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Pipeline Safety and Security: Federal Programs

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Summary

Nearly half a million miles of oil and gas transmission pipeline crisscross the United States. While an efficient and fundamentally safe means of transport, many pipelines carry volatile or flammable 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. The 107th Congress passed legislation to improve pipeline safety and security practices, and to provide federal oversight of operator security programs (P.L. 107-355, P.L. 107-71, P.L. 107-296). The 109th Congress is examining the progress of these efforts as it considers reauthorization of the federal Office of Pipeline Safety and proposals such as those in the Transportation Security Improvement Act of 2005 (S. 1052) to expand the pipeline security activities of the Transportation Security Administration.

The Office of Pipeline Safety (OPS), within the Department of Transportation (DOT), is the lead federal regulator of pipeline safety. The OPS uses a variety of strategies to promote compliance with its safety regulations, including inspections, investigation of safety incidents, and maintaining a dialogue with pipeline operators. The agency clarifies its regulatory expectations through a range of communications and relies upon a range of enforcement actions to ensure that pipeline operators correct safety violations and take preventive measures to preclude future problems. The Transportation Security Administration (TSA), within the Department of Homeland Security (DHS), is the lead federal agency for security in all modes of transportation — including pipelines. The agency oversees industry's identification and protection of pipelines by developing security standards; implementing measures to mitigate security risk; building stakeholder relations; and monitoring compliance with security standards, requirements, and regulation. While the OPS and TSA have distinct missions, pipeline safety and security are intertwined.

Federal activities in pipeline safety and security are evolving. Although pipeline impacts on the environment remain a concern of some public interest groups, both federal government and industry representatives suggest that federal pipeline programs have been on the right track. As oversight of the federal role in pipeline safety and security continues, questions may be raised concerning the relative pipeline security roles of DHS and the DOT, funding for federal pipeline programs, the need for new federal pipeline security regulations, and particular provisions in federal pipeline safety regulation. 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.

This report will be updated as events warrant.

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Pipeline Safety and Security: Federal Programs

Introduction¹

Nearly half a million miles of oil and gas transmission pipeline crisscross the United States.² 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 or flammable 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. The 107th Congress passed legislation to improve pipeline safety and security practices, and to provide federal oversight of operator security programs (P.L. 107-355, P.L. 107-71, P.L. 107-296). The 109th Congress is examining the progress of these efforts as it considers reauthorization of the federal Office of Pipeline Safety and proposals such as those in the Transportation Security Improvement Act of 2005 (S. 1052) to expand the pipeline security activities of the Transportation Security Administration.

Pipeline Industry Characteristics

Roughly 160,000 miles of oil pipeline in the United States carry over 75% of the nation's crude oil and around 60% of its refined petroleum products.³ Some 180 companies operate the *interstate* lines, which account for roughly 80% of total pipeline mileage and transported volume.⁴ The U.S. natural gas pipeline network consists of around 210,000 miles of *interstate* transmission, 85,000 miles of *intrastate* transmission, and 40,000 miles of field and gathering pipeline, which connect gas extraction wells to processing facilities. Around 100 systems make up the *interstate* network. Another 90 or so systems operate strictly within individual states.⁵ These *interstate* and *intrastate* gas transmission pipelines feed around 1.1

¹ Parts of this report were previously published in CRS Report RL31990, *Pipeline Security: An Overview of Federal Activities and Current Policy Issues*, by Paul W. Parfomak.

² Bureau of Transportation Statistics (BTS), *National Transportation Statistics 2005*, Dec. 2005, Table 1-10. In this report "oil" includes petroleum and other hazardous liquids such as gasoline, jet fuel, diesel fuel, and propane, unless otherwise noted.

³ BTS, Dec. 2005, Table 1-10.

⁴ C. J. Trench, *How Pipelines Make the Oil Market Work — Their Networks, Operation and Regulation*. For Assoc. of Oil Pipelines, Allegro Energy Group, New York, Dec. 2001.

⁵ James Tobin, *Changes in U.S. Natural Gas Transportation Infrastructure in 2004*, Energy (continued...)

million miles of regional lines in some 1,300 local distribution networks.⁶ Natural gas pipelines also connect to 113 liquefied natural gas (LNG) storage sites, which augment pipeline gas supplies during peak demand periods.⁷

Pipeline Safety Record. Taken as a whole, releases from pipelines cause few annual fatalities compared to other product transportation modes. Oil pipelines reported an average of 1.4 deaths per year from 2000 to 2004; gas pipelines reported an average of 17.0 deaths per year during the same period.⁸ Accidental pipeline releases result from a variety of causes, including third-party excavation, corrosion, mechanical failure, control system failure, and operator error. Natural forces, such as floods and earthquakes, can also damage pipelines. According to the Department of Transportation (DOT), there were 124 oil pipeline accidents and 172 gas transmission pipeline accidents in 2005.⁹ Although pipeline releases have caused relatively few fatalities in absolute numbers, a single pipeline accident can be catastrophic. For example, a 1999 gasoline pipeline explosion 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 explosion near Carlsbad, New Mexico, killed 12 campers, including four children.¹⁰ In 2006, a damaged pipeline near Prudhoe, Alaska, leaked over 200,000 gallons of crude oil in an environmentally sensitive area. These accidents have generated substantial scrutiny of pipeline regulation and increased state and community activity related to pipeline safety.¹¹

