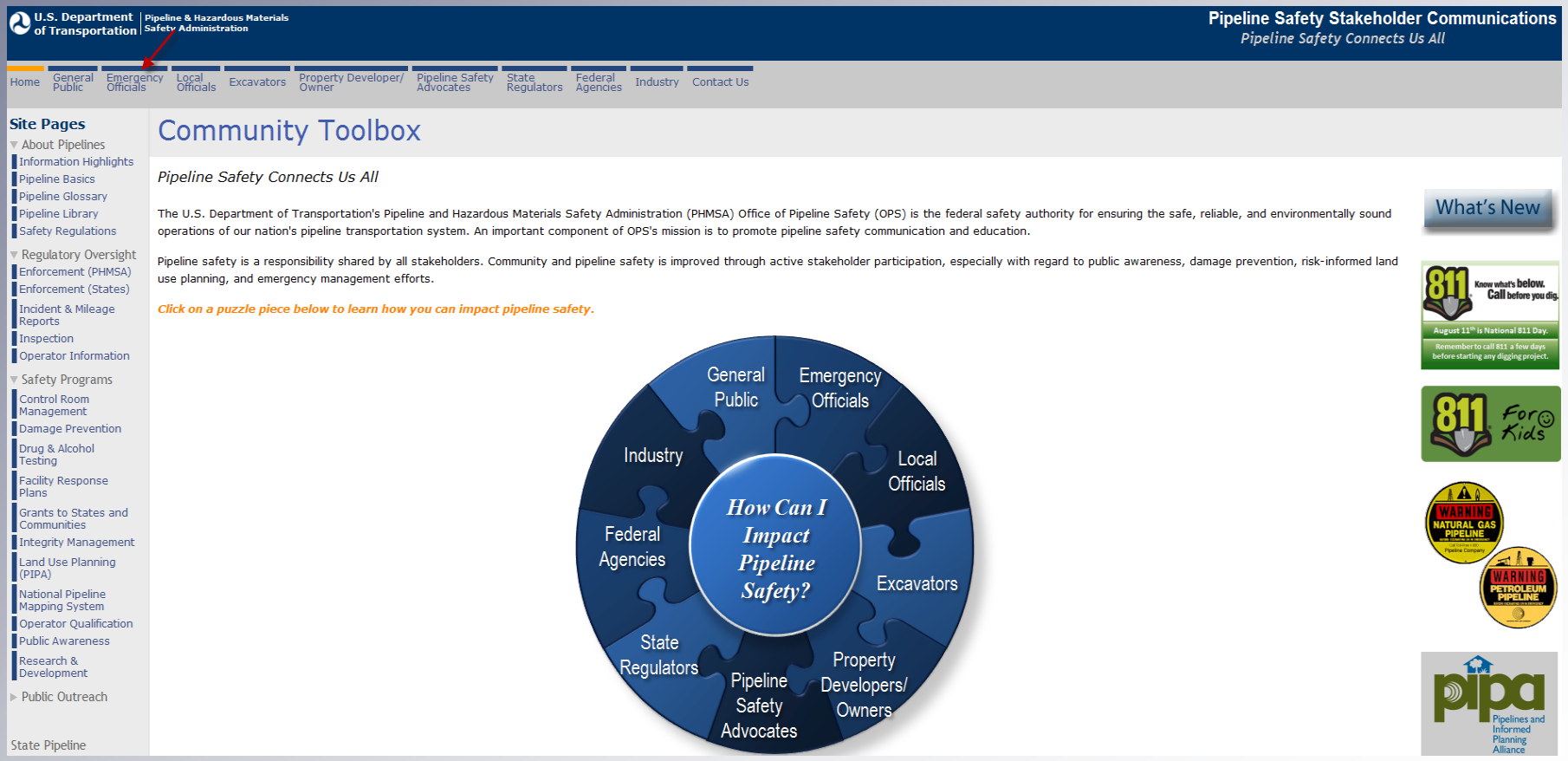
- **PHMSA, Office of Pipeline Safety –**
  www.phmsa.dot.gov/pipeline
- **Access to PHMSA Regulations (Easy to read/print 49 CFR Part 190-199) -**
  www.phmsa.dot.gov/pipeline
  - Click on “Training and Qualifications”
  - Click on “Regulatory Information”
  - Click on the Part you want
- **For Federal Regulations (Official Version)–**
  www.regulations.gov

