

**Testimony of the Honorable Deborah A.P. Hersman
Chairman
National Transportation Safety Board
Before the
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Infrastructure, Safety, and Security
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Ensuring the Safety of our Nation's Pipelines
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Introduction/Overview

Chairman Lautenberg, Ranking Member Thune, Members of the Subcommittee, thank you for the opportunity to address you today on the reauthorization of the U.S. Department of Transportation's (DOT) Pipeline and Hazardous Materials Safety Administration (PHMSA). PHMSA has made significant progress over the past 5 years. Much of the credit for this success is due to the implementation of statutory mandates included in the Pipeline Safety Improvement Act of 2002, as well as the Pipeline, Inspection, Protection, Enforcement and Safety (PIPES) Act of 2006.

PHMSA has been responsive to the National Transportation Safety Board's (NTSB) pipeline safety recommendations. Between January 1, 2002, and June 1, 2010, the NTSB issued twenty-four pipeline recommendations to PHMSA. As of this date, nine remain open and fifteen have been closed following a NTSB assessment that PHMSA had taken an "acceptable action" or "acceptable alternate action" in response to the recommendation. None were closed with the categorization of "unacceptable action." Additionally, only one recommendation issued prior to 2002 remains open.

Noteworthy accomplishments by PHMSA include implementing regulations addressing integrity management programs for gas transmission pipelines, hazardous liquid pipelines, and natural gas distribution pipeline systems. Regulations and improved industry practices also are in place for expanded public awareness and education programs meant to heighten the awareness of the American public and regional emergency response agencies. The implementation of the 811 one-call system requires the identification and marking of buried pipelines before excavation work occurs.

Additionally, partnerships between the industry and PHMSA have led to a number of joint initiatives, such as development of training programs for public and municipal officials, enhanced collection and analysis of accident data, and greater coordination with state agencies that have been delegated enforcement authority by PHMSA for federal pipeline safety standards.

As a result of the NTSB's 2005 Safety Study, *Supervisory Control and Data Acquisition (SCADA) in Liquid Pipelines*, the Board issued Safety Recommendations P-05-1 through -3 which called on PHMSA to: (1) require hazardous liquid pipeline operators to follow the American Petroleum Institute's recommended practice for the use of graphics on SCADA computer screens, (2) require pipeline companies to have a policy for the review and audit of SCADA alarms, and (3) require training for pipeline controllers to include simulator or non-computerized simulations for controller recognition of abnormal operating conditions, particularly leak events. These three recommendations were also incorporated directly into the PIPES Act. PHMSA published a final rule on December 4, 2009 that included the recommended requirements and applied them to all pipeline systems.

Despite these notable and varied accomplishments, NTSB has concerns about certain other aspects of PHMSA's pipeline safety program. Two such areas specifically addressed in the PIPES Act are the regulation of low-stress pipeline systems and requirements for the use of excess flow valves.

Regulation of Low-Stress Pipeline Systems

Corrosion failures on the BP Exploration, Inc.'s, low-stress oil transit lines from the Prudhoe Bay oil fields to the Trans Alaska pipeline in 2006 raised concerns among Members of Congress about the potential pollution of environmentally sensitive areas. As a result, Congress included provisions in the PIPES Act mandating that PHMSA issue regulations subjecting low-stress hazardous liquid pipelines near unusually sensitive environmental areas to the same standards and regulations as other hazardous liquid pipelines. Low-stress pipelines are those that are operated at a stress level of 20 percent or less of their strength ratings.

At the time the PIPES Act was enacted, federal pipeline safety regulations only applied to low-stress pipelines that were located in populated areas, crossed navigable waterways, or carried highly volatile liquids, such as compressed liquefied propane. In a Notice of Proposed Rulemaking (NPRM), "Pipeline Safety: Protecting Unusually Sensitive Areas from Rural Onshore Hazardous Liquid Gathering Lines and Low-Stress Lines", published on September 6, 2006, PHMSA proposed regulations for rural low-stress pipelines that have a diameter of at least 8 5/8 inches and that are within 1/4 mile of an area defined as unusually sensitive. (The distance in the final rule is 1/2 mile.)

The NPRM also proposed regulations for rural gathering lines that operate at a stress level greater than 20 percent, have a diameter between 6 5/8 and 8 5/8 inches and are within 1/4 mile of an area defined as unusually sensitive. A "gathering line" is a pipeline with a diameter of 8 5/8 inches or less that transports petroleum from a production facility. Again, at the time the PIPES Act was enacted, only gathering lines in populated areas were subject to federal pipeline regulations.

