FOIA/PA NO: 2013-0068

GROUP: E

RECORDS BEING RELEASED IN THEIR ENTIREY

NOTE: SENSITIVE INFORMATION -- LIMITED TO NRC UNLESS THE COMMISSION DETERMINES OTHERWISE

POLICY ISSUE

(Notation Vote)

February 3, 1999 SECY-99-038

FOR: The Commissioners

FROM: William D. Travers
Executive Director for Operations

SUBJECT: STAFF EFFORTS TO ADDRESS ORPHAN SOURCE ISSUES

PURPOSE:

To provide the Commission with information and options on orphan source issues in response to Item 8 of the Staff Requirements Memorandum (SRM) (Attachment 1) dated April 13, 1998, on SECY-97-273, "Improving the U.S. Nuclear Regulatory Commission's Control Over, and Licensees' Accountability for, Generally and Specifically Licensed Devices."

SUMMARY:

This paper describes the staff's efforts to address orphan source issues since April 1998, when the SRM on SECY-97-273 was issued. These efforts have included presentations and coordination with stakeholders on the orphan source problem; consultation with Federal agencies and States on jurisdictions and regulatory responsibilities for addressing the orphan source problem; continued close coordination with the Conference of Radiation Control Program Directors (CRCPD) through a committee addressing orphan source issues; and coordination with the U.S. Department of Energy (DOE), to finalize a Memorandum of Understanding (MOU) on management of sealed sources. This paper also presents options for establishing an orphan source contract, provides pros and cons for the different contract options, and gives an estimate of the cost of establishing such a contract.

CONTACT: Douglas A. Broaddus, NMSS/IMNS
(301) 415-5847

E-1

NOTE: SENSITIVE INFORMATION -- LIMITED TO THE NRC UNLESS THE COMMISSION DETERMINES OTHERWISE

BACKGROUND:

On December 31, 1996, the Commission issued an SRM on SECY-96-221, and the staff responded in SECY-97-273, "Staff Requirements -- SECY-96-221 -- 'Improving NRC's Control Over, and Licensees' Accountability for, Generally and Specifically Licensed Devices.'" On April 13, 1998, the Commission issued an SRM on SECY-97-273.

In the SRM on SECY-97-273, the Commission instructed the staff, in part, to continue efforts to further address orphan sources, using the guiding principle that non-licensees who find themselves to be in possession of radioactive sources that they did not seek to possess should not be expected or asked to assume responsibility and cost for exercising control or arranging for their disposal. The Commission directed the staff to continue efforts to address orphan sources; consult with other Federal agencies and the States to define jurisdictions and regulatory responsibilities for addressing the orphan source problem; continue to coordinate with CRCPD to ensure that a similar regulatory framework is applied to sources/devices containing Atomic Energy Act (AEA) material and sources/devices containing Naturally occurring or Accelerator-produce Radioactive Material (NARM); aggressively pursue finalizing the MOU with DOE; and consider the pros and cons of establishing a contract program for orphan sources, and provide an estimate of the costs of such a program. Each of these areas of the SRM is addressed, in sequence, in the following discussion. Other areas of the SRM, involving the U.S. Nuclear Regulatory Commission's (NRC) general license program, are the subject of separate staff actions and are not addressed here.

DISCUSSION:

Staff efforts to further address orphan sources

The staff is actively pursuing efforts to address the issue of orphan sources, consistent with Commission direction. These efforts have included: staff participation in five federal and state interagency meetings which included representatives of the metal recycling and manufacturing industries; staff presentations at a workshop and a seminar, concerning efforts to improve detection of radioactive materials in the metal recycling and manufacturing industries; interaction with DOE on a pilot program to recover and recycle certain Greater-Than-Class-C (GTCC) materials; responses to two requests from Agreement States for DOE emergency acceptance of GTCC orphan sources; and incident response efforts on a number of orphan source and contaminated metal incidents, including several incidents that involved other Federal agencies and States. Attachment 2 contains more specific information concerning these efforts. The staff plans to continue outreach efforts with industry and stakeholders.