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.¹² Oil and gas pipelines have been a target of terrorists outside and within the United States. In Colombia, for example, rebels have bombed the Caño Limón oil pipeline over 600 times since 1995.¹³ In

⁵ (...continued)

Information Administration (EIA), June 2005, p. 4.

⁶ BTS, Dec. 2005, Tables 1-2 and 1-10.

⁷ Energy Information Administration (EIA), *U.S. LNG Markets and Uses*, Jan. 2003, p. 1.

⁸ BTS, Dec. 2005, Table 2-46.

⁹ Office of Pipeline Safety (OPS), *Liquid Pipeline Accident Summary by Cause and Natural Gas Transmission Incident Summary by Cause*, Feb. 11, 2006.

¹⁰ National Transportation Safety Board, *Pipeline Accident Report* PAR-03-01, Feb. 2003.

¹¹ W. Loy, “Slope Mayor Questions Leak Detection,” *Anchorage Daily News*, Mar. 14, 2006; J. Nesmith and R. K. M. Haurwitz, “Pipelines: The Invisible Danger,” *Austin American-Statesman* (Austin, TX), July 22, 2001.

¹² S. Skolnik, “Local Sites Potential Targets for Cyberterror,” *Seattle Post-Intelligencer* (Seattle, WA), Sept. 2, 2002.

¹³ Government Accountability Office (GAO), *Security Assistance: Efforts to Secure Colombia’s Caño Limón-Coveñas Oil Pipeline Have Reduced Attacks, but Challenges Remain*, GAO-05-971, Sept. 2005, p. 15.

1996, London police foiled a plot by the Irish Republican Army to bomb gas pipelines and other utilities across the city.¹⁴ In 1997, Texas police prevented the bombing of natural gas storage tanks at a processing plant by Ku Klux Klan members seeking to create a diversion for a robbery (to finance other terrorist actions).¹⁵

Since September 11, 2001, federal warnings about Al Qaeda have mentioned pipelines specifically as potential terror targets in the United States.¹⁶ One U.S. pipeline of specific concern and with a history of terrorist and vandal activity is the Trans Alaska Pipeline System (TAPS), which transports crude oil from Alaska's North Slope oil fields to the marine terminal in Valdez. TAPS runs some 800 miles and delivers nearly 17% of United States domestic oil production.¹⁷ In 1999, Vancouver police arrested a man planning to blow up TAPS for personal profit in oil futures.¹⁸ In 2001, a vandal's attack on TAPS with a high-powered rifle forced a two-day shutdown and caused extensive economic and ecological damage.¹⁹ In January 2006, federal authorities acknowledged the discovery of a detailed posting on a website purportedly linked to Al Qaeda that reportedly encouraged attacks on U.S. pipelines, especially TAPS, using weapons or hidden explosives.²⁰ In February 2006, the Federal Bureau of Investigation arrested a U.S. citizen for trying to conspire with Al Qaeda to attack TAPS and a major natural gas pipeline in the eastern United States.²¹ To date, there have been no known Al Qaeda attacks on TAPS or other U.S. pipelines, but operators remain alert.

Office of Pipeline Safety

The Natural Gas Pipeline Safety Act of 1968 (P.L. 90-481) and the Hazardous Liquid Pipeline Act of 1979 (P.L. 96-129) are two of the key early acts establishing the federal role in pipeline safety. Under both statutes, the Transportation Secretary is given primary authority to regulate key aspects of interstate pipeline safety: design, construction, operation and maintenance, and spill response planning. Pipeline safety

¹⁴ President's Commission on Critical Infrastructure Protection, *Critical Foundations: Protecting America's Infrastructures*, Washington, DC, Oct. 1997.

¹⁵ S. A. Pressley, "Group Planned Massacre and Big Robbery, FBI Says," *Washington Post*, April 25, 1997, p. A02.

¹⁶ "Already Hard at Work on Security, Pipelines Told of Terrorist Threat," *Inside FERC*, McGraw-Hill Companies, Jan. 3, 2002.

¹⁷ Alyeska Pipeline Service Co., Internet page, Anchorage, AK, March 2006, at [<http://www.alyeska-pipe.com/about.html>].

¹⁸ D. S. Cloud, "A Former Green Beret's Plot to Make Millions Through Terrorism," *Ottawa Citizen*, Dec. 24, 1999, p. E15.

