

**TRANSPORTATION SECURITY ADMINISTRATION
OFFICE OF INTELLIGENCE**

(U) Pipeline

Threat Assessment

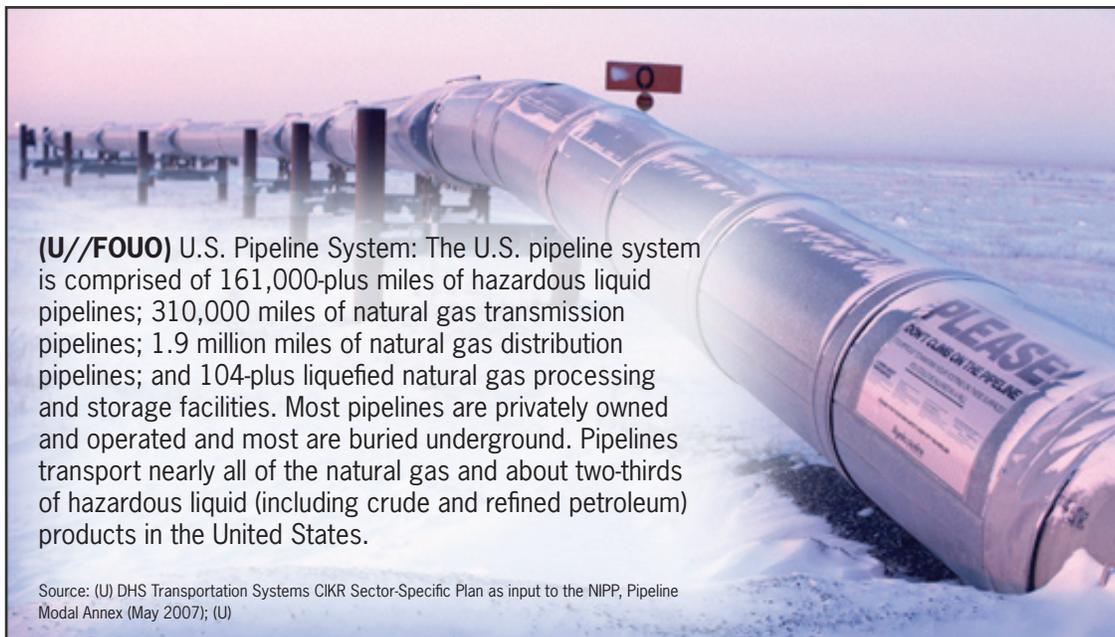
18 January 2011

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(U) Executive Summary

Scope

(U//FOUO) The Transportation Security Administration's (TSA's) mission includes enhancing the security preparedness of U.S. hazardous liquid and natural gas pipeline systems. This TSA Office of Intelligence (TSA-OI) threat assessment primarily addresses the potential for attacks against the pipeline industry in the Homeland and assesses the tactics, techniques, and procedures (TTPs) used in attacks against pipelines and related infrastructure overseas for their potential use by terrorists in the Homeland.



(U//FOUO) U.S. Pipeline System: The U.S. pipeline system is comprised of 161,000-plus miles of hazardous liquid pipelines; 310,000 miles of natural gas transmission pipelines; 1.9 million miles of natural gas distribution pipelines; and 104-plus liquefied natural gas processing and storage facilities. Most pipelines are privately owned and operated and most are buried underground. Pipelines transport nearly all of the natural gas and about two-thirds of hazardous liquid (including crude and refined petroleum) products in the United States.

Source: (U) DHS Transportation Systems CIKR Sector-Specific Plan as input to the NIPP, Pipeline Modal Annex (May 2007); (U)

(U) Source Summary Statement

(U//FOUO) TSA-OI used a range of open-source and unclassified intelligence reporting from the Intelligence Community, DHS, FBI, and a variety of open source material in preparation of this report. No single source dominated or singularly influenced the overall analysis.

