U.S. Nuclear Regulatory Commission Implementation Plan for the Radiation Source Protection and Security Task Force Report

ENCLOSURE

Introduction

The Energy Policy Act of 2005 (EPAct) created an interagency task force on radiation source protection and security under the lead of the U.S. Nuclear Regulatory Commission (NRC). The Interagency Radiation Source Protection and Security Task Force evaluates the security of radiation sources in the United States from potential terrorist threats, including acts of sabotage, theft, or use of a radiation source in a radiological dispersal device (RDD). The Task Force then provides recommendations to the President and Congress on how to address these security threats.

In particular, the Task Force evaluates and makes recommendations for possible regulatory and legislative changes on several specific topics related to the protection and security of radiation sources. For the purposes of the Task Force, the EPAct defines a radiation source as a "Category 1 Source or a Category 2 Source as defined in the Code of Conduct[1] and any other material that poses a threat such that the material is subject to this section, as determined by the Commission, by regulation, other than spent nuclear fuel and special nuclear material." Although the EPAct refers to "radiation sources," this implementation plan uses the more common term, "radioactive sources."

The Task Force submits its reports to Congress and the President; it submitted its first report on August 15, 2006. The Task Force will submit subsequent reports not less than once every 4 years. The Task Force submitted its second report on August 11, 2010. The first report contained 10 recommendations and 18 actions and the second report contained 11 new recommendations that address the security and control of radioactive sources.

The EPAct further requires that the Commission "...in accordance with the recommendations of the task force...take any action the Commission determines to be appropriate, including revising the system of the Commission for licensing radiation sources." The staff has developed this implementation plan to outline and track the actions that the NRC plans to take to address the recommendations and actions contained in the Task Force report.

Development of the Implementation Plan

The NRC's plan for implementing the Task Force recommendations and actions includes a specific implementation plan for each of the recommendations and actions. The NRC Office of Federal and State Materials and Environmental Management Programs (FSME), Office of Nuclear Material Safety and Safeguards (NMSS), Office of Nuclear Security and Incident Response (NSIR), Office of International Programs (IP), Office of the General Counsel (OGC), and Office of Public Affairs (OPA) are involved in the implementation of the recommendations and actions. Other agencies involved in implementation are the Department of Homeland Security (DHS), Federal Emergency Management Agency (FEMA), Transportation Security Administration (TSA), Department of State (DOS), Department of Transportation (DOT), Department of Defense (DOD), Federal Bureau of Investigations (FBI), Central Intelligence Agency (CIA), Environmental Protection Agency (EPA), Department of Commerce (DOC), Department of Energy (DOE), Department of Justice, Food and Drug Administration,

---

1 "Code of Conduct" refers to the "Code of Conduct on the Safety and Security of Radioactive Sources," approved by the Board of Governors of the International Atomic Energy Agency (IAEA) and published January 2004.

Department of Health and Human Services (HHS), and Office of the Director of National Intelligence (ODNI).

Organization of the Implementation Plan

Each entry in the main body of the plan presents a strategy for implementing an individual Task Force recommendation or action. Where appropriate, the individual plans include task breakdowns and a discussion of any known issues that could challenge implementation.

The implementation plan is a living document. FSME updates the plan as implementation of the recommendations and actions progresses.

Implementation Plans for Individual Recommendations and Actions

2006 Recommendation 3-1	**Reevaluation of Sources that Warrant Enhanced Security and Protection**	DHS/DOE/NRC lead
		Ongoing; reassessed in 2009 as part of periodic reevaluations, with consideration of amended bracketed text

Task: The Task Force recommends that the U.S. Government periodically reevaluate the list of radioactive sources that warrant enhanced security and protection to assess their adequacy in light of the evolving threat environment [and consistent with current national consequences of concern in order to provide a consistent level of protection with other critical infrastructure].

Cite: 2006 Report (Chapter 3—Radioactive Source Lists) and 2010 Report (Chapter 2—Advances in the Security and Control of Radioactive Sources)

2006 Report Context: The Code of Conduct serves as an appropriate framework for considering which sources warrant additional protection. The Code of Conduct considers that a country should "define its domestic threat, and assess its vulnerability with respect to this threat for the variety of sources used within its territory, based on the potential for loss of control and malicious acts involving one or more radioactive source." In general, U.S. programs adhere to this philosophy. However, the threat environment is not static but changes continually. Therefore, it is good practice to occasionally reevaluate the potential attractiveness of the radioactive sources for malevolent use. The Task Force recommends that the U.S. Government periodically reevaluate the list of radioactive sources that warrant additional security and protection. This reevaluation should be coordinated within the Federal family and can be performed as part of the Task Force activities every 4 years. If the reevaluation determines that the list of sources should be expanded, the U.S. Government should consider appropriate revisions to its national requirements and work with the international community to revise the Code of Conduct, as appropriate.

2010 Report Context: The Task Force's reevaluation of the list of radioactive sources that warrant enhanced security and protection focused primarily on economic consequences and expanded its scope to address all radioactive materials worldwide. The Task Force evaluated consequences consistent with the National Infrastructure Protection Plan (NIPP) Strategic Homeland Infrastructure Risk Assessment (SHIRA) consequences. Changes in the consequences of concern can affect not only protective strategies but also the list of radioactive materials and quantities of concern. Therefore, for consistency with other critical infrastructure sectors, the Task Force modified 2006 Recommendation 3-1 to align with NIPP methodology.

In conclusion, based on the definitions, assumptions, and parameters used, the Task Force found that the Category 1 and 2 quantities remain valid for sealed and unsealed sources as the list and threshold levels of radionuclides that could result in a significant radiological exposure device (RED) or RDD event and therefore warrant enhanced security and protection (Table II). Furthermore, because the reevaluation included unsealed material, the Task Force identified seven additional radionuclides (Table III) that may be of concern when aggregated; however, because they are infrequently shipped or possessed in quantities likely to cause a significant RDD event, at this time the Task Force proposes no recommendation about these radionuclides and enhanced security and protection.

Table II: Radionuclides that Warrant Enhanced Security and Protection

Radionuclide	IAEA Category 2 Threshold	
	(TBq)	(Ci)
Am-241	0.6	16
Am-241/Be*	0.6	16
Cf-252	0.2	5
Cm-244	0.5	14
Co-60	0.3	8
Cs-137	1.0	27
Gd-153 ***	10.0	270
Ir-192	0.8	22
Pm-147 **	400.0	11,000
Pu-238	0.6	16
Pu-239/Be*	0.6	16
Ra-226	0.4	11
Se-75	2.0	54
Sr-90 (Y-90)	10.0	270
Tm-170	200.0	5,400
Yb-169	3.0	81

* The Code of Conduct lists Am-241/beryllium (Be) and Pu-239/Be as distinct sources. The down-selection considered only the radioactive material.

** The down-selection did not identify promethium (Pm)-147 because it is not commercially available to end users in quantities that could potentially be used in a significant RDD (i.e., greater than 1 curie (Ci) (0.04 TBq) for beta/gamma sources). The reevaluation retained Pm-147 because it is included in the Code of Conduct.

*** Identified in the down-selection as not commercially available to end users in quantities that could potentially be used in a significant RDD, but could be of concern in limited situations when aggregated or in bulk quantities.

Table III: Radionuclides that Should Be Considered for Enhanced Controls

Radionuclide	IAEA Category 2 Threshold	
	(TBq)	(Ci)
Fe-55 *	8000.0	220,000
Po-210 **	0.6	16
C-14 *	500.0	14,000
Sr-82 *	0.6	16
I-125 *	2.0	54
I-131 *	2.0	54
W-188 *	10.0	270

* Identified in the down-selection as not commercially available to end users in quantities that could potentially be used in a significant RDD. However, they are very unlikely to be used in activity levels that would place them within IAEA Categories 1 or 2, but could be of concern in limited situations when aggregated or in bulk quantities.

** The down-selection process identified Po-210 because it is commercially available to end users in quantities that could potentially be used in a significant RDD (i.e., greater than 0.1 Ci (0.004 TBq) for alpha sources). However, it is very unlikely to be used in individual radioactive sources with activity levels that would place them within IAEA Categories 1 or 2, but could be of concern in limited situations when aggregated or in bulk quantities.

Potential Issues: Determining within the Task Force when the next reevaluation should occur. The Task Force will need to keep abreast of any significant change in the threat environment and align with the revised DHS NIPP/SHIRA risk assessment work and schedule so that the methodologies used in determining the list and quantities of radioactive material are consistent.

Agencies Involved: All Task Force agencies. The inactive subgroup included representatives from NRC, DOE, DOS, DOD, DHS, DOT, EPA, FBI, and ODNI.

Program Office Action: The Task Force Subgroup on Radiation Sources reevaluates the source list as part of its activities every 4 years. This Subgroup was inactive from the issuance of the first Task Force report until the DHS requested its reactivation at the April 25, 2007, Task Force meeting. At the November 29, 2007, Task Force meeting, the Subgroup's charter was expanded to include obtaining Federal Agency concurrence on the quantities of radioactive material sufficient to create a significant RDD and RED. NRC/NSIR co-chaired the reactivated Subgroup with DHS and DOE. During the May 15, 2008, Task Force meeting, the Subgroup presented proposed definitions of RED, RDD, significant RED, and significant RDD. Following the May 15, 2008, Task Force meeting, the Task Force approved the Subgroup's charter and a response letter that provided additional information to an April 23, 2007, response to Secretary Chertoff's March 22, 2007, letter. The letter was sent to the Assistant Secretary for Infrastructure Protection in DHS on August 13, 2008. On January 28, 2009, the Task Force received the Subgroup's final report for review. The Subgroup discussed how to proceed with resolving comments on the report during the July 8, 2009, Task Force meeting. The results of the report were endorsed by Task Force members. Further discussion regarding the contents of and conclusions from the report were addressed in the 2010 Task Force report. While, NSIR continues to monitor the threat environment, no further action is necessary until the Task Force determines to reactivate the Subgroup for the next periodic reevaluation.

Resources: This recommendation is ongoing; however, the periodic reevaluation was completed. No additional resources are necessary until the Task Force determines to reactivate the Subgroup for the next periodic reevaluation.

2006 Recommendation 3-1		
Tasked Office	**Breakdown into Subtasks**	**Due Date**
Task Force	Reactivate Sources Subgroup at 4/25/07 meeting	Complete
Sources Subgroup	Provide terms of reference for Task Force approval	Complete
Sources Subgroup	Provide proposed path forward to Task Force	Complete
Sources Subgroup	Provide status update to Task Force at 10/1/08 meeting	Complete
Sources Subgroup	Provide final report to Task Force	Complete
Sources Subgroup	Discuss resolution of comments on final report with Task Force at 7/8/09 meeting	Complete
Task Force	Task Force members endorse the results of the final report	Complete

2006 Recommendation 4-1	Public Education Campaign	DHS lead
		Transitioned from the Task Force to FEMA

Task: The Task Force recommends that there be a coordinated public education campaign (Federal, State, and industry) to reduce fears of radioactivity, diminish the impact of a radiological attack if one were to occur, and provide a deterrent to attackers considering the use of radiological materials.

Cite: 2006 Report (Chapter 4—Security and Control of Radioactive Sources) and 2010 Report (Chapter 1—Coordination and Communication Improvements)

2006 Report Context: Another important aspect of response training is public education. Proactively educating the public about the radiation risks of an RDD may reduce the public's anxiety and ameliorate the psychological impacts in the event of an RDD attack, thereby mitigating some of the consequences of physical and social disruption caused by fear and panic. Agencies should coordinate to avoid duplication of effort and ensure the consistency of the intended message. Therefore, the Task Force recommends establishing a coordinated interagency (Federal and State) campaign, which would work with industry groups to educate the public on the effects of and response to an RDD event.

2010 Report Context: In 2007, the Task Force formed the Public Education Subgroup to examine the issues related to educating the public on various radiation and RDD topics. The results of the examination were translated into an action plan that was endorsed by the Task Force.

As an outcome of coordination efforts between the Task Force and FEMA, it was agreed to transfer all of the public education outreach initiatives to FEMA, the lead for the U.S. Government in public communication on issues related to radiation and other hazards. The Task Force's Public Education Steering Committee disbanded upon transfer of the public education outreach initiatives to FEMA. Therefore, the Task Force will no longer pursue the projects outlined in the plan; however, FEMA will consider them as they are pursuing their own mission in this regard. The Task Force continues to support FEMA's progress on this campaign and desires to stay apprised of developments.

Potential Issues: No known issues.

Agencies Involved: All Task Force agencies.

Program Office Action: DHS had the lead for this effort. Within the NRC, FSME, NMSS, IP, NSIR, and OPA participated. FSME participated as a member of the Subgroup and Steering Committee. The Subgroup completed and the Task Force endorsed its final Action Plan. The Task Force agreed, at a November 2, 2009 Task Force meeting, that FEMA accept the

recommendation to take the lead for public education outreach initiatives. No further action is necessary.

Resources: This recommendation is complete. No additional resources are necessary.

2006 Recommendation 4-1		
Tasked Office	**Breakdown into Subtasks**	**Due Date**
Public Education Subgroup	Present action plan to Task Force	Complete
Task Force	Task Force endorses action plan	Complete
Task Force	Task Force endorses Steering Committee membership at 7/8/09 Meeting	Complete
Public Education Steering Committee	Provide a progress report to the Task Force during 11/2/09 meeting regarding two of the seven projects in the action plan and recommend transfer of responsibility for public education outreach activities to DHS/FEMA	Complete
Task Force and DHS/FEMA	Task Force endorses recommendation to consolidate public education outreach activities within one Federal coordination effort, led by DHS/FEMA rather than by the Task Force.	Complete

2006 Recommendation 4-2	Coordination and Communication for Radiation Protection and Security Programs	Task Force/NRC lead
		Ongoing

Task: The Task Force recommends that the Federal agencies and States continue efforts to improve coordination and communication of their ongoing activities in the area of radiation protection and security for Category 1 and 2 sources.

Cite: 2006 Report (Chapter 4—Security and Control of Radioactive Sources) and 2010 Report (Chapter 1—Coordination and Communication Improvements)

2006 Report Context: Federal and State agencies are implementing many activities and programs related to radioactive source protection and security. These activities and programs require coordination and cooperation between the interested stakeholders to ensure that their approaches do not conflict and to avoid duplication of effort. While such coordination and communication do occur, improvement is always possible and helps to enhance the programs. Therefore, the Task Force recommends that the Federal agencies and States continue efforts to improve coordination and communication of their ongoing activities in the area of radiation protection and security for Category 1 and 2 radioactive sources. This Task Force is one mechanism for improving coordination.

2010 Report Context: Significant improvement in interagency, State, and stakeholder communication and cooperation has been achieved. However, the Task Force will continue to monitor these cooperative efforts, such as progress made by the DHS NGCC and NSCC sealed source security focus groups and trilateral agencies, to ensure coordination continues.

Potential Issues: No known issues.

Agencies Involved: All Task Force agencies.

Program Office Action: The Task Force, led by the NRC, will facilitate the coordination and communication of activities. The Director of FSME serves as the point of contact for Task Force activities, and the FSME staff coordinates the Task Force activities. The Task Force will continue to meet at least twice a year to discuss topics of interest and to receive status reports on the implementation of the recommendations and actions. The Task Force will meet with other committees, task forces, working groups, and organizations to exchange information on activities. The Task Force will also consider hosting periodic public meetings. Task Force members will strive to keep other members informed of various presentations and activities by informing the Task Force of meetings and providing presentation material to other members for information purposes only. The Task Force has developed this integrated implementation plan and will update the plan to indicate progress before each meeting. FSME will facilitate the exchange of information.

NRC staff participation on other committees and working groups, which involve outside stakeholders, also serves to promote coordination and communication.

Resources: The FSME budget contains one and a half full-time equivalent (FTE) for Task Force-related activities in Fiscal Year (FY) 2011. This one and a half FTE covers the resources necessary to run the Task Force. Participation in other committees and working groups would be covered as part of routine activities.

2006 Recommendation 4-2		
Tasked Office	**Breakdown into Subtasks**	**Due Date**
NMSS, FSME	Hold Task Force meeting—9/06	Complete
FSME, Task Force	Provide implementation information to NRC	Initial complete; updates will be ongoing
FSME, Task Force	Hold Task Force meeting—12/6/06	Complete
FSME, Task Force	Issue integrated implementation plan—3/7/07 (SECY-07-0046, "Integrated Implementation Plan for the Radiation Source Protection and Security Task Force")	Complete
FSME, Task Force	Hold Task Force meeting—4/25/07	Complete
FSME, Task Force	Hold Task Force meeting—11/29/07	Complete
FSME, Task Force	Hold Task Force meeting—5/18/08	Complete
FSME, Task Force	Hold Task Force meeting—10/1/08	Complete
FSME, Task Force	Hold Task Force meeting—2/26/09	Complete
FSME, Task Force	Hold Task Force meeting—7/8/09	Complete
FSME, Task Force	Hold Task Force meeting—11/2/09	Complete
FSME, Task Force	Hold Task Force meeting—1/25/10	Complete
FSME, Task Force	Hold Task Force meeting—2/18/10	Complete
FSME, Task Force	Hold Task Force meeting—4/14/10	Complete
FSME, Task Force	Hold Task Force meeting—9/8/10	Complete
FSME	Meeting to discuss harmonizing the efforts (avoid duplication of efforts, achieve efficiencies, and improve public/private sector input through DHS CIPAC process) between the NGCC and Task Force—11/10/10	Complete
FSME, Task Force	Hold Task Force meeting	1/19/10

2006 Recommendation 4-2		
FSME, Task Force	Hold Task Force meetings	Spring and fall of each year or as requested

2006 Recommendation 5-1	Transportation Security Memorandum of Understanding	NRC lead
		2011

Task: The Task Force recommends development of a transport security memorandum of understanding (MOU) to serve as the foundation for cooperation in the establishment of a comprehensive and consistent transport security program for risk-significant sources.