¹⁹ Y. Rosen, "Alaska Critics Take Potshots at Line Security," *Houston Chronicle*, Feb. 17, 2002.

²⁰ W. Loy, "Web Post Urges Jihadists to Attack Alaska Pipeline," *Anchorage Daily News*, Jan. 19, 2006.

²¹ A. Lubrano and J. Shiffman, "Pa. Man Accused of Terrorist Plot," *Philadelphia Inquirer*, Feb. 12, 2006, p. A1.

regulations are covered in Title 49 of the *Code of Federal Regulations*.²² The DOT administers pipeline regulations through the Office of Pipeline Safety (OPS) within the Pipelines and Hazardous Materials Safety Administration (PHMSA).²³ The OPS has approximately 170 staff, including 88 inspectors based in Washington, D.C., Atlanta, Kansas City, Houston, and Denver.²⁴ In addition to its own staff, the OPS's enabling legislation allows the agency to delegate authority to *intrastate* pipeline safety offices, and allows state offices to act as "agents" administering *interstate* pipeline safety programs (excluding enforcement) for those sections of *interstate* pipelines within their boundaries.²⁵ Over 400 state pipeline safety inspectors are available in 2006. The OPS safety program is funded primarily by user fees assessed on a per-mile basis on each regulated pipeline operator (49 U.S.C. § 60107). The President's FY2007 budget request for the OPS seeks \$75.7 million, an increase from \$73.0 million in FY2006.²⁶

The OPS uses a variety of strategies to promote compliance with its safety standards. The agency conducts physical inspections of facilities and construction projects; conducts programmatic inspections of management systems, procedures, and processes; investigates safety incidents; and maintains a dialogue with pipeline operators. The agency clarifies its regulatory expectations through a range of communications tools including published protocols and regulatory orders, guidance manuals, and public meetings. The OPS also relies upon a range of enforcement actions, including administrative actions and civil penalties, to ensure that pipeline operators correct safety violations and take preventive measures to preclude future safety problems.²⁷ According to a Government Accountability Office (GAO) analysis, between 1994 and 2004, the OPS took 1,430 enforcement actions against pipeline operators.²⁸ Civil penalties proposed by the OPS for pipeline safety violations in 2005 exceeded \$4 million.²⁹ The OPS also conducts accident investigations and systemwide reviews designed to focus on high-risk operational or procedural problems and areas of the pipeline near sensitive environmental areas or

²² Safety and security of liquefied natural gas (LNG) facilities used in gas pipeline transportation is regulated under CFR Title 49, Part 193.

²³ PHMSA succeeds the Research and Special Programs Administration (RSPA), reorganized under P.L. 108-246, which was signed by the President on Nov. 30, 2004.

²⁴ OPS phone directory, updated June 19, 2004, at [<http://ops.dot.gov/contact/phonelist.htm>].

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

²⁶ U.S. Office of Management and Budget (OMB), *Budget of the United States Government, Fiscal Year 2007 — Appendix*, Washington, DC, Feb. 2006, p. 894.

²⁷ Office of Pipeline Safety (OPS), "Enforcement," Internet page, Feb. 14, 2006, at [<http://primis.phmsa.dot.gov/comm/Enforcement.htm>].

²⁸ Government Accountability Office (GAO), *Pipeline Safety: Management of the Office of Pipeline Safety's Enforcement Program Needs Further Strengthening*, GAO-04-80 July 2004, p. 26.

²⁹ B. McCown, Pipeline and Hazardous Materials Safety Admin., statement before the House Committee on Transportation and Infrastructure, Subcommittee on Highways, Transit and Pipelines, hearing on Pipeline Safety, March 16, 2005.

high-density populations. To improve its regulations and activities, the agency conducts a research program funded at \$13 million in FY2006.

Since 1997, the OPS has increasingly encouraged industry's implementation of "integrity management" programs on pipeline segments near "high consequence" areas. Integrity management provides for continual evaluation of pipeline condition; assessment of risks to the pipeline; inspection or testing; data analysis; and followup repair, as well as preventive or mitigative actions. High-consequence areas include population centers, commercially navigable waters, and environmentally sensitive areas, such as drinking water supplies or ecological reserves. The integrity management approach directs priority resources to locations of highest consequence rather than applying uniform treatment to the entire pipeline network.³⁰ The OPS made integrity management programs mandatory for most operators with 500 or more miles of regulated oil pipeline as of March 31, 2001 (49 C.F.R. § 195).