Exempted from the proposed requirements in the NPRM were gathering lines in the inlets of the Gulf of Mexico. Certain gathering lines in inlets of the Gulf of Mexico are subject to burial requirements to ensure that the lines are not exposed and do not pose a hazard to navigation. Otherwise, they are not regulated.

In comments submitted by the NTSB on November 21, 2006, we note that most low-stress pipelines and on- and off-shore gathering pipelines would remain essentially unregulated. The NTSB also notes that the NPRM would apply a less stringent patchwork of requirements to address corrosion and excavation damages to those low-stress pipelines and gathering pipelines covered by the proposed standards. The NTSB states its belief that the standards codified in Title 49 Code of Federal Regulations, Part 195 for hazardous liquid pipelines should also apply in its entirety to the low-stress pipelines and gathering lines. PHMSA published the final rule on June 3, 2008, without significant change to the NPRM. Publication of this final rule concluded phase one of PHMSA's two phase plan to implement its PIPES mandate to regulate low-stress pipelines.

On June 22, 2010, PHMSA published a second NPRM regarding the regulation of all rural onshore hazardous liquid low-stress pipelines. This second NPRM represents phase two of PHMSA's implementation of its mandate in the PIPES Act. In this NPRM, PHMSA proposes safety requirements for all rural low-stress pipelines not included under the phase one final rule. Specifically, the low-stress pipelines captured under the new NPRM include (1) rural low-stress pipelines of a diameter less than 8 5/8 inches located in or within one-half mile of an unusually sensitive area and (2) all other rural low-stress pipelines that were not included under phase one. PHMSA estimates that the NPRM will apply to 1,384 miles of low-stress pipelines not covered by the previous rule. It appears this latest NPRM will apply to onshore gathering lines that are also low-stress pipelines. However, the NPRM does not address gathering lines in the inlets of the Gulf of Mexico or offshore gathering lines. The NTSB has not had the opportunity to evaluate fully the specific requirements proposed in the NPRM; however, we will submit comments to PHMSA.

The tragedy in the Gulf of Mexico involving the Deepwater Horizon drilling platform is a grim reminder of the damage that a major oil spill can cause. While the magnitude of the Deepwater Horizon spill is far greater than any known pipeline failure, the events in the Gulf should remind those involved in the pipeline industry that all pipelines must be sufficiently safeguarded and regulated in order to protect the public and the environment.

Integrity Management Programs for Distribution Systems and the Use of Excess Flow Valves

The PIPES Act also mandates that DOT prescribe minimum standards for integrity management programs for distribution pipeline systems. On June 25, 2008, PHMSA published a NPRM, "Integrity Management Program for Gas Distribution Pipelines", with proposed regulations that would require operators of gas distribution pipelines to develop and implement integrity management programs with the same objectives as the existing integrity management programs for hazardous liquid and gas transmission pipelines.

Integrity management programs for hazardous liquid and gas transmission pipelines typically require operators to assess the condition of their pipelines by using "in-line" inspection tools that travel through the pipeline to determine the nature and extent of any defects or pressure testing that yields information about the integrity of the pipeline. Such techniques are not

feasible for typical distribution pipeline systems because of the differences in the design and operating parameters between distribution pipeline systems and hazardous liquid and gas transmission pipelines.

Further, the failure of a distribution pipeline is often initially detected from reports of a gas leak rather than a catastrophic rupture. As result, development and implementation of an effective leak management program is an important element of an integrity management program for a distribution pipeline.

PHMSA acknowledged these differences in the NPRM and properly emphasized the importance of various leak detection methods as essential elements of an integrity management program for distribution pipeline systems.

In its comments on the NPRM, the NTSB emphasized that while an effective leak detection program is a crucial element of the overall leak management program, the use of equipment that prevents or mitigates leaks is equally important. One such device that mitigates a gas pipeline leak is an “excess flow valve.” An excess flow valve is a device installed on the distribution line, usually serving a user residence or facility, that detects an abnormally high flow rate, and when an excess flow is detected, automatically closes a valve, thus shutting off the flow of gas through the distribution line. The NPRM did not adequately address this aspect of leak management, other than incorporating the mandate for PHMSA to require excess flow valves on new or replacement distribution lines serving single family residences. PHMSA complied with this provision of the PIPES Act on December 4, 2009, when it published the final rule on integrity management programs for distribution pipeline systems.