(U) Executive Summary (cont'd)

(U) Key Findings

(U//FOUO) TSA-OI assesses with high confidence that the terrorist threat to the U.S. pipeline industry is low.ⁱ TSA-OI has no specific or credible threat information indicating that violent transnational extremist groups or domestic extremists are actively plotting to conduct attacks on the U.S. pipeline industry.

- **(U//FOUO)** Violent extremist web postings continue to promote the U.S. pipeline system and its related infrastructure as attractive targets because of the significant impact multiple successful attacks could have on the U.S. economy.
- **(U//FOUO)** While violent transnational extremist groups, including al-Qa'ida, have expressed interest in attacking the U.S. pipeline system, violent domestic extremists, homegrown terrorists, and lone offenders likely also pose threats to pipeline networks.
- **(U//FOUO)** Improvised explosive devices (IEDs) have been the preferred attack method used in overseas attacks against pipelines and related infrastructure, and would likely be the method of attack against pipeline systems in the Homeland.
- **(U//FOUO)** Terrorist groups have discussed attacks on unspecified SCADA systems, but it is uncertain whether al-Qa'ida or any other group has the capability to conduct a successful cyber attack on these systems.
- **(U//FOUO)** Pipeline and related infrastructure, particularly those which are located above ground, are viable targets because they are exposed and difficult to protect.

ⁱ (U//FOUO) TSA-OI uses a three-point scale in which "High Confidence" generally indicates TSA-OI judgements are based on high-quality information and/or the nature of the issue makes it possible to render a solid judgement. "Moderate Confidence" generally means the information is interpreted in various ways, TSA has alternative views, or the information is credible and plausible but not corroborated sufficiently to warrant a higher level of confidence. A "Low Confidence" judgment generally means the information is scant, questionable, or very fragmented and it is difficult to make solid analytical inferences, or TSA-OI has significant concerns or problems with the sources.

TSA-OI Pipeline Modal Threat Assessment

(U) Threat Overview

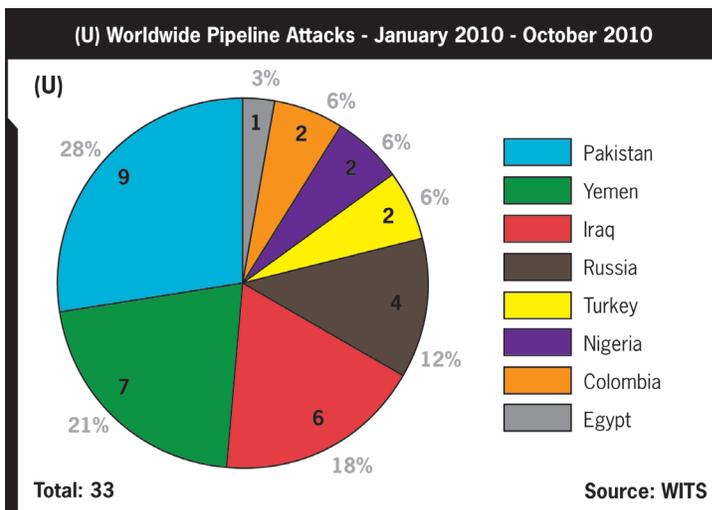
(U//FOUO) TSA-OI assesses with high confidence that the terrorist threat to the U.S. pipeline industry is low. Further, TSA-OI has no specific or credible threat information indicating that violent transnational extremist groups or domestic extremists are actively plotting to conduct attacks on the U.S. pipeline industry. TSA-OI assesses that, while al-Qa'ida and its affiliates view the U.S. pipeline system as a potential economic target, such an attack would not singularly meet al-Qa'ida's goals of creating public panic, causing mass casualties, and harming the U.S. economy. A change or narrowing of al-Qa'ida's stated goals—a sole focus on harming the U.S. economy, for example—could cause an adjustment to this assessment.

