

PRIMER

ON

PIPELINE SAFETY

LAWS AND REGULATIONS

By

Carol M. Parker, M.S., M.B.A., J.D.

Prepared for

**The Pipeline Safety Trust
1155 North State, Suite 609
Bellingham, WA 98225**

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INTRODUCTION

Generally, if a pipeline is entirely within a state's borders, it is called an intrastate pipeline^{1,2} and states may have greater control.³ However, if a pipeline traverses land of more than one state it is called an interstate pipeline.^{4,5,6} In that case, the federal government makes the laws and regulations and states are preempted⁷ from passing laws that pertain to safety.

At the federal level pipeline safety laws are introduced and passed by Congress, which includes both the House of Representatives and the Senate. However laws passed by Congress are often very general. It would be too time consuming for Congress to hammer out all of the technical details, particularly for an area like pipeline safety that requires extensive consideration of engineering specifications. So, Congress creates federal agencies with the power to make regulations; this process is also called rulemaking. Regulations, like laws, are enforceable rules that must be followed.

WHO'S WHO IN PIPELINE SAFETY

CONGRESS

When an activity affects commerce across the nation, Congress may pass laws to regulate it⁸ and Congress may make those laws exclusive, thereby limiting or even prohibiting the States from regulating that area.⁹ In the case of pipeline safety, Congress has largely "preempted" the States from setting safety standards for interstate pipelines, although States are still permitted (under limited circumstances) to set safety standards for intrastate pipelines.¹⁰

The work of Congress isn't over once a law is passed. In addition to debating proposed bills about pipeline safety, Congressional oversight committees in both the House and the Senate hold hearings to follow how the present law is working and whether it should be changed.

OFFICE OF PIPELINE SAFETY

Structure

Congress created the Office of Pipeline Safety (OPS)¹¹ to regulate pipelines. OPS is part of the Department of Transportation (DOT).¹² Unlike highways and railroads that have their own agencies within DOT, OPS is a tiny agency that is part of the Research and Special Programs Administration (RSPA).¹³ RSPA proposes rules and regulations to implement pipeline safety laws. OPS inspects the companies that operate pipelines to oversee their compliance with those regulations.

¹ 49 U.S.C. § 60101(a)(9) (2000) (Definitions. "Intrastate gas pipeline facility.").

² 49 U.S.C. § 60101(a)(10) (2000) (Definitions. "Intrastate hazardous liquid pipeline facility.").

³ See THE STATES, in WHO'S WHO IN PIPELINE SAFETY below.

⁴ 49 U.S.C. § 60101(a)(6) (2000) (Definitions. "Interstate gas pipeline facility.").

⁵ 49 U.S.C. § 60101(a)(7) (2000) (Definitions. "Interstate hazardous liquid pipeline facility.").

⁶ 49 U.S.C. § 60101(a)(8) (2000) (Definitions. "Interstate or foreign commerce.").

⁷ 49 U.S.C.S. § 60104 (LexisNexis Supp. 2004) (Requirements and limitations (c) Preemption.).

⁸ U.S. Const. art. I, § 8, cl. 3.

⁹ U.S. Const. art. VI, cl. 2.

¹⁰ 49 U.S.C.S. § 60104 (LexisNexis Supp. 2004) (Requirements and limitations (c) Preemption.).

¹¹ See web site for the U.S. Department of Transportation, Research and Special Programs Administration, Office of Pipeline Safety at <http://ops.dot.gov/>.

¹² See web site for the U.S. Department of Transportation at <http://www.dot.gov/>.

¹³ See web site for the U.S. Department of Transportation, Research and Special Programs Administration at <http://www.rspa.dot.gov/>.

FEDERAL ENERGY REGULATORY COMMISSION

The Office of Pipeline Safety is prohibited from prescribing the location or route of a pipeline.¹⁴ Siting of interstate natural gas transmission pipelines is regulated by the Federal Energy Regulatory Commission (FERC).¹⁵ A company that wishes to build an interstate natural gas transmission pipeline applies to FERC for a certificate of public convenience and necessity.¹⁶ Once an applicant receives that certificate, FERC gives the pipeline company the right to use eminent domain to condemn private property for the pipeline.¹⁷

In determining whether a company should receive a certificate of public convenience and necessity, FERC prepares an environmental evaluation of the project. However, it is important to note that FERC does not consider pipeline safety aspects of the project—pipeline safety is the province of the Office of Pipeline Safety and FERC merely requires applicants to abide by those regulations. Ironically, while FERC is not a pipeline safety agency FERC has the authority to impose additional requirements in excess of federal pipeline safety regulations when siting new pipelines. This disconnect between siting and safety leads to misinformation being given to landowners during the FERC process. Three important examples:

- ◆ FERC assures landowners that pipeline accidents usually result from outside forces or unauthorized action by someone other than the pipeline company.¹⁸ This statement is only true for distribution pipelines, which FERC doesn't regulate.¹⁹ For natural gas transmission pipelines, which FERC does regulate, the most frequent cause of an accident as reported to OPS is corrosion which happens twice as often as third party excavation damage.²⁰
- ◆ FERC informs landowners that DOT requires strict safety checks.²¹ This is only arguably true in High Consequence Areas which account for 21,470 miles out of the 300,000 miles of interstate natural gas transmission pipelines.²² Even in High Consequence Areas, pipeline operators are permitted to use "Direct Assessment," an inspection method of questionable validity.²³ For areas that are not High Consequence (93% of natural gas

¹⁴ 49 U.S.C. § 60104(e) (2000) (Location and routing of facilities).

¹⁵ 15 U.S.C. 717(b) (2000) (Transactions to which provisions of chapter applicable.)

¹⁶ 15 U.S.C. 717f(c-f) (2000). (Construction, extension or abandonment of facilities.)

¹⁷ 15 U.S.C. 717f(h) (2000) (Right of eminent domain for construction of pipelines, etc.).

¹⁸ Federal Energy Regulatory Commission, *An Interstate Natural Gas Facility on My Land?* 15, at <http://www.ferc.gov/for-citizens/my-rights/citizen-guides/citz-guide-gas.pdf>.

¹⁹ Office of Pipeline Safety Distribution Pipeline Incident Summary by Cause, 1/1/2004—6/29/2004 at <http://ops.dot.gov/stats/NGDIST04.HTM> (showing that damage from outside forces has caused 60% of the accidents in distribution pipelines; it should be noted that outside force damage is a category that includes earth movement. Lightning, heavy rains and floods, temperature, high winds, excavation by the operator, excavation by a third party, fire or explosion external to the pipeline, being struck by vehicles not related to excavation, rupture of previously damaged pipe, and vandalism.).

²⁰ Office of Pipeline Safety Transmission Pipeline Incident Summary by Cause, 1/1/2004—7/16/2004 at <http://ops.dot.gov/stats/NGTRAN04.HTM> (showing that corrosion caused 29.6% of accidents and was the most frequent cause).

²¹ Federal Energy Regulatory Commission, *An Interstate Natural Gas Facility on My Land?* 15, at <http://www.ferc.gov/for-citizens/my-rights/citizen-guides/citz-guide-gas.pdf>.

²² U.S. Dep't of Transp. Research and Special Programs Admin. Docket RSPA-00-7666-356, *Final Regulatory Evaluation Pipeline Integrity Management in High Consequence Areas (Gas Transmission Pipelines)* 17 (undated but posted to DOT docket 7666 at <http://dms.dot.gov> on Sept. 2, 2004) (concluding in Exhibit 2 that Transmission Pipeline in High Consequence Areas would be 9,000 miles for local distribution companies and 12,470 miles for long-distance pipelines [total = 21,470 miles].).

²³ The liquid pipeline industry does not use Direct Assessment, believing it to be an unverifiable method of integrity testing. Joe L. Pikas, *Direct Assessment, Data Integration Important in Establishing Pipeline Integrity*, Oil & Gas J., Sept. 2, 2003, at 66.

transmission mileage) safety checks are generally limited to infrequent aerial patrols, leakage surveys and monitoring external or internal corrosion.²⁴ For those pipelines there is no requirement to assess their integrity after they are initially constructed.