Cite: 2006 Report (Chapter 5—Transportation Security of Radioactive Sources) and 2010 Report (Chapter 2—Advances in the Security and Control of Radioactive Sources)

2006 Report Context: The current MOU between DOT and the NRC has served as the foundation for cooperation and consultation regarding the transportation safety program. However, it does not cover transportation security. Although TSA is primarily involved in transportation security, it was not a signatory to the existing MOU. Because of the importance of transportation security, a similar MOU should address this issue. Therefore, the Task Force recommends developing an MOU for transportation security of risk-significant sources. This agreement, similar to the one for transport safety, would clarify the roles and responsibilities of each agency, forge a spirit of cooperation and awareness among the participants, reduce duplication of efforts, and most importantly ensure development of a comprehensive and consistent transport security program.

2010 Report Context: The MOU has program elements that consist of: 1) risk assessments, 2) strategic planning, 3) standards, regulations, guidelines, advisories, orders, and directives, 4) technical support, 5) sharing information during emergency response, 6) legislative matters, 7) budget, 8) communications, 9) intelligence and information sharing, 10) background investigations, 11) research and development, and 12) coordination meetings. DHS, DOT, and the NRC expect to sign the MOU in the second quarter of FY 2011.

Potential Issues: No known issues.

Agencies Involved: NRC, DOT, DHS, and DOE (information only).

Program Office Action: NSIR initiated discussions with DOT (Pipeline and Hazardous Materials Safety Administration (PHMSA)) and DHS (Transportation Security Agency (TSA)) to develop an MOU on transportation security. NSIR has developed a draft MOU. Currently, the draft MOU is under review by TSA and PHMSA. NSIR will keep DOE informed of activities; however, DOE will not participate directly in the discussions and will not be a signatory to the MOU. NMSS, FSME, and OGC will participate as appropriate.

Resources: The staff estimates that 0.5 FTE is required to develop and approve an MOU. This effort was split over FY 2007 and FY 2008. Effort was extended into FY 2009 and FY 2010 budgets to finalize the MOU process.

2006 Recommendation 5-1		
Tasked Office	**Breakdown into Subtasks**	**Due Date**
NSIR	Develop strawman MOU to facilitate discussion	Complete
NSIR	Hold meetings to discuss draft MOU	Ongoing
NSIR	Approve and sign MOU	3/31/11

2006 Recommendation 5-2	Evaluate Technologies To Detect and Discourage Theft during Transport	DOT/DHS lead
		Ongoing

Task: The Task Force recommends that the U.S. Government evaluate the feasibility of using new and existing technologies to detect and discourage the theft of risk-significant radioactive material during transport. The evaluation should include the findings from operational testing of existing technologies offering enhanced security of motor carrier shipments of hazardous material; shipment tracking, including communication systems; radiofrequency identification; vehicle disabling technologies; and mobile and stationary radiation detection systems.

Cite: 2006 Report (Chapter 5—Transportation Security of Radioactive Sources) and 2010 Report (Chapter 2—Advances in the Security and Control of Radioactive Sources)

2006 Report Context: Given the current level of technology, the tracking of packages, shipments, and conveyances is possible and would improve security. Although not a fatal flaw in the tracking of hazardous materials, the rapid growth of technology available to track packages, shipments, and conveyances may offer the transport community good benefit at marginal costs. To take full advantage of this technology, transport security officials need to research the technology, including costs and benefits, to determine where it should be applied.

EPA and DOE (Oak Ridge National Laboratory) are testing the use of radiofrequency identification to track and monitor the shipment of radioactive materials in commerce. Various radioisotopes, including strontium-90, cesium-137, cobalt-60, and californium-252, have been shipped in Type A packaging embedded with these tags. Initial results are very encouraging and indicate that this technology is a viable way to physically track shipments of less than a truckload of material.

The Federal Motor Carrier Safety Administration has conducted operational tests of existing technologies offering enhanced security for motor carrier shipments of hazardous materials. This 2-year test program evaluated the costs, benefits, and operational processes required for wireless communications systems, including global positioning system tracking and digital telephones; in-vehicle technologies, such as onboard computers, panic buttons, and electronic cargo seals; personal identification systems, including biometrics and a user name/password system; and vehicle tracking, including geofencing and trailer tracking systems. These tests may form the basis of regulation to require vehicle tracking and communications systems and antitheft technologies for motor carriers transporting certain classes and quantities of hazardous materials. The results of this study should be evaluated to see which if any of these technologies should be required for transporting risk-significant radioactive material.

One method to thwart hijackers is to disable the truck carrying the material they wish to obtain. DOT has been evaluating vehicle-disabling technologies, and this effort should continue. Specific aspects to be studied include safety and security testing of these systems, evaluating costs and benefits of using industry-standard truck disabling technologies, identifying best

practices for safety and security applications of remote vehicle-disabling technologies in trucking operations, and conducting field operational testing of this technology.

One way to uncover illicit trafficking is the use of detection devices. The U.S. Government should continue testing and evaluating mobile and stationary radiation detection devices for used on truck traffic. The testing should evaluate a system's capability to detect loads of radioactive materials and to identify specific isotopes and quantities present in shipments.

The U.S. Government needs to research these technologies, along with their implementation and maintenance costs, to determine the feasibility of applying them to shipments of risk-significant radioactive materials. Fact finding should include interactions with interested stakeholders, such as industry representatives. The Task Force should establish a forum to promote the exchange of information and provide a common-interest setting that may result in collaboration. To accomplish these objectives, the Task Force recommends that DHS and DOT work with the Transportation Security Subgroup to study shipment tracking options. The group should report back to the Task Force within 2 years with recommendations on shipment tracking.

2010 Report Context: The Tracking of Radioactive Sources Focus Group's findings will be used to establish a common understanding of the relevant issues and capabilities, so as to facilitate further partnership among Federal, State, local, and private-sector stakeholders in the development and ultimate deployment, if appropriate, of practical, effective technologies to track radioactive sources during transport. Focus group members are presently developing a paper describing the pros, cons, and costs of relevant technologies that may be used for tracking conveyances, packages, or individual radioactive sources.

Potential Issues: No known issues.

Agencies Involved: DOT, DHS, DOE, NRC, EPA, and DOS.

Program Office Action: DOT and DHS have the lead for implementing this recommendation. The Transportation Security Subgroup will be involved in the evaluation, with participation from NSIR and NMSS. Within the NRC, NSIR has the lead. For those security technologies not related to source tracking, the subgroup should coordinate with the DHS Government Coordinating Council—Radioisotope (GCC-R) Subcommittee. The GCC-R established a Tracking of Radioactive Sources Focus Group, which is developing a white paper describing the feasibility of using various technologies. Also, DOE and the Office of Nonproliferation Research and Development have established a transportation security test bed to evaluate the reliability, accuracy, and compatibility/interoperability of commercially available systems and components. These transportation security systems and components are being evaluated for deployment on certain DOE and commercial shipments.

Resources: NSIR and FSME staff participates on the GCC-R Tracking of Radioactive Sources Focus Group as part of routine activities.

2006 Recommendation 5-2		
Tasked Office	**Breakdown into Subtasks**	**Due Date**
NSIR, NMSS	Participate in subgroup activities	TBD by DOT/DHS
Tracking Security Subgroup	Prepare report to the Task Force on recommendations and conclusions	TBD by DOT

2006 Recommendation 5-3	Development of International Transport Security Guidance	DOT/NRC
		Ongoing

Task: The Task Force recommends that the U.S. Government immediately develop a strategy and take actions to address the security of international shipments of Category 1 and 2 radioactive sources that transit or are transshipped through the land territory of the United States.

Cite: 2006 Report (Chapter 5—Transportation Security of Radioactive Sources) and 2010 Report (Chapter 2—Advances in the Security and Control of Radioactive Sources)

2006 Report Context: In response to the potential for the malevolent use of Category 1 and 2 sources, the United States has implemented prescriptive security measures designed to control the domestic transport, import, and export of these sources as defined in the Code of Conduct. The U.S. Government is also participating in international efforts to develop similar security standards for the international transport of such sources.

Internationally, International Atomic Energy Agency (IAEA) has developed the Code of Conduct and the supplementary Guidance on Import and Export of Radioactive Sources. These documents address notification and consent provisions in connection with the import or export of Category 1 and 2 sources, but they do not include these provisions for transit (no conveyance change) or transshipment (involving conveyance change) of radioactive sources that do not have an origination or final destination point within a given country but are transported through the land territory of the country. Developers of the Code of Conduct and the guidance acknowledged the need for additional work to define the transit and transshipment portions of transportation, consistent with international law. The Task Force believes that completion of this effort is vital. The lack of knowledge about these shipments is one of the most significant gaps in transportation security. The Task Force recognizes that it cannot resolve this issue on its own, as resolution will require international cooperation to revise international transportation standards to include enhanced security measures. The mission of the Transit and Transshipment Interagency Working Group is to evaluate this specific area and to develop a U.S. position that can be used in international negotiations. This position should be consistent with existing U.S. positions on international transportation of radioactive material as well as existing international law. These efforts should not only continue, they should be accelerated.

As a practical matter, transshipment requirements can only be imposed and enforced through international cooperation. However, the NRC has worked with several foreign companies for the voluntary submission of information related to transits and transshipments. The NRC shares the information with other regulatory bodies such as U.S. Customs and Border Protection (Customs) and the States through which the material is transiting. In the interim, until international transportation security guidance is developed and implemented on a broad basis, the NRC should continue its efforts to obtain this information from shippers making transit or transshipments of radioactive sources through the United States.

To close the international transport security gap, the Task Force recommends that the NRC, DOT, DOS, and other interested Federal agencies continue to work with IAEA to develop international transport security guidance material for risk-significant sources. The participating agencies should work to coordinate the IAEA program with the existing U.S. requirements and ensure that U.S. law and regulations reflect the IAEA standards as soon as possible. The domestic strategy for controlling Category 1 and 2 source transport consists of increased security transport measures, promulgated by the NRC, which licensees that ship or receive sources will impose on the carriers. Upon issuance of international transport security guidance, the NRC, DHS, DOT, and interested Federal agencies should develop an implementation strategy and schedule to define the transport security requirements for import, export, transit, and transshipments of Category 1 and 2 radioactive sources in the United States.

2010 Report Context: The Transportation of Radioactive Materials Focus Group began meeting in February 2009 to develop a paper on all current transportation security regulations that the Nuclear Sector can use to inform stakeholders. The focus group is developing a commonly accepted definition of transit and transshipment and assessing the adjustments that may be warranted in Federal approaches to shipments of radioactive sources transiting or undergoing transshipment through the United States. The definitions of transit and transshipment have been established and the group has agreed on draft criteria to facilitate the analysis of overlaps, gaps, and potentially inconsistent Federal transportation security regulations between the various Federal agencies. In addition, the focus group has enabled the development of a MOU among the NRC, DOT, and TSA on roles and responsibilities in the regulation of radioactive materials transport.

Potential Issues: The issue of transit/transshipment notifications is controversial because of the impact of notification requirements on domestic and international agencies.

Agencies Involved: NRC, DOT, DHS, DOS, DOE, and EPA.

Program Office Action: NMSS and NSIR staff participates in the Transit and Transshipment Interagency Working Group. NMSS and NSIR staff participates in the IAEA working groups on the transportation security guidance document. If the IAEA revises the transportation security guidance document, the NRC will work with DOT to revise the transportation regulations. The DHS Government Coordinating Council-Radioisotope (GCC-R) Subcommittee, Transportation Focus Group developed a white paper on all current transportation security regulations that the Nuclear Sector can use to inform stakeholders. Also, the group is developing an action plan and set of recommendations that will identify the roles and responsibilities of each of the participating federal agencies to ensure consistent security of shipments through the U.S by the completion of the MOU, as noted in 2006 Recommendation 5-1.

Resources: Resources for participation on the Transit and Transshipment Interagency Working Group and IAEA standards committee are already addressed in the budget and are part of routine activities. However, the budget does not currently include resources for a rulemaking, if necessary. The NRC would budget and prioritize the rulemaking should IAEA revise its guidance document. Participation on the GCC-R Transportation Focus Group is part of routine activities.

2006 Recommendation 5-3		
Tasked Office	**Breakdown into Subtasks**	**Due Date**
NMSS, NSIR	Participate in IAEA transportation guidance working group	Ongoing
NRC, DOT, DHS, DOS	Participate in closed Commission meeting on transshipments and domestic shipments—10/24/06	Complete
NSIR	Participate in Radioisotope Subcouncil for the Government Coordinating Council	Ongoing
NSIR	Participate in Nuclear Sector Coordinating Council	Ongoing
NSIR, NMSS	Participate in Transit and Transshipment Interagency Working Group	Ongoing
Transportation Focus Group	Provide its initial findings by November 2010 and provide to the Task Force	January 2011
NSIR	Complete and Sign MOU, as noted in 2006 Recommendation 5-1, that will incorporate the responsibilities in the regulation of radioactive materials transport.	3/31/11

2006 Recommendation 9-1	Waste Solutions	DOE lead
		Complete

Task: The Task Force recommends that the U.S. Government further evaluate the waste disposal options as outlined in the GAO reports on low-level radioactive waste (LLRW).

Cite: 2006 Report (Chapter 9—National System to Provide for the Proper Disposal of Radioactive Sources) and 2010 Report (Chapter 3—Status of the Recovery and Disposition of Radioactive Sources)

2006 Report Context: Only two commercial disposal facilities (Barnwell and Richland) can accept Class A, B, and C sealed sources subject to compact restrictions. The third existing LLRW facility (Clive) does not accept any sealed sources.

In July 2008, the Barnwell facility closed to the 36 non-Atlantic Compact States leaving sealed source generators in those non-Compact States without a disposal option. Consequently, those generators will have to store their disused sources unless other disposition options are identified. As a result, only generators in 14 States have access to a disposal facility for Class A, B, and C sealed sources (11 States have access to the Richland facility and 3 States have access to the Barnwell facility). In August 2008, the State of Texas issued a draft license for a LLRW disposal facility to be operated in Andrews County, Texas, to serve the needs of the Texas Compact (Texas and Vermont).

GAO reported to the Senate in June 2004 (GAO-04-604) on LLRW disposal availability. GAO identified three legislative options for addressing a potential shortfall in LLRW disposal availability that still apply to the current situation:

(1) Allow the current compact system under existing Federal legislation to adapt to the changing LLRW situation (i.e., maintain the status quo). GAO concluded that this option "may no longer be tenable if there are no assured safe, reliable, and cost-effective disposal options put forward to address a potential shortfall in disposal availability for class B and C wastes after mid-2008."

(2) Repeal the existing Federal legislation to allow market forces to respond to the changing LLRW situation. GAO stated that this option could "create a national LLRW disposal market that might lead to more competition and lower disposal rates." However, GAO noted that States that host LLRW disposal facilities would likely resist opening their disposal facilities nationally and could take several actions to restrict access (e.g., decide not to renew leases for State-owned land).

(3) Use DOE disposal facilities for commercial waste. GAO identified a number of issues that require resolution and possible legislation concerning the use of DOE facilities for commercial waste. First, it is not clear whether DOE currently has the authority to accept commercially generated LLRW at its disposal sites. Second, a determination

would be needed regarding whom (e.g., generators, States, or DOE) pays the additional cost for disposing commercial waste at DOE facilities. Third, licensing and regulatory oversight issues would need to be clarified since the NRC and Agreement State regulations that govern commercial facilities do not apply to DOE disposal facilities. GAO further noted that the use of DOE facilities might have the adverse effect of eliminating the financial viability of commercial disposal facilities and possibly putting DOE disposal facilities in competition with private facilities. It also observed that Nevada and Washington, the host States for the DOE regional disposal facilities, have objected in the past to having to accept a disproportionate burden of LLRW disposal.

The Task Force did not identify any immediate security concerns related to disposal of Category 1 and 2 sources that warrant revisiting the Low-Level Radioactive Waste Policy Amendments Act (LLRWPAA).

The Task Force identified two other areas that could be explored:

(1) The NRC has the statutory authority to override any compact restrictions and allow the shipment of waste to a regional or other non-Federal disposal facility under narrowly defined conditions (e.g., common defense and security) identified in Title 10, Part 62, "Criteria and Procedures for Emergency Access to Non-Federal and Regional Low-Level Radioactive Waste Disposal Facilities," of the *Code of Federal Regulations* (10 CFR Part 62).

(2) The NRC could facilitate discussions with host States/compacts of operating commercial LLRW disposal facilities to promote access, on an exigency basis, for the disposal of selected sealed sources that, if not disposed, present potential national security concerns. Any such negotiated disposal would be subject to disposal facility site-specific technical considerations.

2010 Report Context: The Task Force evaluated these recommendations and concluded that the current compact system is not providing adequate commercial disposal options for disused radioactive sources. Because the regional compacts were founded in Federal and State statutes, solutions must be fostered at the highest levels of Federal and State Government.