(U) Worldwide Threat Picture

(U) International

(U) Extremist groups, including al-Qa'ida and its affiliates, have demonstrated both the capability and intent to attack oil and natural gas facilities overseas, and have encouraged followers to target oil interests in the United States and overseas.^{1,2,3}

(U//FOUO) A review of National Counterterrorism Center's (NCTC) Worldwide Incidents Tracking System (WITS) data of worldwide attacks on pipelines and associated infrastructure in 2010 shows 33 attacks occurred between January and October, the reporting period for this report. Attacks occurred more frequently in regions such as the Middle East, where terrorism and military conflict persist, or Russia and Nigeria, where there is internal unrest. Terrorism and political instability remain the most serious threats to pipeline and oil infrastructure.



(U//FOUO) Based on recent attempted attacks and disrupted plots against transportation targets in the United States, al-Qa'ida and its affiliates remain the primary threats to the Homeland and the transportation industry, including pipelines. Al-Qa'ida continues to express a desire to conduct attacks to cripple the U.S. economy, has carried out successful attacks against U.S. and Western-owned oil and natural gas facilities overseas, and encourages its followers to conduct future attacks.

- **(U//FOUO) September 2010:** Al-Qa'ida gunmen blew up a pipeline transferring liquefied natural gas in the Shabwa province of Yemen. Assailants used several bomb devices in the explosion which damaged the pipeline cutting off the supply.⁴
- **(U//FOUO) July 2010:** The separatist group Kurdistan Workers Party, or PKK, attacked a natural gas pipeline in Turkey that carries gas from the Iranian border to the Turkish town of Dogubayazit. It took six days to repair the pipeline and resume operations.⁵
- **(U//FOUO) March 2010:** According to open source reporting, Saudi Arabian security forces arrested 113 al-Qa'ida militants, including suicide bombers, who had been planning attacks on the Ras Tanura oil facility. Authorities seized weapons, ammunition, and explosive belts.⁶

(U//FOUO) Al-Qa'ida and other terrorists have carried out numerous attacks on pipelines and pipeline-related infrastructure likely to produce an economic toll on their adversaries. Terrorist planners could target the expansive and relatively unprotected pipeline systems in the Homeland for future attacks.

(U) Domestic Extremist

(U//FOUO) Domestic extremists include, animal and environmental activists, disgruntled employees, and lone individuals (lone offenders) who are often focused on single issues.^{7,8} Various incidents of tampering and vandalism against pipelines and oil facilities in the United States and foreign countries routinely occur; however, none of the incidents reported in the United States have been linked to any domestic terrorist organization.^{9,10}

(U) Insider Threat

(U//FOUO) TSA-OI remains concerned about the threat posed by oil industry insiders. Terrorists have sought to exploit insiders and their positions within the oil industry because of their intimate knowledge of and potential access to controlled/critical areas, which terrorists could use to disrupt pipeline operations.

- **(U) June 2008:** The Saudi Ministry of Interior General Directorate of Investigations (Mabahith) announced that it had arrested 701 militants over a six-month period for allegedly plotting to carry out terrorist attacks on oil facilities and other vital installations across the Kingdom of Saudi Arabia. Among those arrested were African immigrants, with links to foreign organizations, who were attempting to influence employees in oil installations to secure jobs and had begun planning an attack on an oil site.¹¹
- **(U//FOUO) June 2007:** U.S. Person Russell Defreitas^{USPER}, a former air-cargo worker at John F. Kennedy International Airport (JFK), and co-conspirators plotted to blow up a fuel pipeline and its fuel tanks at the airport. Defreitas used his job-related knowledge to conduct pre-operational surveillance and plan the attack. He also obtained satellite images of the airport from the Internet. Defreitas, the alleged mastermind, and his co-conspirators were arrested during the pre-operational stage of the plot. Defreitas was convicted in August 2010 on five counts of conspiring to commit acts of terrorism and surveillance of an airport.¹²

