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Good morning Chairman Carney and Ranking Member Bilirakis. My name is Paul Parfomak, Specialist in Energy and Infrastructure Policy at the Congressional Research Service (CRS). CRS appreciates the opportunity to testify here today about the federal role in pipeline security. At the committee's request, this testimony focuses on the evolution and current status of key agency responsibilities. In accordance with our enabling statutes, CRS takes no position on any related legislation.

Introduction

Nearly half a million miles of hazardous liquids and natural gas transmission pipeline crisscross the United States. These pipelines are integral to U.S. energy supply and have vital links to other critical infrastructure, such as power plants, airports, and military bases. While an efficient and fundamentally safe means of transport, many pipelines carry volatile, flammable, or toxic materials with the potential to cause public injury and environmental damage. The nation's pipeline networks are also widespread, running alternately through remote and densely populated regions; consequently, these systems are vulnerable to accidents and terrorist attack.

Congress has recently passed the Pipeline Safety Improvement Act of 2006 and the Implementing Recommendations of the 9/11 Commission Act of 2007, to improve pipeline safety and security practices. The 111th Congress is overseeing the implementation of these acts and considering new legislation related to the nation's pipeline network. Recent legislative proposals include the Transportation Security Administration Authorization Act (H.R. 2200), which would mandate a new federal pipeline security study regarding the roles and responsibilities of the Department of Homeland Security and the Department of Transportation with respect to pipeline security.

Pipeline Security Risks

Pipelines are vulnerable to vandalism and terrorist attack with firearms, with explosives, or by other physical means. Some pipelines may also be vulnerable to "cyber-attacks" on computer control systems or attacks on electricity grids or telecommunications networks.[1] Oil and natural gas pipelines have been a recent focus of terrorist activity overseas and in North America. For example, in January 2006, federal authorities reportedly acknowledged the discovery of a detailed posting on a website purportedly linked to Al Qaeda that encouraged attacks on U.S. pipelines, using weapons or hidden explosives.[2] In June, 2007, the U.S. Department of Justice arrested members of a terrorist group planning to attack jet fuel pipelines and storage tanks at the John F. Kennedy (JFK) International Airport in New York.[3] A Mexican rebel group detonated multiple bombs along Mexican oil and natural gas pipelines in July and September, 2007.[4] In November

[1] J.L. Shreeve, "Science & Technology: The Enemy Within," *The Independent*. London, UK, May 31, 2006, p. 8.
[2] W. Loy, "Web Post Urges Jihadists to Attack Alaska Pipeline," *Anchorage Daily News*, January 19, 2006.
[3] U.S. Dept. of Justice, "Four Individuals Charged in Plot to bomb John F. Kennedy International Airport," Press release, June 2, 2007.
[4] Reed Johnson, "Six Pipelines Blown Up in Mexico," *Los Angeles Times*, September 11, 2007. p A-3.

2007 a U.S. citizen was convicted of trying to conspire with Al Qaeda to attack the Trans Alaska Pipeline System and a major natural gas pipeline in the eastern United States.[5] Natural gas pipelines in British Columbia, Canada were bombed six times between October 2008 and July 2009 by unknown perpetrators.[6] To date, there have been no known Al Qaeda attacks on U.S. pipelines, but the threat of such attacks remains credible.

Although *accidental* releases from pipelines in the United States, on the whole, cause few annual fatalities compared to other product transportation modes, uncontrolled or intentional pipeline releases could be catastrophic in specific cases. For example, a 1999 gasoline pipeline accident in Bellingham, Washington, killed two children and an 18-year-old man, and caused $45 million in damage to a city water plant and other property. In 2000, a natural gas pipeline accident near Carlsbad, New Mexico, killed 12 campers, including four children.[7] In 2006, corroded pipelines on the North Slope of Alaska leaked over 200,000 gallons of crude oil in an environmentally sensitive area. In 2007, the release of anhydrous ammonia from a pipeline in Hillsborough County, Florida due to vandalism, severely burned the perpetrator and required an emergency evacuation of the surrounding community.[8] Such accidents have generated substantial scrutiny of pipeline regulation and increased state and community activity related to pipeline safety and security.[9]