- ◆ FERC tells landowners that they can build up to the edge of the pipeline right-of-way.²⁵ While this may be legally correct, the Office of Pipeline Safety has testified that such building makes pipelines more dangerous and should be prevented through land use regulations.²⁶ Reports available in the DOT pipeline safety rulemaking docket explain that the hazard area for natural gas transmission pipelines might range from 165 to 1155 feet.²⁷ To build up to the edge of a right-of-way is to build within the hazard area in virtually every case.

Landowners are seriously misinformed if they rely on information from FERC about pipeline safety.

THE STATES

The federal government is primarily responsible for pipeline safety laws and regulations. However, under federal law, states may choose three different levels of involvement in pipeline safety. Furthermore, states may choose a different level of involvement for natural gas pipelines or hazardous liquid pipelines.

- 1) Certification:²⁸ Congress permitted States to assume regulatory authority of intrastate pipelines if the state makes an annual certification to the Office of Pipeline Safety. The State must adopt the minimum Federal regulations and may adopt more stringent regulations for intrastate pipelines as long as the state regulations are not incompatible with Federal regulations. Under Certification, a State has responsibility for enforcement of regulations on intrastate pipelines. All states other than Alaska, Delaware and Hawaii give annual certifications to OPS to allow them to regulate intrastate natural gas pipelines but only about half of the states certify for liquid pipelines.²⁹
- 2) Agreement:³⁰ If a state does not meet the requirements for certification, the State can still enter an agreement with OPS to oversee certain aspects of intrastate pipeline safety. In this case, OPS retains responsibility for enforcement for any violations on intrastate pipelines. This is an infrequently used approach. Only one state, Delaware, uses an agreement to oversee intrastate natural gas pipelines and only three, Kentucky, New Mexico and South Carolina, use that method for liquid pipelines.³¹
- 3) Interstate Agent:³² OPS may permit a State to participate in the oversight of interstate pipeline transportation, but OPS always retains authority for enforcement of any

²⁴ See ONGOING TESTING—NATURAL GAS PIPELINES—METHODS, below.

²⁵ Federal Energy Regulatory Commission, *An Interstate Natural Gas Facility on My Land?* 10, at <http://www.ferc.gov/for-citizens/my-rights/citizen-guides/citz-guide-gas.pdf>.

²⁶ Testimony of Samuel Bonasso, Acting Administrator, Research and Special Programs Administration, October 9, 2003 at http://www.globalsecurity.org/security/library/congress/2003_h/031009-bonasso.htm. “The rupture of the pipeline in Tucson was all the more dangerous because development had encroached so close to the pipeline right-of-way that houses were only about 40 feet away.”

²⁷ Mark J. Stephens, C-Fer Technologies, *A Model for Sizing High Consequence Areas Associated with Natural Gas Pipelines*, Gas Research Institute iii, 11 (2000) (noting a hazard area radius ranging from 165 feet for a 6 inch pipeline to 1155 feet for a 42 inch pipeline).

²⁸ 49 U.S.C. § 60105 (2000) (State Pipeline Safety Program Certifications.).

²⁹ See Table 1, *Status of Pipeline Safety Regulation in the States as of 2002*.

³⁰ 49 U.S.C.S. § 60106 (LexisNexis Supp. 2004) (State Pipeline Safety Agreements.).

³¹ See Table 1. *Status of Pipeline Safety Regulation in the States as of 2002*.

³² 49 U.S.C.S. § 60106(b) (LexisNexis Supp. 2004) (Agreements with Certification.).

violations. Nine states have an interstate agent agreement to oversee natural gas pipelines and six have one for oversight of liquid pipelines.³³

Whichever level of authority a state has, OPS may fund up to 50% of the State's pipeline safety programs.³⁴

LOCAL GOVERNMENT

Local land use regulations are commonly used to insulate communities from those land uses which, while necessary, may entail dangers. To date, such regulations have not been widely used to limit impacts from pipelines.³⁵

INDUSTRY TRADE ASSOCIATIONS

Trade associations are a potent force in developing regulations. Examples include the Interstate Natural Gas Association of America, the Association of Oil Pipelines and the American Petroleum Institute. They have paid staffs, Washington DC offices and they are regular attendees at workshops and public meetings held by RSPA. They advocate for their respective industries, often seeking to lessen the requirements placed on industry.

BACKGROUND TECHNICAL INFORMATION ABOUT PIPELINES

TYPES OF PIPELINES AND FACILITIES

There are several different types of pipelines. These types serve different purposes, have different accident causes and are regulated differently. A requirement that may be true of one type of pipeline may not be true of another, so an understanding of these different types is important.

- ◆ Natural Gas Distribution Pipelines—these are the pipelines that serve cities and towns to bring them natural gas. Because they serve so many customers, there are over one million miles of these pipelines.³⁶ They operate at relatively lower pressure than other pipelines and tend to be smaller. The most common cause of an accident on a distribution pipeline is outside force damage.³⁷ Outside force damage includes excavation damage (whether by the pipeline operator or someone else) as well as earthquakes, landslides, and vehicle strikes.³⁸
- ◆ Natural Gas Transmission Pipelines—these are the major arteries that carry natural gas to the cities and towns that have natural gas distribution pipelines. These pipelines are larger and operate at higher pressure. Based on information reported to OPS, the most common cause of an accident on a natural gas transmission pipeline is corrosion.³⁹

³³ See Table 1. Status of Pipeline Safety Regulation in the States as of 2002.

³⁴ 49 U.S.C. § 60107 (2000) (State Pipeline Safety Grants.).

³⁵ Transportation Research Board, Special Report 281, *Transportation Pipelines and Land Use 2-3* (2004) available at <http://trb.org/publications/sr/sr281.pdf>.

³⁶ Natural Gas Distribution Pipeline Annual Miles at <http://ops.dot.gov/stats/GTANNUAL2.HTM> (showing Distribution Main Mileage of 1,167,100 miles).

³⁷ Office of Pipeline Safety, Distribution Pipeline Incident Summary by Cause, 1/1/2004—6/29/2004, at <http://ops.dot.gov/stats/NGDIST04.HTM> (showing that 60% of accidents on distribution pipeline were caused by outside force damage).

³⁸ Pipeline Failure Causes, at http://primis.rspa.dot.gov/pipelineInfo/stat_causes.htm (listing the components of outside force damage as earth movement, lightening, heavy rains and flood, temperature, high winds, excavation by the operator, excavation by a third party, fire or explosion external to the pipeline, being struck by vehicles not related to excavation, rupture of previously damaged pipe and vandalism).

³⁹ Office of Pipeline Safety, Transmission Pipeline Incident Summary by Cause, 1/1/2004—7/16/2004, at <http://ops.dot.gov/stats/NGTRAN04.HTM> (showing that corrosion, both external and internal, accounts for a total of almost 30% of accidents on gas transmission pipelines).

- ◆ **Hazardous Liquid Transmission Pipelines**—these pipelines carry a wide variety of materials, including 68% of the gasoline we use,⁴⁰ as well as crude oil, diesel fuel, jet fuel, carbon dioxide, anhydrous ammonia, and natural gas liquids (e.g., butane, propane, ethane). There are relatively fewer miles of these pipelines⁴¹ but they have more accidents per mile (7.9 accidents per 10,000 miles per year) than either gas transmission pipelines (3.2 accidents per 10,000 miles per year) or gas distribution pipelines (1.2 accidents per 10,000 miles per year).⁴² The most common reported cause of accidents on liquid pipelines is corrosion.⁴³
- ◆ **Gathering Pipelines**—these are the pipelines that carry materials from the wells where they are produced to the larger transmission pipelines that will carry them to another destination. OPS does not keep statistics on gathering pipelines and there are few regulations for them.