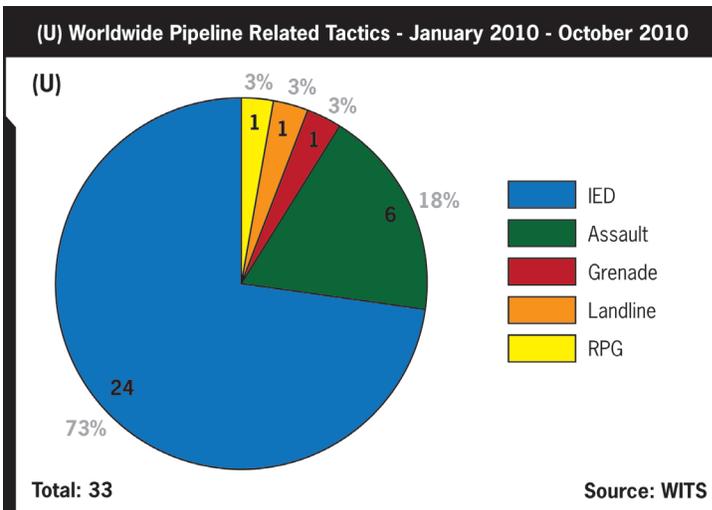
(U) Most Likely Targets

(U//FOUO) Pipelines and related infrastructure —particularly facilities and equipment located above ground—are viable targets because they are exposed and often unattended.

(U) Tactics and Capabilities

(U//FOUO) From January 2010 to October 2010, IED attacks accounted for 73 percent of the 33 confirmed attacks against pipelines.¹³ Small arms and stand-off weapons were also used in terrorist attacks on pipelines.

- (U//FOUO) **October 2010:** Unidentified gunmen attacked and destroyed two pipelines running from the Osiama oil field in Nigeria to Brass in Bayelsa using explosives. Attackers were able to carry out the act because of the lack of military presence in the area.¹⁴
- (U//FOUO) **June 2010:** Local tribesmen allied with Al-Qa'ida in the Arabian Peninsula (AQAP) are believed responsible for the attack on an oil pipeline in the Ma'rib Province of Yemen. Assailants used a bulldozer to expose the pipeline and then detonated an IED, which badly damaged the pipeline. Reportedly the attack was in retaliation for the earlier bombing of the homes of tribesmen suspected of hiding al-Qa'ida members. Ma'rib is home to most of Yemen's oil fields and the attack caused an estimated loss of 10,000 barrels for the day.^{15,16}
- (U//FOUO) **May 2010:** Yemeni Bedouin tribesmen attacked an oil pipeline on two separate occasions in the Ma'rib region. In one attack, tribesmen damaged a pipeline using rocket-propelled grenades. In the second attack, the tribesmen detonated IEDs they had attached to the pipeline, which resulted in an oil leak.^{17,18}



(U) Cyber Threats

(U//FOUO) Oil and natural gas pipeline system operations rely heavily on industry control systems (ICSs) including supervisory control and data acquisition (SCADA) networks (see text box). Terrorist groups have discussed attacks on unspecified SCADA systems, but it is uncertain whether al-Qa'ida or any other group has the capability to conduct a successful cyber attack.¹⁹ **TSA-OI is not aware of any credible, specific threat reporting targeting U.S. pipelines' industry control systems or the supervisory control and data acquisition networks.**

- (U) **Sept 2010:** The Iranian Government confirmed a cyber attack against the industrial control system at the Buser Nuclear Plant in Iran, which led to the discovery of a malicious software program, the origin of which is still unknown. Dubbed Stuxnet, analysts determined the worm began infecting systems overseas and in the U.S. beginning as early as June 2009. The Buser Nuclear Plant uses SCADA systems to operate.²⁰ Although the impact of the attack on plant operations has not been publicly released, officials for the plant insist that the malicious program affected only the personal computers of a few workers.

(U) ICS & SCADA Systems

(U//FOUO) Industrial control systems (ICSs) include supervisory control and data acquisition (SCADA) systems, distributed control systems, and other control system configurations such as programmable logic controllers, often found in the industrial sectors and critical infrastructures. ICS systems are typically used in industries such as electrical, water and wastewater, oil and natural gas, chemical, transportation, and discrete manufacturing.

