U.S. Customs and Border Protection

Report Update to Congress on Integrated Scanning System Pilot (Security and Accountability for Every Port Act of 2006, Section 232(c))

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Legislative Requirement/Citation

This report is the first in a series of semi-annual updates required by Section 232(c) of the Security and Accountability for Every Port Act of 2006 (SAFE Port Act), Pub L. No. 109-347, 120 Stat. 1917 (October 13, 2006). In Section 231 of the SAFE Port Act, Congress directed the Secretary of the U.S. Department of Homeland Security (DHS), in coordination with the Secretary of the U.S. Department of Energy (DOE), as necessary, and the private sector and host governments when possible, to pilot an integrated scanning system at three foreign ports. Section 232 of the SAFE Port Act, reads:

SEC. 232. SCREENING AND SCANNING OF CARGO CONTAINERS.

(a) ONE HUNDRED PERCENT SCREENING OF CARGO CONTAINERS AND 100 PERCENT SCANNING OF HIGH-RISK CONTAINERS.—

(1) SCREENING OF CARGO CONTAINERS — The Secretary shall ensure that 100 percent of the cargo containers originating outside the United States and unloaded at a United States seaport undergo a screening to identify high-risk containers.

(2) SCANNING OF HIGH-RISK CONTAINERS —The Secretary shall ensure that 100 percent of the containers that have been identified as high-risk under paragraph (1), or through other means, are scanned or searched before such containers leave a United States seaport facility.

(b) FULL-SCALE IMPLEMENTATION — The Secretary, in coordination with the Secretary of Energy and foreign partners, as appropriate, shall ensure integrated scanning systems are fully deployed to scan, using non-intrusive imaging equipment and radiation detection equipment, all containers entering the United States before such containers arrive in the United States as soon as possible, but not before the Secretary determines that the integrated scanning system—

(1) meets the requirements set forth in section 231(c);

(2) has a sufficiently low false alarm rate for use in the supply chain;

(3) is capable of being deployed and operated at ports overseas;

(4) is capable of integrating, as necessary, with existing systems;

(5) does not significantly impact trade capacity and flow of cargo at foreign or United States ports; and

(6) provides an automated notification of questionable or high-risk cargo as a trigger for further inspection by appropriately trained personnel.

(c) REPORT — Not later than 6 months after the submission of a report under section 231(d), and every 6 months thereafter, the Secretary shall submit a report to the appropriate congressional committees describing the status of full-scale deployment under subsection (b)

and the cost of deploying the system at each foreign port at which the integrated scanning systems are deployed.

Section 231 (c) of the SAFE Port Act, referenced above, reads:

SEC. 231. Pilot Integrated Scanning System.

…

(c) Pilot System Implementation- Not later than 1 year after the date of the enactment of this Act, the Secretary shall achieve a full-scale implementation of the pilot integrated scanning system at the ports designated under subsection (a), which—

(1) shall scan all containers destined for the United States that are loaded in such ports;

(2) shall electronically transmit the images and information to appropriate United States Government personnel in the country in which the port is located or in the United States for evaluation and analysis;

(3) shall resolve every radiation alarm according to established Department procedures;

(4) shall utilize the information collected to enhance the Automated Targeting System or other relevant programs;

(5) shall store the information for later retrieval and analysis; and

(6) may provide an automated notification of questionable or high-risk cargo as a trigger for further inspection by appropriately trained personnel.

On August 3, 2007, the President signed the Implementing Recommendations of the 9/11 Commission Act of 2007 (9/11 Act), Pub. L. No. 110-53, 121 Stat. 489. Under Title XVII titled Maritime Cargo, section 1701 of the 9/11 Act amends section 232 of the SAFE Port Act to require 100 percent scanning of high-risk containers at all foreign ports shipping containers to the United States. The 9/11 Act establishes the following under Section 1701 (a):

SEC. 1701. CONTAINER SCANNING AND SEALS.

(a) CONTAINER SCANNING.—Section 232(b) of the SAFE Ports Act (6 U.S.C. 982(b)) is amended to read as follows:

‘‘(b) FULL-SCALE IMPLEMENTATION.—

‘‘(1) IN GENERAL.—A container that was loaded on a vessel in a foreign port shall not enter the United States (either directly or via a foreign port) unless the container was scanned by non-intrusive imaging equipment and radiation detection equipment at a foreign port before it was loaded on a vessel.

‘‘(2) APPLICATION.—Paragraph (1) shall apply with respect to containers loaded on a vessel in a foreign country on or after the earlier of—

‘‘(A) July 1, 2012; or

‘‘(B) such other date as may be established by the Secretary under paragraph (3).

‘‘(3) ESTABLISHMENT OF EARLIER DEADLINE.—The Secretary shall establish a date under (2)(B) pursuant to the lessons learned through the pilot integrated scanning systems established under section 231.
‘‘(4) EXTENSIONS.—The Secretary may extend the date specified in paragraph (2)(A) or (2)(B) for 2 years, and may renew the extension in additional 2-year increments, for containers loaded in a port or ports, if the Secretary certifies to Congress that at least two of the following conditions exist:

‘‘(A) Systems to scan containers in accordance with paragraph (1) are not available for purchase and installation.

‘‘(B) Systems to scan containers in accordance with paragraph (1) do not have a sufficiently low false alarm rate for use in the supply chain.

‘‘(C) Systems to scan containers in accordance with paragraph (1) cannot be purchased, deployed, or operated at ports overseas, including, if applicable, because a port does not have the physical characteristics to install such a system.

‘‘(D) Systems to scan containers in accordance with paragraph (1) cannot be integrated, as necessary, with existing systems.

‘‘(E) Use of systems that are available to scan containers in accordance with paragraph (1) will significantly impact trade capacity and the flow of cargo.

‘‘(F) Systems to scan containers in accordance with paragraph (1) do not adequately provide an automated notification of questionable or high-risk cargo as a trigger for further inspection by appropriately trained personnel.

Executive Summary

This report is required under Section 232(c) of the SAFE Port Act and describes the status of full-scale deployment of the integrated scanning system to capture 100 percent of U.S.-bound, maritime containers. Currently, the Secure Freight Initiative (SFI) deployments are operational in four ports (the initial three ports plus Modern Terminal in Hong Kong). Additionally, SFI is working on expanding deployment operations to the Gamman Terminal in Busan, South Korea, and the Port of Salalah, Oman. To comply with the requirements of the SAFE Port Act, this report provides an update on each port and its equipment, an evaluation of SFI software in use and being developed, and a discussion of the strategy that will guide future SFI deployments.

The SFI deployments in the four operational ports continue to yield valuable lessons. As noted in the previous report, the continuation of operations in the current SFI locations afford U.S. Customs and Border Protection (CBP) the opportunity to further test possible solutions to the complex challenges posed by transshipment and high-volume ports. However, while the data can be useful, expenses are significant, even in these limited environments. While we continue to learn important lessons in these initial locations, DHS will prioritize future scanning deployments on strategic trade corridors which represent the greatest threat to the United States. Focusing deployments in this way will maximize the security benefit that can be achieved with limited departmental funds and ensure that CBP has the capacity to compile, assess, and integrate the additional scan data into its effective, functioning risk-based strategy.