Pipeline Safety Improvement Act of 2002. On December 12, 2002, President Bush signed into law the Pipeline Safety Improvement Act of 2002 (P.L. 107-355). The act reauthorizes funding for the OPS through FY2006. It also strengthens federal pipeline safety programs, state oversight of pipeline operators, and public education regarding pipeline safety.³¹ Among other provisions, P.L. 107-355 requires operators of regulated gas pipelines in high-consequence areas to conduct risk analysis and implement integrity management programs similar to those required for oil pipelines. The act authorizes the DOT to order safety actions for pipelines with potential safety problems (Sec. 7) and increases violation penalties (Sec. 8). The act attempts to streamline the permitting process for emergency pipeline restoration by establishing an interagency committee, including the DOT, the Environmental Protection Agency, the Bureau of Land Management, the Federal Energy Regulatory Commission, and other agencies, to ensure coordinated review and permitting of pipeline repairs (Sec. 16). The act authorizes \$100 million for research and development in pipeline integrity, safety, reliability, and security (Sec. 12). It requires DOT to study ways to limit pipeline safety risks from population encroachment and ways to preserve environmental resources in pipeline rights-of-way (Sec. 11). P.L. 107-355 also includes provisions for public education, grants for community pipeline safety studies, "whistle blower" and other employee protection, employee qualification programs, and mapping data submission.

OPS Pipeline Security Activities. Presidential Decision Directive 63 (PDD-63), issued during the Clinton administration, assigned lead responsibility for

³⁰ Research and Special Programs Administration (RSPA), *Pipeline Safety. Pipeline Integrity Management in High Consequence Areas (Hazardous Liquid Operators with 500 or More Miles of Pipeline)*, *Federal Register*, Dec. 1, 2000, p. 75378.

³¹ P.L. 107-355 encourages the implementation of state "one-call" excavation notification programs (Sec. 2) and allows states to enforce "one-call" program requirements. The act expands criminal responsibility for pipeline damage to cases where damage was not caused "knowingly and willfully" (Sec. 3). The act adds provisions for ending federal-state pipeline oversight partnerships if states do not comply with federal requirements (Sec. 4).

pipeline security to the DOT.³² At the time, these responsibilities fell to the OPS, since the agency was already addressing some elements of pipeline security in its role as safety regulator. In 2002, the OPS conducted a vulnerability assessment to identify critical 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...”³³ Together with the Department of Energy and state pipeline agencies, the OPS 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.³⁴ The OPS also developed protocols for inspections of critical facilities to ensure that operators implemented appropriate security practices. To convey emergency information and warnings, the OPS established a variety of communication links to key staff at the most critical pipeline facilities throughout the country. The OPS 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.³⁵

On September 5, 2002, The OPS 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.³⁶ While the guidance was voluntary, the OPS expected compliance and informed operators of its intent to begin reviewing security programs within 12 months, potentially as part of more comprehensive safety inspections.³⁷

Transportation Security Administration

In November 2001, President Bush signed the Aviation and Transportation Security Act (P.L. 107-71) establishing the Transportation Security Administration (TSA) within the DOT. According to TSA, the act placed the DOT’s pipeline security authority (under PDD-63) within 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. On November 25, 2002, President Bush signed the Homeland Security Act of 2002 (P.L. 107-296) creating the Department of Homeland Security (DHS). Among other provisions, the act transferred to DHS the

³² Presidential Decision Directive 63, *Protecting the Nation’s Critical Infrastructures*, May 22, 1998.

³³ RSPA, *RSPA Pipeline Security Preparedness*, Dec. 2001.

³⁴ Ellen Engleman, RSPA Administrator, statement before the Subcommittee on Energy and Air Quality, House Energy and Commerce Committee, Mar. 19, 2002.

³⁵ Ellen Engleman, RSPA Administrator, statement before the Subcommittee on Highways and Transit, House Transportation and Infrastructure Committee, Feb. 13, 2002.

³⁶ James K. O’Steen, RSPA, *Implementation of RSPA Security Guidance*, presentation to the National Association of Regulatory Utility Commissioners, Feb. 25, 2003.

³⁷ Office of Pipeline Safety (OPS), personal communication, June 10, 2003.

Transportation Security Administration from the DOT (Sec. 403). On December 17, 2003, President Bush issued Homeland Security Presidential Directive 7 (HSPD-7), clarifying executive agency responsibilities for identifying, prioritizing, and protecting critical infrastructure. HSPD-7 maintains DHS as the lead agency for pipeline security (par. 15), and instructs the DOT to “collaborate in regulating the transportation of hazardous materials by all modes (including pipelines)” (par. 22h). The order also requires that DHS and other federal agencies collaborate with “appropriate private sector entities” in sharing information and protecting critical infrastructure (par. 25). HSPD-7 supersedes PDD-63 (par. 37). Pipeline security activities at TSA are led by the Pipeline Security Program Office (PSPO) within the agency’s Intermodal Security Program Office.³⁸