The GAO report and options informed the development of the list of options discussed in the Removal and Disposition of Disused Sources Focus Group. The focus group is still developing a messaging strategy and specific recommendations on potential solutions to the sealed source disposal concern to ultimately present to the DHS NGCC and NSCC. The Task Force will follow the progress made by and associated activities of the focus group. Likewise, the NRC is also gathering information to assess the effect of a lack of access to LLRW disposal facilities on those who use radioactive sources or materials in conducting research, such as universities and hospitals. The NRC will use the information gathered from the various assessments in future decisionmaking on this issue.

Potential Issues: This action could require revision of the LLRWPAA.

Agencies Involved: DOE, NRC, and EPA.

Program Office Action: DOE had the lead for this recommendation. The Task Force will follow the progress made by the Removal and Disposition of Disused Sources Focus Group. The NRC will use the information gathered from the focus group as well as other assessments in any future decisionmaking on this issue.

Resources: Monitoring activities, like focus group activities, in this area would be considered part of routine activities. The NRC will participate as appropriate.

2006 Recommendation 9-1		
Tasked Office	**Breakdown into Subtasks**	**Due Date**
FSME	Monitor DOE activities	Ongoing
DOE, NRC, EPA	Continue to participate in national dialogue with private sector, State agencies, compacts, and professional organizations on possible solutions, including GAO legislative options, to address a potential shortfall in LLRW disposal availability	Ongoing—progress will be reported in the next Task Force report (2010)
DOE, NRC (FSME)	Continue national program for the recovery of unwanted and excess sealed sources that pose a threat to public health, safety, or security	Ongoing
FSME	Revisit guidance on extended LLRW storage	Complete
FSME	Update LLRW guidance in RIS 2008-12 issued 5/9/08	Complete

2006 Recommendation 9-2	Evaluation of Financial Assurance	NRC lead
		Complete

Task: The Task Force recommends that the NRC evaluate the financial assurance required for Category 1 and 2 radioactive sources to ensure that funding is available for the final disposition of the sources.

Cite: 2006 Report (Chapter 9—National System to Provide for the Proper Disposal of Radioactive Sources) and 2010 Report (Chapter 3—Status of the Recovery and Disposition of Radioactive Sources)

Report Context: Not all possessors of sealed sources need to have financial assurance to cover the costs of disposal or other appropriate disposition of the sources, potentially resulting in prolonged storage and possible misuse, abandonment, loss, or theft. The costs of disposal can often be high, prompting a licensee to delay disposal either by choice or economic necessity. Three options—broadening the NRC financial assurance thresholds, assessing a source-specific surcharge for disposal, or assessing a universal disposal surcharge on all licensees—could help alleviate these concerns. Implementation of any of these options would require consideration of the economic impacts to the licensee. As an unintended consequence, the options could also discourage the beneficial use of the radioactive materials because of the increased financial burden.

(1) Option 1—Broadening the NRC Financial Assurance Thresholds

This option would broaden the requirements of 10 CFR 30.35, "Financial Assurance and Recordkeeping for Decommissioning," by applying a lower threshold of radioactivity for determining financial assurance requirements. It would impose a decommissioning surety requirement on the licensee as a function of the cost of disposition of all radioactive material in its possession. Funds would remain secure and inviolate for the exclusive purpose of decommissioning activities associated with the possession of sealed sources and other radioactive material. The disposal cost of sealed sources and other radioactive material would be a subset of these decommissioning activities. This option would ensure that affected licensees set aside adequate funds to properly dispose of sealed sources. However, it would not provide funds to dispose of orphan sources or other sources for which no responsible or financially capable party exists.

(2) Option 2—Assessing a Source-Specific Surcharge for Disposal

This option would develop a financial assurance system by assessing a source-specific surcharge at the time of acquisition or throughout a source's service life to cover the costs of disposal. The option would provide flexibility to spread the surcharge over the life of the source to minimize financial burden and to not discourage the licensee/service provider from offering a service (e.g., use of sealed sources for medical procedures).

The concept would be to create a sinking fund earmarked for source disposal based on its projected disposal cost at the time of acquisition, its service life, and its salvage value, if any. The fund would include an appropriate surcharge at the time of purchase that would be supplemented periodically with a surcharge on the license fee. A third-party financial institution would hold the fund in an interest-bearing escrow account. The fund would follow the source from licensee to licensee throughout its service life. If the fund exceeded the source's disposal costs, it would be returned, on a pro rata basis, to contributors.

The size of the fund and rate of contribution would depend on a variety of factors, including specific isotope and radioactivity, service life of the source, and salvage value. Licensees could seek relief, in whole or in part, by providing demonstration of an enforceable and fungible path forward other than disposal.

The NRC would periodically evaluate (during license renewal) the adequacy of the accumulation of funds in the sinking fund, taking into account increases or decreases in anticipated disposal costs. If, at the time of license termination, the licensee made alternative arrangements for disposition using monies other than those contained in the disposal escrow fund, the NRC would remand the fund to the licensee.

While such a solution would prospectively ensure that individual licensees would be financially responsible for disposal of their sealed sources, it would not address the disposal of orphan sources or other sources for which no responsible or financially capable party exists.

(3) Option 3—Assessing a Universal Disposal Surcharge on All Licensees

This option would involve assessing a small surcharge on all licensees of radioactive material (i.e., not limited to sealed source licensees) to cover the costs of disposal, similar to a program currently implemented by the State of Texas and other States. The Texas Radiation and Perpetual Care Fund is a State account set up to prevent or mitigate the adverse effects of the abandonment of radioactive materials, default on a lawful obligation, insolvency, or other inability by the possessors or users of radioactive material to manage its proper disposition. Monies in the fund may be used for decontamination, closure, decommissioning, reclamation, surveillance, or other care.

Monies for the fund come from an additional fee assessed on the State's radioactive materials licensees and administrative penalties collected by the enforcement program (from radioactive materials licensees as well as from the registrants of machine-produced radiation). There is no cap on the amount of penalties accrued in the fund.

Such a solution would address a broader range of problematic disposition situations (e.g., existing backlog of orphan sources). However, it would have the disadvantage of spreading the cost burden to licensees who would not specifically benefit from the program.

Because not all Category 1 and 2 sealed sources are subject to current NRC financial assurance requirements and to ensure that sufficient funds are set aside to properly disposition these sources at the end of their useful service, the NRC should evaluate alternative financial

assurance options, including a broadening of the financial assurance thresholds in 10 CFR 30.35, a source-specific surcharge for disposal, and a universal disposal surcharge on all licensees. The evaluation should consider impacts to the regulated community and implementation approaches (e.g., the need for legislation and regulation development), and it should involve stakeholders.

2010 Report Context: The NRC completed its evaluation of its financial assurance requirements, in consultation with Federal and State partners, in January 2010. The following options are being considered by NRC management in order to make a decision of whether to pursue rulemaking and the concomitant public consultation process. If a decision is made to pursue additional financial assurance, a rulemaking working group will be formed to develop a rulemaking plan and proposed rule. This initiative is being internally tracked by the NRC, outside of the Task Force.

Options considered in the evaluation include the following:

- Continue initiatives under the LLRWPAA that among other things, encourage regional compacts to site additional disposal facilities.

- Implement NRC risk-informed financial assurance requirements with lower financial assurance thresholds, where financial assurance would be required for smaller quantities of material than those stated in the NRC's current requirements. Additionally, update the dollar amount requirements for financial assurance to represent current disposal costs.

- Continue efforts among CRCPD, the States, and licensees that possess sources that are no longer in use to assist these licensees in locating other licensees that may be interested in accepting the disused sources as donations (e.g., academic institutions).

- Assess the appropriate enforcement actions such as determining the appropriate fines for licensees who do not properly dispose of sources; such efforts serve as a deterrent to licensees abandoning sources.

- Establish a "bottle deposit" system, where vendors would require a deposit before shipping radioactive material. When the source is no longer of use to the licensee, the licensee would return the source to the vendor. Upon receipt, the vendor would return the deposit. This system would act as an incentive for the licensee to return, rather than abandon, the disused source. Additionally, this would reduce the number of shipping containers needed.

Potential Issues: No known issues.

Agencies Involved: NRC, Organization of Agreement States (OAS), stakeholders, DOE, and DOS.

Program Office Action: FSME evaluated the financial assurance necessary for Category 1 and 2 sources and formed a working group to complete the evaluation. The January 16, 2007, Staff Requirements Memorandum (ML070170056) noted that Category 3 sources should be included

in the staff's evaluation of financial assurance requirements. Various stakeholders were engaged in the process. However, if an NRC management decision is made to pursue additional financial assurance, a rulemaking working group will be formed to develop a rulemaking plan and proposed rule.

Resources: The budget included resources for this activity. However, the budget does not include resources for a rulemaking, if necessary. The NRC would budget and prioritize the rulemaking, if pursued, as a medium-priority item.

2006 Recommendation 9-2		
Tasked Office	**Breakdown into Subtasks**	**Due Date**
FSME	Initiate the formation of a working group to conduct evaluation	Complete
Working Group	Develop a plan to conduct the evaluation	Ongoing
Working Group	Provide update to the Task Force at 7/8/09 Meeting	Complete
Working Group	Provide final evaluation to FSME management	Complete
FSME	Make decision on whether to pursue rulemaking	TBD

2006 Recommendation 12-1	Alternative Technologies	NRC lead
		Complete

Task: The Task Force recommends that the Alternatives Technology Subgroup evaluate financial incentives; research needs for both alternative technologies and alternative designs, including financial support; and the cost-benefit of potential alternatives for Category 1 and 2 radioactive sources.

Cite: 2006 Report (Chapter 12—Alternative Technologies) and 2010 Report (Chapter 4—Progress in the Area of Alternative Technologies)

2006 Report Context: As noted above, for a number of applications, alternative technologies exist or are in development that could reduce the risk or impact of an accidental or terrorist use of a risk-significant radioactive source. In addition, future research in this area could yield even more viable alternative technologies. However, the ultimate success of all such efforts is unclear until a number of critical concerns are addressed. These concerns, discussed below, include incentives for adoption, collaboration between Federal agencies, and the disposition of displaced sources:

- Incentives

  Application of alternative technologies may not be effective unless economic incentives are established to encourage the adoption of those alternatives. Competition in the U.S. marketplace typically encourages and evaluates nonradioactive technology and ultimately determines if it will take the place of radioactive sources or devices. A good example of the marketplace effect is the speed with which drug-coated stents replaced the irridium-192 and strontium-89 high-dose-rate remote afterloader devices used to treat coronary artery restenosis. In other examples, electronically produced x-ray sources have replaced iodine-125 and americium-241 sources in small, hand-held fluoroscopy units and larger scanning bone mineral analyzers, respectively. However, some alternative technologies in the marketplace have not been sufficiently attractive to replace radioactive sources and devices at this time. Thus, even if alternatives are viable, adoption of the alternative in the commercial sector will depend on its feasibility as well as its economic attractiveness.

  Incentives that are intended to promote the adoption of alternative technologies through marketplace forces may require several years to take hold. A wide range of incentives may be needed and should be established with stakeholder input. Regulatory mandates or economic incentives such as underwriting the disposal cost or providing tax incentives may be required to encourage use of the alternatives.

  As one approach, Federal and State agencies could adopt a licensing policy that would require applicants for new uses of radioactive sources to examine alternative technologies. However, the Task Force does not recommend this approach at this time

because of potential licensing complications and regulatory impacts and because of the lack of sufficient viable alternative technologies for most radioactive source applications. However, this approach may be more appropriate in the future when alternative technologies are further developed and validated for affected industries, and after cost-benefit and regulatory and statutory analyses have been performed. This approach would also need to be evaluated from a legal and policy standpoint. The marketplace should be allowed to react to the alternatives before proposing additional changes.

- Outreach

  Stakeholder input leading to the acceptance and ultimate implementation of alternative technologies is essential. Manufacturers, researchers, end users, and validating authorities need to participate in addressing the issues forming barriers for acceptance of an alternative for a given application. Those developing and implementing such alternatives need to include technical and economic criteria as top considerations to ensure that the results are practical. Those involved in developing alternatives must partner with end users to develop these criteria. This cooperation should provide research direction, facilitate information sharing, and avoid duplication of effort.

- Collaboration

  As discussed above, various Federal agencies have initiated a number of independent projects on alternative technologies. These initiatives could yield additional viable alternatives to existing sources, pending the availability of resources. However, to reduce duplication of effort and to benefit from the synergy resulting from an open exchange of research results, collaboration among Federal agencies is needed.

  To facilitate collaboration, the Interagency Steering Committee on Radiation Standards (ISCORS) could be requested to form a new subcommittee with representatives from agencies that are conducting activities related to the research and development of alternative technologies. This subcommittee would meet regularly and report to the ISCORS full committee. This approach is consistent with the ISCORS charter for coordination on radiation issues among Federal agencies. As indicated above, several Federal agencies have taken independent action on various aspects of the subject. In addition, Federal agencies should continue to participate in the EPA Alternative Technology Initiative, as well as the Alternative Technologies Subgroup of this Task Force.

  NRC staff has discussed the possibility of bringing the issue to ISCORS. At this time, NRC has not broached the issue to ISCORS on the basis that there are currently several Federal agencies that have worked together on various aspects of this topic, and ISCORS has broader issues to consider in many other areas.

- Cost-Benefit Analysis

  Concurrent with research and development, Federal agencies should conduct a comprehensive cost-benefit analysis to gauge the attractiveness and potential impacts to the marketplace of alternative technologies. Federal agencies could also use this

analysis to evaluate other potential benefits and impacts from replacing radioactive sources and devices that use radioactive sources with nonradioactive alternatives or replacing them with lower risk sources (e.g., different chemical/physical form, lower activity). This information would be made available to radioactive source users, suppliers, and manufacturers as a way to foster the infrastructure needed to support the use of alternative technologies. This activity should take into consideration the recommendations of the National Academy of Sciences (NAS) study, which included consideration of technical and economic feasibility and risks to workers from such replacements; however, the study did not include detailed cost-benefit analyses.

- Displaced Sources

  The replacement of existing risk-significant radioactive sources, by either a nonradioactive process or an RDD-resistant radioactive source, will result in an accumulation of unneeded or displaced radioactive sources. Because the objective of developing alternative technologies is to reduce the number of radioactive sources at risk for malevolent use, the accessibility of unneeded sources must be addressed for alternative technologies to be of benefit. In order to reduce the overall security and safety risks associated with radioactive sources, the displaced sources must either be disposed of or stored in locations that are at least as secure as the ones from which they came. Accordingly, in addition to the efforts expended in promoting the development and adoption of alternative technologies, parallel efforts are needed to ensure that storage and disposal options are available for the disposition of risk-significant radioactive sources displaced by the adoption of alternative technologies.

  In those cases in which disposal options are prohibitively expensive or not available, strong incentives may be present to sell or donate these sources to recipients in other countries, especially the developing world. Other countries may have an incentive to purchase the sources because of healthcare needs. Export as an alternative disposal path should be discouraged through adequate oversight, awareness on the part of U.S. licensees, coordination with capable partners such as IAEA and the Pan American Health Organization, and voluntary application of ethics and good business practices. Furthermore, the United States and the international community should coordinate to harmonize the development and use of alternative technologies.

- Passive Features

  Enhanced security features incorporated in new designs could make it harder for a person with malevolent intent to remove a source from a device. In so doing, the added delay would improve the chances of stopping the malevolent act. Enhanced security features incorporated in new designs could provide additional access controls, alarms, and tracking. This would allow only authorized users to remove or operate the device and trigger an alarm upon unauthorized access.

Additional work is necessary before the Task Force can make an informed decision and provide specific recommendations on which alternatives should be pursued, what type of incentives should be made available, and other considerations. Therefore, the Task Force recommends that the Alternative Technologies Subgroup conduct further study to evaluate financial

incentives; research needs for both alternative technologies and alternative designs, including financial support; and the costs versus benefits of potential alternatives for Category 1 and 2 radioactive sources. The next Task Force report will address these topics. The subgroup should report back to the Task Force within 2 years with its report, including possible recommendations, on alternative technology research, incentives, and related issues. The 2-year timeframe will allow the subgroup to consider in its deliberations the findings of the NAS study and the response to the DOE report to Congress. This task should address the following activities:

- Provide economic incentives. To complement the creation of research and development programs, consideration could be given to creating financial incentives for manufacturers, distributors, and users of alternative technologies. Incentives could include the following:

  – revision of Federal tax law to provide tax credits or other financial incentives to users that purchase products using approved alternative technologies

  – reduction of the cost of alternative technologies by providing fiscal benefits to the manufacturers and distributors of these technologies

  – authorization for Federal agencies to underwrite the cost of retrieval, storage, and disposal of those specific sources that become displaced when an alternative technology is adopted

- Conduct outreach to affected stakeholders. Federal agencies should promote the adoption of alternative technologies by manufacturers, distributors, and users by conducting educational outreach to affected stakeholders, including licensees and other users that would benefit from the use of alternative technologies.

- Promote collaboration. Federal agencies should collaborate with each other and the international community on various issues associated with the development and adoption of alternative technologies. Federal and State agencies should coordinate activities in evaluating, developing, or implementing alternative technologies.

- Fund research and development programs. The subgroup should provide suggestions for the level of funding likely to be needed for particular projects related to research and development on alternative technologies for risk-significant radionuclides (IAEA Category 1 and 2 sources), taking into account a realistic envelope for such efforts.

- Conduct cost-benefit analyses. The report should evaluate alternative technologies based on the NAS report and should conduct an independent cost-benefit analysis.

- Evaluate storage and disposal options for sources that are replaced or displaced by alternative technologies. The report should identify safe and secure storage options or permanent disposal of those sources that are displaced because of alternative technologies.