This report details some of the new initiatives in SFI locations, as well as advances and enhancements to the SFI software. However, this report also describes some of the ongoing challenges such as diplomatic hurdles related to obtaining the necessary support and "buy in" of host governments, equipment costs and downtime, operational issues such as port infrastructure constraints and concerns regarding the health and safety requirements of the scanning equipment, and varying degrees of terminal operator cooperation. Furthermore, it reiterates the need to move forward with the SFI program in a responsible, practical manner that best achieves the goal of maximizing the security of maritime cargo within the confines of an effective risk-based strategy. A prioritized strategy that focuses on strategic trade corridors will maximize the security benefits of the additional scan data, address the requirements of the 9/11 Act, and ensure the long-term sustainability of the SFI deployments. This approach will also allow DHS to deploy currently available technology while continuing to develop critical improvements to scanning system capabilities, to include automated detection and solutions to the complex challenges associated with transshipped cargo.

The mandate of the 9/11 Act comes with heavy costs for implementation, but is silent as to who bears those costs. Whether it is the United States Government, a foreign government, or a private entity, the financial commitment will be substantial. With hundreds of ports shipping directly or indirectly to the United States, approximately 2,100 lanes would need to be outfitted with scanning systems to meet the 100 percent scanning requirement.

DHS has encountered several distinct challenges that warrant discussion in this summary. First, on June 2, 2008, DHS and the Government of Singapore mutually agreed to suspend the SFI pilot in Singapore, noting concerns about the potential adverse impact on port efficiencies in this

very complex, high volume and high transshipment port. In this instance, both DHS and Singapore agreed that the benefits of conducting a small pilot with existing technology were outweighed by the potential impact these operations could have on trade flow through the port. This experience underscores the challenge of implementing SFI in a highly competitive port where the foreign partner believes that even a limited scanning operation will adversely impact port efficiencies.

The SFI pilot at Southampton ended on April 13, 2008. Her Majesty's Revenue and Customs (HMRC) left the operation in mid-April, as the period of performance as specified in our discussions, had expired. Operations continued without HMRC until the end of July. CBP, DOE, and Southampton Container Terminal (SCT) contemplate discussions on re-starting and expanding the pilot in the future. U.S.-bound cargo containers originating in Southampton continue to remain secure, as advance information, radiation detection, and Container Security Initiative (CSI) protocols remain in place. Currently, CBP officers adjudicate all U.S.-bound alarms and reconcile anomalies. This arrangement has proven successful, with HMRC only engaged in helping to examine those containers that need further examination, which have been minimal.

SFI operations in South Korea have also encountered political challenges. Construction is complete and the scanning systems, to include the Information Technology (IT) infrastructure, stand ready for full operation. However, the remaining impediment to full operations is the health and safety concerns expressed by the Government of South Korea and the trucker unions regarding the drive-through non-intrusive inspection (NII) system. To assure all parties concerned that the NII system poses no harm, the U.S. Government and the vendor have, on numerous occasions, briefed the unions and all interested Government personnel. Furthermore, the South Korean and British nuclear regulatory bodies have studied the system and concluded that there is no risk. Additionally, to allay remaining concerns, the U.S. Government paid for and installed a real-time radiation monitoring system that displays radiation dose rates to South Korean drivers as they exit the NII system.

Despite these efforts, the South Korean government remains reluctant to begin imaging containers. Discussions continue, however, and DHS expects that operation of SFI in Busan should begin soon.

An additional challenge to the SFI operations is equipment downtime. In Southampton, for example, the Advanced Spectroscopic Portal (ASP) Monitor and imaging system are some of the newest technologies deployed at any port. These systems process containers quickly and provide robust data, but also have had some technical problems causing downtime. A key component of the imaging system required repair 15 times during the course of the pilot to ensure continuous operation. As a result of this equipment issue, 48 percent of the containers were processed thru the SFI integrated scanning lane without the benefit of an associated NII scan image. At the urging of CBP, the vendor, under the direction of CBP's Office of Information and Technology (OIT), worked to remedy this issue.

Hong Kong also has similar issues with the demonstration systems currently deployed at Modern Terminal. As of the date of this report's submission, software issues and technical difficulties

have caused some downtime of the systems, resulting in 21 percent of containers failing to receive an RPM scan and 29 percent failing to receive an NII image. As a result, the vendor temporarily stationed a technician in Hong Kong to provide 24-hours-a-day, 7-days-a-week maintenance for the systems. The technician was able to maintain the systems to ensure effective operation. However, once this temporary support was withdrawn, the systems continued to experience significant downtime. Finally, many in the international community question the need for 100 percent scanning and whether 100 percent scanning improves cargo security. To address the technical challenges directly, CBP and DOE are in the process of purchasing the vendor-owned detection equipment after it has been upgraded to current SFI standards. This purchase is expected to allow more direct control over resolving current and future technical challenges.

New SFI locations will depend heavily on the willingness of host governments, terminal operators, and carriers to participate. As demonstrated through our experiences in Singapore and Southampton, foreign governments and industry partners are not always agreeable to commence or continue scanning operations. However, some terminal operators and private sector entities have already approached DHS with notional business models for underwriting the cost of scanning equipment and infrastructure. For example, DPW and Hutchison Port Holdings have both publicly stated their willingness to deploy scanning systems in their terminals (although no additional information or specifics on these plans have been received by CBP to-date). While DHS has not endorsed any particular model, the Department remains open to the possibility of integrating secure, reliable, raw scan data received from the private sector into CBP's risk assessment and allowing the market to determine the viability of these business models. DHS must have a high-measure of confidence that these systems would be deployed, and data would be relayed, in a manner consistent with the security standards of current fully operational SFI locations.

Clearly, any future decisions regarding the role of the private sector must be based on an informed judgment regarding the reliability, security, and potential benefits of the information obtained through such partnerships. However, while the major terminal operators may be willing to make an investment in scanning technology, one of the most important components to the success of the SFI program is the political commitment by our foreign partners. Without such support, any effort to scan on the sovereign soil of another nation would not be successful. As such, international cooperation and negotiations must be the paramount focus of future deployments.

DHS will focus future resources and scanning efforts on corridors through which potentially high-risk containers transit or originate. Currently, DHS and DOE, in collaboration with the U.S. Department of State (DOS) and members of the intelligence community, are working to identify areas worldwide where the implementation of SFI could potentially mitigate risk associated with the introduction of weapons of mass effect into the United States by way of maritime containerized cargo. This prioritization will ensure that the additional scan data is used to enhance the security of containers that pose the most immediate risk to our nation and to the global supply chain at large.

DHS is committed to an approach that acknowledges the significant costs and real challenges to international scanning, but one that also remains open to innovations as technology matures and as the private sector takes a stronger role in infrastructure protection and security.

Background

DHS and DOE's National Nuclear Security Administration (NNSA), along with DOS, have taken several strategic steps to enhance the layers of security in place to reduce the risk of potential radiological or nuclear threats reaching the United States.