ISSUES IN PIPELINE SAFETY

PIPELINE DESIGN, CONSTRUCTION AND INITIAL TESTING REQUIREMENTS

Natural Gas Pipelines—Distribution and Transmission

Pipeline regulations are voluminous and cover numerous areas relating to pipeline design and construction. For natural gas pipelines, regulations cover the materials that may be used⁴⁴ (steel⁴⁵ and plastic,⁴⁶ as well as others) and how it must be marked⁴⁷ and transported.⁴⁸ Different regulations may apply depending on the population density in the area.⁴⁹ Pipe design regulations include a formula for determining the pressure⁵⁰ and provisions so that natural gas pipelines in denser building areas have larger margins for safety than those in less developed areas.⁵¹ Design of components such as valves,⁵² anchors and supports,⁵³ and compression stations⁵⁴ are covered.

⁴⁰ *Reauthorization of the Natural Gas Pipeline Safety Act and the Hazardous Liquid Pipeline Safety Act Before the House Comm. on Energy & Commerce Subcomm. on Energy & Air Quality*, Mar. 19, 2002 (statement of William Shea, President and CEO Buckeye Pipeline Company, L.P.).

⁴¹ Liquid Pipeline Operator, Total Annual Mileage, at <http://ops.dot.gov/stats/lpo.htm> (showing total mileage of 160,868) compare with Office of Pipeline Safety, Natural Gas Transmission Pipeline Annual Mileage (showing 300,721 miles of natural gas transmission pipelines) and Natural Gas Distribution Pipeline Annual Miles (showing 1,167,100 miles of distribution main) at <http://ops.dot.gov/stats/GTANNUAL2.HTM>.

⁴² See, e.g., Office of Pipeline Safety, Hazardous Liquid Pipeline Operators, Accident Summary Statistics by Year, 1/1/86—6/30/2004, at http://ops.dot.gov/stats/lq_sum.htm (showing 128 accidents in 2003 which, divided by 160,868 miles, works out to 7.9 accidents per 10,000 miles) and compare with Office of Pipeline Safety, Natural Gas Pipeline Operators, Incident Summary Statistics by Year, 1/1/86—6/30/2004, at http://ops.dot.gov/stats/tran_sum.htm (showing 98 accidents in 2003 which, divided by 300,721 miles, works out to 3.2 accidents per 10,000 miles) and Office of Pipeline Safety, Natural Gas Pipeline Operators, Incident Summary Statistics by Year, 1/1/86—5/31/2004, at http://ops.dot.gov/stats/dist_sum.htm (showing 143 accidents in 2003 which, divided by 1,167,100 miles of distribution main, works out to 1.2 accidents per 10,000 miles).

⁴³ Office of Pipeline Safety, Hazardous Liquid Pipeline, Accident Summary by Cause, 1/1/2004—7/26/2004, at http://ops.dot.gov/stats/LQ04_CS.HTM (showing that external and internal corrosion combined caused 34.3% of accidents).

⁴⁴ 49 C.F.R. §§ 192.51-192.65 (2003) (Subpart B—Materials).

⁴⁵ 49 C.F.R. § 192.55 (2003) (Steel pipe).

⁴⁶ 49 C.F.R. § 192.59 (2003) (Plastic pipe).

⁴⁷ 49 C.F.R. § 192.63 (2003) (Marking of materials).

⁴⁸ 49 C.F.R. § 192.65 (2003) (Transportation).

⁴⁹ 49 C.F.R. § 192.5 (2003) (Class locations).

⁵⁰ 49 C.F.R. § 192.105 (2003) (Design formula for steel pipe).

⁵¹ 49 C.F.R. § 192.5 (2003) (Class locations), § 192.111 (2003) (Design factor (F) for steel pipe).

⁵² 49 C.F.R. § 192.145 (2003) (Valves).

⁵³ 49 C.F.R. § 192.151 (2003) (Anchors and supports).

⁵⁴ 49 C.F.R. § 192.163 (2003) (Compressor stations: design and construction), § 192.165 (2003) (Compressor stations: Liquid removal), § 192.167 (2003) (Compressor stations: Emergency shutdown), § 192.169 (2003)

Regulations apply to welding,⁵⁵ how pipe is repaired,⁵⁶ how welds should be inspected⁵⁷ and how much cover the pipeline must have.⁵⁸ These are just a few areas where regulations apply to natural gas pipeline design and construction.

Once a pipeline is built, there are also initial testing requirements. For higher pressure pipelines, the pipeline is pressurized for eight hours to a higher pressure than its normal operating pressure to see that it withstands this elevated pressure.⁵⁹ This is usually done by filling the pipeline with water and putting it under pressure.

There are some notable weak points in the regulations. Most importantly, Congress mandated that existing pipelines do not have to comply with design, installation, construction, initial inspection, or initial testing standards if the pipeline exists when the standard is written.⁶⁰ In other words, old pipelines are grandfathered as to design, construction or initial testing requirements.

Moreover, RSPA leaves significant loopholes in many regulations. For example, the regulations require that welds be nondestructively tested⁶¹—this is usually done by X-Ray. But the regulations don't require that all welds be tested. In Class 2 locations (more than 10 but fewer than 46 buildings per mile)⁶² only 15 percent of the welds must be tested. And even in the higher classification areas, the regulations call for testing 100% of the welds “unless impracticable” in which case 90% of the welds can be tested.⁶³ There is no standard for what “impracticable” means and no requirement to notify OPS that the operator has decided it would be impracticable to test some welds. In another example, a pipeline that was not initially built for service as a natural gas pipeline can be converted to natural gas without complying with all the design and construction regulations.⁶⁴ In another, there is a regulation for how much cover a pipeline must have when it is installed,⁶⁵ but there is no requirement anywhere in the regulations that require companies to make sure that, as the years go by, the initial burial depth of the pipeline is maintained if erosion occurs. This is despite the fact that adequate burial of the pipeline is an important factor in preventing excavation damage⁶⁶ and OPS emphasizes the importance of excavation damage as the most important cause of pipeline accidents.⁶⁷

Hazardous Liquid Pipelines

Regulations for design and construction of liquid pipelines cover many of the same areas that natural gas pipelines cover, with a few important exceptions. Like natural gas pipelines, the

(Compressor stations: pressure limiting devices), § 192.171 (2003) (Compressor stations: Additional safety equipment), § 192.175 (Compressor stations: Ventilation) (2003).

⁵⁵ 49 C.F.R. §§ 192.221—192.245 (2003) (Subpart E—Welding of Steel in Pipelines).

⁵⁶ 49 C.F.R. § 192.309 (2003) (Repair of steel pipe), § 192.311 (2003) (Repair of plastic pipe).

⁵⁷ 49 C.F.R. § 192.241 (2003) (Inspection and test of welds), § 192.243 (Nondestructive testing) (2003).

⁵⁸ 49 C.F.R. § 192.327 (2003) (Cover).

⁵⁹ 49 C.F.R. § 192.503 (2003) (General requirements); § 192.505 (2003) (Strength test requirements for steel pipeline to operate at a hoop stress of 30% or more of SMYS); and § 192.619 (2003) (Maximum allowable operating pressure: Steel or plastic pipelines).

⁶⁰ 49 U.S.C.S. § 60104(b) (LexisNexis Supp. 2004) (Nonapplication).

⁶¹ 49 C.F.R. § 192.241 (2003) (Inspection and test of welds) and § 192.243 (2003) (Nondestructive testing).

⁶² 49 C.F.R. § 192.5 (2003) (Class locations).

⁶³ 49 C.F.R. § 192.243(d)(3) (2003) (Nondestructive testing).

⁶⁴ 49 C.F.R. § 192.14 (2003) (Conversion to service subject to this part).

⁶⁵ 49 C.F.R. § 192.327 (2003) (Cover).

⁶⁶ W. Kent Muhlbauer, *Pipeline Risk Management Manual* 36 (2d ed. 1996).