2010 Report Context: In 2008–2010, an evaluation of alternative technologies was conducted for seven applications involving the most risk-significant radioactive materials. The evaluation included an assessment of financial incentives, research needs, and the life cycle operational costs of potential alternatives. The evaluation did not attempt to quantify the total cost to complete research and development of new alternatives or the recovery and disposal costs to remove the replaced sources. As part of this initiative, discussions were held with industry and government stakeholders and a lifecycle operational cost analysis of technologies was performed based on input from a small sample of stakeholders in each technology area reviewed. In-person focus groups for three industry practices (blood irradiator, industrial radiography, and well logging) were assembled in an effort to provide input to the evaluation. These focus group meetings proved effective, providing an opportunity to obtain the perspectives of both those who use the technologies and those who develop and manufacture them, such as researchers, developers and suppliers.

Generally, the analysis found that alternatives exist for some of the seven applications but that the viability, relative risk reduction, and stage of development of these alternatives vary. No alternative currently exists that is able to meet all user needs for any of the seven applications. Replacement of industrial sources (americium (Am)-241, Cs-137, Co-60, iridium (Ir)-192) must be addressed in terms of the field of application. Specifically, replacement may be feasible but requires further technological development for blood irradiation by x-ray technology and industrial radiography by ultrasound and x-ray technology. Further research is needed to establish feasibility for calibration irradiators, research irradiators, well logging, and panoramic irradiators. Although alternative forms and radionuclides were assessed, further risk reduction might be achieved through alternative technology research and development that focuses on non-radioactive replacement (e.g., x-ray). X-ray technologies were found to be cost competitive with radionuclide technologies on an annualized cost basis. Recent developments in x-ray technology may lead to mature and desirable alternatives in the near future. The study concluded that the successful replacement of the radionuclide technologies with alternatives will require different timetables for each application, need to be incentivized in many cases, and require a coordinated effort among a wide range of stakeholders. The availability of disposal pathways for radioactive sources must be considered before the widespread replacement of radioactive sources with alternative technologies can occur.

Possible Issues: No known issues.

Agencies Involved: NRC, HHS, DOE, EPA, DOS, DOD, and DHS.

Program Office Action: The Alternatives Technology Subgroup conducted the evaluation for this recommendation. The Subgroup, led by FSME, factored in results from the NAS study on alternatives. The Subgroup developed a plan to fully analyze the issue and the report was finalized by the April 2010 Task Force meeting. The Alternatives Technology Subgroup was comprised of representatives from NRC, HHS, DOE, EPA, DOS, DOD, and DHS. With the addition the conclusions from the Subgroup's analysis in the 2010 Task Force report, no further action is necessary.

Resources: No additional resources are necessary since the recommendation is complete.

2006 Recommendation 12-1		
Tasked Office	**Breakdown into Subtasks**	**Due Date**
FSME	Lead the Alternatives Technology Subgroup	Ongoing
Alternatives Subgroup	Provide update during the 5/18/08 Task Force Meeting	Complete
Task Force	Approve report extension request and charter during the 5/18/08 Task Force Meeting	Complete
Alternatives Subgroup	Provide update to Task Force during the 10/1/08 Task Force meeting regarding progress made with procuring contractor support for the cost benefit analysis	Complete
Alternatives Subgroup	Provide update to Task Force during the 2/26/09 Task Force meeting	Complete
Alternatives Subgroup	Provide update to Task Force during the 7/8/09 Task Force meeting	Complete
ICF	Provide Cost Benefit Analysis to the Alternatives Subgroup on 8/31/09	Complete
Alternatives Subgroup	Provide update to Task Force during the 11/2/09 Task Force meeting	Complete
Alternatives Subgroup	Provide report to Task Force (considered final by the 4/14/10 Task Force meeting)	Complete

2006 Recommendation 12-2	Study on Cesium Chloride Phaseout	NRC/DOS lead
		Complete

Task: The Task Force recommends giving high priority to conducting a study within 2 years to assess the feasibility of phasing out the use of cesium chloride (CsCl) in a highly dispersible form. This study should consider the availability of alternative technologies for the scope of current uses, safe and secure disposal of existing material, and international safety and security implications.

Cite: 2006 Report (Chapter 12—Alternative Technologies) and 2010 Report (Chapter 4—Progress in the Area of Alternative Technologies)

2006 Report Context: A specific concern is the widespread use of CsCl in a highly dispersible form in certain devices. An accidental release of CsCl in Goiania, Brazil, in 1987 demonstrated that an inadvertent dispersal of one CsCl source can result in significant economic and social impacts. Following the accident, the Goiania region suffered economic and social isolation from the rest of Brazil, 125,000 people were screened for contamination, and more than 120,000 cubic feet of radioactive waste was generated. While alternative technologies exist for certain risk-significant CsCl applications, such as industrial and medical irradiators, not all applications have a readily available alternative at this time.

The Task Force recommends giving high priority to conducting a study within 2 years to assess the feasibility of phasing out the use of CsCl in highly dispersible forms. This study should consider the availability of alternative technologies for the scope of current uses, safe and secure disposal of existing material, and international safety and security implications. The 2-year timeframe would allow the Federal Government to consider the findings of the NAS study in the evaluation. Any phaseout should encourage similar efforts worldwide; coordination and collaboration with international partners will be necessary to most effectively implement a phaseout domestically. A phaseout strategy should take into account the status of disposal options for radioactive sources that may become disused as a result of such a phaseout; the economic feasibility of using alternative radionuclides, physical-chemical forms, or technologies; incentives or other compensation for current users; and measures to ensure that the displaced sources do not find their way into environments with less rigorous controls in place. Entities having major economic interests in the production, processing, and sale of CsCl must participate in discussions on the phaseout of CsCl in highly dispersible forms.

In order to make near-term progress on this issue, the Task Force will form a subgroup with specific interest in this issue immediately to identify near-term actions. This subgroup will determine the attractiveness of these sources for use in an illicit manner. It may be possible to identify readily available technology to replace some applications of these sources. If such an application is identified, additional work will be needed to ensure that disposal capacity for the existing sources exists and to evaluate the impacts on the affected industry, such as the health care and research community. In addition, security issues for sources that may become

available on the international market must be addressed. This subgroup will consider information presented in public meetings for the NAS study mentioned in the EPAct.

2010 Report Context: In 2007–2009, a study was conducted to assess the feasibility of phasing out the use of CsCl in a highly dispersible form. Considering the results of the study and other input received, the Task Force concluded that an immediate phase-out of CsCl would not be feasible because the sources are used extensively in a wide range of applications in medicine, industry, and research, with significant health benefits to patients, and in the calibration of the national and international systems of radiation measurements. However, a gradual, stepwise phase-out could be feasible as alternatives become technologically and economically viable and if disposal pathways are identified. A number of challenges must be overcome to successfully implement this path forward, and the sequences and timeframes of implementation are critical. Sufficient time is required to develop replacement technologies for certain applications and to evaluate, consider, and where appropriate establish disposal pathways. Interim measures, such as enhancing the physical security of existing devices, would provide more effective protection of CsCl sources currently in use.

The path forward based on the study involves a comprehensive five-part approach for improving the security of and reducing the risks associated with sealed sources containing Category 1 and 2 quantities of dispersible CsCl for the short term as well as for the long term, including:

- *Continue to implement security upgrades to supplement existing requirements and establish a process for determining additional future upgrades.* The ongoing NNSA domestic voluntary security enhancement program, which includes the in-device delay effort, is already addressing this element. As such, this element does not appear as a separate action item in this report.

- *Initiate rulemaking or other processes, which should include stakeholder input to (1) eliminate further licensing, and (2) ban the export of CsCl sources.* The Task Force notes that, while it is prudent to continue to look for viable alternative technologies and sources, a decision on whether to discontinue NRC and Agreement State licensing or export of new CsCl sources containing risk-significant quantities of radioactive material should be based primarily on the existence of viable alternative technologies and disposal capacity. Therefore, the Task Force concludes that it is premature to recommend initiating rulemaking or other processes to eliminate further licensing and export of CsCl sources. The NRC has found that current security of these risk-significant sources is adequate based on the actions taken to enhance security to date.

- *Consider developing a Government-facilitated disposal pathway.* 2006 Action 9-1 contains this element.

- Investigate options such as *prioritized Government-incentivized replacement of devices with existing, effective alternatives.* 2010 Recommendation 10 contains this element.

- *Support short-term and long-term research and development for alternative technologies.* 2010 Recommendation 9 contains this element.

Potential Issues: No known issues.

Agencies Involved: NRC, DOS, HHS, DHS, DOE, EPA, ODNI, EPA, OSTP, DOT, and DOD.

Program Office Action: The Task Force formed a new CsCl Subgroup to study the feasibility of a CsCl phaseout. The NRC, represented by FSME with participation by NSIR, and DOS served as co-leads for the Subgroup. The Subgroup developed and implemented a plan of action. The Subgroup report was completed and endorsed by the Task Force and its conclusions were provided in the 2010 Task Force report. Therefore, no further action is necessary.

Resources: This recommendation is complete. No additional resources are necessary.

2006 Recommendation 12-2		
Tasked Office	**Breakdown into Subtasks**	**Due Date**
Task Force	Name a Subgroup to be headed by the NRC and DOS to conduct study	Complete
CsCl Subgroup	Develop plan of action—11/27/06	Complete
CsCl Subgroup	Present status report to Task Force and Charter for Task Force approval—4/25/07	Complete
CsCl Subgroup	Present status report to Task Force—11/29/07	Complete
CsCl Subgroup	Present status report to Task Force—5/18/08	Complete
CsCl Subgroup	Finalize report	Complete
CsCl Subgroup	Hold 2-day workshop with stakeholders on current and future uses of CsCl on 9/29-30/08	Complete
CsCl Subgroup	Present report recommendations and conclusions to Task Force during 10/1/08 Task Force Meeting	Complete
Task Force	Task Force reviewed, provided comments, and endorsed the report	Complete

2006 Action 3-1	Reissuance of Orders to Manufacturer and Distribution Licensees	NRC lead
		Complete

Task: The NRC should evaluate the need to reissue the orders to manufacturing and distribution (M&D) licensees to make sure no security issues have been introduced from the use of different units of radioactivity.

Cite: 2006 Report (Chapter 3—Radioactive Source Lists) and 2010 Report (Chapter 2—Advances in the Security and Control of Radioactive Sources)

2006 Report Context: In its early orders, the NRC inconsistently used terrabequerel (TBq) and curie units. This inconsistency could cause some confusion for licensees. It could potentially result in the failure to implement enhanced security measures for some Category 2 sources. The NRC should evaluate whether the use of curie values rounded to one significant figure, as in the orders to the M&D licensees, presents any security concerns that need to be addressed. Based on the results of the evaluation, the NRC may want to reissue those orders.

2010 Report Context: In October 2006, the NRC issued "Order Imposing Fingerprinting and Criminal History Check Requirements for Unescorted Access to Certain Radioactive Materials, and Modification of the Order Imposing Additional Security Measures to Manufacturing and Distribution Licensees." This order amended/updated some of the security measures imposed by a previous order to reflect that the primary values used for compliance with the security requirements are in terabecquerels to make sure no security issues have been introduced from the use of different units of radioactivity.

Possible Issues: No known issues.

Agencies Involved: NRC and OAS.

Program Office Action: In October 2006, FSME, with coordination from NSIR, reissued the orders to M&D licensees with the orders on fingerprinting for access to materials. The orders included a new table with TBq units and curie values rounded to two significant figures. No further action is necessary.

Resources: This action is complete. No additional resources are necessary.

2006 Action 3-1		
Tasked Office	**Breakdown into Subtasks**	**Due Date**
FSME, NSIR	Include new table in fingerprint orders to M&D licensees—10/06	Complete

2006 Action 3-2	Use of Code of Conduct for Transportation Regulations	DOT lead
		Complete

Task: DOT should examine the use of the Code of Conduct Category 1 and 2 thresholds in domestic transportation regulations.

Cite: 2006 Report (Chapter 3—Radioactive Source Lists) and 2010 Report (Chapter 2—Advances in the Security and Control of Radioactive Sources)

2006 Report Context: The Code of Conduct values are universally understood and implemented. Employing different values for transportation security requirements may cause confusion in the user community. DOT should reconsider the use of highway route controlled quantities (HRCQs) of radioactive material as the baseline for development of a transport security plan or requirement to incorporate additional security measures. Given the international nature of transport and the acceptance by the international community and other U.S. agencies of the Code of Conduct Category 1 and 2 levels, DOT should examine using the Category 1 and 2 thresholds in domestic regulations. In addition, the U.S. Government is working with IAEA to revise the transportation guidance to better align with the Code of Conduct values. This effort should be continued.

2010 Report Context: In September 2006, DOT published an advance notice of proposed rulemaking seeking public comment on its security plan requirements. On November 30, 2006, DOT hosted a public meeting to invite further comments and information concerning the types and quantities of materials that should be covered by the security plan rule. In September 2008, DOT issued a notice of proposed rulemaking to modify its current security plan requirements governing the commercial transportation of hazardous materials by air, rail, vessel, and highway. For radioactive material, the notice proposed adoption of the security thresholds recommended by the Code of Conduct and contained in the Nuclear Security Series Guide, ‘‘Security in the Transport of Radioactive Material.” DOT, in consultation with TSA, developed a final rule to revise the list of materials subject to security planning. DOT published this final rule in March 2010.

Possible Issues: No known issues.

Agencies Involved: DOT, NRC, and DOS.

Program Office Action: DOT had the lead for this item. NMSS and NSIR had routine interactions with DOT. No specific NRC actions had been identified. The NRC did provide comments on three proposed rules (DOT and TSA) that were related to this action. Specifically, on September 9, 2008, DOT’s Pipeline and Hazardous Materials Safety Administration (PHMSA) issued a notice of proposed rulemaking to modify its current security plan requirements governing the commercial transport of hazardous material. DOT, in consultation with TSA, developed a final rule to revise the list of materials subject to security

planning. DOT published this final rule in March 2010. Therefore, no further action is necessary.

Resources: This action is complete. No additional resources are necessary.

2006 Action 3-2		
Tasked Office	**Breakdown into Subtasks**	**Due Date**
	No specific NRC actions	

2006 Action 4-1	Measures to Verify Validity of Licenses	NRC lead
		Ongoing

Task: The NRC should consider imposing additional measures to verify the validity of licenses before the transfer of risk-significant radioactive sources, on all licensees authorized to possess Category 1 and 2 quantities of radioactive material.

Cite: 2006 Report (Chapter 4—Security and Control of Radioactive Sources) and 2010 Report (Chapter 2—Advances in the Security and Control of Radioactive Sources)

2006 Report Context: With the Internet and photocopy technology, forging a license is relatively easy. Existing regulations require the licensee transferring the material to verify that the intended recipient's license authorizes the receipt of the type, form, and quantity of byproduct material to be transferred. The regulations allow the purchaser to fax a copy of its license to the seller as verification of a valid license to receive the type, form, and quantity of byproduct material. A person with malevolent intent could forge a license to obtain byproduct material. The orders to M&D licensees (the initial suppliers of approved sources and devices) require them to take specific measures to verify the validity of the purchaser's license. However, these sources and devices can be subsequently transferred to other licensees without the additional verification requirement. The specific measure to verify the validity of the purchaser's license (or some other mechanism) must be implemented uniformly to reduce the risk that a forged license will be used to obtain risk-significant quantities of radioactive material. For all licensees authorized to possess Category 1 and 2 quantities of radioactive material, the NRC should consider imposing additional measures to verify the validity of licenses before the transfer of risk-significant radioactive sources.

2010 Report Context: The NRC is committed to implementing the recommendations and strategies of the IERP and MPWG in a manner that maintains a balance between enabling the safe use of radioactive material and a risk-informed, graded approach to establish appropriate controls for the possession of radioactive material. With the completion of the activities indicated in the action plan milestones, the NRC will accomplish its goal in addressing the vulnerabilities identified in its radioactive materials program.

Possible Issues: No known issues.

Agencies Involved: NRC, OAS, stakeholders, and DHS/Customs.

Program Office Action: FSME is in the process of finalizing the security-related rulemaking for materials licensees.

Resources: The budgets for the appropriate years will address the final security rulemaking.

2006 Action 4-1		
Tasked Office	**Breakdown into Subtasks**	**Due Date**
NSIR	Provide technical basis to FSME for enhanced security for irradiators and M&D licensees and medium-priority licensees	Complete
FSME	Publish Pre-licensing Checklist and the Risk-Significant Radioactive Material Checklist and Implementation Guidance to enhance the basis for confidence that radioactive materials will be used as specified on a radioactive materials license on 9/22/08	Complete
FSME	Provide proposed rule on enhanced security and control of byproduct material licensees (this is a combination of several security rulemakings) to Commission on December 14, 2009	Complete
FSME	Provide final rule on enhanced security and control of byproduct material licensees (this is a combination of several security rulemakings) to Commission	2013

2006 Action 5-1	Application of Lessons Learned on High-Hazard Material to Radioactive Material Transport	DOT lead
		Ongoing

Task: The Transportation Security Subgroup should review the findings and conclusions of all research conducted on securing "high-hazard" hazardous materials transport to determine if any of the measures should be applied to the transport of risk-significant radioactive sources.