(U) SCADA is a category of software application program for process control, and allows for the gathering of data in real time from remote locations in order to control equipment and conditions. SCADA is used in power plants as well as in oil and gas refining, telecommunications, transportation, and water and waste control.

Source: (U) www.bitpipe.com; 19 January 2010; "SCADA Definition"

**(U) Suspicious Incidents & Activity**

(U//FOUO) The vast majority of suspicious activity reports (SARs) in the Homeland involved refineries or related infrastructure; not pipelines. U.S. pipelines and related infrastructure however, have been the objects of vandalism and tampering, particularly those facilities and equipment located above ground. There were 44 suspicious pipelines, and related oil and natural gas SARs reported to TSA-OI from January 2010 to October 2010.²¹ Suspicious activities near pipelines and related infrastructure may indicate an interest to collect information for a future attack, or the desire to identify vulnerabilities or test a pipeline facility's security and response operations. Individuals engaged in surveillance activities are rarely interviewed by authorities because they are seldom detained for questioning. Therefore, gauging their intent or motivations is difficult.²²

Categories of Suspicious Incident Reports

- **(U//FOUO)** Suspicious incidents are categorized as possible surveillance, test of security, or suspicious events.
- **(U) Possible Surveillance:** Monitoring the activity of people, facilities, processes, or systems from a stationary or moving position.
- **(U) Test of Security:** Bomb threats, interactions with, or challenges to, installations, personnel, or systems that reveal physical, personnel, or cyber security.
- **(U) Suspicious Events:** Actual or attempted sabotage, vandalism, tampering or related threats, explosive related items, and other activity.

Source (U) DHS Information Sharing Environment (ISE), Functional Standard (FS), Suspicious Activity Reporting (SAR), version 1.0 (ISE-FS-200), Part B – ISE-SAR Criteria Guidance

(U//FOUO) In separate but possibly related incidents in Texas, tampering occurred against natural gas valves and equipment.²³

- (U//FOUO) **12 January:** A gas service company discovered that the valves at a regulator station had been turned off by unauthorized persons. This act disrupted service to a large subdivision in Austin. Similar suspicious events occurred at two other regulator stations in Austin on 14 January. The gates to the facilities and the locks were opened, the valves were shut off, and the locks were restored to their original configuration to conceal the tampering.
- (U//FOUO) **14 January:** Valves at a decommissioned compressor station in Quanah showed signs of tampering. An employee found the door to the compressor station open and the locks on the valves missing. There was also evidence that valves for lines that measure gas flow between Oklahoma and Texas had been altered as well.

(U) Outlook

(U//FOUO) TSA-OI assesses with high confidence that the terrorist threat to the U.S. pipeline industry is low. TSA-OI is unaware of any specific or credible intelligence indicating transnational terrorist groups or violent domestic extremists are plotting an attack against the U.S. pipeline industry. Pipelines and related infrastructure, particularly those which are located above ground, will continue to be viable targets for vandalism and suspicious activities.

(U//FOUO) Al-Qa'ida and its affiliates have attacked U.S. and Western-owned oil and natural gas facilities overseas, and continue to encourage followers and sympathizers to conduct future attacks aimed at disrupting the global economy. TSA-OI judges that, based on recent attempted attacks and disrupted plots against transportation targets in the Homeland, and public statements by al-Qa'ida leadership, that al-Qa'ida and its affiliates remain a significant threat to the Homeland and transportation industry, including pipeline.

(U//FOUO) IEDs are the preferred method of attack against pipelines and pipeline-related infrastructure overseas and TSA-OI assesses that IEDs would likely be the means of attack used against pipeline systems in the Homeland. Terrorist groups have discussed cyber attacks on unspecified SCADA systems, but it is uncertain whether they have the resources and skills to conduct a successful attack.²⁴

(U//FOUO) Several vandalism and tampering incidents have occurred against pipelines, but the perpetrators and motivations for these acts are unknown.