TSA Pipeline Security Activities. In 2003, TSA initiated its Corporate Security Review (CSR) program, wherein the agency visits the largest pipeline and natural gas distribution operators to review their security plans and inspect their facilities. (The OPS participated with TSA in a number of security reviews in 2003, but has not done so since then.³⁹) During the reviews, TSA evaluates whether each company is following the intent of the OPS security guidance, and seeks to collect the list of assets each company had identified meeting the criteria established for critical facilities. In 2004, the DOT reported that the plans reviewed to date (approximately 25) had been “judged responsive to the OPS guidance.”⁴⁰ As of March 2006, TSA had completed 51 CSR reviews, with a goal of one per month through the rest of the year.⁴¹ According to TSA, virtually all of the companies reviewed through 2005 had developed security plans, identified critical assets, and conducted background checks on new employees. Most had also implemented employee security training programs and raised local community and law enforcement awareness of pipeline security as part of their emergency response obligations. The TSA reviews also identified inadequacies in some company security programs such as poor access controls, deficient security equipment, lack of real-time threat information, and irregular security exercises.⁴²

In addition to its CSR program, TSA has engaged in a number of other pipeline security activities. The TSA has worked to establish qualifications for personnel seeking unrestricted access to critical pipeline assets and maintains its own inventory of critical pipeline infrastructure.⁴³ The agency has also addressed legal issues regarding recovery from terrorist attacks, such as FBI control of crime scenes and

³⁸ The PSPO was formerly known the Pipelines Branch of the TSA’s Office of Maritime and Land Security (OMLS). On February 7, 2005, TSA disbanded the OMLS reassigning its pipeline employees to the PSPO under the agency’s new organizational structure.

³⁹ OPS, personal communication, April 19, 2005.

⁴⁰ Department of Transportation (DOT), “Action Taken and Actions Needed to Improve Pipeline Safety,” CC-2004-061, June 16, 2004, p. 21.

⁴¹ TSA, Intermodal Security Program Office, personal communication, Mar. 12, 2006.

⁴² TSA, Intermodal Security Program Office, presentation to the DGC Homeland Security Conference, Alexandria, VA, Dec. 7, 2005. pp. 18-20.

⁴³ TSA, *TSA Multi-Modal Criticality Evaluation Tool*, TSA Threat Assessment and Risk Management Program, slide presentation, April 15, 2003.

eminent domain in pipeline restoration. In 2004, TSA led a cross-border pipeline system vulnerability assessment with other U.S. federal agencies and Natural Resources Canada.⁴⁴ In January 2005, TSA joined with the Department of Energy and the Federal Energy Regulatory Commission to establish the Energy Government Coordinating Council (EGCC) under provisions in HSPD-7. The EGCC's mission is to work with its industry counterpart to coordinate critical infrastructure protection programs in the energy sector and to facilitate the sharing of security information. In October 2005, TSA issued an overview of recommended security practices for pipeline operators "for informational purposes only ... not intended to replace security measures already implemented by individual companies."⁴⁵

According to TSA, the Pipeline Security Program Office's current pipeline security mission includes developing security standards; implementing measures to mitigate security risk; building and maintaining stakeholder relations, coordination, education and outreach; and monitoring compliance with security standards, requirements, and regulations.⁴⁶ The President's FY2007 budget request for DHS does not include a separate line item for TSA's pipeline security activities. The budget request does include a \$37 million line item for "Surface Transportation Security," which encompasses all security activities in non-aviation transportation modes, including pipelines.⁴⁷ The PSPO has traditionally received from the agency's general operational budget an allocation for routine operations such as regulation development, travel, and outreach. According to the PSPO, the current budget funds 11 full-time staff, an increase of six staff from FY2004. These staff will maintain TSA's asset database, support TSA's multi-modal risk models, develop new security standards, and issue regulations as required. In addition, TSA staff will conduct pipeline security inspections and enforce any future security regulations.⁴⁸

Key Legislative Issues

The 109th Congress will be considering legislation to reauthorize the OPS and to amend pipeline security law. The Transportation Security Improvement Act of 2005 (S. 1052) and anticipated reauthorization hearings may provide an opportunity to consider several key issues associated with federal pipeline safety and security programs.

⁴⁴ TSA, Intermodal Security Program Office, personal communication, Mar. 12, 2006.

⁴⁵ TSA, Intermodal Security Program Office, *Pipeline Security Best Practices*, Oct. 19, 2005, p. 1.

⁴⁶ Transportation Security Administration (TSA), Web page, "Office of Intermodal Programs," Feb. 14, 2006, at [http://www.tsa.gov/interweb/assetlibrary/TSAContact_IntermodalPrograms.htm].

⁴⁷ U.S. Office of Management and Budget (OMB), *Budget of the United States Government, Fiscal Year 2005 — Appendix*, Washington, DC, Feb. 2, 2004, p. 485.

⁴⁸ TSA, personal communication, Feb. 4, 2004.