Standards & Rulemaking

http://www.phmsa.dot.gov/pipeline/regs

U.S. Department of Transportation
Pipeline and Hazardous Materials
Safety Administration

PHMSA's Stakeholder Communications Site



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

National Pipeline Mapping System (NPMS)

- The NPMS is…
  - A geographic information system (GIS) dataset of **gas transmission** and **hazardous liquid pipelines**, LNG facilities, and breakout tanks
  - Operators are required to submit geospatial data for the pipelines and LNGs annually; tank submission is optional
- NPMS data can be viewed online through…
  - **PIMMA**, the password-protected viewer for government officials and pipeline operators
  - The **Public Viewer**, which lets citizens view one county's NPMS data per session
- The NPMS does **NOT** contain natural gas distribution or gather pipelines or pipelines that are not regulated

NPMS

www.npms.phmsa.dot.gov

U.S. Department of Transportation
Pipeline and Hazardous Materials
Safety Administration

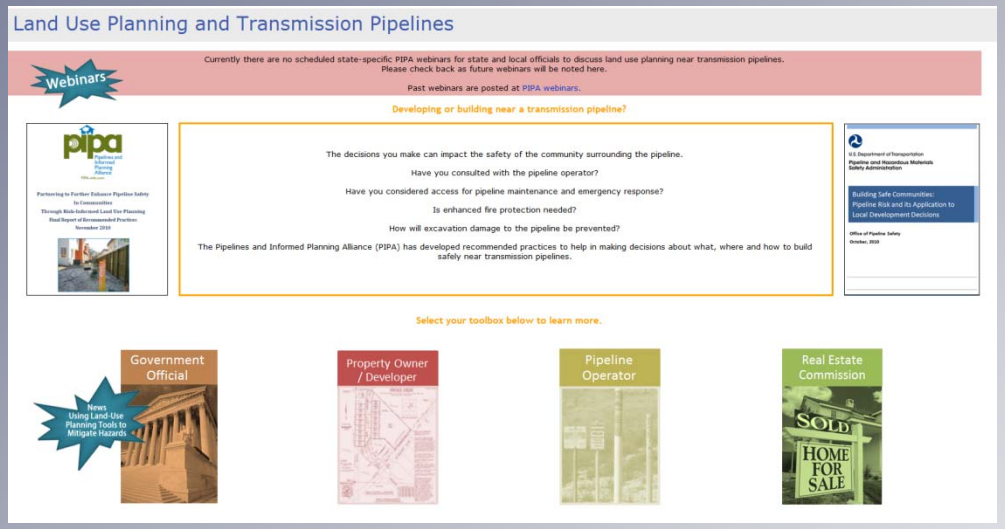
Pipelines and Informed Planning Alliance (PIPA)

- **PIPA is a partnership of stakeholders whose <u>purpose is to further enhance pipeline safety</u>**
- **Its aim is to help understand risks of ROW encroachment**
- **Its focus is to develop guidance and recommendations for stakeholders in land use planning and property development in the vicinity of transmission pipelines**
- **Including representatives of NACo, NLC, NAHB, PST, MRSC, APWA, NASFM, NAPSR, NARUC, FERC, PHMSA, Pipeline Industry**

PIPA - Reports and Guidelines

- **PHMSA released December 16, 2010**
  - **PIPA Report, *Partnering to Further Enhance Pipeline Safety in Communities through Risk-Informed Land Use Planning, Final Report of Recommended Practices*, released December 16, 2010**
  - **PIPA Companion Report, Building Safe Communities: Pipeline Risk and its Application to Local Development Decisions**
- **Report includes almost 50 recommended practices**
- **Stakeholders are encouraged consider of the recommended practices as soon as they are published**