The Early Federal Role in Pipeline Security

The Natural Gas Pipeline Safety Act of 1968 and the Hazardous Liquid Pipeline Act of 1979 are two of the key early acts establishing the federal role in pipeline operations. Under both statutes, the Department of Transportation (DOT) is given primary authority to regulate key aspects of interstate pipeline *safety*: design, construction, operation and maintenance, and spill response planning. To fulfill this mission, the DOT employs approximately 200 full-time equivalent pipeline safety staff, including field inspectors, based in Washington, D.C., Atlanta, Kansas City, Houston, and Denver.[10] In addition to its own staff, the DOT delegates authority to state pipeline safety offices for those sections of interstate pipelines within their boundaries.[11] Over 400 state pipeline safety inspectors are available in 2010.

Presidential Decision Directive 63, issued by the Clinton administration in 1998, assigned to the DOT lead responsibility for pipeline *security* as well.[12] Under this authority, after the terrorist attacks of September 11, 2001, the DOT conducted a vulnerability assessment to identify critical

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[5] U.S. Attorney's Office, Middle District of Pennsylvania, "Man Convicted of Attempting to Provide Material Support to Al-Qaeda Sentenced to 30 Years' Imprisonment," Press release, November 6, 2007; A. Lubrano and J. Shiffman, "Pa. Man Accused of Terrorist Plot," *Philadelphia Inquirer*, February 12, 2006, p. A1.

[6] Elise Stolte, "EnCana Puts Record $1M on Bomber's Head," *Edmonton Journal*, July 31, 2009.

[7] National Transportation Safety Board, *Pipeline Accident Report* PAR-03-01, February 2003.

[8] Nicole Hutcheson and Abbie Vansickle, "Better Security Urged For Ammonia Pipeline," *St. Petersburg Times*, January 18, 2008.

[9] See, for example: Bellingham Herald Editorial Board, "Citizens Need Panel To Monitor Pipeline Safety," *Bellingham Herald* (WA), Januray 24, 2010; Janet Zink, "Fueling the Resistance," *St. Petersburg Times*, December 16, 2007; W. Loy, "Slope Mayor Questions Leak Detection," *Anchorage Daily News*, March 14, 2006; J. Nesmith and R. K. M. Haurwitz, "Pipelines: The Invisible Danger," *Austin American-Statesman*, July 22, 2001.

[10] U.S. Office of Management and Budget, *Budget of the United States Government, Fiscal Year 2011: Appendix*, February 2010, p. 989.

[11] 49 U.S.C. 601. States may recover up to 50% of their costs for these programs from the federal government.

[12] Presidential Decision Directive 63, *Protecting the Nation's Critical Infrastructures*, May 22, 1998.

pipeline facilities and worked with industry groups and state pipeline safety organizations to assess the industry's readiness to prepare for, withstand, and respond to a terrorist attack.[13] Together with the Department of Energy and state pipeline agencies, the DOT promoted the development of consensus standards for security measures tiered to correspond with the five levels of threat warnings issued by the Office of Homeland Security.[14] The DOT also developed protocols for inspections of critical facilities to ensure that operators implemented appropriate security practices. To convey emergency information and warnings, the DOT established a variety of communication links to key staff at the most critical pipeline facilities throughout the country. The DOT also began identifying near-term technology to enhance deterrence, detection, response, and recovery, and began seeking to advance public and private sector planning for response and recovery.[15]