OPS Safety Enforcement

A 2004 report by the Government Accountability Office (GAO) examining OPS's safety enforcement strategy concluded that the effectiveness of the strategy could not be determined because OPS's program had not incorporated "clear program goals, a well-defined strategy for achieving those goals, and performance measures linked to the program goals."⁴⁹ In response to these conclusions, the OPS stated that it would better define its enforcement strategy, including the assessment of civil penalties, and identify new measures of enforcement performance before the end of 2005.⁵⁰ In 2006 testimony before Congress, the GAO reported that the OPS had recently adopted measures that appeared to be responsive to the agency's earlier concerns, although the GAO had not reviewed the strategy or its implementation in depth.⁵¹ Accordingly, Congress may examine whether the OPS has implemented the expected enforcement changes and how these changes have affected pipeline operator safety compliance.

Mandatory Pipeline Assessment Intervals

The Pipeline Safety Improvement Act of 2002 requires that natural gas pipeline operators subject to the act perform integrity management reassessments at least every seven years after an initial baseline assessment (Sec. 14a). Some pipeline operators believe that this reassessment interval may be too prescriptive and may not be appropriate for all pipelines. The GAO has concluded that the seven-year reassessment interval is generally consistent with the industry consensus standard for higher stress pipelines, which account for the majority of U.S. gas transmission pipelines. However, the agency has also reported that most operators believe a seven-year requirement is too short for lower-stress pipelines for which operators have found few problems requiring reassessments earlier than 15 to 20 years. Operators argue that assessing pipelines too frequently is costly and inefficient, diverting limited safety resources from other uses with greater pipeline safety benefits.⁵² Operators GAO contacted said they favored reassessments intervals based on "severity of risk rather than a one-size-fits-all standard."⁵³

⁴⁹ GAO, July 2004, p. 3.

⁵⁰ K. Siggerud, Government Accountability Office (GAO), testimony before the House Committee on Transportation and Infrastructure, Subcommittee on Highways, Transit and Pipelines, hearing on Pipeline Safety and the Office of Pipeline Safety, June 16, 2004, p. 10.

⁵¹ K. Siggerud, Government Accountability Office (GAO), testimony before the House Committee on Transportation and Infrastructure, Subcommittee on Highways, Transit and Pipelines, hearing on Pipeline Safety, GAO-06-474T, Mar. 16, 2006, p. 11.

⁵² J. L. Mohn, Panhandle Energy, testimony before the House Committee on Transportation and Infrastructure, Subcommittee on Highways, Transit and Pipelines, hearing on pipeline Safety, Mar. 16, 2006, p. 9.

⁵³ K. Siggerud, GAO-06-474T, Mar. 16, 2006, executive summary.

Federal Pipeline Security Authority

Congress has repeatedly raised questions about the appropriate division of pipeline security authority between the OPS and TSA.⁵⁴ Both the OPS 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. The MOU states that “specific tasks and areas of responsibility that are appropriate for cooperation will be documented in annexes ... individually approved and signed by appropriate representatives of DHS and DOT.”⁵⁵ As of April 2006, however, the departments have not signed an annex clarifying the roles of the OPS and TSA in pipeline security.

One specific concern among pipeline operators is inspection and enforcement authority. DOT officials acknowledge TSA’s superior access to information on threats and vulnerabilities, but believe that the OPS might more efficiently administer pipeline security inspections due to strong linkages between pipeline safety and security. The DOT believes it is “hard to justify why we need a whole different inspection staff in TSA” while the OPS already has a large and experienced staff of pipeline safety inspectors which could readily accommodate security inspection and associated enforcement responsibilities.⁵⁶ TSA has not commented publicly on this issue.⁵⁷ A provision in S. 1052 would require an annex to an existing memorandum of agreement between the OPS and TSA regarding their relative security activities (Sec. 408). It remains to be determined what additional cooperative activities could be put in place and whether they could be implemented effectively given the two agencies’ existing structures and obligations. Since a change in authority could potentially disrupt the federal government’s established pipeline security activities, proposals to do so require careful consideration of potential benefits and costs.

Pipeline Security Regulations

As noted earlier in this report, federal pipeline security activities have to date relied upon voluntary industry compliance with OPS security guidance and TSA security best practices. By initiating this voluntary approach, the OPS sought to

⁵⁴ 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, Mar. 16, 2006.

⁵⁵ Dept. of Homeland Security (DHS), *Memorandum of Understanding Between the Department of Homeland Security and the Department of Transportation on Roles and Responsibilities*, Sept. 28, 2004, p. 4.

⁵⁶ T. J. Zinser, Acting Inspector General, Dept. of Transportation, testimony before the House Committee on Transportation and Infrastructure, Subcommittee on Highways, Transit and Pipelines, hearing on Pipeline Safety, Mar. 16, 2006.

⁵⁷ CRS contacted TSA for comment but had not received a response prior to publishing this report.