On October 13, 2006, President George W. Bush signed into effect the Security and Accountability for Every (SAFE) Port Act of 2006. The purpose of the SAFE Port Act is to improve maritime and cargo security through enhanced layered defenses, including hardening critical infrastructure, increasing port defenses against possible attacks, and increasing the security of the maritime transportation system. The SAFE Port Act provides a comprehensive, strategic vision that touches on all aspects of the existing maritime security architecture – from securing the containers that transit the supply chain, to defending the vessels and ports that connect it, to ensuring the protection and accountability of the people that work within it. Acknowledging the immediate and lasting consequences that any disruption to the global system will have for the United States and the world, the SAFE Port Act emphasizes a balance between securing America's borders and facilitating legitimate trade and travel.

The SAFE Port Act also codified a number of supply chain security programs that DHS established following the September 11, 2001, terrorist attacks (programs that continue today). Specifically, the SAFE Port Act statutorily established DHS's advanced information requirements and automated analysis, programs such as the Customs-Trade Partnership Against Terrorism (C-TPAT) and CSI, and the use of NII technology to scan high-risk shipments. The inclusion of these provisions reflects the SAFE Port Act's support for the current layered, risk-based approach to maritime and cargo security.

These programs form the backbone of CBP's risk-management, layered enforcement strategy. To most effectively manage multiple threats to our country, we must direct resources to areas of greatest risk. We are constantly working to refine this layered process by strengthening our tools and capabilities, working to maintain an appropriate balance between the wide range of threats we face and allocating our limited resources accordingly. No single layer or tool in our risk-based approach should be overemphasized at the expense of the others. The strength of this strategy is that it ensures continuous security at multiple nodes in the supply chain by distributing resources so that one threat does not overshadow other vulnerable areas that could also be exploited.

Report Methodology

This report is based upon data collected during initial negotiations, systems installations and initial testing, and full ICS pilot operations. Information was gathered through assessments, reviews, and interviews with CBP and DOE staff and contractors, host country officials, trade personnel, and terminal operators.

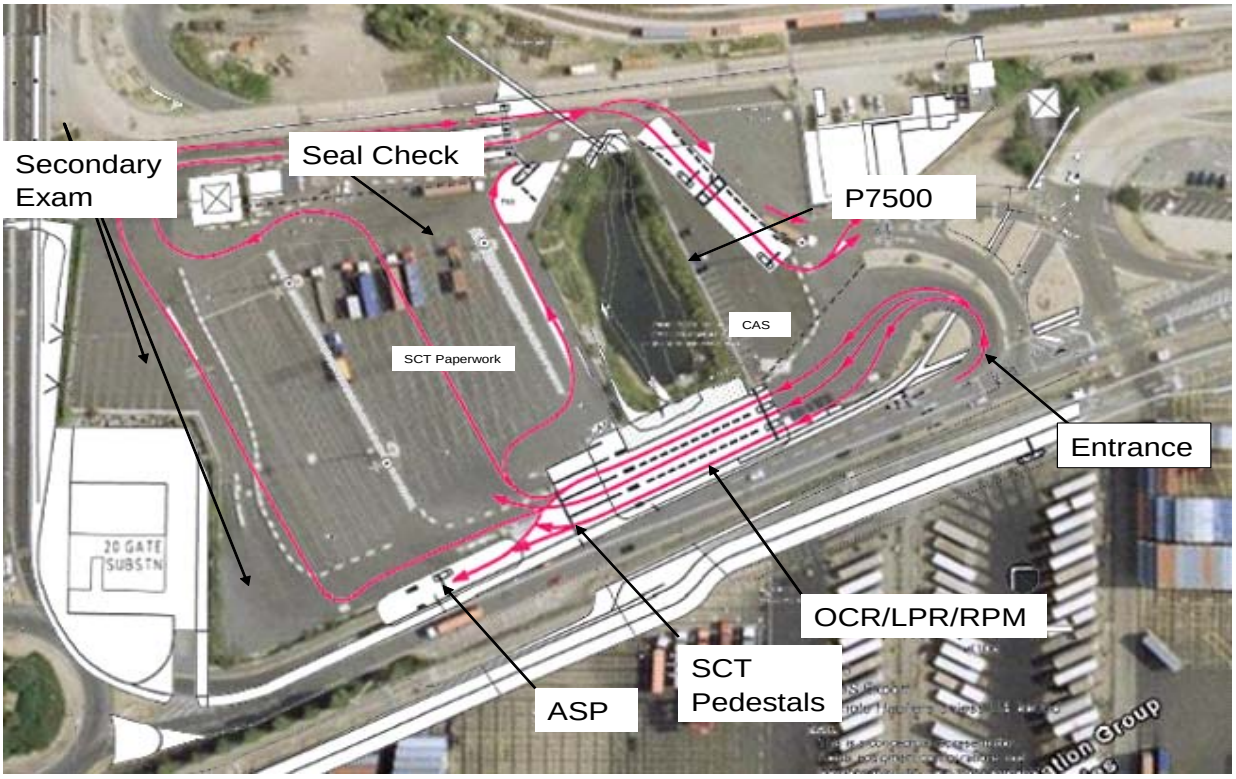
Discussion

An Update of SFI Ports and Equipment

The following section provides an update since the last Congressional report on the developments and operation of SFI in each port.

Southampton, United Kingdom

Figure 1-1 Layout of SFI Pilot Scanning System, Port of Southampton



As indicated in the previous report, implementation and operation of the SFI scanning process did not significantly impede the flow of container traffic, nor has it resulted in traffic bottlenecks within the terminal. This continues to be the case, with SCT reporting little or no negative effects on the flow of container traffic through the port as a result of SFI operations.

On July 31, 2008, DPW suspended their support for SFI operations in the Port of Southampton and instructed SCT to shut down the lines of communication between the Terminal Operating System (TOS) and the in-country feed to the SFI team.

The TOS electronically directs truck drivers through the SFI system. In order to overcome this, the equipment in Southampton was powered down for a few hours before SFI officers began to manually direct containers to the appropriate location. As such, U.S.-bound cargo containers

originating in Southampton remain secure, as advance information, radiation detection, and both SFI and CSI protocols remain in place.

DHS continued to work with DPW to resume the partnership in Southampton and subsequently the lines of communications between the TOS and in-country feed to the SFI team was restored on October 27, 2008. This situation has highlighted the fact that successful SFI operations must often rely on the cooperation and support of non-government entities, such as terminal operators. As we continue to discuss potential roles for the private sector in future scanning operations, DHS must ensure that the right technology and appropriate resources are available to process and analyze the data as well as agreements to facilitate the flow of raw data without interruption or outside influence.