Cite: 2006 Report (Chapter 5—Transportation Security of Radioactive Sources) and 2010 Report (Chapter 2—Advances in the Security and Control of Radioactive Sources)

2006 Report Context: Since September 11, 2001, the Federal agencies represented on this Task Force have researched transport security programs, implemented security initiatives, and codified transport security plan requirements. Because of the limited number of shipments of risk-significant radioactive sources, these initiatives and programs have focused on shipments of hazardous materials of high consequence. Radioactive material transport experts have not always participated in the development and implementation of these activities. The security programs for risk-significant radioactive sources may be improved by examining the results, implementing the applicable provisions, and determining the lessons learned from hazardous materials security initiatives. Specifically, the Transportation Security Subgroup should review the findings and conclusions of all research conducted on securing high-hazard hazardous materials transport. Although risk-significant radioactive sources pose unique threats, the techniques and technologies used to secure the transport of other hazardous materials of high consequence may also improve the security of radioactive source transportation. Given the greater number of nonradioactive hazardous materials shipments, these practices might also suggest new ideas or methods previously deemed too expensive for the relatively small radioactive material transport industry. This subgroup should pay particular attention to the ongoing DOT studies on securing the transport of material that is toxic by inhalation, explosive material, and flammable liquids and gases.

2010 Report Context: Learning from the results of the DOT Federal Motor Carrier Safety Administration's (FMCSA) Hazardous Materials Safety and Security Field Operational Test (http://www.fmcsa.dot.gov/safety-security/hazmat/fot/index.htm) and a series of DOE/NNSA security technology evaluation shipments, DOE/NNSA established the transportation security technologies test bed in 2009 at Oak Ridge National Laboratory. Also in 2009, DHS sponsored a demonstration of developing container tracking technologies at Sandia National Laboratories. As existing and emerging technologies are assessed, the Transportation Security Subgroup will consider measures needed to implement them as Federal requirements as appropriate.

Potential Issues: No known issues.

Agencies Involved: DOT, NRC, DHS, EPA, CIA, DOD, DOE, DOS, OAS, and Conference of Radiation Control Program Directors (CRCPD).

Program Office Action: As the lead for Transportation Security Subgroup, DOT also has the lead for this item. NMSS and NSIR participate in the Subgroup. NSIR has the lead for the NRC. Depending on the outcome of the review, the NRC may need to issue orders or revise its regulations to implement any measures from the lessons learned that are deemed appropriate for the transportation of Category 1 and 2 sources.

Resources: DOT has not taken any action that involves NRC staff to implement this item. Depending on the outcome of the review, additional resources may be necessary to implement the lessons learned that are deemed appropriate for Category 1 and 2 sources. Resources for implementation would be addressed at that time.

2006 Action 5-1		
Tasked Office	**Breakdown into Subtasks**	**Due Date**
NSIR, NMSS	Participate in Subgroup	TBD by DOT
Transportation Security Subgroup	Evaluate lessons learned	TBD by DOT
NSIR, NMSS	Provide any recommendations to implement any new measures to the Commission	60 days after completion by Subgroup

2006 Action 5-2	Best Practices from High-Threat Urban Area Corridor Assessments	DOT lead
		Complete

Task: DOT should evaluate the best practices from the high-threat urban area corridor assessments to determine whether it should incorporate any of these practices into the requirements for security plans for high-risk radioactive material. DOT should also evaluate whether the transport of lower risk radioactive material warrants a security plan or whether the transport could be exempted from some of the requirements.

Cite: 2006 Report (Chapter 5—Transportation Security of Radioactive Sources) and 2010 Report (Chapter 2—Advances in the Security and Control of Radioactive Sources)

2006 Report Context: In May 2002, the DOT Pipeline and Hazardous Materials Safety Administration (PHMSA) (then known as the Research and Special Programs Administration) proposed regulations to enhance the security of hazardous materials shipments. Although the proposal included provisions on registration certificates, shipping documentation, and training, the major initiative was the establishment of a new requirement that shippers and carriers of HRCQs of radioactive material, explosive material, material that is poisonous by inhalation, and infectious substances have plans to ensure the security of shipments during transportation. Since this rule became final in March 2003, PHMSA and all DOT modal authorities now have some experience with its implementation. The HRCQ requirement addresses other radioactive material and not just those radionuclides in the Code of Conduct. (Chapter 3 of this report addresses thresholds for Code of Conduct radionuclides.) DOT should evaluate whether the transport of some of the lower risk radioactive materials warrants a security plan.

As part of the high-threat urban area corridor assessments conducted in 2005, DHS and DOT identified some best practices for the transport of various hazardous materials. DOT should evaluate the security recommendations that emerged from this program and consider them for inclusion, as appropriate, in the security plans for transporting risk-significant radioactive materials.

2010 Report Context: DOT and TSA have completed their assessment of the vulnerabilities of transporting hazardous materials in high-threat urban areas. These assessments resulted in railroad companies voluntarily agreeing to implement action items designed to improve the security of rail movements of hazardous materials in these areas. The action items address system security and access control as well as en-route security.

Potential Issues: No known issues.

Agencies Involved: DOT, NRC, DHS, EPA, CIA, DOD, DOE, DOS, OAS, and CRCPD.

Program Office Action: As leader of the Transportation Security Subgroup, DOT had the lead for this action. NMSS and NSIR staff participated in the Subgroup. NSIR had the lead for the NRC. No further action is necessary.

Resources: No additional resources are necessary since this action is completed.

2006 Action 5-2		
Tasked Office	**Breakdown into Subtasks**	**Due Date**
	No specific NRC action	

2006 Action 6-1	Fingerprinting Provisions of EPAct	NRC lead
		Ongoing

Task: The NRC should expeditiously complete its implementation of the fingerprinting provisions of the EPAct for those applicants for and licensees with Category 1 and 2 quantities of radioactive material. The NRC should place a high priority on completing the EPAct Section 652 rulemaking. As part of the rulemaking, the NRC should require fingerprinting for any individual who could have access to Category 2 or above quantities of radioactive materials. The NRC should also require periodic reinvestigations of such persons.

Cite: 2006 Report (Chapter 6—Background Checks) and 2010 Report (Chapter 2—Advances in the Security and Control of Radioactive Sources)

2006 Report Context: The NRC is in the process of implementing its new fingerprinting authority provided by the EPAct. It has several rulemakings either planned or already underway to implement various fingerprint-related provisions of the EPAct. The NRC must determine what radioactive material or other property warrants fingerprinting for unescorted access. This evaluation is currently ongoing and should be completed this summer. The following rulemakings are either planned or underway:

- The proposed amendment to the rule in 10 CFR 73.21, "Requirements for the Protection of Safeguards Information," for access to Safeguards Information (SGI) by a broad class of individuals as mandated by EPAct Section 652(B)(ii) would require that no person may have access to SGI unless (1) there is need to know, (2) the applicant has undergone an FBI criminal history check, and (3) the licensee has established the person's trustworthiness and reliability based on a background investigation of work history, education history, references, and credit history.

- The proposed amendment to 10 CFR 73.56, "Personnel Access Authorization Requirements for Nuclear Power Plants," would enhance current requirements for granting unescorted access to nuclear power facilities and codify order requirements.

- The proposed amendments to implement EPAct Section 652(B)(i)(II) would establish the requirements for fingerprinting of individuals with unescorted access to radioactive material or other property that the NRC determines to be of such significance to the public health and safety or the common defense and security as to warrant fingerprinting and background checks.

- Other proposed amendments implement EPAct Section 656. Section 656(a) states that individuals accompanying or receiving transfer of material in the United States, pursuant to an NRC import or export license, will be subject to a security background check. Section 656(c) states that these requirements will become effective on a date established by the Commission. The NRC believes that the most appropriate and

comprehensive approach for establishing requirements for security background checks is as part of the broader considerations of the NRC's planned rulemaking to implement EPAct Section 652. Consistent with Section 656(b), the staff is proposing to amend the NRC's regulations to exempt from the security background check requirements of Section 170I those licensees that have not received NRC orders restricting unescorted access to radioactive materials, based both on background checks for trustworthiness and reliability and on fingerprinting and criminal history record checks. In the future, more comprehensive Section 652 rulemaking, the staff will consider whether the exceptions for security background checks should be modified.

As part of implementing its new fingerprinting authority, the NRC may issue orders requiring certain licensees to conduct fingerprint checks for employees with access to radioactive materials at Category 1 or 2 levels and with access to SGI. Because orders can be issued more quickly than a regulation that must go through notice and comment, the orders would cover the gap until the new rules are issued. The NRC has also asked some applicants and licensees to submit fingerprints in advance of the orders. The NRC plans to issue orders this summer for any NRC or Agreement State licensee that has access to SGI. The NRC also intends to issue orders to the M&D licensees and large panoramic and underwater irradiator licensees to require fingerprints for any individual who has access to risk-significant quantities of radioactive material. In addition, the NRC plans to order fingerprinting of those licensees who transport Category 1 quantities of radioactive material. The NRC has not decided whether to order fingerprinting for other licensees that may possess risk-significant quantities of radioactive material or to wait until the rulemaking is complete. The Task Force encourages the NRC to require fingerprinting for Federal criminal history checks on any individual with access to Category 1 or 2 quantities of radioactive material.

The NRC should also consider imposing the requirement on license applicants, as well as licensees. The Task Force believes that individuals should be screened before the NRC grants them a license to obtain risk-significant material. A license application screening process that includes fingerprinting for Federal criminal history checks can detect persons with malevolent intent, thereby reducing the risk of radioactive material being diverted or used for malevolent purposes. Until the regulations are in place to require fingerprinting of applicants before they obtain a license, the NRC should explore methods to close this gap. The Task Force encourages the NRC to expeditiously complete its implementation of the fingerprinting provisions of the EPAct for licensees with Category 1 and 2 quantities of radioactive material and those applying for such licenses. The NRC should also consider requiring that individuals with unescorted access to Category 1 and 2 radioactive materials be subject to periodic reinvestigation. One possible method to address this is the expansion of the NRC's Demographic Data Project. This project is a joint collaborative effort by the NRC and the Terrorist Screening Center to identify individuals who pose a threat to national security and who have access to the protected areas and vital areas of nuclear power plants.

<u>2010 Report Context</u>: The NRC is in the process of completing the implementation of EPAct Section 652(B)(i)(II) through the proposed 10 CFR Part 37 rulemaking. This rule will establish the requirements for fingerprinting of individuals permitted unescorted access to radioactive material or other property that the NRC determines to be of such significance to public health and safety or the common defense and security as to warrant fingerprinting and background checks. In addition, the rule will incorporate a reinvestigation provision as part of the

background investigation requirements. The finalization of this rulemaking, anticipated by 2013, will complete this action.

In implementing the EPAct's fingerprinting provisions for unescorted access to radioactive materials, the NRC developed procedures to implement a program in which a licensee designates an individual (a reviewing officer) who is responsible for reviewing the trustworthiness and reliability information (which includes the FBI criminal history records checks) to grant unescorted access to other licensee employees. In some cases, such as for human resources personnel, this reviewing officer does not require, or is not permitted, unescorted access as part of his or her job duties. As a result, the NRC's fingerprinting authority, as granted by the EPAct, does not extend to these reviewing officers. The importance to security of the positions filled by these reviewing officers makes it logical to give the NRC the legal authority to make them subject to fingerprinting requirements and the FBI criminal history records check. A proposed legislative amendment was submitted to Congress by letter from the NRC in June 2008 to authorize the NRC to require such individuals to submit to fingerprinting requirements such as those applicable to individuals who have unescorted access to radioactive material or access to SGI. This legislative proposal was not enacted; however, as noted in the Commission direction in SRM-SECY-09-0181, the proposed 10 CFR Part 37 rulemaking is to include the Commission's requested statutory changes to the Atomic Energy Act of 1954 that would permit fingerprints of reviewing officials without unescorted access to radioactive material or to SGI.

Potential Issues: No known issues.

Agencies Involved: NRC, OAS, stakeholders, FBI, and DHS.

Program Office Action: OGC completed the SGI rule and FSME completed the EPAct Section 656 rule. FSME is in the process of completing the EPAct Section 652 final rule (Part 37 Rulemaking). NSIR has completed the Commission paper on fingerprints for access to material for materials facilities other than M&Ds, irradiators, and radioactive material quantities of concern (RAMQC). FSME completed issuing fingerprinting orders and the Agreement States completed issuing legally binding requirements on access to materials to all licensees possessing Category 1 and 2 materials.

Resources: The budget addresses resources to conduct these activities.

2006 Action 6-1		
Tasked Office	**Breakdown into Subtasks**	**Due Date**
NMSS	Issue fingerprint orders on SGI to M&D licensees, irradiators, and RAMQC—8/21/06	Complete
FSME, NSIR	Issue fingerprint orders on access to materials to M&D licensees, irradiators, and RAMQC—10/17/06	Complete
NSIR	Develop technical basis to support EPAct Section 652 rule	Complete
NSIR	Provide paper to Commission on fingerprint provisions for rest of materials licensees	Complete
FSME	Issue fingerprint orders on access to materials to all licensees possessing Category 1 and 2 material	Complete
FSME	Publish final rule for EPAct Section 656—1/24/07	Complete
OGC	Provide final rule on SGI to Commission—8/7/07 (SECY-07-0131, "Final Rule–10CFR Part 73–Safeguards Information Protection Requirements")	Complete
OGC	Publish SGI final rule—10/24/08	Complete
FSME	Provide proposed rule on EPAct Section 652 to Commission on December 14, 2009	Complete
FSME	Provide final rule on EPAct Section 652 to Commission	2013

2006 Action 6-2	National Database for Materials Licensees	NRC lead
		Ongoing

Task: The NRC should evaluate the feasibility of establishing a national database for materials licensees that would contain information on pending applications and information on individuals cleared for unescorted access.

Cite: 2006 Report (Chapter 6—Background Checks) and 2010 Report (Chapter 2—Advances in the Security and Control of Radioactive Sources)

2006 Report Context: There is some concern that an individual could apply for a license application in several different Agreement States and with the NRC. Under the current system, reviewers would not know about multiple applications or if an individual had been refused a license in another jurisdiction. This knowledge can be useful to license reviewers. The Nuclear Energy Institute maintains a database with information on power reactor licensees and individuals with unescorted access to nuclear power plants. This database allows users to track permanent employees and members of the transient workforce who have unescorted access to nuclear power plants and to preclude unauthorized entries. A similar database for materials licensees could be useful to both reviewers and industry. The NRC should evaluate the feasibility of establishing a national database with information on pending applications for a specific license and information about individuals cleared for unescorted access. Reviewers in Agreement States and the NRC regional offices would then be aware of all applicants requesting materials from various regulatory agencies. A national database would effectively and efficiently streamline the information flow regarding current applications for a specific license and information on the current status of employees at particular sites or who may be trying to enter another facility.

2010 Report Context: The NRC has initiated a two-part analysis to evaluate the recommendation of a national database. The first part involves reviewing the current program and obtaining all related methods and tools for tracking personnel access status for applicants or licensees that may possess Category 1 and 2 materials, then establishing the current proposed process/system as the standard. The second part of the analysis will involve looking forward to recommend improvements to the standard and anticipating how such a proposal would contribute to deploying a system that is more robust, efficient, and inclusive for all licensees, Agreement States, and Federal entities to have access to such a database. Currently, the NRC is developing the Web-Based Licensing (WBL) system for the regulatory oversight of the licensing life cycle that includes applications, issuances, amendments, and terminations. This system may fulfill part of 2006 Action 6-2 by evaluating the feasibility of being able to provide licensees with information on pending applications. While completing this action, the NRC is in the process of evaluating current systems under development, like the WBL.

Potential Issues: Privacy and security issues related to sharing information on individuals may exist. The NRC would have to obtain commitments from the potential users of the database

that they will share the information and use the database for determining the trustworthiness and reliability of (1) those individuals who are being considered for unescorted access to their material or (2) those entities or individuals who have applied for a materials license to possess nuclear materials.

Agencies Involved: NRC, OAS, stakeholders, DHS, and FBI.

Program Office Action: The NRC has the lead for this action. NSIR will establish a working group to evaluate the need for such a database of those individuals who are being considered for unescorted access, determine the cost, and make a recommendation for implementation. FSME is in the process of evaluating current systems under development, like WBL.

Resources: Resources are already allocated for work being done on the development of current systems, like WBL. If a decision is made to pursue another database, the resources for the database development would be addressed at that time.

2006 Action 6-2		
Tasked Office	**Breakdown into Subtasks**	**Due Date**
NSIR	Preliminary evaluation of the issue	Complete
NSIR	Form working group to evaluate issue	TBD
Working Group	Evaluate issue and make recommendation to NSIR/FSME management	TBD

2006 Action 6-3	**MOU on Systematic Alien Verification for Entitlements Database**	NRC/DHS lead
		Complete

Task: The NRC and DHS should enter into an MOU to cover access to the Systematic Alien Verification for Entitlements (SAVE) database for materials licensees.

Cite: 2006 Report (Chapter 6—Background Checks) and 2010 Report (Chapter 2—Advances in the Security and Control of Radioactive Sources)

2006 Report Context: DHS requires an MOU to access the verification information system portion of the SAVE program. The NRC was a signatory to a SAVE-related MOU with DHS executed in August 2003. The MOU established the terms and conditions for the participation of the NRC and, at that time, its power reactor licensees in the SAVE program for verifying the immigration status of alien applicants for unescorted access to NRC-licensed reactor facilities. To use the SAVE program under the current umbrella of the NRC/DHS MOU, each licensee must establish its own MOU with DHS. For materials licensees, this would mean 1000 to 2000 individual MOUs. Under a possible revised MOU between the NRC and DHS, an MOU between each licensee and DHS would not be necessary. DHS and the NRC OGC are working on language for the revised MOU. The language changes will address the statutes that govern the SAVE program and also allow NRC licensees to use the SAVE database to check the immigration status of individuals. For the purpose of verifying the true identity of foreign nationals and to aid in trustworthiness and reliability determinations, the Task Force encourages DHS and the NRC (including Agreement States) to complete the MOU. The MOU would authorize use of the SAVE program and establish the terms and conditions governing participation.