PIPA – For More Information



- **Visit our website:** http://primis.phmsa.dot.gov/comm/PIPA.htm

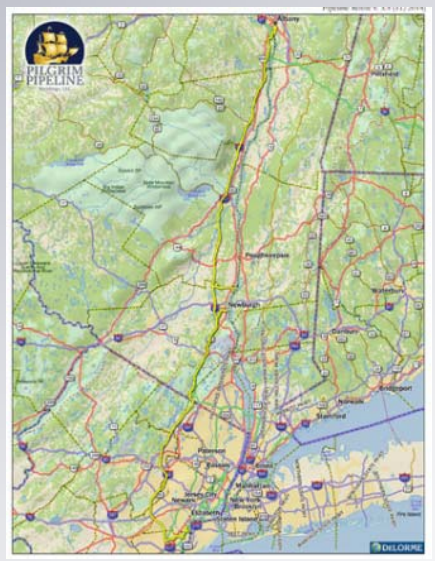
- **PHMSA contact for PIPA:**
  Hung Nguyen
  Phone: 202-366-0568
  hung.nguyen@dot.gov

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

Pilgrim Pipeline*

- Project in preliminary stages; route TBD
  - 178-mile parallel underground pipelines between Albany, NY and Linden, NJ
    - refined products like gasoline, diesel, home heating oil and jet fuel from NY Harbor to points north
    - crude oil southbound from Albany terminals to delivery points in NJ
  - Preliminary plans call for pipelines to have a diameter no more than 24”; several configurations of system being analyzed and actual sizing not finalized
  - Project estimated costs to be $900M - $1B
- Contact Information:

  Pilgrim Pipeline Holdings, LLC
  (800) 414-6241; info@pilgrimpipeline.com



* Subject to change; information obtained from Pilgrim Pipeline website http://pilgrimpipeline.com/

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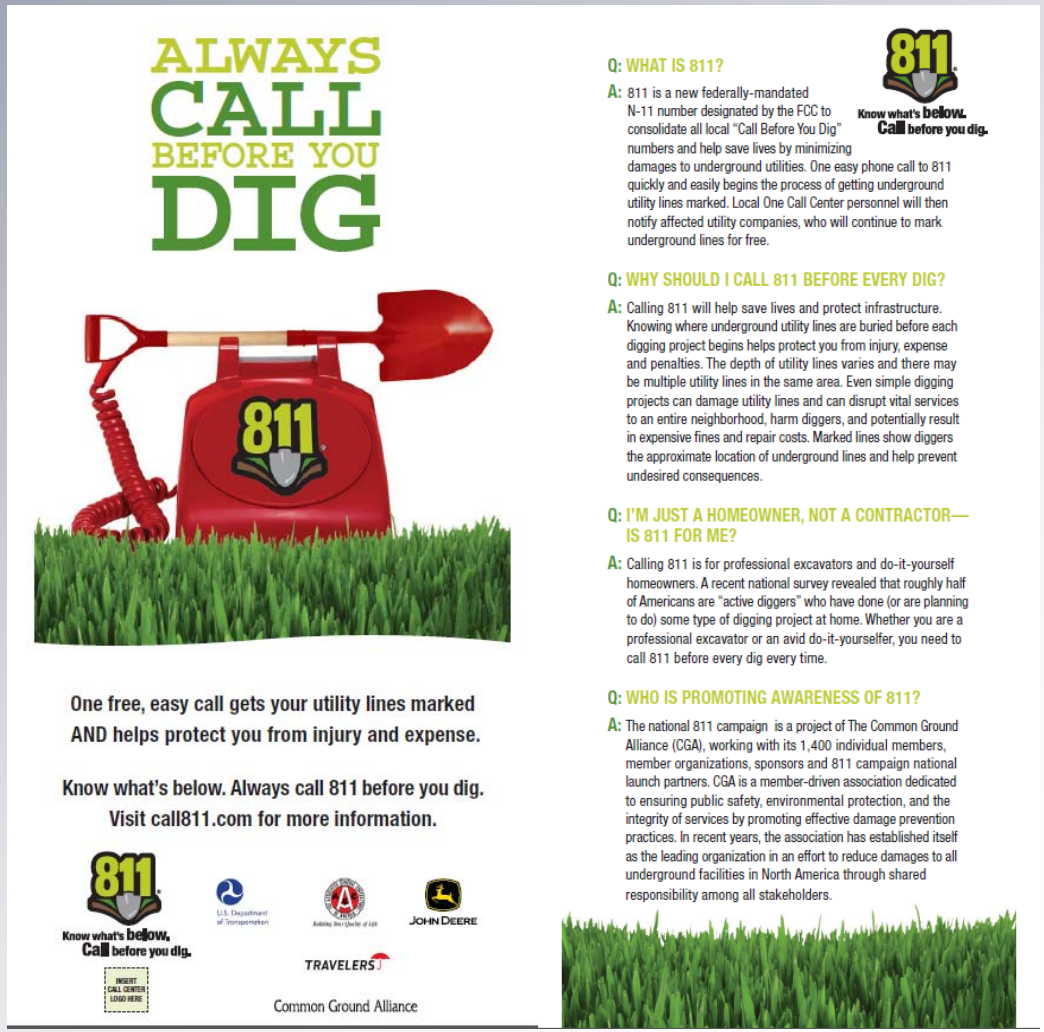
Pipeline and Hazardous Materials
Safety Administration