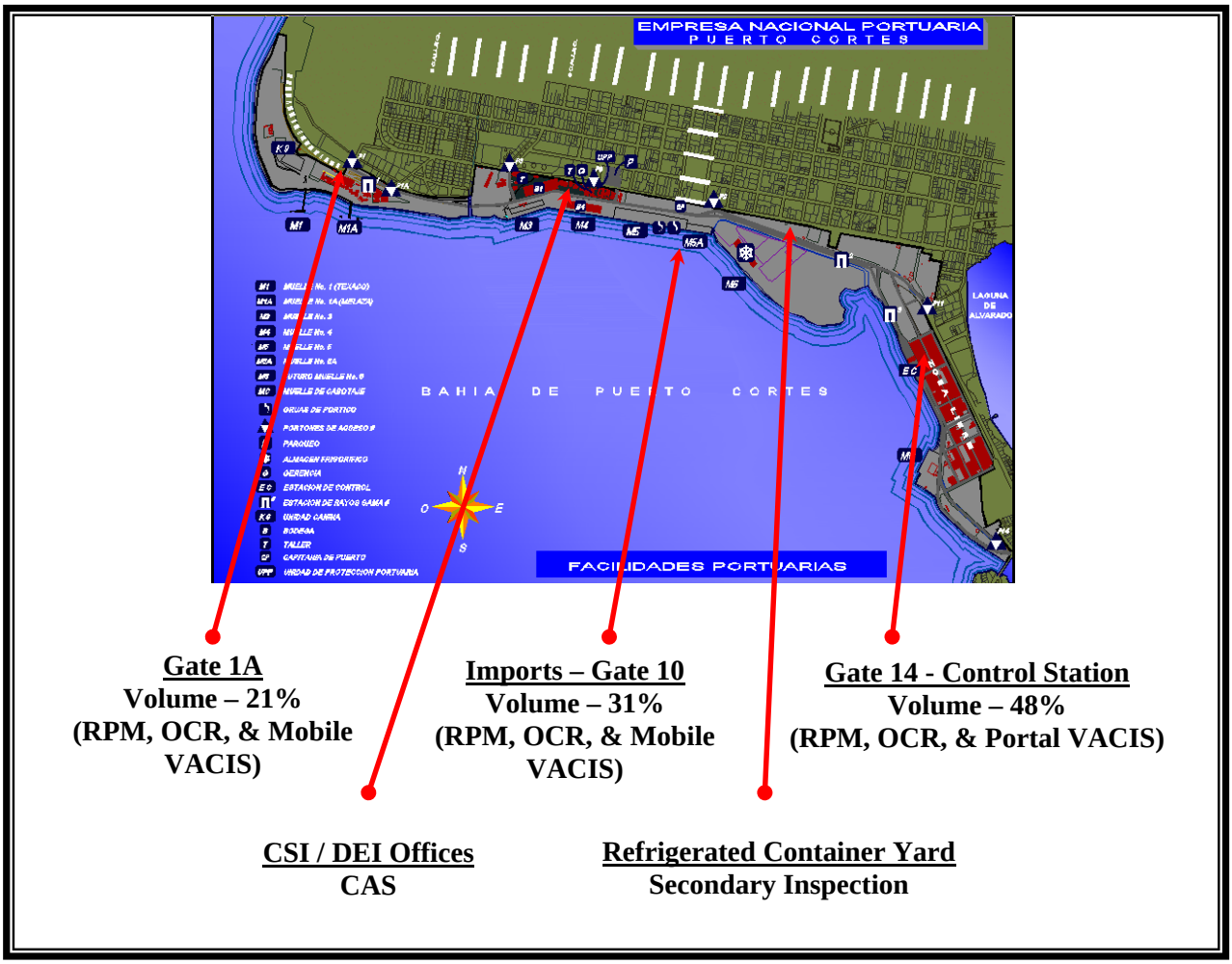
Additionally, as noted in the previous report, Her Majesty's Revenue & Customs (HMRC) expressed its intent to cease participation in the SFI program after the completion of the pilot in April 2008. Therefore, HMRC did not staff the SFI site in Southampton after April, and elected to revert back to CSI protocols (agreed to in 2002). Currently, CBP officers adjudicate all U.S.-bound alarms and reconcile anomalies. This arrangement has proven successful, with HMRC only engaged in helping to examine those containers that need further examination, which have been minimal.

Transshipment and railhead containers still present logistical difficulties that require solutions. U.S.-bound transshipped containers arrive at the port on one ship, remain inside the terminal, and do not pass through the terminal gates on their way to being transferred to a U.S.-bound vessel. As such, they do not pass through the pre-gate area and the SFI scanning systems. During the SFI installation planning process, SCT advised that rerouting transshipped containers back through the gates would have created a significant disruption to the speed and flow of traffic in the terminal. Currently, an alternative approach is still being developed, but no transshipped or rail-containers are processed (accounting for 11 percent, 8 percent rail and 3 percent transshipment, of U.S.-bound containers departing Southampton).

Another challenge in Southampton is equipment downtime. The ASP Monitor and imaging systems are some of the newest technologies deployed at any port. These systems process a large number of containers quickly and provide more robust data, but they also have had some technical problems causing downtime. A key component of the imaging system required repair 15 times during the course of the pilot to ensure continuous operation. The vendor has since corrected the issue and consistently worked to ensure minimal downtime. After experiencing some initial software related issues, the ASP received a software upgrade approximately seven months after the start of the operation. The upgrade has improved the unit's performance.

Puerto Cortés, Honduras

Figure 1-2 Puerto Cortés Port Layout



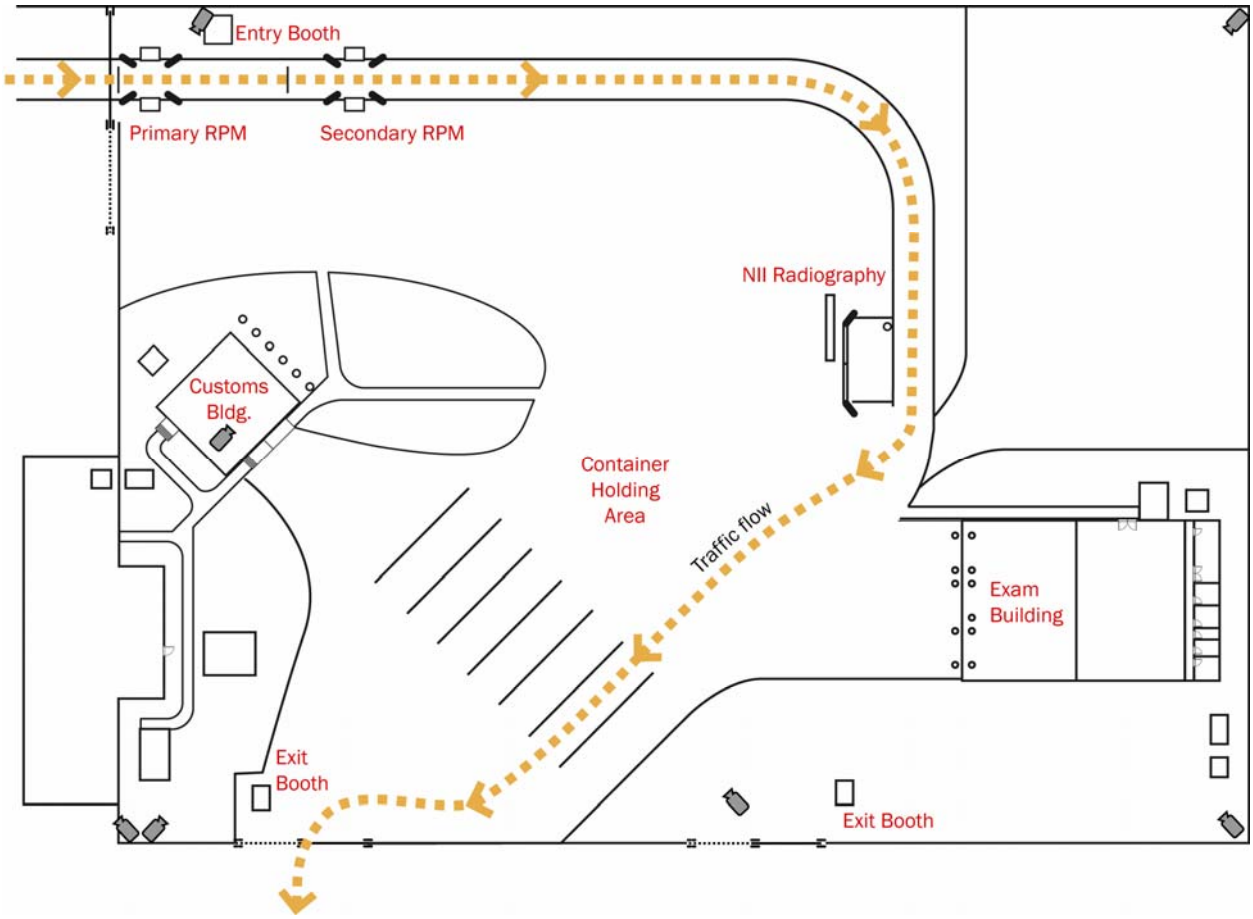
Puerto Cortés remains an active and valuable SFI port and provides an opportunity to deploy scanning equipment in a port with a higher volume of containers, but some challenges persist. First, the terminal operator in Puerto Cortés has limited advance electronic data available, and containers may arrive days in advance of departure. Manifest information is received by CBP only 24 hours in advance of departure; so if a container arrives at the port gate days in advance and the manifest data has not yet been submitted to CBP or the port, the container may proceed through the scanning equipment. The separation of U.S.-bound containers from non-U.S.-bound containers at Puerto Cortés occurs only after a manual documentation review by Honduran Customs personnel, who are stationed at the scanning sites. This data is later validated once CBP receives the 24-hour rule information. This process is very labor intensive and has not yet been remedied. As a result, the SFI team must continually work with local personnel to ensure that all information is valid and scans take place.