The NTSB has long advocated the use of excess flow valves in gas distribution pipeline systems as an effective means of preventing explosions caused by natural gas leaking from distribution systems. On July 7, 1998, a natural gas explosion and fire destroyed a newly constructed residence in South Riding, Virginia, a suburb of Washington. The accident caused one fatality and one serious injury. The NTSB determined that the gas service line to the home had failed and that an uncontrolled release of gas had accumulated in the basement and subsequently ignited. The NTSB concluded from its investigation that had an excess flow valve been installed in the service line, the valve would have closed shortly after the hole in the service line developed and the explosion likely would not have occurred. The NTSB recommended that PHMSA require excess flow valves be installed in all new and renewed gas service lines, regardless of a customer’s classification, when the operating conditions are compatible with readily available valves. The NTSB believes that apartment buildings, other multifamily dwellings, and commercial properties are susceptible to the same risks from leaking gas lines as single-family residences, and we believe this gap in the law and the regulations should be eliminated.

Oversight of Integrity Management and Other Risk-Based Pipeline Safety Programs

Over the past decade or more, PHMSA has adopted a risk-based assessment approach for regulating the DOT pipeline safety program. PHMSA has successfully built a partnership with various facets of the pipeline industry to develop, implement and execute a multi-part pipeline

safety program. All stakeholders, including PHMSA, have, in the NTSB's view, come to rely heavily upon this approach. The NTSB believes that a risk-based approach can be an effective method to develop and execute the pipeline safety program, and there are many positive elements to PHMSA's approach.

The DOT pipeline safety regulations based on risk assessment principles provide the structure, content, and scope for many aspects of the overall pipeline safety program. Within this regulatory framework, pipeline operators have the flexibility and responsibility to develop their individual programs and plans, determine the specific performance standards, implement their plans and programs, and conduct periodic self-evaluations that best fit their particular pipeline systems. PHMSA likewise has the responsibility to review pipeline operators' plans and programs for regulatory compliance and effectiveness.

The NTSB believes that with the risk-based assessment there should be increased responsibilities on both the individual pipeline operators and PHMSA. Operators must diligently and objectively scrutinize the effectiveness of their programs, identify areas for improvement, and implement corrective measures. PHMSA, as the regulator, must also do the same in its audits of the operators' programs and in self-assessments of its own programs. In short, both operator and regulator need to verify whether risk-based assessments are being executed as planned, and more importantly, whether these programs are effective.

In its recent pipeline investigations, the NTSB discovered indications that PHMSA and operator oversight of risk-based assessment programs, specifically integrity management programs and public education programs, has been lacking and has failed to detect flaws and weaknesses in such programs.

In its investigation of the October 2004, rupture of an anhydrous ammonia pipeline near Kingman, Kansas, the NTSB identified deficiencies in PHMSA's auditing procedures when evaluating the operator's integrity management program. The operator did not include assessments of leak history when calculating relative risk scores for various segments of the pipeline. These relative risk scores were used to establish an initial baseline assessment of the integrity of the pipeline in the decision-making process for prioritizing the inspection schedule. Though PHMSA did find omissions of other risk factors during its review of the operator's integrity management program, PHMSA did not identify the omission of the leak history data during its initial review or during a subsequent review of the corrected plan. Consequently, the ruptured pipeline segment was not scheduled for a baseline assessment until 2006, almost 2 years after the October 27, 2004, rupture. The NTSB recommended that PHMSA require an operator to revise its pipeline risk assessment plan whenever it has failed to consider one or more risk factors that can affect pipeline integrity.

The November 1, 2007, rupture of a propane pipeline in Carmichael, Mississippi, resulted in two fatalities, seven injuries, and property damage exceeding \$3 million. Before the accident, the pipeline operator relied upon contractors to obtain accurate mailing data and ensure that mailings to the public were completed. However, the operator did not perform oversight to ensure that all appropriate recipients were on the mailing lists and that the mailings met appropriate regulatory requirements. The operator also had not taken any action to determine

whether recipients who received the mailings understood the guidance they contained. The NTSB determined that the pipeline operator failed to properly assess its public awareness and education program by relying upon contractors without appropriate oversight. The NTSB recommended that PHMSA initiate a program to evaluate pipeline operators' public education programs, including the operators' self-evaluations of the effectiveness of their public education programs.

On May 4, 2009, an 18-inch diameter gas transmission pipeline with an operating pressure of 850 psi ruptured near Palm City, Florida. The rupture was located in the Florida Turnpike right-of-way, between I-95 and the Florida Turnpike. The turnpike and interstate were closed for approximately 3 hours due to the accident. Two gas transmission pipelines operated by the same pipeline company were also located in the right-of-way but were reportedly not damaged.

The force of the released gas created a crater approximately 116.5 feet long by 17 feet wide by approximately 2.8 feet deep. Roughly 104 feet of the pipe was ejected from the ruptured pipeline and landed next to the crater. The closest edge of the crater was approximately 25 feet from the northbound paved edge of the Florida Turnpike.