Always Call 811 Before you Dig



http://www.nj1-call.org/

CATS – Contact Us

- **OPS Eastern Region**
  Connecticut; Delaware; Maine; Maryland; Massachusetts; New Hampshire; New Jersey; New York; Pennsylvania; Rhode Island; Vermont; Virginia; Washington, D.C.; West Virginia.

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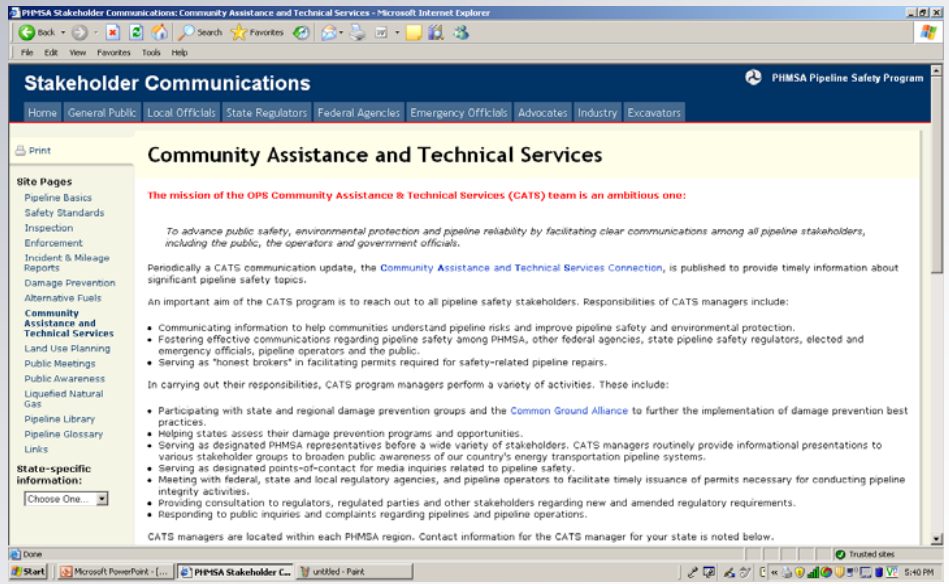

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Thank You!!

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