A second challenge is that the NII equipment in Puerto Cortés was purchased separately by the Government of Honduras and in advance of the development of integrated radiation scanning systems. Thus, maintenance of the equipment is not in the control of CBP or DOE. Additionally, there were difficulties integrating this older generation equipment with the radiation detection equipment used during the SFI pilot period. For example, the imaging systems were initially unable to fuse some NII data with corresponding radiation scanning data, system reliability was adversely affected, and the overall data quality was initially poor. Both the NII and the integration software needed several updates in order to function properly.

Basic container movement can be problematic in Honduras as well. As the pilot continued, traffic through the lane would congest and not properly process through first passage. While this did not cause any containers to miss their voyages, it did cause truck flow issues at the gate. Since then, a system of gate arms has been installed in the lane to regulate the flow of containers through the lane and trucks have processed much more efficiently.

Qasim, Pakistan

Figure 1-3 Port Qasim Traffic Pattern



Port Qasim continues to showcase the successes of the SFI program in a country where the foreign government is very supportive of the initiative; from constructing the scanning site, to

providing adequate staffing levels for SFI, the Government of Pakistan remains to be a strong partner in deploying a system to scan all of U.S.-bound maritime containers.

Lessons learned from the Port Qasim pilot uncovered several important challenges that must be addressed, but also illustrated some trade benefits. A paramount concern is the downtime of the NII equipment used to scan the containers. Extreme climate conditions and lengthy operation times caused technological problems with the equipment that the vendors continue to address.

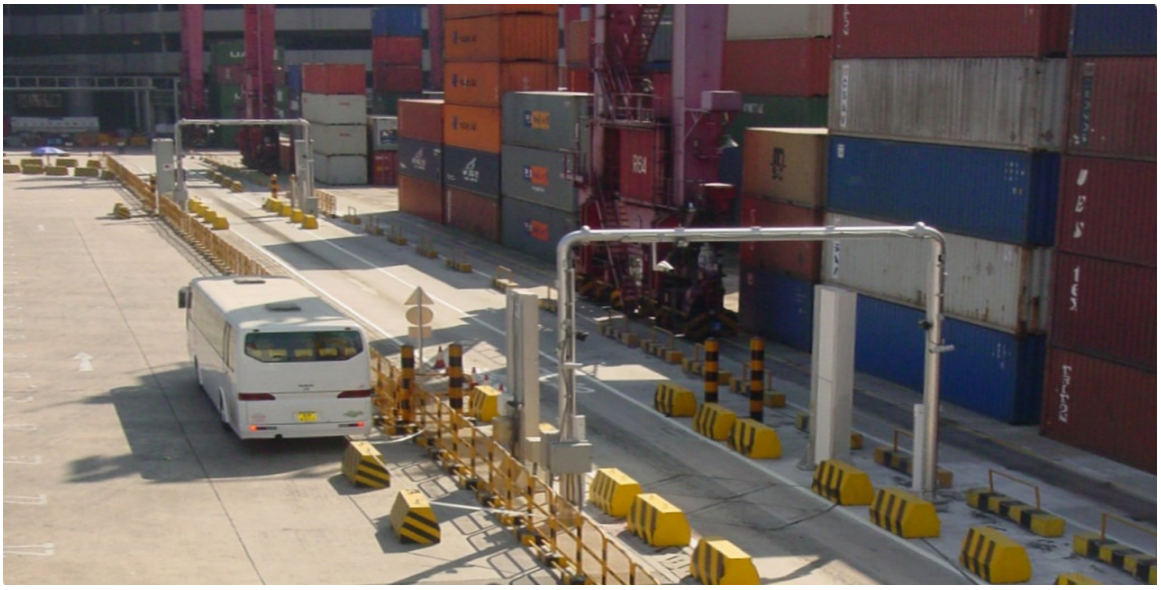
Port Qasim also presents a unique situation since DOS does not allow U.S. personnel to be permanently stationed at the port for security reasons. As a result, all targeting of containers must be done remotely by CBP officers in the United States and physical exams at Port Qasim are conducted by Pakistan Customs officials and foreign service nationals (FSNs) hired and vetted by the U.S. Consulate General in Karachi.. At all times, CBP officers use live video feeds streaming directly from Pakistan to the United States to monitor SFI operations in Port Qasim, including physical examinations of the containers. Creating the process for real-time data transmission and analysis required the development, installation, and integration of new software.

As noted in the previous report, Port Qasim shows that trade is benefiting from SFI operations. In the time since SFI started operational testing, Port Qasim has experienced an increase in the container volume of exports to the United States and that trend continues. Shippers in the region are routing more containers bound for the United States through Port Qasim, in anticipation of faster processing through U.S. Customs upon arrival of containers that have been scanned at Port Qasim prior to shipping.