⁶⁷ Pipeline Failure Causes, at http://primis.rspa.dot.gov/pipelineInfo/stat_causes.htm (noting that “outside force” damage contributes to a larger number of pipeline accidents and incidents than any other accident category when hazardous liquid, natural gas transmission and distribution pipeline data is combined.)

regulations cover the materials that can be used for pipelines,⁶⁸ a formula for the design pressure,⁶⁹ design of valves,⁷⁰ welding,⁷¹ and burial depth.⁷² However, there are some notable differences. There are no class locations that provide an increased margin of safety in developed areas. There is a regulation suggesting that pipelines should be located to avoid areas containing private dwellings, industrial buildings and places of public assembly but only “in so far as practicable.”⁷³ There is a requirement that liquid pipelines constructed within 50 feet of such places have an additional 12 inches of cover,⁷⁴ but there is no requirement that the additional cover be maintained. If a pipeline was not originally constructed to comply with these requirements, it can be converted to hazardous liquid service without complying.⁷⁵ The liquid regulations require less testing of welds than the natural gas regulations (only 10% of welds must be tested.)⁷⁶ There is a provision requiring 100% of welds to be tested in certain areas but the language contains substantial loopholes. Up to 10% of welds can be exempted because testing is “impracticable.”⁷⁷ Welds must be tested “within” populated areas⁷⁸ but not if the pipeline is merely nearby, even if a spill might reasonably impact a populated area. Pressure testing is required for new pipelines⁷⁹ but RSPA has provided a “risk-based alternative” to pressure testing that permits older hazardous liquid and carbon dioxide pipelines to avoid pressure testing altogether in some areas.⁸⁰

ONGOING TESTING—NATURAL GAS PIPELINES—METHODS

Pipelines are required to have testing programs to look for and prevent leaks. The methods used include:

Patrols - The right-of-way is patrolled (usually aurally) for indications of leaks and construction activity.⁸¹ The frequency varies from zero to four times per year.⁸²

Leakage Surveys - Leakage surveys are required from once every five years to four times per year.⁸³

⁶⁸ 49 C.F.R. § 195.4 (2003) (Compatibility necessary for transportation of hazardous liquids or carbon dioxide), § 195.8 (2003) (Transportation of hazardous liquid or carbon dioxide in pipelines constructed with other than steel pipe).

⁶⁹ 49 C.F.R. § 195.106 (2003) (Design pressure).

⁷⁰ 49 C.F.R. § 195.116 (2003) (Valves).

⁷¹ 49 C.F.R. §§ 195.214—195.234 (2003) (Welding).

⁷² 49 C.F.R. § 195.248 (2003) (Cover over buried pipeline).

⁷³ 49 C.F.R. § 195.210(a) (2003) (Pipeline location).

⁷⁴ 49 C.F.R. § 195.210(b) (2003) (Pipeline location).

⁷⁵ 49 C.F.R. § 195.5 (2003) (Conversion to service subject to this part).

⁷⁶ 49 C.F.R. § 195.234(c) (2003) (Welds: Nondestructive testing).

⁷⁷ 49 C.F.R. § 195.234(e) (2003) (Welds: Nondestructive testing).

⁷⁸ 49 C.F.R. § 195.234(e)(5) (2003) (Welds: Nondestructive testing).

⁷⁹ 49 C.F.R. § 195.302 (2003) (General requirements).

⁸⁰ 49 C.F.R. 195.303 (2003) (Risk-based alternative to pressure testing older hazardous liquid and carbon dioxide pipelines).

⁸¹ 49 C.F.R. § 192.705 (2003) (Transmission lines: Patrolling) and § 192.721 (2003) (Distribution systems: Patrolling).

⁸² See 49 C.F.R. §§ 192.705 and 192.721 (2003) (noting that for distribution systems, the patrolling frequency in some cases is determined by “the severity of the conditions which could cause failure or leakage, and the consequent hazards to public safety” but there is no minimum requirement in those cases.)

⁸³ 49 C.F.R. § 192.706 (2003) (Transmission lines: Leakage surveys) and § 192.723 (2003) (Distribution systems: Leakage surveys).

Corrosion Protection (Cathodic Protection) - Pipelines are coated and a small electrical current is applied to protect against external corrosion.⁸⁴ The regulations require monitoring once a year⁸⁵ to six times a year,⁸⁶ depending on the part of the system.

Internal corrosion is prevented one of two ways. Companies are prohibited from transporting corrosive gas in the pipeline unless steps are taken to minimize corrosion.⁸⁷ Alternatively, companies can place corrosion “coupons” in the pipeline.⁸⁸ A coupon is a piece of metal with a special surface for measuring corrosion rates. It is placed in the pipeline and examined periodically to see whether the methods used to control internal corrosion are effective.⁸⁹

Internal Inspection:⁹⁰ - Internal inspection devices can creep through pipelines and detect corrosion, deformities, some gouges and other problems; these devices are also known as “smart pigs.” Unfortunately, smart pigs are so long that they cannot negotiate tight turns; natural gas pipelines have many such turns so 65% of natural gas pipelines cannot accommodate a smart pig.⁹¹ Re-configuring the pipeline to accommodate internal inspection involves substantial expense. In 1988, Congress required RSPA to develop regulations requiring new pipelines to be built to accommodate smart pigs.⁹² RSPA finally implemented that regulation in 2004⁹³ but that doesn’t solve the problem of existing mileage of pipeline that doesn’t accommodate this method of testing.

Pressure Testing:⁹⁴ - A pipeline can be tested by repeating the pressure test done initially to establish the pipeline’s fitness for service.⁹⁵ If corrosion or other flaws have developed to a significant degree during the ensuing years, a pressure test will cause the pipeline to fail at that spot and that segment can be repaired. Pressure testing has several drawbacks as an ongoing method to monitor pipeline integrity. The test interrupts natural gas service—some communities are served by a single pipeline and the test would cut off their supply. The water itself is corrosive to the steel of the pipeline, and it is difficult to completely remove. The elevated pressure places an unnecessary stress on the pipeline which can cause small flaws to grow and then lead to later failure.⁹⁶

Direct Assessment:⁹⁷ - Because many pipelines cannot accommodate a smart pig and pressure testing interrupts service, Congress mandated that RSPA make rules for “Direct

⁸⁴ 49 C.F.R. §§ 192.451—192.491 (2003) (Requirements for Corrosion Control).

⁸⁵ 49 C.F.R. § 192.465(a) (2003).

⁸⁶ 49 C.F.R. § 192.465(c) (2003).

⁸⁷ 49 C.F.R. § 192.475(a)(2003).

⁸⁸ 49 C.F.R. § 192.477 (2003).

⁸⁹ Nat. Transp. Safety Bd., NTSB/PAR-03/01PB2003-916501, *Natural Gas Pipeline Rupture and Fire Near Carlsbad, New Mexico, August 19, 2000*, 23 (2003).

⁹⁰ 49 C.F.R. § 192.921(a)(1) (2003).

⁹¹ *Hearing Regarding Pipeline Safety Research and Development Before the Subcomm. on Energy of the House Comm. on Science* (Mar. 13, 2002) (testimony of Terry Boss, Vice President of Environment, Safety and Operations, INGAA) (stating that only about 35% of the total natural gas pipeline mileage can accept these devices).

⁹² H.R. 2266, Pub. L. No. 100-561 § 108(b), 102 Stat 2805 (1988).

⁹³ Pipeline Safety: Passage of Internal Inspection Devices, 69 Fed. Reg. 36,024 (June 28, 2004).

⁹⁴ 49 C.F.R. § 192.921(b)(1) (2003).

⁹⁵ See above section on Design and Construction.

⁹⁶ Nat’l Transp. Safety Bd., *Rupture of Enbridge Pipeline and Release of Crude Oil near Cohasset, Minnesota July 4, 2002* 31 (2004).

⁹⁷ 49 C.F.R. § 192.921(a)(3) (2003).