2010 Report Context: DHS requires an MOU to access the Verification Information System portion of the SAVE program. The NRC executed a SAVE-related MOU with DHS in August 2003. The MOU established the terms and conditions for the participation of the NRC power reactor licensees in the SAVE program for verifying the immigration status of alien applicants for unescorted access to NRC-licensed reactor facilities. In 2008, the agencies revised the MOU to also provide NRC materials licensees with a vehicle to access the SAVE database. Agreement States may also implement MOUs with DHS to access the Verification Information System portion of the SAVE program for their materials licensees. However, this database does not provide materials licensees the more in-depth background check information needed on individuals for trustworthiness and reliability determinations in accordance with current security requirements, such as the increased controls.

Potential Issues: No known issues.

Agencies Involved: NRC and DHS.

Program Office Action: The NRC and DHS were the co-leads for this action. OGC and NSIR worked with DHS on the revised MOU. The MOU will be implemented at the request of

licensees. Licensees may also use a similar service through DHS, known as E-verify. No further action is necessary.

Resources: No additional resources are necessary since the action is complete.

2006 Action 6-3		
Tasked Office	**Breakdown into Subtasks**	**Due Date**
OGC, NSIR	Develop strawman to facilitate discussion	Complete
OGC, NSIR	Conduct meetings to discuss draft MOU language	Complete
NSIR	Approve and sign MOU	Complete

2006 Action 7-1	Storage of Sources	NRC lead
		Complete

Task: The NRC should evaluate requiring licensees to review and document the reasons for storage of risk-significant sources longer than 24 months and the feasibility of establishing a maximum time limit on the long-term storage of risk-significant sources not in use.

Cite: 2006 Report (Chapter 7—Storage of Radioactive Sources) and 2010 Report (Chapter 3—Status of the Recovery and Disposition of Radioactive Sources)

2006 Report Context: No absolute time limit exists for the long-term storage of sources. Several sections of regulations encourage licensees to evaluate storage situations after 24 months. This period is long enough to allow licensees to set sources aside to meet business purposes. Holding a source in storage longer than 24 months usually indicates the lack of a strategy to use or dispose of the source. The NRC should consider a new requirement for licensees to review and document the reasons for storing risk-significant sources longer than 24 months. This would consist primarily of an assessment of the costs of transfer or disposal versus the cost of storage and the licensee's expectation of eventually using the source again. Few risk-significant sources are actually stored for 24 months, so this requirement would be invoked only rarely. However, several benefits relate to making licensees consider why they are storing a risk-significant source and if it is a good time to disposition it. Such a requirement could make licensees more aware of the source's existence, trigger an evaluation of the adequacy of storage conditions, and encourage the use of sound business and regulatory principles that would lead to the removal of sources that should not remain in storage. Implementation of a maximum time limit may create a hardship for some licensees if disposal options for greater than Class C (GTCC) waste are not developed. Once disposal options for GTCC waste exist, the NRC should consider requiring a maximum time limit on the long-term storage of risk-significant sources not in use.

2010 Report Context: The NRC incorporated this action into its evaluation for 2006 Recommendation 9-2 in consultation with Federal and State partners. The evaluations will factor into the NRC's decision whether to pursue rulemaking and the public consultation process.

Potential Issues: No known issues.

Agencies Involved: NRC, OAS, stakeholders, and DOE.

Program Office Action: NRC had the lead for this action. FSME evaluated the need to establish new requirements for the storage of sources. FSME formed a working group to consider the storage issue. A technical basis will be developed if a decision is made to pursue the issue. This evaluation was conducted as part of the implementation for 2006 Recommendation 9-2 on financial assurance.

Resources: The resources for 2006 Recommendation 9-2 included resources for implementing this action. The budget does not include resources for a rulemaking, if necessary. The NRC would budget and prioritize the rulemaking, if pursued. This is a low-priority item.

2006 Action 7-1		
Tasked Office	**Breakdown into Subtasks**	**Due Date**
FSME	Initiate the formation of a working group to evaluate storage (10/1/08)	Complete
Working Group	Develop plan to conduct evaluation and provide conclusions to FSME management	Complete
FSME	Decide on rulemaking	TBD

2006 Action 9-1	Greater than Class C Waste	DOE lead
		Ongoing

Task: DOE should continue its ongoing efforts to develop GTCC disposal capability.

Cite: 2006 Report (Chapter 9—National System to Provide for the Proper Disposal for Radioactive Sources) and 2010 Report (Chapter 3—Status of the Recovery and Disposition of Radioactive Sources)

2006 Report Context: Currently, no commercial disposal facility will accept GTCC LLRW. Many of the Category 1 and 2 sources would be considered GTCC waste. DOE has initiated the process to develop disposal capability for GTCC LLRW. Current activities center on performing the necessary National Environmental Policy Act analyses of potential disposal alternatives, including development of an environmental impact statement (EIS). As required by Section 631(b)(1) of the EPAct, DOE will submit a report to Congress by August 8, 2006, on the estimated cost and proposed schedule to complete the EIS. Providing disposal options for GTCC waste will have the greatest effect on reducing the total risk of long-term storage for risk-significant radioactive sources. Until disposal options for GTCC LLRW are available, the DOE Offsite Source Recovery Project (OSRP) will recover sources that present threats to public health and safety and security. The Task Force encourages DOE to continue its ongoing work to develop GTCC waste disposal capability.

2010 Report Context: DOE has initiated the preparation of an EIS to evaluate potential disposal options for GTCC LLRW. It issued a notice of intent to prepare the EIS in July 2007, followed by nine public scoping meetings from July through September 2007 to inform the public and seek comments from communities that may host potential disposal alternatives. Background information about this effort can be found at http://www.gtcceis.anl.gov/. DOE expects to issue the draft EIS in 2010 and will take into account any comments the Blue Ribbon Commission on America's Nuclear Future may provide on the draft in developing the final EIS. DOE expects to issue a final EIS in 2011. Pursuant to EPAct Section 631, before DOE can issue a final decision on its preferred disposal alternative for GTCC LLRW, it must first issue a report to Congress describing the disposal alternatives under consideration and await congressional action. Some alternatives may require legislative action to implement.

Potential Issues: No known issues.

Agencies Involved: DOE, EPA, and NRC.

Program Office Action: DOE has the lead for this action. EPA is a cooperating agency on the GTCC waste EIS. On July 23, 2007, DOE issued a Notice of Intent to prepare the EIS (Volume 72, page 40135, of the *Federal Register*). DOE expects to issue a Draft EIS in 2010 and a Final EIS in 2011. Following issuance of the Final EIS, DOE will submit a report to Congress on the disposal alternatives and await action by Congress prior to making a decision on the

disposal alternative(s) to be implemented. The NRC will comment on the Draft EIS when issued by DOE.

Resources: No specific resources are necessary for this recommendation. Comment on the draft EIS is part of the routine workload.

2006 Action 9-1		
Tasked Office	**Breakdown into Subtasks**	**Due Date**
FSME	Comment on the DOE EIS on GTCC waste when issued for public comment	Timing dependent on DOE

2006 Action 10-1	**International Harmonization of Import/Export Controls**	DOS lead
		Ongoing

Task: The U.S. Government should continue the efforts to promote international harmonization of import and export controls for Category 1 and 2 radioactive sources.

Cite: 2006 Report (Chapter 10—Import and Export Controls for Radioactive Sources) and 2010 Report (Chapter 2—Advances in the Security and Control of Radioactive Sources)

2006 Report Context: To date, 92 nations have made a political commitment to work toward following the Code of Conduct, as called for in IAEA 2003 General Conference Resolution GC (47)/RES/7.B. However, only 45 of these countries have made a subsequent political commitment to act in accordance with the supplementary Guidance on Import and Export of Radioactive Sources, pursuant to GC (47)/RES/7.B in 2004. This discrepancy may largely result from Member States' confusion regarding the need for a second commitment. The U.S. Government strongly believes that a second commitment is needed because unlike the Code, whose guidelines are primarily addressed to action on a national basis, the import/export guidance seeks to harmonize multilateral interactions. To harmonize these interactions, each country needs to commit to act in accordance with the guidance and set a date by which it anticipates that it will meet this commitment. As part of the G-8 Sea Island Summit and the United States-European Union Shannon Summit, 29 nations made a political commitment to work towards having effective export controls, as recommended by the guidance, by the end of 2005. In addition, leaders of the Organization for Security and Cooperation in Europe and Asia-Pacific Economic Cooperation made similar commitments as part of their summits. However, some of these countries have not submitted their individual letters of commitment to the IAEA Director General. DOS should continue to press countries that have not already done so to make this commitment. In addition, DOS should continue its work to promote the international harmonization of export and import controls over Category 1 and 2 radioactive sources through multilateral and bilateral forums, conferences, technical meetings, and other meetings to harmonize import/export actions. Finally, the U.S. Government should press for common forms, used in import and export bilateral transactions, to further harmonize the implementation of import and export controls.

2010 Report Context: The implementation and harmonization of this global framework is a major undertaking that will require ongoing attention and support from the U.S. Government. Sustained efforts are needed as countries around the world continue to establish and strengthen their regulatory infrastructure for the control of radioactive sources.

Potential Issues: No known issues.

Agencies Involved: DOS, NRC, DOE, NNSA, and OSD.

Program Office Action: DOS has the lead for this action. The NRC (IP, NMSS, and FSME) will continue to participate in international conferences on implementation of the Code of Conduct and Guidance on the Import and Export of Radioactive Sources.

Resources: This activity is not specifically budgeted but would be covered by routine activities.

2006 Action 10-1		
Tasked Office	**Breakdown into Subtasks**	**Due Date**
DOS, NRC (IP, FSME, NMSS), DOE, NNSA	Participate in relevant international conferences and meetings	Ongoing. Notably in 2008, the U.S. and Canada funded an IAEA meeting, "Lessons Learned from Implementing the Supplementary Guidance on Import and Export Controls" attended by representatives from close to 90 countries.
DOS, NRC (IP, FSME, NMSS), DOE, NNSA	Encourage countries to implement import/export Guidance through bilateral and multilateral forums	Ongoing. As of 2010, 58 nations have made a political commitment to act in accordance with the Guidance – almost triple the number at the time of the 2006 Task Force Report when only 20 nations had made this commitment. The 2006 – 2009 IAEA General Conference Resolutions included language that reiterates the need for States to implement the Guidance in a harmonized and consistent fashion.

2006 Action 10-1		
DOS, NRC (IP, FSME, NMSS), DOE, NNSA	Promote better accounting of high-activity sources being exported. Encourage the development and universal usage of an international form to communicate to exporting country that a Category 1 source has been received by the importing country and not diverted or lost en route.	Complete (Proposed in 12/07; developed and agreed to in 5/08)

2006 Action 10-2	Regulatory Impediments to the Return of Disused Sources	DOE lead
		Ongoing

Task: The U.S. Government should encourage suppliers to provide arrangements for the return of disused sources and examine means to reduce regulatory impediments that currently make this option unavailable.

Cite: 2006 Report (Chapter 10—Import and Export Controls for Radioactive Sources) and 2010 Report (Chapter 2—Advances in the Security and Control of Radioactive Sources)

2006 Report Context: Lifecycle management of risk-significant radioactive sources is key to preventing sources from becoming abandoned, lost, or diverted for malicious use. Encouraging suppliers and supplier countries to arrange for the return of risk-significant sources would provide an outlet for sources at the end of their useful lives. Making this option available is particularly important given the limited disposal options and their high cost. Suppliers could receive encouragement to arrange for the return of sources through work with IAEA, development of a code of practice by suppliers, or other means.

Internationally, the redefinition of sources as "radioactive waste" can impede the return of disused risk-significant sources to manufacturers. Once sources are redefined as waste, they are subject to the regulatory framework that requires rigorous licensing and export/import authorization processes, which makes this source management option unavailable in some cases. In the United States, NRC rules allow for the return of sources without considering the sources to be radioactive waste. Specifically, radioactive waste, as defined in 10 CFR 110.2, "Definitions," does not include radioactive material that is "...contained in a sealed source, or device containing a sealed source, that is being returned to any manufacturer qualified to receive and possess the sealed source or the device containing a sealed source." In adding this exclusion to the definition of radioactive waste, the Commission stated, "This exclusion acknowledges that shipment of used sources to a qualified manufacturer should be handled as expeditiously as possible because these types of shipments help to ensure that used sources are handled in a safe and responsible manner." Additionally, the recent changes to 10 CFR Part 110, "Export and Import of Nuclear Equipment and Material," allow for broad licenses that can include the return of the disused risk-significant source as part of a combined import/export license. This may still be an impediment in other countries.

Obstacles to the return of Category 1 and 2 radioactive sources also include the loss of Type B packaging status. Many of the Category 1 and 2 sources must be transported in Type B packages. In the United States, many of the Type B packages were designed several decades ago and do not meet new international standards. Internationally, the grandfathering clause for old designs expired in 2001. In the United States, Type B packages do not have to meet the new design standards until October 1, 2008. After that date, many of the existing Type B packages will no longer be in use. While Type B packages that meet the new standards are available, they are expensive to either lease or buy. The Task Force encourages the agencies

involved to examine the regulatory landscape that applies to the return of disused sources to suppliers and to identify and address the obstacles that currently make this option unavailable.

2010 Report Context: The U.S. Government has succeeded in bringing broad attention to this issue through a number of interactions with the international community. For example, in September 2009, the U.S. Government successfully introduced a provision in the IAEA 53rd General Conference Resolution on Nuclear Security, Including Measures To Protect against Nuclear and Radiological Terrorism that "calls upon all States to identify secure storage and disposition pathways for disused radioactive sealed sources so that such sources in their territories remain under regulatory control, unless exempted from regulatory control, and further calls upon States to address obstacles to the return of disused sources to the supplier State." The United States also contributed to a similar provision in the Resolution on Measures To Strengthen International Cooperation in Nuclear, Radiation, Transport, and Waste Safety that calls for related measures, "particularly those encouraging States to facilitate the return of disused sources to suppliers, [and] to develop central storage or disposal facilities for disused or orphan sources which cannot be returned to suppliers…." Also, in May 2010, the United States convened a meeting of 12 supplier countries in Vienna, Austria to begin dialogue on their successes and challenges with regard to source repatriation. However, the action requires continued efforts to further examine the domestic regulatory landscape that hinders the return of disused sources to foreign suppliers and the loss of Type B packaging status.

Potential Issues: In the United States, NRC rules allow for the return of sources without considering the sources to be radioactive waste. A license is required in order to return the sources. The availability of Type B packages designed to meet international standards could impact the ability to return sources.

Agencies Involved: DOE, DOS, NRC, and DOT.

Program Office Action: DOE has the lead for this item. The NRC would participate as appropriate. IP will review and approve import licenses for source return, as appropriate. NMSS will review and approve new package designs, as appropriate.

Resources: This activity is not specifically budgeted; package reviews and licensing reviews are part of routine activities.

2006 Action 10-2		
Tasked Office	**Breakdown into Subtasks**	**Due Date**
IP	Review import license applications	TBD upon submittal
NMSS	Review new package design applications	TBD upon submittal
DOS	Use bilateral and multilateral forums to encourage supplier countries to reduce regulatory impediments to the return of sources at the end of their useful lives	Ongoing. In June 2009, the IAEA held an international meeting, funded by the U.S., which focused on the management of disused sources, including the return of sources to the supplier country. More than 50 nations participated. Upon U.S. urging, the 2009 IAEA General Conference Resolutions on Safety and Security called upon source exporting countries to address obstacles to the return of disused sources to the supplier State. The U.S. has organized an adhoc meeting of major supplier countries that will meet in Vienna in May 2010 to engage in detailed dialogue on their successes and challenges with regard to source repatriation.

2006 Action 10-3	Discourage Export of Sources as an Alternative to Disposal	NRC/DOS lead
		Ongoing

Task: The Task Force suggests the use of education and the creation of incentives to discourage the export of used Category 1 and 2 radioactive sources as an alternative to disposal.

Cite: 2006 Report (Chapter 10—Import and Export Controls for Radioactive Sources) and 2010 Report (Chapter 2—Advances in the Security and Control of Radioactive Sources)

2006 Report Context: A number of developing countries have voiced concern that facilities in developed nations may export used risk-significant sources and devices, such as teletherapy units, to the developing world as an alternative to disposal. While the donation and sale of used sources and devices are legitimate and essential avenues for many countries to acquire life-saving therapy and diagnostic capabilities, these practices can also result in lingering safety and security concerns since the recipient facilities and importing countries may not have the means for proper storage, conditioning, and disposal of high-risk sources at the end of their useful lives. Implementation of the new import/export controls in the United States and other countries will help address this issue. The importing country will need to consent to the import of the risk-significant radioactive material, as many of the devices contain Category 1 levels of radioactive material. Using incentives and education to discourage this practice would also help address this problem. One option would be to support the voluntary development of a code of ethics or practice by suppliers to help guide decisions on the resale or donation of used sources, especially to entities in the developing world.