Since the previous report, Port Qasim did suffer an unexpected setback. A power surge on June 4, 2008, affected all of Pakistan and corrupted the SFI/ Integrated Cargo Container Control and Live Wave software. This caused the live video feed to become inoperable for more than a month. Such downtime of the systems proves difficult to work around. However, through the extensive partnership between Pakistan Customs, the FSNs, and the CBP team at the NTCC, everyone ensured that containers leaving Qasim were as secure as possible.

Hong Kong (Modern Terminal)

Figure 1-4 Hong Kong Integrated Container Inspection System (ICIS) Installation



On April 30, 2008, Hong Kong Customs and Modern Terminals agreed to extend the SFI pilot for one year, keeping the ICIS operational. After six months, they will reconsider whether additional equipment and/or additional terminals may be added to SFI operations there. Operations in this location continue to provide valuable data on the impact of SFI in a location with high container volume and limited space in which to operate.

Since the last report, there have been new challenges in procuring the equipment used in the SFI lane, maintaining the existing systems, and pushing the data for targeting. Currently, the NII, RPM, and OCR equipment used at Modern Terminals are owned by Science Application International Corporation (SAIC). While there has been no cost to the U.S. Government up to this point, SAIC has asked that the United States purchase the equipment for future use in SFI operations. The procurement process is underway. However, the U.S. Government has insisted that the existing equipment be upgraded to comply with current SFI standards prior to purchase. SAIC is in the process of conducting these upgrades.

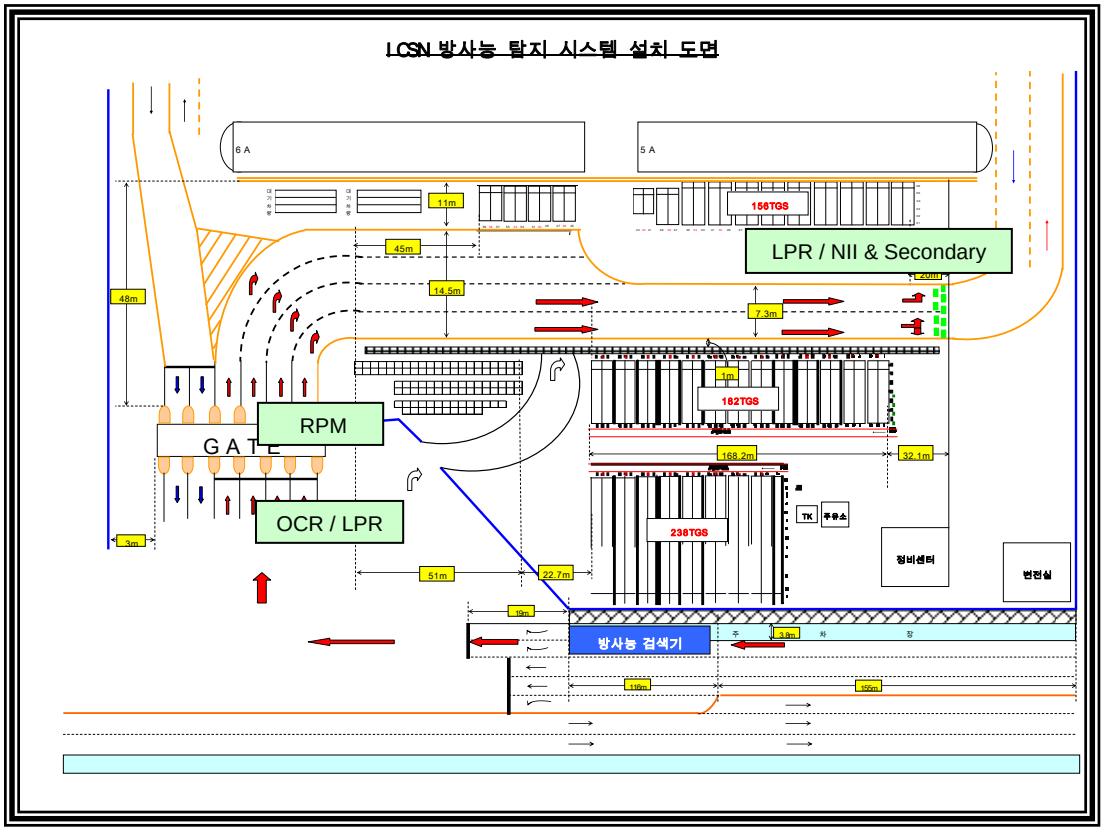
The current systems have not been without their challenges. Software issues and technical difficulties have caused some downtime of the systems. As a result, the vendor had stationed a technician in Hong Kong to provide 24-hours-a-day, 7-days-a-week maintenance for the systems. While there, the technicians were able to maintain the systems to ensure effective operation. However, without this support, the systems continued to experience downtime. Prior to purchase by the U.S. Government, SAIC will upgrade these systems, which will reduce these problems.

Another challenge in Hong Kong is the voluntary nature of driving through the system. Because SFI is still operating as a pilot there, Modern Terminal and Hong Kong Customs feel that this does not yet have to be mandatory. As reported in June 2008, truck drivers are not required to

drive through the ICIS lane at Modern Terminal. While most do process through the lane, the choice allows some containers not to be scanned or imaged.

Busan, South Korea (Gamman Terminal)

Figure 1-5 Traffic Pattern in Busan



The pilot in Busan, South Korea, has progressed and all equipment has been installed. Construction is complete and the systems stand ready for full operation. Currently, however, only the RPMs are processing containers. The remaining impediment to achieving full operation is the health and safety concerns expressed by the Government of South Korea and the trucker unions regarding the drive-through NII systems.

To assure all concerned parties that the NII system poses no harm, the U.S. Government and the vendor have fully briefed the unions and all interested government personnel. Furthermore, the South Korean and British nuclear regulatory bodies have studied the system and concluded that there is no risk. To allay remaining concerns, the U.S. Government paid for and installed a dose meter to notify all drivers of the minimal radiation exposure levels.

Despite these efforts, the South Korean government remains reluctant to begin imaging containers without the agreement of the trucker unions. Discussions continue, however, and DHS expects that operation of SFI in Busan should begin soon.

Salalah, Oman

The deployment of SFI operations to the Port of Salalah, Oman is progressing with construction, system integration, and the installation of equipment.

On May 28, 2008, the Port of Salalah underwent an expansion of operations and started a new service, which included a new customer, Mediterranean Shipping Company (MSC). MSC completely occupies the two newly commissioned berths at the Port of Salalah (Berths 5 & 6), which account for 6,000 ground slots. To address this port expansion, the Port of Salalah added 15 new Rubber Tyred Gantry (RTG) cranes that will enable them to handle more containers (more rows and higher stacks of containers – 26 containers per each block). The results of this expansion of service at the Port of Salalah have limited the available area for SFI NII scanning in the terminal.

Singapore (Brani Terminal)

The U.S. Government was approached in November of 2006 by the Embassy of the Republic of Singapore to discuss inclusion of the Port of Singapore as a SFI pilot location. As a result of this request by the Government of Singapore, CBP (in partnership with DOE and DOS) engaged the Government of Singapore in multiple meetings and discussions on SFI requirements and the roles/responsibilities of the respective partners.