Assessment (DA).⁹⁸ DA is a process in which a pipeline operator integrates knowledge about the pipeline's characteristics and operating history with incidents of corrosion and information gleaned from testing of coating condition to make inferences about likely places where the pipeline's integrity may fail. The company then excavates the pipeline in such places to examine its integrity directly (hence the name "direct" assessment). The excavation provides an opportunity to visually examine the pipeline and perhaps use ultrasound to measure the thickness of the pipe wall.⁹⁹ However, as the name suggests, this method inspects only the areas chosen for sampling, not the entire pipeline or pipeline segment. Therefore, similar to all studies based on sampling, the results are suspect because most of the pipeline remains uninspected. The liquid pipeline industry does not use DA, believing it to be an unverifiable method of integrity testing.¹⁰⁰

"Other":¹⁰¹ - RSPA has left open the possibility that operators may choose some other method of assessing pipeline integrity. If another method is chosen, the operator must notify OPS and demonstrate that the method provides an equivalent evaluation of the pipeline.

ONGOING TESTING—NATURAL GAS PIPELINES—REQUIREMENTS

With the new Pipeline Safety Improvement Act of 2002, Congress required integrity testing of natural gas transmission pipelines in high-density population areas. But the law and its implementing regulations have important loopholes.

Where - The new regulation¹⁰² has defined "high-density population area" aka "High Consequence Area" very narrowly. The following list illustrates the areas where natural gas transmission pipeline integrity must be monitored:

- 1) Places where there are 46 or more buildings intended for human occupancy within a mile along the pipeline;¹⁰³
- 2) In less developed areas near large pipelines, places where there are 20 or more buildings intended for human occupancy clustered near the pipeline;¹⁰⁴
- 3) Any area where the pipeline lies within 100 yards of a building or outside area occupied by 20 or more persons at least five days a week for 10 weeks in any 12 month period);¹⁰⁵
- 4) Places where buildings of four or more stories are prevalent;¹⁰⁶

⁹⁸ 49 U.S.C.S. § 60102(m) (LexisNexis Supp. 2004) (Inspections by Direct Assessment).

⁹⁹ Joe L. Pikas, *Direct Assessment, Data Integration Important in Establishing Pipeline Integrity*, Oil & Gas J., Sept. 2, 2002, at 66.

¹⁰⁰ Joe L. Pikas, *Direct Assessment, Data Integration Important in Establishing Pipeline Integrity*, Oil & Gas J., Sept. 2, 2003, at 66.

¹⁰¹ 49 C.F.R. § 192.921(a)(4) (2003).

¹⁰² Pipeline Safety: Pipeline Integrity Management in High Consequence Areas (Gas Transmission Pipelines), 69 Fed. Reg. 18,228, 18,231 (Apr. 6, 2004).

¹⁰³ Pipeline Safety: Pipeline Integrity Management in High Consequence Areas (Gas Transmission Pipelines); Correction; Final Rule, 69 Fed. Reg. 18,228, 18,231 (Apr. 6, 2004) (citing 49 C.F.R. § 192.903(1)(i) as including all Class 3 areas, defined in 49 C.F.R. § 192.5 to include areas where there are 46 or more buildings intended for human occupancy within 220 feet along one mile of pipeline).

¹⁰⁴ Pipeline Safety: Pipeline Integrity Management in High Consequence Areas (Gas Transmission Pipelines); Correction; Final Rule, 69 Fed. Reg. 18,228, 18,231 (Apr. 6, 2004) (citing 49 C.F.R. § 192.903(1)(iii) as including areas where the potential impact radius is greater than 660 feet (generally a pipeline greater than 12 inches in diameter and operated at more than 1200 p.s.i.g., see 49 C.F.R. § 192.761 (c)-(e)(2003)).

¹⁰⁵ Pipeline Safety: Pipeline Integrity Management in High Consequence Areas (Gas Transmission Pipelines); Correction; Final Rule, 69 Fed. Reg. 18,228, 18,231 (Apr. 6, 2004) (citing 49 C.F.R. § 192.903(1)(i) as including all Class 3 areas, defined in 49 C.F.R. § 192.5 to include areas where the pipeline lies within 100 yards of a building or small outside area used by 20 or more persons at least five days a week for 10 weeks in any 12 month period).

- 5) Places where the potential impact zone contains at least 20 buildings intended for human occupancy;¹⁰⁷
- 6) Outdoor areas frequented by at least 20 people 50 times a year;¹⁰⁸
- 7) A building occupied by at least 20 people five days a week for at least ten weeks in a twelve week period;¹⁰⁹
- 8) A hard-to-evacuate facility (e.g., prison, school, hospital).¹¹⁰

RSPA estimates that only 22,000 miles out of 300,000 miles of natural gas transmission pipelines (approximately seven percent) will be covered by the new requirement.¹¹¹ There is no public notice or input requirement; companies are not required to post signs or otherwise inform those who may live nearby that some pipelines in their area may be uninspected.

Areas which are not covered by integrity testing requirements include:

- ◆ Small clusters of homes. Just because a home is next to a pipeline, doesn't mean the pipeline must be inspected—there must be at least 20 homes nearby.
- ◆ Previous accident site. The definition would not cover the place where twelve campers were killed near Carlsbad, New Mexico because, although it was an outdoor area regularly used for fishing, only one to fifteen people used it at any one time.¹¹²
- ◆ Outdoor recreational areas. Those that are only used seasonally may not be covered if they are primarily used on the weekends.
- ◆ Informal recreation sites. Identifying informal recreation areas present particular problems for pipeline operators. The company is required to consult with local officials to find out about such sites but if the local official doesn't have the necessary information, the operator need only include sites that are visibly marked (e.g., a sign), are licensed or registered with a government entity, or the site is listed on maps maintained by government agencies.¹¹³ RSPA is requiring only a "good faith effort" to identify such sites.¹¹⁴

When - Of the pipelines whose integrity must be tested, (i.e., the seven percent of the total mileage of transmission pipelines), the first half must be assessed by December 2007 and the

¹⁰⁶ Pipeline Safety: Pipeline Integrity Management in High Consequence Areas (Gas Transmission Pipelines); Correction; Final Rule, 69 Fed. Reg. 18,228, 18,231 (Apr. 6, 2004) (citing 49 C.F.R. § 192.903(1)(ii) as including all Class 4 areas, defined in 49 C.F.R. § 192.5 to include those areas where buildings of four or more stories are prevalent).

¹⁰⁷ Pipeline Safety: Pipeline Integrity Management in High Consequence Areas (Gas Transmission Pipelines); Correction; Final Rule, 69 Fed. Reg. 18,228, 18,231 (Apr. 6, 2004) (citing 49 C.F.R. § 192.903(1)(iv)(2) as including an area where the potential impact circle would contain 20 or more buildings intended for human occupancy).

¹⁰⁸ Pipeline Safety: Pipeline Integrity Management in High Consequence Areas (Gas Transmission Pipelines); Final Rule, 68 Fed. Reg. 69,778, 69,818 (Dec. 15, 2003) (citing 49 C.F.R. § 192.903 Identified site).

¹⁰⁹ Pipeline Safety: Pipeline Integrity Management in High Consequence Areas (Gas Transmission Pipelines), 68 Fed. Reg. 69,778, 69,818 (Dec. 15, 2003) (citing 49 C.F.R. § 192.903 Identified site).

¹¹⁰ Pipeline Safety: Pipeline Integrity Management in High Consequence Areas (Gas Transmission Pipelines), 68 Fed. Reg. 69,778, 69,818 (Dec. 15, 2003) (citing 49 C.F.R. § 192.903 Identified site).

¹¹¹ Pipeline Safety: Pipeline Integrity Management in High Consequence Areas (Gas Transmission Pipelines), 69 Fed. Reg. 69,778, 69,815 (Dec. 15, 2003).

¹¹² Letter from Terry D. Boss, Interstate Natural Gas Association of America to U.S.DOT, Dockets Facility (March 11, 2002).

¹¹³ Pipeline Safety: Pipeline Integrity Management in High Consequence Areas (Gas Transmission Pipelines), 68 Fed. Reg. 69,778, 69,818 (Dec. 15, 2003) (citing 49 C.F.R. § 192.905).