In September 2002, the DOT circulated formal guidance developed in cooperation with the pipeline industry associations defining the agency's security program recommendations and implementation expectations. This guidance recommended that operators identify critical facilities, develop security plans consistent with prior trade association security guidance, implement these plans, and review them annually.[16] While the guidance was voluntary, the DOT expected compliance and informed operators of its intent to begin reviewing security programs within 12 months, potentially as part of more comprehensive safety inspections.[17]

Transferring Pipeline Security to TSA

In 2001, President Bush signed the Aviation and Transportation Security Act, placing the DOT's pipeline security authority within the department's newly established Transportation Security Administration (TSA). The act specified for TSA a range of duties and powers related to general transportation security, such as intelligence management, threat assessment, mitigation, security measure oversight and enforcement, among others. President Bush subsequently signed the Homeland Security Act of 2002 transferring TSA to the newly established Department of Homeland Security (DHS). In December 2003, President Bush issued Homeland Security Presidential Directive 7 maintaining DHS as the lead agency for pipeline security and instructing the DOT to "collaborate in regulating the transportation of hazardous materials by all modes (including pipelines)."

In 2003, among other pipeline-related initiatives, TSA initiated its ongoing Corporate Security Review (CSR) program as the centerpiece of its pipeline security activities. Under the CSR program, the agency visits the largest pipeline and natural gas distribution operators to review their security plans and inspect their facilities. During the reviews, TSA evaluates whether each company is following the intent of the DOT's security guidance as updated by TSA. TSA has completed CSR's covering all of the largest 100 pipeline systems (84% of total U.S. energy pipeline throughput) and had completed revisits of 41 systems determined to be at highest

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[13] Research and Special Programs Administration (RSPA), *RSPA Pipeline Security Preparedness*, December 2001.

[14] Ellen Engleman, Administrator, Research and Special Programs Administration (RSPA), statement before the Subcommittee on Energy and Air Quality, House Energy and Commerce Committee, March 19, 2002.

[15] Ellen Engleman, Administrator, Research and Special Programs Administration (RSPA), statement before the Subcommittee on Highways and Transit, House Transportation and Infrastructure Committee, February 13, 2002.

[16] James K. O'Steen, Research and Special Programs Administration (RSPA), *Implementation of RSPA Security Guidance*, presentation to the National Association of Regulatory Utility Commissioners, February 25, 2003.

[17] Office of Pipeline Safety (OPS), personal communication, June 10, 2003.

security risk. The agency plans to conduct 12 additional reviews in 2010.[18] According to TSA, recent results indicate that the majority of U.S. pipeline systems "do a good job in regards to pipeline security" although there are areas in which pipeline security can be improved.[19] Past corporate security reviews have identified inadequacies in some company security programs such as not updating security plans, lack of management support, poor employee involvement, inadequate threat intelligence, and employee apathy or error.[20]

In January, 2007 testimony before Congress, the TSA Administrator stated that the agency intended to conduct a pipeline infrastructure study to identify the "highest risk" pipeline assets, building upon such a list developed through the CSR program. He also stated that the agency would use its ongoing security review process to determine the future implementation of baseline risk standards against which to set measurable pipeline risk reduction targets.[21] Provisions in the Implementing Recommendations of the 9/11 Commission Act of 2007 required TSA, in consultation with the DOT, to develop a plan for the federal government to provide increased security support to the "most critical" pipelines at high or severe security alert levels and when there is specific security threat information relating to such pipeline infrastructure. The act also required a recovery protocol plan in the event of an incident affecting the interstate and intrastate pipeline system. According to TSA, a draft plan has been completed and is currently under review in the TSA/DHS clearance process.[22]

The Relationship Between DOT and TSA

Congress has long had concerns about the appropriate division of pipeline security authority between the DOT and TSA.[23] Both the DOT and TSA have played important roles in the federal pipeline security program, with TSA the designated lead agency since 2002. In 2004, the DOT and DHS entered into a memorandum of understanding (MOU) concerning their respective security roles in all modes of transportation. The MOU notes that DHS has the primary responsibility for transportation security with support from the DOT, and establishes a general framework for cooperation and coordination. On August 9, 2006, the departments signed an annex "to delineate clear lines of authority and responsibility and promote communications, efficiency, and nonduplication of effort through cooperation and collaboration between the parties in the area of transportation security."[24]