On December 17, 2007, the U.S. Ambassador to Singapore and the Permanent Secretary of Ministry of Transport for the Republic of Singapore signed the SFI Declaration of Principles (DOP) to solidify both governments' commitment to deploy SFI systems to the Brani Terminal. Subsequent to the signing of the DOP, Government of Singapore, the Port of Singapore Authority (PSA), and CBP continued negotiations on a number of major operational conditions/requirements including:

- Physical Inspections: Government of Singapore maintained that CBP must bear all costs associated with any SFI request for a physical examination, to include but not limited to: drayage fees, missed connection fees, inspection site, inspection facilities, staffing to conduct the examination, forklifts, etc.
- Container Volume: As a "limited capacity" expansion location, CBP agreed to limit SFI operations to U.S.-bound containers arriving in Singapore aboard APL vessels, which represents approximately 45 percent of the total U.S.-bound container traffic at PSA. Government of Singapore remained unwilling, however, to entertain discussions on the scanning of 100 percent of the U.S.-bound containers arriving aboard APL vessels and maintains that only a very "low level" of the container volume would be referred for SFI scanning. To conduct a valid test at the SFI Singapore lane, CBP anticipated a weekly volume of approximately 1,350 containers – approximately 450 containers per day or 34 containers per hour.
- Traffic Congestion: Government of Singapore stated that U.S.-bound containers will be required to bypass the SFI scanning lane during times of traffic congestion.
- Electrical Supply: The existence of an adequate power source at the SFI location has been a basic working assumption of both sides since January 2007. Government of

Singapore/PSA originally stated that there was adequate (approximately 80 kilovolt-amps) electrical power available for SFI use. During negotiations, Government of Singapore/PSA indicated that the power supply may not be adequate and advised CBP that if there are power problems at the site during operations, the SFI lane would be shut down in favor of other Government of Singapore/PSA operations.

On June 2, 2008, the Government of Singapore and CBP mutually agreed to delay the implementation of SFI at the Brani Terminal because of concerns about the potential adverse impact on port efficiencies in this very complex, high volume and high transshipment port. The Government of Singapore has been and remains an important and highly valued partner to CBP and continues to play an important role in enhancing the security of the global supply chain and improving trade facilitation.

These operational issues, in conjunction with the lessons learned from the other SFI pilot locations, underscores the considerable challenges associated with the implementation of SFI in high-impact, transshipment locations.

As CBP pursues the development of a risk-based SFI strategy that will focus initial deployment efforts on specific, strategic trade corridors, CBP will continue to identify operational solutions and potential approaches to solve the complex challenges of scanning 100 percent of maritime containerized cargo at high volume, transshipment ports.

Instead, CBP and the Government of Singapore will work together to explore alternative approaches toward enhancing container and trade security through risk management and a total supply chain security approach. In particular, CBP and the Government of Singapore will actively work together to develop the Asia-Pacific Economic Cooperation Trade Recovery Program, an effort aimed at helping APEC economies to resume the flow of trade in times of heightened security. In addition, CBP and Singapore Customs are actively working towards mutual recognition for each others' authorized economic operator programs. These programs build on the excellent relations between CBP and the Government of Singapore in supply chain security cooperation.

Updated Cost of SFI Operations

Recently, DHS has noted that future deployments are likely to require an investment of $8 million per lane. This includes, among other things, IT infrastructure, construction costs, and NII equipment. Some international ports can have as many as 30-40 lanes for container traffic, causing a one-port cost to DHS of $240-320 million. While DOE's cost estimate for future work varies depending on the solution needed for a particular port, the SFI installations to date have cost approximately $1.7 million per lane. This figure includes ASPs, communications, handheld equipment, installation and set-up, testing and training.

The following table lists the expenditures by DHS on the pilot ports since the inception of the SFI program. The numbers are current through July 1, 2008, and reflect actual costs to that point.

Element	DHS Cost	DOE Cost
Cables	$1,171,723	
Travel	$1,553,943	$141,572
Travel	$259,695	
Equipment	$15,500,000	$5,473,244
Contract Modifications	$550,000	
Software development (OIT-07)	$10,080,882	
Training	$231,502	$2,392,000
Site Survey	$200,000	
Program Office (PO) Support (contractor)	$1,657,500	
Software development (OIT-08)	$7,937,297	
Software licenses	$628,486	
Hardware Server Licenses	$82,132	
Government staffing-Headquarters	$929,535	
Government staffing-abroad	$348,439	
Installation		**$24,913,931**
Communications		**$6,766,421**
Testing		**$1,405,020**
Maintenance		**$892,080**
TOTAL	**$41,131,134**	
Forecast End of 2008	**$48,000,000**	**$50,641,572**

The following is a description of the above cost elements:

Cables: "Fund Cite Cables" are used to release funds overseas. These funds may be used to build structures in support of SFI operations, allow for purchase of office equipment, or cover any other expanse incurred abroad to support the SFI program operations, including salaries of FSNs hired at SFI locations.

Travel: This category was split between country managers' travel and SFI program office management travel.

Equipment: This category pertains to CBP-provided equipment in support of SFI operations (i.e., mostly NII systems).

Contract Modifications: This category pertains to any modifications to initial equipment installation contracts that resulted in additional costs.

Software Development (2007 and 2008): This category pertains to funding allocated to OIT to develop and maintain all software required to process the data collected by the SFI equipment and the transmission of this data to the ATS system. It also includes the development of the SFI interface and any additional developments required.

Training: This category includes any vendor-provided training required to operate SFI equipment and conduct SFI-related duties. DOE also trains those individuals in the host country who will be responsible for operating and maintaining the equipment.

Site Survey: This is the cost incurred by contractors to develop and document initial assessments at each candidate port in preparation for SFI implementation.

Program Office (PO) Support: These funds were expanded to develop the PO organization and prepare documentation according to CBP-approved program life-cycle process (contractor support).

Software Licenses: Self-explanatory, this category pertains to the cost of software licenses for all applications required to successfully operate SFI.

Hardware Server License: This category addresses the cost of licenses required to operate servers.

Government Staffing: This includes salary expenses for staff permanently assigned to Headquarters as well as the cost of Temporary Duty (TDY) staff assigned to the SFI project at Headquarters.

Government Staffing Abroad: This category includes the cost of maintaining U.S. Government employees (TDY or permanent) at SFI locations.

Installation: This category includes DOE costs associated with the installation of radiation detection equipment.

Communications: This category includes DOE costs associated with providing the associated communications system with its radiation detection equipment.

Testing: This category includes the cost of testing DOE's radiation detection equipment and associated communications system before it is turned over to the host country for operation.

Maintenance: This category includes the cost of DOE-provided maintenance on installed systems.

Future Deployment Strategy

As mentioned in the previous report, continuing operations in the current SFI pilot port locations will afford CBP the opportunity to explore possible solutions to the complex challenges posed by transshipment and high-volumes of cargo, which remain a top concern for future deployments. SFI operations should begin to demonstrate a concept of operations utilizing equipment that can successfully capture data on transshipment containers. New SFI locations also depend heavily on the political will of host governments, terminal operators, and carriers to be successful. As demonstrated in Singapore and Southampton, it is not always agreeable to foreign governments or industry partners to begin scanning or even sustain operations.