¹¹⁴ Draft Advisory Bulletin (ADB-03-), at http://dmses.dot.gov/docimages/pdf86/247364_web.pdf.

remaining half must be assessed by 2012.¹¹⁵ Companies must prioritize such that the highest risk facilities get inspected first. Companies must re-assess their facilities every seven years but they may use a less stringent method of integrity testing than their initial inspection.¹¹⁶

How - Companies must write a plan that describes what method they will use to test the pipeline's integrity.¹¹⁷ OPS must inspect that plan for compliance.¹¹⁸ To learn about what facilities may be near their pipeline, companies are supposed to rely on routine operation and maintenance activities and consultation with public officials.¹¹⁹ Companies must identify integrity threats and remediate certain serious conditions immediately and less serious conditions within one year.¹²⁰ RSPA can waive these requirements if inspection would interfere with product supply or there is a shortage of internal inspection devices.¹²¹

ONGOING TESTING—HAZARDOUS LIQUID PIPELINES—METHODS

Patrols - Similar to natural gas pipelines, liquid pipeline rights-of-way are patrolled through aerial surveillance but in the case of liquid pipelines, the patrolling is much more frequent; patrolling is required at least 26 times per year and no less than every three weeks.¹²²

Corrosion Protection (Cathodic Protection) - Newer liquid pipelines must have a corrosion control system.¹²³ The regulations require monitoring once a year¹²⁴ to six times a year,¹²⁵ depending on the part of the system.

Integrity Testing - Similar to natural gas pipelines, the integrity of liquid pipelines can be tested by internal inspection,¹²⁶ pressure test¹²⁷ or other equivalent method.¹²⁸ Unlike natural gas pipelines, liquid pipelines generally do not have tight turns and can more easily be designed to accommodate internal inspection devices. Direct Assessment is not expressly permitted by the liquid regulations but could theoretically fit in the "other equivalent method" category.

ONGOING TESTING—HAZARDOUS LIQUID PIPELINES—REQUIREMENTS

¹¹⁵ 49 U.S.C.S. § 60109(c)(3)(A) (Lexis/Nexis Supp. 2004).

¹¹⁶ Pipeline Safety: Pipeline Integrity Management in High Consequence Areas (Gas Transmission Pipelines); Correction; Final Rule, 68 Fed. Reg. 18,228, 18,234 (Apr. 6, 2004) (citing 49 C.F.R. § 192.939(a) What are the required reassessment intervals?).

¹¹⁷ Pipeline Safety: Pipeline Integrity Management in High Consequence Areas (Gas Transmission Pipelines), 69 Fed. Reg. 69,778, 69,818 (Dec. 15, 2003).

¹¹⁸ 49 U.S.C.S. § 60109(c)(9)(A)(i) (LexisNexis Supp. 2004).

¹¹⁹ Pipeline Safety: Pipeline Integrity Management in High Consequence Areas (Gas Transmission Pipelines), 69 Fed. Reg. 69,778, 69,818 (Dec. 15, 2003).

¹²⁰ Pipeline Safety: Pipeline Integrity Management in High Consequence Areas (Gas Transmission Pipelines), 69 Fed. Reg. 69,778, 69,823 (Dec. 15, 2003).

¹²¹ 49 U.S.C.S. § 60109(c)(5) (LexisNexis Supp. 2004).

¹²² 49 C.F.R. § 195.412 (2003) (Inspection of rights-of-way and crossings under navigable waters).

¹²³ 49 C.F.R. § 195.557(a) and § 195.401(c) (2003) (excepting interstate liquid pipelines built before March 31, 1970), interstate offshore gathering lines built before July 31, 1977, intrastate pipelines built before October 20, 1985 and carbon dioxide pipelines built before July 11, 1991).

¹²⁴ 49 C.F.R. § 195.573(a)(1) (2003).

¹²⁵ 49 C.F.R. § 195.573(c) (2003).

¹²⁶ 49 C.F.R. § 195.452(c)(i)(A) (2003).

¹²⁷ 49 C.F.R. § 195.452(c)(i)(B) (2003).

¹²⁸ 49 C.F.R. § 195.452(c)(i)(C) (2003).

The definition of a High Consequence Area for liquid pipelines is much different from that for natural gas pipelines because spilled liquids can impact or affect much greater areas.¹²⁹

Where - A liquid HCA is:¹³⁰

- 1) A commercially navigable water way;
- 2) A high population area (population of 50,000 or more and a density of at least 1000 people per square mile);
- 3) An “other populated area,” which means a place, as defined by the Census Bureau, that contains a concentrated population, such as an incorporated or unincorporated town, village, or other designated residential or commercial area;
- 4) An unusually sensitive area (USA)—a drinking water or ecological resource that is unusually sensitive to environmental damage from a liquid pipeline release.

Similar to the rule for natural gas pipelines, this definition leaves a lot of questions and leaves many areas out of consideration:

- ◆ Waterways: Commercially navigable waterways omits waterways where recreation is important; for example, it doesn’t include the Colorado River, Lake Mead or Lake Powell. In fact, there is not a single waterway that fits within this definition in New Mexico, Colorado, Arizona, Utah, Wyoming or Nevada.¹³¹
- ◆ “Other populated area”: This includes unincorporated areas which, by definition, have no boundaries. It is unclear how an area without defined boundaries can be relied upon to identify pipeline segments.
- ◆ The UN in “unusually” sensitive: Congress only required protection for areas that would be “unusually sensitive” which Congress defined as areas where a liquid pipeline release might cause permanent or long-term damage.¹³² As a result, RSPA implemented regulations that omit many environmentally sensitive areas. The following areas are examples of unprotected areas:
 - ◆ The water intake for a surface water community water system is entitled to no protection if there is an alternative source that could supply water for at least a month;¹³³
 - ◆ Individual drinking water wells are unprotected;¹³⁴
 - ◆ Aquifer recharge areas are unprotected unless they are karst aquifers;¹³⁵
 - ◆ Threatened or endangered species are only protected under limited circumstances such as if they are:
 - “Critically imperiled”—that means there must be five or fewer populations world wide or fewer than 1000 individuals;¹³⁶ or,

¹²⁹ See “Disparate Impacts” section under WHO’S WHO IN PIPELINE SAFETY/LOCAL GOVERNMENT.

¹³⁰ 49 C.F.R. § 195.450 (2003) (“High Consequence Area”).

¹³¹ Office of Pipeline Safety maps showing commercially navigable waterways are available at http://www.npms.rspa.dot.gov/data/dot_data_cnw.htm.

¹³² 49 U.S.C.S. § 60109(b) (LexisNexis Supp. 2004) (Areas to be included as unusually sensitive.).

¹³³ See 49 C.F.R. § 195.6(a)(1) (2003) (defining protected community water systems) and § 195.6(c) (explaining that an adequate alternative water source for a surface water source need only be able to supply water for one month).

¹³⁴ See 49 C.F.R. § 195.6 (a) (defining a USA drinking water resource as being one of three categories; (a) is restricted to water systems with at least 15 service connections (Community Water System) or serving at least 25 individuals (Non-community Water System); (b) is the Source Water Protection Area for such systems if they rely on certain types of aquifers; and (c) protects sole source aquifer recharge areas if the aquifer is karst in nature.).

¹³⁵ See 49 C.F.R. § 195.6(a)(3) (2003).

- If the species is found with at least two other “imperiled” species.¹³⁷
- ◆ Migratory birds get no protection unless they are water birds, in which case the only protected areas are RAMSAR sites¹³⁸ (there are a total of 19 of these sites nationwide) or Western Hemisphere Shorebird Reserve sites¹³⁹ (there are a total of 38 sites nationwide).
- ◆ National parks, wild and scenic rivers, estuaries, wilderness areas, wildlife refuges get no protection despite the fact that Congress specifically listed those areas as sites that should be considered for protection.¹⁴⁰

There is no opportunity for ongoing public input and the public cannot find out whether a particular area is protected by these provisions. In this arena, a picture would be worth a thousand words and if the American people could see comprehensive maps of how minimal this protection is, it is likely that the public would demand improvements. There are some maps available that show isolated protected areas.¹⁴¹ However, because RSPA has withdrawn the National Pipeline Mapping System from public view out of concern for terrorists, there is no single comprehensive picture showing the extent of the protection offered by the requirement to inspect pipelines in high consequence areas.