In January, 2007, DOT officials testified before Congress that the agency had established a joint working group with TSA "to improve interagency coordination on transportation security and safety matters, and to develop and advance plans for improving transportation security,"

[18] Transportation Security Administration, Personal communication, February 2, 2010.
[19] Ibid.
[20] Mike Gillenwater, TSA, "Pipeline Security Overview," Presented to the Alabama Public Service Commission Gas Pipeline Safety Seminar, Montgomery, AL, December 11, 2007.
[21] Hawley, Kip, Asst. Secretary, Dept. of Homeland Security, Testimony before the Senate Committee on Commerce, Science, and Transportation hearing on Federal Efforts for Rail and Surface Transportation Security, January 18, 2007.
[22] Transportation Security Administration, personal communication, February 2, 2010
[23] For example, see Hon. William J. Pascrell, Jr., statement at the House Committee on Transportation and Infrastructure, Subcommittee on Highways, Transit and Pipelines, hearing on Pipeline Safety, March 16, 2006.
[24] Transportation Security Admin. and Pipelines and Hazardous Materials Safety Admin., "Transportation Security Administration and Pipelines and Hazardous Materials Safety Administration Cooperation on Pipelines and Hazardous Materials Transportation Security," August 9, 2006.

presumably including pipeline security.[25] According to TSA, the working group developed a multi-year action plan specifically delineating roles, responsibilities, resources and actions to execute 11 program elements: identification of critical infrastructure/key resources and risk assessments; strategic planning; developing regulations and guidelines; conducting inspections and enforcement; providing technical support; sharing information during emergencies; communications; stakeholder relations; research and development; legislative matters; and budgeting.[26] Nonetheless, a DOT Inspector General (IG) assessment published May 2008 was not satisfied with this plan. The IG report states that, although the agencies

> have taken initial steps toward formulating an action plan to implement the provisions of the pipeline security annex.... further actions need to be taken with a sense of urgency because the current situation is far from an "end state" for enhancing the security of the Nation's pipelines.[27]

The assessment recommended that the DOT and TSA finalize and execute their security annex action plan, clarify their respective roles, and jointly develop a pipeline security strategy that maximizes the effectiveness of their respective capabilities and efforts.[28] According to TSA, working with the DOT "improved drastically" after the release of the IG report; the two agencies began maintaining daily contact, sharing information in a timely manner, and collaborating on security guidelines and incident response planning.[29] TSA and the DOT "continue to enjoy a 24/7 communication and coordination relationship in regards to all pipeline security and safety incidents."[30]

Key Policy Issues

While TSA and the DOT appear to have improved their cooperation under the terms of the pipeline security annex, key questions remain regarding what this cooperation entails and the ongoing roles of the two agencies with respect to pipeline security. In this context, two specific issues may warrant further congressional consideration, 1) TSA's pipeline security resources and 2) potential pipeline security regulations.

TSA Pipeline Security Resources

Some members of Congress have been critical in the past of TSA's funding of non-aviation security activities, including pipeline activities. For example, as one Member remarked in 2005, "aviation security has received 90% of TSA's funds and virtually all of its attention. There is simply not enough being done to address ... pipeline security."[31] With respect to pipeline security funding, little may have changed since 2005. The President's FY2011 budget request for DHS does not include a separate line item for TSA's pipeline security activities. The budget request does include a $137.6 million line item for "Surface Transportation Security," which encompasses