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.⁵⁸ Likewise, 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.⁵⁹ Provisions in S. 1052 would require the federal government to develop pipeline security regulations and associated civil penalties for non-compliance within one year of enactment (Sec. 407d). The pipelines industry is concerned that new security regulations may be "redundant" and "may not be necessary to increase pipeline security."⁶⁰ In considering whether to impose regulations, Congress may evaluate the effectiveness of the TSA's current voluntary security standards based on findings from the agency's CSR reviews.

TSA Security Resources

Congress has long been critical 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."⁶¹ At its current staffing level, TSA's Pipelines Branch has limited field presence for inspections and possible enforcement of future regulations. TSA's plan to focus security inspections on the largest pipeline and distribution system operators seeks to make the best use of limited resources. The concern is that TSA currently lacks sufficient resources for rigorous security plan verification and a credible threat of enforcement, so operator compliance with security guidance may be inadequate, leaving the pipeline network as a whole less secure than it might be with more universal inspection and enforcement coverage. Provisions in S. 1052 would authorize funding of \$2 million annually through FY2008 for TSA's pipeline security inspections and enforcement program (Sec. 407e). It is an open question whether this level of funding would be sufficient to enable TSA to meet congressional expectations for federal pipeline security activities.

Federal Pipeline Security Grants

Pipelines are the only major mode of transportation in the United States not specifically eligible for federal homeland security grants. The other modes, including trucking, rail, intercity busing, aviation, marine transportation, and mass transit, may

⁵⁸ GAO, *Pipeline Security and Safety: Improved Workforce Planning and Communication Needed*, GAO-02-785, Aug. 2002, p. 22.

⁵⁹ Department of Homeland Security (DHS), *Transportation Security Administration Fiscal Year 2005 Congressional Budget Justification*, Washington, DC, Feb. 2, 2004, p. 20.

⁶⁰ 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, Aug. 22, 2005.

⁶¹ 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), Feb. 15, 2005.

receive federal funding under the DHS's programs for Urban Area Security, Port Security, or other programs. Interstate natural gas pipelines whose rates are regulated by the Federal Energy Regulatory Commission (FERC) may apply for recovery from customers of "prudently incurred costs necessary to further safeguard the nation's energy systems and infrastructure."⁶² Pipelines under state regulatory jurisdiction may seek security cost recovery through similar rate mechanisms from state regulators. Pipelines also could potentially be eligible for federal security funding under a program like the Targeted Infrastructure Protection (TIP) Program proposed in the Bush Administration's FY2006 budget request for DHS, although Congress has not yet approved such a program.⁶³ Notwithstanding the lack of a specific federal grant program for pipeline security to date, TSA reports that pipeline operators have taken significant measures to improve pipeline security since September 11, 2001. It is an open question whether operators will actively seek federal funding for future pipeline security expenditures, especially if new regulations impose costly new pipeline security requirements.

Identifying Critical Assets

Pipeline operators have long sought clear definitions of pipeline asset "criticality" so they will know exactly what assets to protect and how well to protect them. The definition of "criticality" developed by industry in 2002 (and supported in the OPS guidance) avoided numerical thresholds, relying instead on discretionary qualitative metrics like "significance" of impact.⁶⁴ The OPS has since expressed its belief that this definition may be too general and that clearer criticality thresholds are needed.⁶⁵ The HSPD-7 directive appears to narrow the definition of "criticality" by emphasizing infrastructure "that could be exploited to cause catastrophic health effects or mass casualties" (par. 13), but it is not clear how this emphasis applies to pipelines. The Information Analysis and Infrastructure Protection (IAIP) directorate within DHS has developed a list of critical pipelines within its national database of critical infrastructure, but Congress and the GAO have identified problems with DHS's criteria for critical asset identification.⁶⁶ As discussed above, TSA has developed its own list of critical pipeline systems in support of its CSR program, but has not made public its methodology or the list itself. A provision in S. 1052 calls

⁶² Federal Energy Regulatory Commission (FERC), news release R-01-38, Washington, DC, Sept. 14, 2001.

⁶³ For more information on DHS security grants and the TIP Program, see CRS Report RS22050, *FY2006 Appropriations for State and Local Homeland Security*, by Shawn Reese.

⁶⁴ American Gas Association (AGA) and the Interstate Natural Gas Association of America (INGAA), *Security Guidelines Natural Gas Industry Transmission and Distribution*, Washington, DC, Sept. 6, 2002, p. 6.

⁶⁵ OPS, personal communication, June 9, 2003.