When - Liquid pipelines in High Consequence Areas must have been assessed by February 2009 and 50% must be assessed by August 16, 2005. The first 50% assessed must be the highest risk areas.

How - Companies must prepare a written plan¹⁴² that describes a process that companies will follow to identify pipelines that could affect High Consequence Areas and identifies how pipelines there will be inspected.¹⁴³ If an operator discovers a condition that may affect the pipeline’s integrity, it must be remediated.¹⁴⁴ Three classes of conditions have deadlines for remediation—immediately, within 60 days, or within 180 days.¹⁴⁵ Other conditions need only be remediated if appropriate.¹⁴⁶ The pipeline’s integrity must be re-assessed at least every five years.¹⁴⁷

OPERATOR TRAINING AND CERTIFICATION

Operator training has been an issue in pipeline safety for decades. In 1985, NTSB issued a recommendation that pipeline operators have annual training programs for their employees. In

¹³⁶ See 49 C.F.R. § 195.6(b)(1) and (c) (defining a critically imperiled species); also see *NaturServe* Conservation Status at <http://www.natureserve.org/explorer/ranking.htm>.

¹³⁷ See 49 C.F.R. § 195.6(b)(2) (2003).

¹³⁸ See Ramsar Sites Database Service at <http://www.wetlands.org/RSDB/default.htm> (searching for U.S. sites yields 19 sites).

¹³⁹ See Western Hemisphere Shorebird Reserve Sites List at <http://www.manomet.org/WHSRN/sites.php>.

¹⁴⁰ 49 U.S.C.S. § 60109(b)(2) (LexisNexis Supp. 2004).

¹⁴¹ Office of Pipeline Safety maps showing populated areas and “other populated areas” can be downloaded from http://www.npms.rspa.dot.gov/data/dot_data_populated.htm; maps showing commercially navigable waterways are available at http://www.npms.rspa.dot.gov/data/dot_data_cnw.htm. Maps of unusually sensitive areas have been withdrawn from public access.

¹⁴² 49 C.F.R. § 195.452(b)(1) (2003).

¹⁴³ 49 C.F.R. § 195.452(c)(i) (2003).

¹⁴⁴ 49 C.F.R. § 195.452(h)(3) (2003).

¹⁴⁵ 49 C.F.R. § 195.452(h)(4) (2003).

¹⁴⁶ 49 C.F.R. § 195.452(h)(4)(iv) (2003).

¹⁴⁷ 49 C.F.R. § 195.452(j)(3) (2003).

support of that recommendation, NTSB noted that it had issued over 100 recommendations since 1975 about the training of pipeline workers as a result of various accidents.¹⁴⁸

In 1999, RSPA produced an operator qualification rule requiring that pipeline operators have a written qualification program for anyone who performs a “covered task.” A covered task is an activity performed on a pipeline facility that (1) is an operations or maintenance task, (2) is required by DOT regulations, and (3) affects the operation or integrity of the pipeline.¹⁴⁹ The rule applies to both natural gas and liquid pipelines.¹⁵⁰ Apparently that rule did not satisfy Congress. The Pipeline Safety Improvement Act of 2002 provided a new group of statutory provisions.

The new law requires that pipeline operators be tested, either orally or in writing unless RSPA determines that observation of on-the-job performance is the best method for a particular task.¹⁵¹ An operator must have a written plan by December 2004 whether or not RSPA writes regulations.¹⁵² Operators must qualify all individuals covered by the requirement no later than 18 months after the written plan is adopted.¹⁵³ RSPA is required to review all qualification programs by December 2005.¹⁵⁴ Operators may not significantly modify their qualification programs without notifying RSPA.¹⁵⁵ RSPA is required to produce a report on operator training programs by December 2006.¹⁵⁶

ENFORCEMENT

RSPA has several tools at its disposal to enforce the pipeline safety laws and regulations. RSPA can issue Hazardous Facility Orders requiring that an operator take corrective action.¹⁵⁷ It has an administrative process in which it can conduct inspections,¹⁵⁸ hold hearings,¹⁵⁹ and issue warning letters,¹⁶⁰ notices of probable violations,¹⁶¹ or final orders.¹⁶² The result can be a penalty of up to \$1,000,000 for a related series of violations. It also has the power to refer cases to the U.S. Department of Justice for civil or criminal enforcement.¹⁶³

Even though RSPA has many enforcement tools at their disposal, there is much concern about the enforceability of many of the regulations they write, the many loopholes provided, and their lack of use of enforcement tools and follow through.

¹⁴⁸ Letter from Jim Hall, Chairman, Nat. Transp. Safety Bd. to Dockets Facility, U.S. Dep’t of Transp. (Jan. 26, 1999).

¹⁴⁹ 49 C.F.R. §§ 192.801(b) and 195.501(b) (2003).

¹⁵⁰ 49 C.F.R. §§ 192.801-192.809 (for natural gas pipelines) and §§ 195.501-195.509 (for liquid pipelines) (2003).

¹⁵¹ 49 U.S.C.S. § 60131(d)(1) (LexisNexis Supp. 2004).

¹⁵² 49 U.S.C.S. § 60131(c) and (e)(6) (LexisNexis Supp. 2004) (providing that in the event that the Secretary fails to prescribe standards and criteria for operator qualification, that pipeline operators must develop written plans to comply with the statute).

¹⁵³ 49 U.S.C.S. § 60131(d)(2) (LexisNexis Supp. 2004).

¹⁵⁴ 49 U.S.C.S. § 60131(e)(2).

¹⁵⁵ 49 U.S.C.S. § 60131(e)(4).

¹⁵⁶ 49 U.S.C.S. § 60131(h).

¹⁵⁷ 49 C.F.R. § 190.233 (2003).

¹⁵⁸ 49 C.F.R. § 190.203 (2003) (Inspections).

¹⁵⁹ 49 C.F.R. § 190.211 (2003) (Hearing).

¹⁶⁰ 49 C.F.R. § 190.205 (2003) (Warning letters).

¹⁶¹ 49 C.F.R. § 190.207 (2003) (Notice of probable violation).

¹⁶² 49 C.F.R. § 190.213 (2003) (Final order).

¹⁶³ 49 U.S.C.S. § 60120(a) (LexisNexis Supp. 2004) (Civil actions) or 49 U.S.C.S. § 60123 (LexisNexis Supp. 2004) (Criminal penalties).

MAPPING

The Pipeline Safety Improvement Act of 2002 added a new section to the Pipeline Safety Law that required operators to provide mapping information to RSPA to permit pipelines to be mapped in the National Pipeline Mapping System.¹⁶⁴ It also required the name and address of the party to be identified as its operator for the purposes of pipeline safety laws¹⁶⁵ and a means for a member of the public to contact the operator for more information about the pipelines it operates.¹⁶⁶

The full National Pipeline Mapping System is only accessible to pipeline operators and government officials, out of concern that the detailed information might be used by terrorists. However, some information is available to the public:

- ◆ Pipeline Operators: A member of the public can input either a zip code or a state and county and find out what pipelines are in that area and who to contact at the company. Go to: <http://199.107.71.24/publicsearch/>.
- ◆ “High Population Areas” and “Other Populated Areas:” Maps of these areas that must be included in Integrity Management programs for hazardous liquid pipelines can be downloaded from http://www.npms.rspa.dot.gov/data/dot_data_populated.htm.
- ◆ “Commercially Navigable Waterways:” These maps can be downloaded from http://www.npms.rspa.dot.gov/data/dot_data_cnw.htm.
- ◆ Natural Disaster Areas: Maps showing zones where pipelines are at risk from natural disasters such as earthquakes, flooding, hurricanes, or tornadoes can be downloaded from http://www.npms.rspa.dot.gov/data/dot_data_natdis.htm.

It is apparent from the few maps that are available that very little of the United States is considered to be a high consequence area entitled to higher protection from hazardous liquid pipeline spills.