2010 Report Context: The implementation of export controls for radioactive sources has allowed for considerable progress on this action by permitting the NRC and regulatory bodies in other countries greater ability to screen sources to ensure that they are not being exported abroad as an alternative to disposal. Specifically, under the NRC's export licensing program, the importing country must consent to the import of a Category 1 source or device before shipment; pertinent documentation is required to demonstrate that the recipient has the necessary authorization to receive and possess the material; and NRC regulations exclude disused sources from the regulatory definition of radioactive waste and facilitate their return by allowing applicants to import using a general license to encourage the return of sources to the U.S. supplier. To further these efforts, the NRC should evaluate, as part of its outreach efforts, raising this concern with its primary trading partners.

Potential Issues: No known issues.

Agencies Involved: NRC, DOS, DOE, HHS, and EPA.

Program Office Action: The NRC and DOS are co-leads for this item. As part of the review of export licenses, IP considers the approval or authorizations issued by the foreign country. For Category 1 sources, government-to-government consent is necessary before the source can be

approved for export to the foreign country. The NRC will participate in other activities as appropriate.

Resources: This activity is not specifically budgeted but would be covered by routine activities.

2006 Action 10-3		
Tasked Office	**Breakdown into Subtasks**	**Due Date**
IP	Review requests for export licenses	TBD upon submittal. Since 2006, implementation of the import/export controls in the U.S. and elsewhere have helped address this issue. The importing country is notified of import and for Category 1 sources, must consent to the import; prior to shipment, the recipient must demonstrate it has the necessary authorization to possess the material, and the NRC regulations facilitate the return of disused sources to the U.S. supplier by allowing applicants to apply for a combined export and import license.

2006 Action 10-4	Interagency Evaluation of Import Requests	NRC lead
		Complete

Task: The U.S. Government should improve the interagency evaluation of recipient authorization and recipient country controls to prevent the fraudulent acquisition of risk-significant sources exported from the United States.

Cite: 2006 Report (Chapter 10—Import and Export Controls for Radioactive Sources) and 2010 Report (Chapter 2—Advances in the Security and Control of Radioactive Sources)

2006 Report Context: Paragraph 25 of the Code of Conduct states the following:

> Every State intending to authorize the export of radioactive sources in Categories 1 and 2 of Annex 1 to this Code should consent to its export only if it can satisfy itself insofar as practicable, that the receiving State has authorized the recipient to receive and possess the source and has the appropriate technical and administrative capability, resources and regulatory structure needed to ensure that the source will be managed in a manner consistent with the provisions of this Code.

In addition, the supplementary Guidance on Import and Export of Radioactive Sources states that, in deciding whether to authorize an export of such a source, the exporting State should consider the following elements, based on available information:

- whether the recipient has been engaged in clandestine or illegal procurement of radioactive sources

- whether an import or export authorization for radioactive sources has been denied to the recipient or importing State, or whether the recipient or importing State has diverted for purposes inconsistent with the Code any import or export of radioactive sources previously authorized

- the risk of diversion or malicious activities involving radioactive sources (paragraphs 8c and 11c)

Finally, under 10 CFR Part 110, the principal criterion for approving exports of material under Appendix P, “Category 1 and 2 Radioactive Material,” is a finding that the export is not inimical to the common defense and security of the United States. The noninimicality finding is relevant to both the nuclear proliferation significance of exports and the related security concerns of potentially harmful radioactive material being used for malicious purposes.

The NRC, DOE, and DOS are currently conducting the review called for in the above documents. However, additional information gained from leveraging the knowledge and expertise of additional Government entities could provide a more comprehensive information

base to facilitate the U.S. Government in making a more informed decision on whether to authorize an export.

Currently, the interagency group informally makes an evaluation based on a number of criteria, including a country's nonproliferation credentials, whether it is on the embargoed countries list, its export history, and its progress in IAEA assistance programs, to the extent information is publicly available or provided by the country. Verifying the legitimacy of some end users is difficult at times, and additional information could be useful in this review process. The decision-making process should, where appropriate, take greater advantage of the extensive knowledge base offered by the various agencies. This is particularly important in light of today's security concerns.

Bringing in additional existing expertise and resources could be beneficial. This interagency group could periodically review and share relevant trade, end user, and country information. Agencies involved in the export licensing process should consider any information provided by the working group, but without allowing such information to unduly hamper legitimate trade or unduly lengthen the review process. Specific actions that could be considered include the following:

- Request additional information, as appropriate, from potential recipient governments regarding the safe transport, security, handling, and storage of the exported risk-significant radioactive material in the country.

- Make greater use of existing U.S. Government resources (e.g., working through the DOC, DOE, DOS, and the NRC), as appropriate, to share information regarding potential recipient companies to help ensure that the end user is authentic.

- Make greater use of existing U.S. Government resources (e.g., Department of Commerce, DOE, DOS, and the NRC) to better understand the recipient country's security environment, the adequacy of its regulatory controls, and any potential security concerns that may arise during the transport or at the end-use location.

<u>2010 Report Context</u>: Since 2006, the process for interagency evaluation of recipient authorization and recipient country controls has been substantially refined and streamlined. On an annual basis, the NRC has sought views from the executive branch on proposed NRC procedures for addressing license applications from U.S. companies seeking to export Category 1 and 2 quantities of radioactive material abroad. Such requests are consistent with the NRC rulemaking on the export and import of radioactive material that calls for the Commission, as appropriate, to seek the advice of the executive branch in assessing whether a proposed export of a Category 1 or Category 2 quantity of radioactive material would be inimical to the U.S. common defense and security. The finding of no inimicality is relevant to both the nuclear proliferation significance of exports and the related security concerns that potentially harmful radioactive material could be used for malicious purposes. The NRC license review process considers executive branch views when, among other things, establishing the duration of licenses issued for U.S. exports of radioactive materials. License authorizations are valid for varying periods, but they do not exceed 10 years duration.

The executive branch reviews now include clearances from a wide range of offices. The 2009 review included 16 offices within the interagency group, bringing additional expertise to the process and making greater use of U.S. Government resources to better understand the recipient country's security environment, the adequacy of its regulatory controls, and any potential security concerns that may arise during transport or at the end-use location. Executive branch views are based only on information currently available and views on exports to any particular country are susceptible to change as additional information becomes available.

Potential Issues: No known issues.

Agencies Involved: NRC, DOS, DHS, CIA, and DOE.

Program Office Action: The NRC had the lead for this item. IP met with other agencies to discuss the interagency evaluation. No further action is necessary.

Resources: This action is considered complete. No additional resources are necessary.

2006 Action 10-4		
Tasked Office	**Breakdown into Subtasks**	**Due Date**
IP	Meet with other agencies to discuss interagency evaluation—11/16/06	Complete. Since 2006, a process was established within the U.S. interagency to assess whether a proposed export of Category 1 or 2 radioactive sources to a particular country will be inimical to the common defense and security. The reviews now include a wide range of offices. The criteria for review have been established. Efforts are ongoing, but the Action is considered complete.

2006 Action 10-5	Need for Specific Import Licenses	NRC lead
		Complete

Task: The NRC should consider reevaluating the need for a specific license to allow the import of Category 1 and 2 radioactive sources to a U.S.-licensed user.

Cite: 2006 Report (Chapter 10—Import and Export Controls for Radioactive Sources) and 2010 Report (Chapter 2—Advances in the Security and Control of Radioactive Sources)

2006 Report Context: Most other industrialized countries implementing the supplementary Guidance on Import and Export of Radioactive Sources do not require a specific import license. Category 1 and 2 sources are imported under a licensee's site license to use and possess the source, as was previously done in the United States. Licensees suggest that the new import/export rules requiring specific import licenses present a significant and costly administrative burden with little value. Requirements for the licensee to notify the NRC of the import could still be in place without requiring a specific import license. This would ensure that the NRC would know of the import and to whom it is destined. The Task Force suggests that the NRC consider reevaluating the need for a specific import license to allow the import of Category 1 and 2 radioactive sources to a U.S.-licensed user.

2010 Report Context: Since 2006, in light of enhancements made to the NRC's domestic regulatory framework, the agency reevaluated the need for a specific license for the import of Category 1 and 2 quantities of radioactive material to a U.S. licensed user. The NRC issued a final rule in the summer of 2010 that eliminates specific licenses for the import of radioactive sources. A specific license for the export of Category 1 and 2 quantities of radioactive material will still be required.

Potential Issues: No known issues.

Agencies Involved: NRC, DHS, DOS, and DOE.

Program Office Action: The NRC had the lead for this item. IP had discussed these issues with Customs and other impacted stakeholders, reevaluated the comments received on the import/export rule, and evaluated the experience to date on the issuance of specific import licenses. IP had determined that a rulemaking is appropriate to address this issue and issued the final rule on August 10, 2010. No further action is necessary.

Resources: This action is complete. No additional resources are necessary.

2006 Action 10-5		
Tasked Office	**Breakdown into Subtasks**	**Due Date**
IP	Discuss with Customs and DOS—12/19/06	Complete
IP	Evaluate experience for first year—8/1/06 (SECY-06-0171, "Analysis of 10CFR Part 110, Appendix P Implementation Issues")	Complete
IP	Reevaluate comments received on this issue—8/1/06 (SECY-06-0171)	Complete
IP	Decide on need for specific import license—8/1/06 (SECY-06-0171)	Complete
IP	Provide proposed rule on elimination of specific license to Commission—1/23/09 (SECY-09-0013)	Complete
IP	Provide final rule on elimination of specific license to Commission— 8/10/10 (SECY-10-0105)	Complete

2006 Action 11-1	**National Source Tracking System Data Request Processing Procedure**	NRC lead
		Complete

Task: The Task Force encourages the National Source Tracking System (NSTS) Interagency Coordinating Committee to develop a procedure/policy with guidelines on handling both Government and non-Government requests for information in the NSTS.

Cite: 2006 Report (Chapter 11—National Source Tracking System) and 2010 Report (Chapter 2—Advances in the Security and Control of Radioactive Sources)

2006 Report Context: No procedures or guidelines are in place currently that would provide criteria for handling requests for access to NSTS information. At present, each request would need to be handled on a case-by-case basis. The NRC has already received inquires for access to various pieces of information in the database. A procedure or policy is needed to process such requests. The development of the procedure or policy should be an interagency project and should address requests from both Government and non-Government entities. The procedure/policy should address the types of information potential users would need to submit to support a request. The development of such a procedure/policy should not require extensive resources and would likely save resources in the end. Case-by-case reviews generally require more effort to process than those handled according to an established procedure/policy. Case-by-case reviews also leave the agency making the decision open to criticism. The Task Force suggests that the ICC develop the procedure/policy since this committee already exists and will continue to be involved in the NSTS.

2010 Report Context: A procedure for handling the Government and non-Government requests for NSTS information was developed. The NSTS Interagency Coordinating Committee was inactivated following deployment of the NSTS.

Given the sensitive nature of the information contained in the NSTS, the system is categorized at the highest level of information security according to U.S. Government guidelines for civilian information technology systems (as a Level 4 system according to the National Institute of Standards and Technology security categorization). Data is only provided to those persons who have established that they have a need to know and can protect the information. Guidelines were created for providing information to licensing agencies (for their licensees) and to licensees for their own data in the NSTS. The NRC processes requests from a licensee or a member of the public for data for another licensee as a request under the Freedom of Information Act. For requests from other Government agencies, the NRC will provide the appropriate data on a need-to-know basis.

Potential Issues: No known issues.

Agencies Involved: NRC, DOS, DOE, DHS, DOT, DOD, EPA, TSA, FBI, DOC, OAS, and CRCPD.

Program Office Action: The NRC had the lead for this item. The ICC, chaired by FSME, was sunset in February 2009, prior to addressing this action. FSME staff proceeded to address this action and developed a procedure for evaluating the validity of requests for data from the NSTS. No further action is necessary.

Resources: This action is complete. No additional resources are necessary.

2006 Action 11-1		
Tasked Office	**Breakdown into Subtasks**	**Due Date**
FSME	Completion of procedure on handling both Government and non-Government requests for NSTS information	Complete

2006 Action 11-2	**Program National Source Tracking System To Provide Automatic Daily Updates to U.S. Customs and Border Patrol**	NRC lead Completion expected in 2011

Task: The NRC should consider programming the NSTS to provide automatic daily information to [U.S.] Customs [and Border Patrol] on import/export shipment notifications.

Cite: 2006 Report (Chapter 11—National Source Tracking System) and 2010 Report (Chapter 2—Advances in the Security and Control of Radioactive Sources)

2006 Report Context: While the NRC intends to record import/export notifications in the NSTS, the actual requirements for the notifications were not finalized before completion of the NSTS development requirements. The current system requirements do not provide for a daily automatic notification to Customs on shipments of Category 1 or 2 sources that will be entering or exiting the United States. An import/export notification report will be one of the system's routine reports and Customs will receive that information, but Customs will not have direct access to the information through the NSTS. The NRC should consider programming the NSTS to provide an automatic daily notification to Customs with information on any shipments of Category 1 or 2 sources that may be entering or exiting the country within the next 24 hours. An automatic notification would eliminate the human factor aspects and would ensure that Customs officials receive the information in a timely manner. Development of a program and the report format should not require extensive effort, but it will require coordination with Customs officials over the report content and who should receive such notifications. If this cannot be conducted under the current contract for development, the NRC should consider it for inclusion in future modifications.

2010 Report Context: Because of the large number of system requirements, the NRC separated NSTS development into two software versions. NSTS Version 1 was deployed for use in January 2009. This version has the basic functionality for licensees to report transactions involving source manufacture, import, export, transfer, and receipt. In addition, licensees can update information on the source, including changing the location of use. Regulators can verify pending records, such as locations of use, license information, and make and model information. Reporting capability is limited; regulators have the ability to view and report inventory for their licensees.

NSTS Version 2, which is currently in development and planned for deployment in 2011, will include import/export consents and notifications, event-triggered alerts, extended licensee functions, automated system interfaces, full reporting and query capabilities, and the ability to download data for other Federal agencies. Before deployment of Version 2, the NRC will work with DHS/U.S. Customs and Border Patrol to ensure their objectives and needs are achieved. As the NRC develops the WBL system and the LVS, the NRC plans to also include input from U.S. Customs and Border Patrol about its needs for accessing licensing information at a national level.

Potential Issues: No known issues.

Agencies Involved: NRC, DHS, and contractor.

Program Office Action: The NRC had the lead for this item. FSME evaluated the programming necessary to provide for automatic notifications to Customs and determined the best method to provide Customs with appropriate information. NSTS Version 2 will automate import/export notifications by 2011.

Resources: This action is close to completion. No additional resources are necessary.

2006 Action 11-2		
Tasked Office	**Breakdown into Subtasks**	**Due Date**
FSME	Determined best method to provide Customs with appropriate information in 6/09	Complete

2006 Action 11-3	Inclusion of Category 3 Sources in the National Source Tracking System	NRC lead
		Complete

Task: The Task Force suggests conducting a comprehensive analysis on the inclusion of Category 3 sources in the NSTS.

Cite: 2006 Report (Chapter 11—National Source Tracking System) and 2010 Report (Chapter 2—Advances in the Security and Control of Radioactive Sources)

2006 Report Context: The Task Force considered whether the NSTS should include Category 3 sealed sources. At this time, neither the NRC nor DOE plans to track Category 3 sources; however, the agencies have not made a final decision on this issue. Many of the stakeholders commenting on the Task Force activities and on the NRC's proposed rule addressed this issue. Because of the interest in this topic, the inclusion of Category 3 sources in the NSTS should be completely analyzed so that an informed final decision can be made. This analysis should address the cost or burden to licensees, the NRC, DOE, and Agreement States if tracking of Category 3 sources were to be required; the benefit that would be obtained and by whom if the information were collected; the potential for unintended consequences, such as a negative impact on NSTS operation; the potential impact to the NRC and Agreement State General Licensee Tracking Systems; and the potential alternatives to tracking Category 3 sources, such as inventory reporting (e.g., capturing inventory reports in the NSTS).

In conducting the analysis, the NRC should engage industry, States, and Federal agencies. This activity would involve considerable resources to implement, but the Task Force believes the effort may be warranted because various parties continue to raise this issue. GAO (GAO-05-967) suggested that there may be a benefit to including Category 3 sources in the NSTS. In its January 2006, position statement, the Health Physics Society recommended inclusion of Category 3 sources if the cost is not prohibitive. The NRC's Office of the Inspector General (OIG-06-A-10) recommended that NRC staff conduct a comprehensive regulatory analysis to assess expanding the materials tracked in the NSTS to include Categories 3, 4, and 5 and bulk material. Category 3 and lower activity sources comprise a major portion of those voluntarily identified as surplus, excess, or unwanted in the commercial sector and that are being collected by OSRP. Additionally, the U.S. metal recycle industry has indicated that Category 3 radioactive sealed sources are those more commonly misplaced or abandoned in industry, resulting in potential contamination of the metal recycling process with operational and financial impacts. The inclusion of Category 3 sources needs to be addressed comprehensively so that the issue can be resolved.

In a June 9, 2006, staff requirements memorandum, the Commission directed the staff to conduct a one-time survey of licensees to obtain information on Category 3 sources and to prepare a proposed rule to include Category 3 data in the NSTS.