There was no ignition of the released gas, and no fatalities were reported. However, two people were injured when their car reportedly hit debris, ran off the road, and turned over; a Deputy Sheriff was hospitalized after walking through a gas cloud; and the accident resulted in the evacuation of a nearby school and residential community.

The NTSB's ongoing investigation has determined that at the time of the accident, the operator had not identified the ruptured segment as located within a high consequence area, and therefore not covered by the operator's integrity management plan. However, an independent evaluation done by PHMSA at the NTSB's request shows the segment in fact is in a high consequence area. The NTSB is collecting documentation that will determine the cause of this error.

As a result of these investigations, the NTSB is concerned that the level of self-evaluation and oversight currently being exercised is not uniformly applied by some pipeline operators and PHMSA to ensure that the risk-based safety programs are effective. The NTSB believes that to ensure effective risk-based integrity management programs are employed throughout the pipeline industry, PHMSA must establish an aggressive oversight program that thoroughly examines each operator's decision-making process for each element of its integrity management program.

Recent Accidents in Texas

The two most recent pipeline accidents in Cleburne, Texas and Darrouzett, Texas involved third party excavation damage resulting in ruptures, fires, and explosions. Preliminary information from both investigations indicates that prior to the start of excavation activities, neither pipeline was marked or identified. Both investigations will determine the reasons why and how these lapses occurred.

Cleburne, TX Summary

On June 7, 2010, a natural gas transmission pipeline measuring 36-inches in diameter near Cleburne, Texas was struck and ruptured by a contractor for an electrical cooperative that was installing a pole for a power line. One member of the contractor's crew was drilling a hole while operating an auger affixed to a truck when the auger struck and punctured the transmission pipeline. An ignition and explosion of the escaping gas resulted, and the operator of the auger was killed. Six other crewmen were hospitalized.

The accident pipeline had a nominal wall thickness of 0.5-inch. The pipeline was operating at 950 psi at the time of the accident. The maximum allowable operating pressure is 1,050 psi. The pipeline, constructed in 1971, is 388 miles long, originating in Cohanosa, Texas and terminating in Ennis, Texas.

A second pipeline operated by a different pipeline company also traversed the accident area. Workmen in the area reported that they saw markers for the second pipeline. A NTSB investigator and Texas Railroad Commission personnel visiting the site also observed markers for the second pipeline, but the ruptured pipeline was not marked.

The NTSB is currently investigating this accident with the assistance of PHMSA and the Texas Railroad Commission (the state regulatory agency for pipeline safety).

Darrouzett, TX Summary

(The NTSB delegated the on-scene investigation of this accident to the Texas Railroad Commission, which is the state agency responsible for regulation of intrastate pipelines.)

On June 8, 2010, a natural gas non regulated gathering line measuring 14-inches was struck by a third party contractor near Darrouzett, Texas. The maximum allowable operating pressure of the gathering line was 700 psi; the line was operating at approximately 500 psi. The line begins in Follett, Texas, travels into Oklahoma, continues west and then returns to Texas near the Hansford/Sherman County area. The line is fed by many gathering lines in the area and ends at the plant in Sherman, Texas.

At the time of the incident, six contractor personnel were working in the area. Two persons were killed, one critically injured, and three others escaped injury. A bulldozer working in a caliche pit struck the 14-inch natural gas pipeline sometime before 4pm. The pipeline operator's SCADA system picked up a pressure loss and began closing valves to isolate the ruptured section of the pipeline. The fire was extinguished by 8 pm.

Preliminary information from the Texas Railroad Commission indicates that the excavator had not requested a permit to work in the area or that there were any pipeline markers at the accident scene. The accident gathering line is not regulated under DOT pipeline regulations.

PHMSA accident statistics over the past decade (2000-2009) identify corrosion as the leading cause of all reported pipeline accidents. The second leading reported cause is damage from third party excavators. Despite the focus on one-call systems, marking of pipelines prior to excavation, and other measures, the two accidents in Texas are a reminder that excavation damage remains a serious concern.

Closing

In summary, PHMSA has made great strides in addressing a number of matters mandated by Congress in the Pipeline Safety Improvement Act of 2002, as well as the Pipeline, Inspection, Protection, Enforcement and Safety Act of 2006. The NTSB believes more can be done in these areas and looks forward to a constructive dialogue with PHMSA and DOT as we advance the interests of pipeline safety, and thus the safety of people living and working near, and receiving service from, our nation's pipelines.

This concludes my testimony and I would be happy to answer any questions you may have.