[25] Barrett, T.J., Administrator, Pipeline and Hazardous Materials Safety Administration (PHMSA), Testimony before the Senate Committee on Commerce, Science, and Transportation hearing on Federal Efforts for Rail and Surface Transportation Security, January 18, 2007.
[26] Transportation Security Administration, Pipeline Security Division, personal communication, July 6, 2007.
[27] U.S. Dept. of Transportation, Office of Inspector General, *Actions Needed to Enhance Pipeline Security, Pipeline and Hazardous Materials Safety Administration*, Report No. AV-2008-053, May 21, 2008, p. 3.
[28] Ibid. pp. 5-6.
[29] Transportation Security Administration, Personal communication, February 2, 2010.
[30] TSA, Pipeline Security Division, personal communication, July 6, 2007.
[31] Sen. Daniel K. Inouye, opening statement before the Senate Committee on Commerce, Science and Transportation, hearing on the President's FY2006 Budget Request for the Transportation Security Administration (TSA), February 15, 2005.

security activities in non-aviation transportation modes, including pipelines.[32] TSA's pipeline division has traditionally received from the agency's general operational budget an allocation for routine operations, travel, and outreach. The budget currently funds 13 full-time equivalent staff to conduct pipeline security inspections, maintain TSA's pipeline asset database, support TSA's multi-modal risk models, develop new security standards, and issue regulations, as required.[33]

At its current staffing level, TSA's pipelines division has limited field presence for inspections and possible enforcement under the current voluntary standards or future regulations. In conducting a pipeline corporate security review, for example, TSA typically sends one to three staff to hold a three to four hour interview with the operator's security representatives followed by a visit to only one or two of the operator's pipeline assets.[34] There is concern by some that the agency's CSRs as currently structured may not allow for rigorous security plan verification nor a credible threat of enforcement, so operator compliance with security guidance may be inadequate. The limited number of CSR's the agency can complete in a year is also a concern to some, even within TSA. According to a 2009 Government Accountability Office report, "TSA's pipeline division stated that they would like more staff in order to conduct its corporate security reviews more frequently," in part because other staff responsibilities such as "analyzing secondary or indirect consequences of a terrorist attack and developing strategic risk objectives required much time and effort."[35]

TSA's handful of field inspection staff stands in contrast to the hundreds of inspection staff available to the DOT at the federal and state levels. Given this disparity, it is logical to consider whether DOT's field staff, who are charged with inspecting the same pipeline systems as TSA, could somehow be deployed to help fulfill the nation's pipeline security objectives. The question also arises whether having separate inspections of the same pipeline systems for safety and security may be inherently inefficient, or may miss an opportunity for more frequent or thorough examination of pipeline security.

Pipeline Security Regulations

Federal pipeline security activities to date have relied upon voluntary industry compliance with DOT security guidance and TSA security best practices. By initiating this voluntary approach in 2002, DOT sought to speed adoption of security measures by industry and avoid the publication of sensitive security information (e.g., critical asset lists) that would normally be required in public rulemaking.[36] However, the 9/11 Commission Act of 2007 directs TSA to promulgate pipeline security regulations and carry out necessary inspection and enforcement—if the agency determines that regulations are appropriate. Addressing this issue, the 2008 IG report states that "TSA's current security guidance ... remains unenforceable unless a regulation is issued to require industry compliance.[37]

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[32] U.S. Office of Management and Budget, *Budget of the United States Government, Fiscal Year 2011: Appendix*, February 2010, p.526.
[33] Transportation Security Administration, Pipeline Security Division, personal communication, February 2, 2010.
[34] Department of Homeland Security, "Intent to Request Approval from OMB of One New Public Collection of Information: Pipeline Corporate Security Review," 74 *Federal Register* 42086, August 20, 2009.
[35] U.S. Government Accountability Office, *Transportation Security: Comprehensive Risk Assessments and Stronger Internal Controls Needed to Help Infrom TSA Resource Allocation*, GAO-09-492, March 2009, p. 30, http://www.gao.gov/new.items/d09492.pdf.
[36] GAO, *Pipeline Security and Safety: Improved Workforce Planning and Communication Needed*, GAO-02-785, August 2002, p. 22.
[37] U.S. Dept. of Transportation, Office of Inspector General, May 21, 2008, p. 6.