2010 Report Context: In 2008, the NRC proposed to amend its regulations (10 CFR Part 20 and 10 CFR Part 32, "Specific Domestic Licenses to Manufacture or Transfer Certain Items

Containing Byproduct Material") to expand the NSTS to include additional licensees that possess sealed sources containing greater than or equal to one-tenth of Category 3 radioactive sources. This rulemaking effort, which included the development of a draft final rule, contained a comprehensive analysis of inclusion of Category 3 sources into the NSTS. Numerous public comments, including comments from the Agreement States, were received on the draft rule. A large number of comments objected to the expansion of the NSTS to include even Category 3 material. The main reason expressed in the comments for this objection was that this decision was premature since the NSTS had not yet been implemented and experience was needed on operation of this system before deciding to expand the system to include sources other than Category 1 and 2 sources. Another view expressed by the commenters was the inclusion of Category 3 sources would more than double the number of sources in the system and could deflect attention from the Category 1 and 2 sources. After consideration of the public comments and deliberation, the Commission did not proceed with issuance of the final rule to expand the NSTS. The findings from the analysis appear on the NSTS public Web site: http://www.nrc.gov/security/byproduct/nsts/nsts-expansion.html. Although the NSTS is currently functional, significant changes are being developed to the system. As the NSTS continues to operate and users gain more experience with the system, the NRC will assess the scope and functioning of the NSTS on an ongoing basis.

Potential Issues: No known issues.

Agencies Involved: NRC, DOS, DOE, DHS, DOT, DOD, EPA, TSA, FBI, DOC, OAS, CRCPD, and stakeholders.

Program Office Action: The NRC had the lead for this item. FSME conducted a one-time survey of licensees authorized to possess 1/10th of Category 3 sources. FSME staff analyzed the data and prepared a proposed rule that addressed the inclusion of Category 3 data in the NSTS. Staff received Commission vote on June 30, 2009, to not proceed with the proposed action. No further action is necessary.

Resources: This action is complete. No additional resources are necessary.

2006 Action 11-3		
Tasked Office	**Breakdown into Subtasks**	**Due Date**
FSME	Prepare survey questions	Complete
FSME	Initiate survey of licensees	Complete
FSME	Preliminary brief analysis of survey data of 1/10th of Category 3 sources to Commission	Complete
FSME	Issuance of proposed rule – 4/11/08	Complete
FSME	Submit Commission paper for final rule (SECY-09-0086) – 6/10/09	Complete

2010 Recommendation 1	**Adoption of Sources that Warrant Enhanced Security and Significant RED and RDD Definitions**	TBD
		TBD

Task: The Task Force recommends that U.S. Government agencies use the radionuclides and the associated Category 2 threshold quantities in Table II, "Radionuclides that Warrant Enhanced Security and Protection" (as shown on page 11 of the report), as the appropriate framework for considering which sources warrant enhanced security* and that they adopt the definitions for a significant RED and a significant RDD (as shown on page 8 of the report) for prioritizing and allocating resources to eliminate, control, or mitigate risks of malevolent radiological incidents. * By warrants enhanced security and protection is meant enhanced in comparison to the security and protection applied to radioactive sealed sources before September 11, 2001.

Cite: 2010 Report (Chapter 2—Advances in the Security and Control of Radioactive Sources)

Potential Issues: TBD

Agencies Involved: All Task Force agencies.

Program Office Action: The Task Force, led by the NRC, will evaluate the security of radiation sources in the United States from potential terrorist threats, including acts of sabotage, theft, or use of a radiation source in an RDD. The Director of FSME serves as the point of contact for Task Force activities and the FSME staff coordinates the Task Force activities to provide recommendations relating U.S. Government agencies' consistent approach to security.

Resources: TBD

2010 Recommendation 1		
Tasked Office	**Breakdown into Subtasks**	**Due Date**
TBD	TBD	TBD

2010 Recommendation 2	**Reevaluation of Protection and Mitigation Strategies**	TBD
		TBD

Task: The Task Force recommends that the U.S. Government agencies should reevaluate their protection and mitigation strategies to protect against significant RED or RDD attack using both potential severe immediate or short-term exposure and contamination consequences to public health, safety, and the environment as the consequences of concern. Agencies should use the Task Force-endorsed definitions, radionuclides, and thresholds for a significant RED and RDD and the associated assumptions and parameters as common guidance in the assessment of risk and management of homeland security activities.

Cite: 2010 Report (Chapter 2—Advances in the Security and Control of Radioactive Sources)

2010 Report Context: The Task Force completed an assessment developed in response to 2006 Recommendation 3-1. The assessment identified radionuclides and quantities that pose a significant risk if used malevolently in an RED or RDD attack based upon deterministic health effects and economic consequences. The new focus of the reevaluation was on economic consequences, consistent with the NIPP framework that assesses risk as a function of consequences, vulnerability, and threat. The economic consequences of an RDD are primarily driven by the costs to clean up the contaminated area. The Task Force did not evaluate whether additional security and protection are needed to protect against contamination and resultant economic consequences. It is now proposed that U.S. Government agencies should reevaluate their current strategies for protecting against a significant RED or RDD attack to also consider economic consequences (or economic losses).

Potential Issues: TBD

Agencies Involved: All Task Force agencies.

Program Office Action: Revise the Security Assessment Framework to consider contamination and/or resultant economic consequences. Reassess the adequacy of the current security requirements/10 CFR Part 37 to protect against contamination and/or resultant economic consequences. Issue appropriate regulatory requirements, if needed.

Resources: TBD

2010 Recommendation 2		
Tasked Office	**Breakdown into Subtasks**	**Due Date**
TBD	TBD	TBD

2010 Recommendation 3	**Evaluation of CsCl Export Licensing**	TBD
		TBD

Task: Contingent upon the availability of alternative technologies, the Task Force recommends that the NRC evaluate whether the export licensing for Category 1 and 2 CsCl sources should be discontinued, taking the availability of disposal capacity and the threat environment into consideration.

Cite: 2010 Report (Chapter 2—Advances in the Security and Control of Radioactive Sources)

2010 Report Context: As a result of a 2-year study to evaluate the feasibility of phasing out the use of dispersible forms of CsCl in Category 1 and 2 quantities, in response to 2006 Recommendation 12-2, a comprehensive five-part approach was identified. One element of this approach addresses the import and export of radioactive sources. In particular, it recommends that the NRC initiate a rulemaking or other stakeholder outreach processes to discontinue authorizing the export of Category 1 and 2 CsCl sources as replacement sources and/or technologies become available. It also recommends that the NRC, in cooperation with the Agreement States and DHS initiate a dialogue with stakeholder communities to obtain their input. An example of such an outreach was the public workshop that the NRC held in September 2008 to solicit public input on major issues associated with the use of CsCl. The stakeholder feedback received indicated that near-term replacement of devices or CsCl sources in existing blood, research, and calibration irradiators is not practicable and would be disproportionately detrimental to patient health, longstanding research, and emergency response capabilities. Given the range of uses of CsCl one solution cannot apply to all applications or to all licensees uniformly.

The NRC has found that the security of Category 1 and 2 CsCl sources is adequately protected under the current NRC and Agreement State requirements. In the event that the current threat environment changes such that the NRC and Agreement States would issue additional security requirements to apply appropriate limitations for the use of CsCl in its current forms or for its replacement with suitable alternatives, discontinuing export of these sources may be considered.

Any actions to discontinue export of these sources should be taken only after any actions taken in response to 2010 Recommendation 11 (dealing with discontinuing licensing) are considered.

Potential Issues: TBD

Agencies Involved: TBD

Program Office Action: TBD

Resources: TBD

2010 Recommendation 3		
Tasked Office	**Breakdown into Subtasks**	**Due Date**
TBD	TBD	TBD

2010 Recommendation 4	**Evaluation of Disposal Options for Disused Sources**	TBD
		TBD

Task: The Task Force recommends that the U.S. Government, regional compacts, and States continue to evaluate disposal options for disused radioactive sources, including options for handling a potentially large number of disused cesium chloride sources that may be replaced once viable alternatives are available.

Cite: 2010 Report (Chapter 3—Status of the Recovery and Disposition of Radioactive Sources)

2010 Report Context: The current compact disposal system is not providing disposal options for all generators. Potential disposal solutions will likely involve the highest levels of Federal and State Government, and could include actions by Congress to modify the existing legislative framework or actions within the existing legislative framework (e.g., States and licensees without disposal access requesting compact commissions and States hosting existing disposal facilities to grant an out-of-compact exemption for disposal of disused sources).

This recommendation follows on to 2006 Recommendation 9-1.

Potential Issues: TBD

Agencies Involved: TBD

Program Office Action: TBD

Resources: TBD

2010 Recommendation 4		
Tasked Office	**Breakdown into Subtasks**	**Due Date**
TBD	TBD	TBD

2010 Recommendation 5	**Disposal Options for Foreign-Origin Americium-241 Sources**	TBD
		TBD

Task: The Task Force recommends that Federal and State Governments investigate options such as providing short-term secured storage of sources recovered from U.S. owners that contain foreign-origin americium-241 radioactive material, so that these sources can be recovered now, and increase efforts to investigate options for disposal of these sources.

Cite: 2010 Report (Chapter 3—Status of the Recovery and Disposition of Radioactive Sources)

2010 Report Context: An increasing number of U.S.-manufactured sealed sources (e.g., moisture gauges, oil well-logging devices) contain foreign-origin Am-241. These sources, when declared a waste, fall within the scope of the GTCC LLRW disposal project. These sources are currently stored securely at licensee sites, however, until a GTCC LLRW disposal capability is available, disused sources that contain foreign-origin radioactive material and are registered for recovery by the GTRI/OSRP have not been recovered because a disposal path has not been identified. The GTRI/OSRP's ability to store the sources it recovers is directly linked to the availability of disposal pathways. Both Federal and commercial storage facilities have been reluctant to receive sealed sources recovered by GTRI/OSRP that have no disposal pathway. Therefore, this recommendation would help alleviate issues related to this type of material.

Potential Issues: Without a GTCC LLRW disposal pathway available, GTRI/OSRP is unable to recover these sources.

Agencies Involved: TBD

Program Office Action: TBD

Resources: TBD

2010 Recommendation 5		
Tasked Office	**Breakdown into Subtasks**	**Due Date**
TBD	TBD	TBD

2010 Recommendation 6	**Update Inspection Procedures to Track Sources in Long-Term Storage**	TBD
		TBD

Task: The Task Force recommends that the NRC incorporate procedures to review the status, such as the date of, the reason for, and location of sources in long-term storage, in the current inspection program.

Cite: 2010 Report (Chapter 3—Status of the Recovery and Disposition of Radioactive Sources)

2010 Report Context: The intent of incorporating this review into the current inspection program is to be able to ascertain when a source goes from being an economic asset to a licensee to being disused and unwanted, with limited or expensive disposition options. Incorporating this review into the inspection program would provide a more accurate account of those sources in long-term storage and also give assurance that disused and unwanted sources are being adequately protected and secured.

Potential Issues: TBD

Agencies Involved: TBD

Program Office Action: TBD

Resources: TBD

2010 Recommendation 6		
Tasked Office	**Breakdown into Subtasks**	**Due Date**
TBD	TBD	TBD

2010 Recommendation 7	**Evaluation of Unwanted, Abandoned, or Impounded Source Disposition Methods**	TBD TBD

Task: The Task Force recommends that the U.S. Government, in collaboration with responsible State agencies, evaluate and develop a plan to improve, as necessary, processes for dealing with unwanted, abandoned, or impounded sources, including storage, reuse, recycling, or other disposition methods.

Cite: 2010 Report (Chapter 3—Status of the Recovery and Disposition of Radioactive Sources)

2010 Report Context: In November 2009, CRCPD conducted an Internet survey of its members on topics related to the storage and disposal of sealed sources in the States. Twenty States responded to the survey. The survey provides initial data to understand the sealed source storage situation in the Nation. The respondents identified a variety of storage conditions. Most States reported that licensees store sources on site. Eight States reported that licensees are requesting licenses for the storage of sources only. Most States have had to deal with licensees that have abandoned sources or went into bankruptcy. Nine States responded that they have storage for orphan or impounded sources, but only one State reported that it had a facility to accept unwanted sources.

Potential Issues: TBD

Agencies Involved: TBD

Program Office Action: TBD

Resources: TBD

2010 Recommendation 7		
Tasked Office	**Breakdown into Subtasks**	**Due Date**
TBD	TBD	TBD

2010 Recommendation 8	**Certified Type B Container Research and Development**	TBD
		TBD

Task: The Task Force recommends that the U.S. Government enhance support of short-term and long-term research and development of certified Type B containers for use in domestic and international source recovery efforts.

Cite: 2010 Report (Chapter 3—Status of the Recovery and Disposition of Radioactive Sources)

2010 Report Context: Many of the Category 1 and 2 sources must be transported in a Type B package. On October 1, 2008, a significant number of older design specification and performance-oriented Type B package certifications expired as the U.S. Government harmonized with international transport regulations. As a result, beginning in October 2008, only a very limited number of certified Type B packages were available for specific applications. To provide for an orderly transition, the U.S. Government has provided special permits and authorizations for continued use of the decertified packages on an as-needed basis where efforts include a good faith effort to transition to currently certified packages in the near future and an adequate safety case has been demonstrated. For example, the current special permit authorizing the extended use of the 20WC container was granted until June 30, 2010. This container is particularly critical to source recovery operations because it has broad application as a result of its non-device specific design.

For the long-term, the U.S. Government has procured vendor services for the design, development, testing and certification of a new Type B package to support the transportation of irradiators, teletherapy heads, or sources removed from these devices using remote handling capabilities such as the International Atomic Energy Agency's (IAEA) mobile hot cell. The design of this new Type B container will be available to any company in the United States or abroad. Ideally, the broad availability of this design will foster a more competitive market and drive down transportation costs when it becomes available in 2013/2014.

Potential Issues: In the short term, each year approximately 50 cesium-137 or cobalt-60 sources containing about 18,000 Ci are added to the list of unwanted sources needing recovery that require the use of a certified Type B package. This is in addition to the 126 sources totaling 75,600 Ci already registered as disused. This means that between June 30, 2010, when the 20WC special permit expired and 2014, when many new Type B packages are expected to be available, there could be about 240 sources totaling 93,000 Ci that will not be recovered unless other short-term options are identified.

Agencies Involved: TBD

Program Office Action: No particular NRC role, except to monitor progress. NNSA/OSRP is supporting projects to develop new Type B containers in order to ensure low-cost shipping containers are available for OSRP recoveries. GTRI is also working with DOT on interim solutions.

Resources: TBD

2010 Recommendation 8		
Tasked Office	**Breakdown into Subtasks**	**Due Date**
TBD	TBD	TBD

2010 Recommendation 9	**Alternative Technologies Research and Development**	TBD
		TBD

Task: The Task Force recommends that the U.S. Government enhance support of short-term and long-term research and development for alternative technologies.

Cite: 2010 Report (Chapter 4—Progress in the Area of Alternative Technologies)

2010 Report Context: The Task Force recommends that the technology and user communities collaborate closely to determine the viability of using existing or developing technologies as replacements for International Atomic Energy Agency (IAEA) Category 1 and 2 quantity sources of Am-241, Cs-137, Co-60, and Ir-192.

Potential Issues: TBD

Agencies Involved: TBD

Program Office Action: TBD

Resources: TBD

2010 Recommendation 9		
Tasked Office	**Breakdown into Subtasks**	**Due Date**
TBD	TBD	TBD

2010 Recommendation 10	**Investigation of Options for the Replacement of Risk-Significant Sources**	TBD
		TBD

Task: The Task Force recommends that the U.S. Government, contingent upon the availability of alternative technologies and taking into consideration the availability of disposal pathways for disused sources, investigate options such as a voluntary prioritized, Government-incentivized program for the replacement of Category 1 and 2 sources with effective alternatives, with an initial focus on sources containing CsCl.

Cite: 2010 Report (Chapter 4—Progress in the Area of Alternative Technologies)

2010 Report Context: The Task Force recommends that the U.S. Government investigate options such as a program to incentivize the early decommissioning and replacement of Category 1 and 2 sources with viable alternatives, where available. The availability of a disposal pathway for existing Category 1 and 2 sources is an important consideration for the secure replacement of these sources. If such a program is implemented, the Task Force recommends that the Government conduct it in a prioritized fashion with targeted replacements. For example, the Task Force suggests putting urban, densely populated areas at a higher priority.

Potential Issues: TBD

Agencies Involved: TBD

Program Office Action: TBD

Resources: TBD

2010 Recommendation 10		
Tasked Office	**Breakdown into Subtasks**	**Due Date**
TBD	TBD	TBD

2010 Recommendation 11	**Evaluation of New Cesium Chloride Source Licensing**	TBD
		TBD

Task: Contingent upon the availability of viable alternative technologies, the Task Force recommends that the NRC and the Agreement States review whether the licensing for new Category 1 and 2 CsCl sources should be discontinued, taking the threat environment into consideration.

Cite: 2010 Report (Chapter 4—Progress in the Area of Alternative Technologies)

2010 Report Context: The NRC has found that the security of Category 1 and 2 CsCl sources is adequately protected under the current NRC and Agreement State requirements. While it is prudent to continue to look for viable alternative technologies and sources, a decision on whether to limit the further use of these sources should be based primarily on the existence of viable alternative technologies. The NRC should continue to work with its Federal and State partners to ensure the safety and security of CsCl sources.

Potential Issues: TBD

Agencies Involved: TBD

Program Office Action: The NRC will need to continue to monitor the current threat environment and if significant changes occur in regards to threat, the NRC and Agreement States will need to reevaluate the current security requirements to determine their adequacy. Also, the NRC will need to continue to monitor any progress made in regard to viable alternative technologies for CsCl devices and/or sources.

Resources: No additional resources are needed at this time. In the event that changes in the threat environment necessitate regulatory action, the NRC and Agreement States may need additional resources to issue additional security requirements to apply limitations for the use of CsCl in its current forms or for its replacement with suitable alternatives.

2010 Recommendation 11		
Tasked Office	**Breakdown into Subtasks**	**Due Date**
TBD	TBD	TBD