The mandate of the 9/11 Act comes with heavy cost for implementation, but it is silent as to who bears that cost. Whether it is the U.S. Government, a foreign government, or a private entity, the financial and resource commitment will be substantial. Our current estimate for equipment, IT, and infrastructure is approximately $8 million per lane (DHS costs only: imaging systems and IT infrastructure). With more than 700 ports shipping containers to the United States, most with multiple lanes, the cost easily reaches into the billions. For example, Hong Kong has 7 terminals and approximately 50 lanes.

The unique logistical, technological, and diplomatic challenges experienced at each port make extrapolation to any further detail difficult. The $8 million per lane estimation does not account for transshipment, rail, or barge traffic. Additionally, the need for creative solutions like Integrated Cargo/Container Control Program in Qasim, Pakistan, cannot be predicted prior to individual port assessments. Such an operation where U.S. personnel are not located in the foreign port, and does all targeting remotely, will adjust any cost projections.

Considering the challenges and costs, prioritizing future deployments based on risk is the most efficient and effective means to minimize costs and disruptions to port operations abroad and to the global supply chain in general. This allocation of departmental resources will ensure that CBP can best enhance security and realize the benefits of the scan data in an efficient manner that recognizes the need to utilize limited resources to address other important vulnerabilities.

This strategy will focus on trade corridors through which potentially high-risk containers transit or originate. Currently, DHS and DOE, in collaboration with the DOS and members of the intelligence community, are working to identify initial future locations that would be the most practical next steps for SFI. The SFI program office initiated a study to identify areas worldwide where the implementation of SFI could potentially mitigate risk associated with the introduction of weapons of mass effect into the United States by way of maritime containerized cargo.

This effort employs a holistic approach to identify potential strategic trade corridors using information gathered by CBP, the U.S. Coast Guard, DOE, DOS, and members of the intelligence community. Such factors as ATS scores, International Ship and Port Facility Security evaluations, and specific reports on transnational terrorism, indigenous terrorism, and political violence are all contributing to the development of this path forward. Furthermore, this strategy will account for the location, capability, and anti-U.S. sentiment of terrorist groups with

access to trade lanes. Additionally, and most importantly, this strategy must weigh the political will of any host government to partner with the U.S. to conduct the SFI program.

As such, it is critical to move forward in a deliberate and thoughtful manner. International and industry opposition to 100 percent scanning continues to be strong. Since the last report, for example, the World Customs Organization (WCO) released a report on 100 percent scanning noting the tremendous cost to implementation and reiterating that 100 percent scanning undermines the Framework of Standards to Secure and Facilitate Global Trade. Additionally, in both congressional testimony and in an August 2008 report, the Government Accountability Office (GAO) recognized DHS's leadership in international efforts to further secure the global supply chain security through programs such as the Customs Trade Partnership Against Terrorism (C-TPAT), CSI, and SFI.[1] The GAO has also identified a number of significant obstacles to the 100 percent scanning requirement and has cautioned that the mandate may undermine current successes by dissuading foreign governments and industry from continuing to partner with DHS in risk-management security programs. In addition, many countries question the need for 100 percent scanning and whether 100 percent scanning enhances security.

The language in both the SAFE Port Act of 2006 and the 9/11 Act of 2007 provides the Department with flexibility to move forward in a responsible and effective manner as we work to deploy scanning systems within the ports of sovereign nations. Additionally, the law charges DHS to move forward with the implementation of the 9/11 Act requirements in a manner that does not impede the trade and acknowledges the limitations of existing scanning technology. Given the far reaching implications of this law, not only to global trade but to America's foreign policy, trade, and diplomatic relations worldwide, our focus on deploying scanning systems based on risk represents a responsible and effective path forward.

[1] GAO, *Supply Chain Security: Challenges to Scanning 100 Percent of U.S.-Bound Cargo Containers*, GAO-08-533T (Washington, D.C.: June 12, 2008) and GAO, *Supply Chain Security: CBP Works with International Entities to Promote Global Customs Security Standards and Initiatives, but Challenges Remain*, GAO-08-538 (Washington, D.C.: August 2008).

Conclusion

A critical element of any strategy to protect our Nation is monitoring what is coming across our borders. Physically inspecting every single container that enters the country would be extreme, impractical, and detrimental to our own economy, as well as the global economy. Instead, we rely on a robust layered, risk-management approach that identifies and focuses our resources on threats while allowing legitimate cargo to move unhindered through the process. This risk-based approach reduces the likelihood of a successful exploitation of any one layer in the supply chain system as a whole. The appropriate distribution of resources, based on informed judgment regarding the totality of dangers facing the Nation, is necessary to the success of this risk-based and layered approach. The evolving nature of threats against the United States, and the attractiveness of exploiting any point of least resistance, is a call for vigilance against a disproportionate expenditure of resources and attention in one area to the potential detriment of other vital less fortified vulnerabilities.

That is why it remains critical to continue to evaluate the SFI program to determine the best method by which to employ SFI within our risk-based methodology. This report serves as an update on the ongoing effort to best understand the operational realities of SFI. Issues of cost, political will, and equipment downtime continue to present challenges. The international and industrial communities still remain largely opposed to 100 percent scanning, and have conducted studies of their own to demonstrate the negative impacts of such an effort. In light of the considerable concern expressed by many foreign and industry partners on this issue, garnering host government support for deploying scanning systems is a delicate task. However, by prioritizing deployments using a risk based approach, DHS believes that SFI operations will be more readily received and ultimately more successful.

Prioritizing future developments on strategic trade corridors allows DHS to most effectively allocate resources, both capital and personnel. Working with host governments and terminal operators to place radiation detection and imaging equipment in ports with a greater share of high-risk cargo will certainly complement an already successful approach to maritime security. DHS must continue work to refine future deployments in a viable and responsible manner. It will be critical to keep operations in current SFI locations, test new technology, and work to find solutions to complex challenges.

Acronyms

9/11 Act	Implementing Recommendations of the 9/11 Commission Act of 2007
ATS	Automated Targeting System
ASP	Advanced Spectroscopic Portal
CAS	Central Alarm System
CBP	U.S. Customs and Border Protection
CERTS	Cargo Enforcement Reporting and Tracking System
CSI	Container Security Initiative
C-TPAT	Customs–Trade Partnership Against Terrorism
DHS	U.S. Department of Homeland Security
DNDO	Domestic Nuclear Detection Office
DOE	U.S. Department of Energy
DOS	U.S. Department of State
DPW	Dubai Ports World
FSN	Foreign Service National
HMRC	Her Majesty's Revenue and Customs (United Kingdom)
ICIS	Integrated Container Inspection System
ICS	International Container Security
MI	Megaports Initiative
MRDIS	Mobile Radiation Detection and Identification Systems
NII	Non-intrusive Inspection
NNSA	National Nuclear Security Administration
NTCC	National Targeting Center - Cargo
OCR	Optical Character Recognition
OIT	Office of Information and Technology
RPM	Radiation Portal Monitor
SAFE Port	Security and Accountability for Every Port Act of 2006
SAIC	Science Applications International Corporation
SCT	Southampton Container Terminals
SFI	Secure Freight Initiative
TDY	Temporary Duty

TOS	Terminal Operating System