Although TSA's FY2005 budget justification stated that the agency would "issue regulations where appropriate to improve the security of the [non-aviation transportation] modes," the agency has not done so for pipelines, and is not currently working on such regulations.[38] The pipelines industry has expressed concern that new security regulations and related requirements may be "redundant" and "may not be necessary to increase pipeline security."[39] The DOT has testified in the past that enhancing security "does not necessarily mean that we must impose regulatory requirements."[40] TSA officials have also questioned the IG assertions regarding pipeline security regulations, arguing that the agency is complying with the letter of its statutory requirements and that its pipeline operator security reviews are more than paper reviews.[41]

Unlike maintaining voluntary standards, developing pipeline security regulations—with provisions for pipeline operations, inspection, reporting, and enforcement—would involve a complex and potentially contentious rulemaking process involving multiple stakeholders. Should Congress choose to mandate the promulgation of such regulations, it is not clear that TSA's pipeline security division as currently configured would be up to the task. Indeed, the agency's relatively limited proposal last year to collect security-related information from pipeline operators, including reports about security incidents, was criticized by some in the pipeline industry as potentially exposing them to civil liability and including "overbroad and unnecessary data categories," especially with respect to "suspicious" activity, which TSA did not clearly define.[42] By comparison, the DOT has a history of developing, enforcing and updating extensive pipeline safety regulations. Notwithstanding this well-established regulatory infrastructure, given the division of pipeline authority between the agencies and their cooperative agreement, it is not clear that TSA could draw upon the regulatory capabilities of the DOT should new pipeline security regulations be required.

Conclusion

Both government and industry have taken numerous steps to improve pipeline security since 2001. While the DOT and TSA have distinct missions, pipeline safety and security are intertwined. As oversight of the federal role in pipeline security continues, questions may be raised concerning the relationship between DHS and the DOT with respect to pipeline security. In particular, given the limited staff in TSA's pipeline security division, and the comparatively large pipeline safety staff in the DOT, Congress may consider whether the agencies' pipeline security annex optimally aligns staff resources across both agencies to fulfill the nation's overall pipeline safety and security mission. In addition to these specific issues, Congress may wish to assess how the various elements of U.S. pipeline safety and security activity fit together in the nation's overall strategy to protect transportation infrastructure. For example, diverting pipeline resources away from safety to enhance security might further reduce terror risk, but not overall pipeline

[38] Department of Homeland Security (DHS), *Transportation Security Administration Fiscal Year 2005 Congressional Budget Justification*, Washington, DC, February 2, 2004, p. 20; TSA, Pipeline Security Division, personal communication, February 17, 2009.
[39] American Gas Association (AGA), American Petroleum Institute (API), Association of Oil Pipelines (AOPL), and American Public Gas Association (APGA), joint letter to members of the Senate Commerce Committee providing views on S. 1052, August 22, 2005.
[40] Barrett, T.J. January 18, 2007.
[41] Sammon, John, Transportation Security Administration, Testimony before the House Transportation and Infrastructure Committee, Railroad, Pipelines, and Hazardous Materials Subcommittee hearing on Implementation of the Pipeline Inspection, Protection, Enforcement, and Safety Act of 2006, June 24, 2008.
[42] Interstate Natural Gas Association of America, "Re: Intent to Request Approval from OMB of One New Public Collection of Information: Pipeline Operator Security Information," Letter to the Transportation Security Administration, September 28, 2009, http://www.ingaa.org/cms/30/9093.aspx.

risk, if safety programs become less effective as a result. Pipeline safety and security necessarily involve many groups: federal agencies, oil and gas pipeline associations, large and small pipeline operators, and local communities. Reviewing how these groups work together to achieve common goals could be an oversight challenge for Congress.