⁶⁶ For example, see Rep. Zoe Lofgren, remarks at the House Homeland Security Committee, Intelligence, Information Sharing, and Terrorism Risk Assessment Subcommittee, hearing on "Terrorism Risk Assessment at the Department of Homeland Security," Nov. 17, 2005; Government Accountability Office (GAO), *Risk Management: Further Refinements Needed to Assess Risks and Prioritize Protective Measures at Ports and Other Critical Infrastructure*, GAO-06-91, Dec. 15, 2005, pp. 81-82.

for “inspection of the critical facilities of the 100 most critical pipeline operators” identified by the TSA (Sec. 407b). Given the continuing uncertainty among industry and policy makers about what constitutes a critical asset, how TSA will develop a list of 100 critical operators under S. 1052 may require clarification.

National Pipeline Mapping System Access

The National Pipeline Mapping System (NPMS) was established by the OPS as a publicly accessible geographic information system (GIS) containing geospatial and attribute data for pipelines and LNG facilities under OPS jurisdiction. The NPMS is an essential decision support tool for emergency planning, inspection planning, and safety enhancement in the nation’s pipeline system. While security issues related to the NPMS have always been a concern of the OPS, according to agency staff, the Chief Infrastructure Assurance Officer and other security personnel at the DOT determined by early 2001 that “NPMS data pose no threat to national security due to the inability of ‘worst-case scenarios’ to be derived from the use of these data.”⁶⁷ Notwithstanding this determination, in response to the terror attacks of September 11, 2001, the OPS restricted NPMS access to government officials and pipeline operators only and prohibited the transfer of NPMS data outside the NPMS system. Some analysts believe that these access and data restrictions hamper the ability of local agencies and the general public to incorporate essential pipeline information into local safety planning, ultimately jeopardizing public safety. They believe that the NPMS restrictions are also ineffective in preventing terrorist attacks because pipeline location maps are publicly available from other sources and because pipelines must be physically marked under federal regulation.⁶⁸ Congress may reevaluate whether the OPS’s security restrictions on NPMS data are appropriately balanced with respect to their potential impacts on local community safety and security planning.

Other Issues

In addition to the issues mentioned above, several issues raised by pipeline stakeholders may also warrant congressional attention. State utility commissions and pipeline safety offices have called for increased federal funding to meet the growing costs of state pipeline safety activities.⁶⁹ Natural gas distribution companies seek flexible, risk-based options in any future integrity management regulations directed

⁶⁷ S. Hall, Office of Pipeline Safety (OPS), “The National Pipeline Mapping System: A Decision Support Tool,” paper for the 21st Annual ESRI International User Conference, San Diego, CA, July 9, 2001, at [<http://gis.esri.com/library/userconf/proc01/professional/papers/pap245/p245.htm>].

⁶⁸ C. Weimer, Executive Director, Pipeline Safety Trust, testimony before the House Committee on Transportation and Infrastructure, Subcommittee on Highways, Transit and Pipelines, hearing on Pipeline Safety, Mar. 16, 2006.

⁶⁹ Hon. Donald L. Mason, Public Utilities Commission of Ohio, testimony before the House Committee on Transportation and Infrastructure, Subcommittee on Highways, Transit and Pipelines, hearing on Pipeline Safety, Mar. 16, 2006.

at distribution systems.⁷⁰ Public interest groups have called for greater access to federal pipeline inspection findings and enforcement records.⁷¹ They also seek expansion of the definition of “high consequence areas” under the OPS integrity management regulations to include cultural and historic sites, parks and refuges, and fishable and swimmable waters.⁷² Additional pipeline issues may emerge as Congress considers specific pipeline legislation.

Conclusions

Both government and industry have taken numerous steps to improve pipeline safety and security since 2001. Federal activities in these areas are evolving and agency responsibilities are still being sorted out. Although pipeline impacts on the environment remain a concern of some public interest groups, both federal government and industry representatives suggest that federal pipeline programs have been on the right track. Furthermore, ongoing dialogue among the operators and federal agencies appears to be addressing many elements of federal pipeline safety and security policy that have been causing concern.

As oversight of the federal role in pipeline safety and security continues, questions may be raised concerning the relationship between DHS and the DOT with respect to pipeline security, funding for federal pipeline programs, the need for federal pipeline security regulations, and particular provisions in federal pipeline safety regulation. 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, mandating pipeline security requirements could be of limited value if asset “criticality” is not clearly defined and federal threat information remains ambiguous. Likewise, diverting pipeline resources away from safety to enhance security might further reduce terror risk, but not overall pipeline 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.

⁷⁰ E. F. Bender, Baltimore Gas and Electric Company, testimony before the House Committee on Transportation and Infrastructure, Subcommittee on Highways, Transit and Pipelines, hearing on Pipeline Safety, Mar. 16, 2006, p. 10.

⁷¹ C. Weimer, Pipeline Safety Trust, Mar. 16, 2006.

⁷² L. N. Epstein, Cook Inlet Keeper, testimony before the House Committee on Transportation and Infrastructure, Subcommittee on Highways, Transit and Pipelines, hearing on Pipeline Safety, Mar. 16, 2006, p. 9.