PUBLIC EDUCATION

The NTSB has concluded that public education would prevent pipeline fatalities.¹⁶⁷ Operators must inform communities about how to recognize a pipeline leak and what to do (and not to do) if one is suspected. This is not as obvious as it may sound.

Evidence that a pipeline is leaking could be different depending on the material in the pipeline and the nature of the release. Natural gas may have an odor, but large natural gas transmission pipelines often carry gas without odorant. Natural gas liquids (e.g., butane, propane, etc.) form heavier than air vapor clouds in low lying areas that may look like fog. Liquid pipelines may only form a dark stain on the surface if the leak is small. Communities should be educated about what a nearby pipeline carries and what a leak might look like.

Similarly, it is not obvious what to do in the event of a release, especially large volume events. One might think one should call 911, but not if a spark from a phone might set off an explosion. It is important to leave the area on foot rather than by vehicle; cars can create sparks as doors open and engines start. This information isn't hard to understand but people aren't born knowing it.

As a result, Congress has required gas and liquid pipeline operators to conduct public education programs.¹⁶⁸ The program must educate communities about compliance with One-

¹⁶⁴ 49 U.S.C.S. § 60132 (LexisNexis Supp. 2004).

¹⁶⁵ 49 U.S.C.S. § 60132(a)(2).

¹⁶⁶ 49 U.S.C.S. § 60132(a)(3).

¹⁶⁷ Nat. Transp. Safety Board, NTSB/PAR-98/02/SUM, *Pipeline Rupture, Liquid Butane Release, and Fire, Lively, Texas, August 24, 1996* 24 (1998) at <http://www.nts.gov/publictn/1998/PAR9802S.pdf>.

Call systems to prevent excavation damage, the hazards that unintended releases might cause, what a spill might look like, what to do, and how to report a release.¹⁶⁹ This information must be provided to affected municipalities, school districts, businesses and residents and must include information about the pipeline location.¹⁷⁰ Operators are required to submit their programs to RSPA and RSPA is required to review them for compliance.

EXCAVATION NOTIFICATION/DAMAGE

A significant cause of pipeline accidents is excavation damage.¹⁷¹ This may result because someone does not call their local underground utility locating service or, even if they do, the location of the pipeline might be incorrectly marked.

It takes surprisingly little to cause serious damage to a pipeline. External coating protects the steel from corrosion; excavation that causes even a pinhole in the coating can cause serious corrosion to form.¹⁷² Pipelines operate at high pressure; if a pipeline is slightly dented, particularly on a weld, the dent can focus stress and cause the pipeline to fail later.¹⁷³

In the Pipeline Safety Improvement Act, Congress imposed strict measures for someone damaging a pipeline through excavation. The penalty is five years in prison if an excavator:

- 1) Knowingly and willfully excavates without using an available one-call system or, if the excavator calls and the pipeline is located, the excavator disregards the location information; and,
- 2) The excavator damages a pipeline (without reporting it to the proper authorities) with the result of death, serious bodily harm, property damage of more than \$50,000, or a spill of a liquid product of more than 50 barrels (2100 gallons).¹⁷⁴

Congress has also provided criminal penalties (up to one year in prison) for anyone damaging or destroying a pipeline sign.¹⁷⁵

WHISTLEBLOWER PROTECTION

The Pipeline Safety Improvement Act of 2002 provided whistleblower protection for certain employees. “Employees” includes those persons presently or formerly working for a pipeline company or contractor.¹⁷⁶

REGULATIONS—HOW THEY ARE DEVELOPED

A big problem in getting better regulations is that they tend to be driven by industry. Industry’s concerns are not the same as the public’s concerns. By way of example, in one rulemaking, the nation’s largest natural gas trade association, the Interstate Natural Gas Association of America, proposed that pipeline operators should not have to inspect pipelines near rural churches because they are infrequently occupied.¹⁷⁷ One suspects churchgoers would feel differently.

¹⁶⁸ 49 U.S.C.S. § 60116(a) (LexisNexis Supp. 2004).

¹⁶⁹ 49 U.S.C.S. § 60116(a).

¹⁷⁰ 49 U.S.C.S. § 60116(b).

¹⁷¹ Pipeline Failure Causes at http://primis.rspa.dot.gov/pipelineInfo/stat_causes.htm.

¹⁷² W. Kent Muhlbauer, *Pipeline Risk Management Manual* 85 (2d. ed. 1996).

¹⁷³ 49 C.F.R. § 195.452(h)(iii)(A) (2003).

¹⁷⁴ 49 U.S.C.S. § 60123(d) (LexisNexis Supp. 2004).

¹⁷⁵ 49 U.S.C.S. § 60123(c).

¹⁷⁶ Procedures for the Handling of Discrimination Complaints under Section 6 of the Pipeline Safety Improvement Act of 2002, 69 Fed. Reg. 17,587, 17,591 (Apr. 5, 2004) (to be codified at 29 C.F.R. § 1981.100).

¹⁷⁷ Letter from Terry Boss, Interstate Natural Gas Association of America to Dockets Facility, U.S. Dep’t of Transportation 3 (Mar. 11, 2002).

The costs of unsafe pipelines may be disproportionately borne by the public. In August 2000, a pipeline exploded near Carlsbad, NM and killed twelve campers. Repairs and testing took almost a year and while the pipeline was out of service; RSPA estimated the cost to California consumers in higher gas costs amounted to one billion dollars.¹⁷⁸ Yet, by the time regulations were proposed to require pipeline inspection that would have prevented the accident, the public concern had faded. RSPA received over 700 comments on its proposed rule, and only 11 of those comments were from individuals or an agency that represented the public.¹⁷⁹ RSPA only required 7% of natural gas transmission pipelines to be inspected and didn't even require pipelines to be inspected in areas like where the pipeline exploded in 2000, killed 12 campers and cost consumers one billion dollars. Somehow, the public interest seems to fade away during rulemaking.

More public involvement is needed in pipeline safety. There is an important way that the public can become involved—involvement during rulemaking.

Rulemaking 101

A major part of RSPA's responsibility is writing pipeline safety regulations. RSPA publishes a Notice of Proposed Rulemaking in the Federal Register and provides an opportunity for the public to comment. Comments are important and can influence what RSPA decides about the requirements of the rule. There are two steps to giving public comments:

- 1) Find out about the rule—RSPA usually announces on the OPS web site when it is proposing a new rule.¹⁸⁰ Alternatively, proposed rules are often included in the safepipelines listserv.¹⁸¹ In the heading of the announcement, RSPA provides a docket number for the rule, for example, RSPA-00-15852.
- 2) Go to the DOT Docket web site—at <http://dms.dot.gov>. DOT maintains a “docket” that contains all of the background information for each rulemaking as well as all of the comments received on that rule.¹⁸² To read the background information and comments on a particular rule, click on Search and enter the docket number, e.g., 15852. To comment, click on Comment/Submission; a form is provided for comments or a file may be attached.

One important point—each rule proceeds according to a schedule. When a rule is proposed and RSPA announces a public comment period, RSPA also announces a date when the comment period will close. Comments should be made within the comment period. RSPA considers late comments if practicable, but to receive the most consideration, comments should arrive within the comment period.

¹⁷⁸ U.S. Dept' of Transp., Res. & Special Programs Admin., Docket RSPA-00-7666-356, Final Regulatory Evaluation, Pipeline Integrity Management in High Consequence Areas (Gas Transmission Pipelines), p. 28.

¹⁷⁹ Pipeline Safety: Pipeline Integrity Management in High Consequence Areas (Gas Transmission Pipelines); Final Rule, 68 Fed. Reg. 69,778, 69,782 (Dec. 15, 2003).

¹⁸⁰ See Office of Pipeline Safety web site at <http://ops.dot.gov>.

¹⁸¹ To be added to the national safepipelines listserv, operated by SafeBellingham just send an email with a blank subject line to safepipelines-subscribe@egroups.com.

¹⁸² See Dep't of Transp. Docket Management System at: <http://dms.dot.gov>.