(U//FOUO) Prepared by the TSA Office of Intelligence, Transportation Analysis Branch. For dissemination questions, contact TSA Production Management, TSA-OI_PM@tsa.dhs.gov.

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(U) Endnotes

- 1 (U) Joint FBI-DHS Intelligence Bulletin; No. 242; "(U//FOUO) Jihadist Web Site Posting Renews Call to Attack Oil and Natural Gas Infrastructure;" 23 February 2007; (U//FOUO)
- 2 (U) National Intelligence Council; NIE 2007-02D; July 2007; "(U) The Terrorist Threat to the US Homeland;" (U)
- 3 (U) Joint FBI/DHS Intelligence Bulletin; No.225; 15 November 2006; "(U//FOUO) Potential Terrorist Pre-Operational Activity Targeting the United States Oil and Natural Gas Infrastructure;" (U//FOUO)
- 4 (U) istockanalyst.com; 13 September 2010; "(U) 2nd LD: Al-Qaida militants bomb gas pipeline in south Yemen;"(U)
- 5 (U) UPI.com; 21 July 2010; "(U) PKK Blamed for Turkish pipeline attack;" (U)
- 6 (U) OSC GMP20100327614005; (U//FOUO)
- 7 (U) adl.org; 3 August 2007; "(U) Animal Rights Extremist Sentenced to 4 Years;" (U)
- 8 (U) adl.org; 26 March 2010; "(U) Animal Rights Extremist Await Sentencing for Acts in California;" (U)
- 9 (U) cbc.ca; 15 September 2009; "(U) Greenpeace occupies Alberta Oilsands Site;" (U)
- 10 (U) TSA-OI; Suspicious Incident Database; accessed November 2010; (U//FOUO)
- 11 (U) nationalterroralert.com; 26 June 2008; "(U) Saudi Arabia Disrupts Planned Terror Attacks on Oil Facilities-Arrests Made;" (U)
- 12 (U) nytimes.com; 2 August 2010; "(U) 2 Men Convicted in Kennedy Airport Plot;" (U)
- 13 (U) National Counterterrorism Center (NCTC), Worldwide Incidents Tracking System (WITS), 26 August 2009 (U); (U//FOUO)
- 14 (U) National Counter Terrorism Center (NCTC) Current; 30 October 2010; "(U) Gunmen Attack Oil Facility in Bayelsa;" (U)
- 15 (U) National Counterterrorism Center (NCTC), Worldwide Incidents Tracking System (WITS); 12 June 2010 (U); (U//FOUO)
- 16 (U) www.reuters.com, Tribesmen blow up oil pipeline in Yemen: report, 12 June 2010 (U)
- 17 (U) taipeitimes.com; 26 May 2010; "(U) Yemeni tribe hits pipeline to avenge wrongful death;" (U)
- 18 (U) islamtribune.com; 27 May 2010; "(U) Yement tribesmen bomb oil pipeline: provincial official;" (U)
- 19 Classified document: DHS, Homeland Infrastructure Threat & Risk Analysis Center (HITRAC) Strategic Sector Assessment: Oil and Natural Gas Sector (U); 20 November 2006; portion used U//FOUO
- 20 (U) OPC: EUP20100925031005; 25 September 2010; (U)
- 21 (U) TSA-OI; Suspicious Incidents Reports Database; 3 December 2010; (U//FOUO)
- 22 (U) DHS; 900007; TSA TSOC email 15 March 2009; "(U//FOUO) Nearby Homeowner Discovers Natural Gas Pipeline Rupture in Malvern, IA;" (U//FOUO)
- 23 (U) Transportation Security Administration (TSA); Office of Intelligence (OI); TSIR 81814-2010-10; 26 January 2010; "(U//FOUO) Transportation Suspicious Incident Report;" (U//FOUO)
- 24 (U) DHS, FBI Joint Special Assessment; 23 April 2008; "(U) Potential Terrorist Attack Methods;"(U)