Consult with Federal Agencies and States to define jurisdictions and regulatory responsibilities

The staff met with and/or discussed the roles, responsibilities, and jurisdictions of DOE; the U.S. Environmental Protection Agency (EPA); and the U.S. Federal Emergency Management Agency (FEMA), regarding orphan source issues, with representatives from each of these Federal agencies. The staff also addressed the same issues with State representatives through CRCPD. In addition, the staff researched and consulted available documentation, such as the Federal Radiological Emergency Response Plan (FRERP) and the National Contingency Plan (NCP), concerning each agency's role in responding to orphan source incidents. The

discussion in this paper and the attachments have not been reviewed, approved, or sanctioned by the applicable agencies. Attachment 3 provides the NRC staff's characterization of the roles, responsibilities, and jurisdictions of Federal agencies and States for addressing orphan sources, based on available information and the views expressed by the different agency representatives.

The issues of regulatory responsibilities and jurisdictions of Federal agencies and States in addressing orphan source problems have been complex, and there is overlap between the cognizant organizations. Regulatory responsibilities and jurisdictions are particularly difficult to clarify, because of the many different types of sources and situations that may be associated with orphan source incidents. The numerous Federal, State, and local organizations having responsibilities in this area have a variety of capabilities, as well as differing perceptions of each organization's roles and responsibilities, even within their own organizations. All 50 States, and no less than 11 Federal agencies (primarily NRC, DOE, EPA, FEMA, the U.S. Department of Defense, and the U.S. Department of Transportation, and secondarily, the Federal Bureau of Investigations, the U.S. Customs Service, the Central Intelligence Agency, the National Security Agency, and the U.S. Department of State) have responsibility for or jurisdiction over addressing different aspects of the orphan source problem.

Development and implementation of the FRERP and coordination work over the past several years between CRCPD, Federal agencies, and States have helped to clarify roles, responsibilities, and jurisdictions on orphan source incidents, especially concerning the authorities governed by the NCP. Although these efforts have been ongoing for a number of years, significant improvement in this area has been seen over the last few years. To provide a more consistent national approach to orphan source incidents, further efforts are needed. Several mechanisms may be utilized to continue this work, including: working directly and separately with each agency, possibly resulting in additional MOU's, similar to the DOE MOU, concerning orphan sources; requesting the CRCPD E-34 Committee on Unwanted Radioactive Material (the E-34 Committee) to expand its charter to fully address this issue; initiating a working group of representatives of the applicable Federal agencies, and one or more State representatives, to provide a consensus position on this issue; as a member of the NCP National Response Team (NRT), request guidance and clarification on this matter from the NRT in accordance with the provisions of the NCP; request FEMA, through the Federal Radiological Preparedness Coordinating Committee (FRPCC), to develop a consensus position on this issue, and consider training programs and exercises conducted through the FRPCC Training Subcommittee; and supporting and participating in additional lost source exercises. Obtaining a national consensus position on roles, responsibilities, and jurisdictions will likely require a combination of these approaches. The staff plans to continue exploration of these mechanisms.

Coordination with CRCPD

In late Calendar Year (CY) 1997, EPA provided funding to the CRCPD for initiation of a committee -- the E-34 Committee -- whose charter is to prepare a national program for addressing and responding to unwanted radioactive material. The staff has coordinated with CRCPD, through the E-34 Committee, consistent with Commission direction to ensure that a similar regulatory framework is applied to both AEA and NARM sources/devices. The E-34 Committee includes advisory members from NRC, EPA, and DOE. The E-34 Committee's

activities have included: defining the problem; determining the part of the problem that the E-34 Committee's program would address; identifying the essential elements of an orphan source program; surveying regulatory agencies, discussing the issue with stakeholders, and developing criteria for acceptance of radioactive materials into the program, to determine and bound the scope of the problem; requesting NRC assistance to use the Nuclear Material Event Database (NMED) for tracking orphan sources; and discussing the need for clarification of the roles and responsibilities of State and Federal agencies for addressing the orphan source issue, and coordinating these roles for a consistent approach.

The E-34 Committee plans to continue development of the program and initiate a pilot orphan source acceptance program in CY 1999. If the pilot program is successful, it may serve as a template for State and Federal agencies to respond to unwanted radioactive materials. Issues regarding EPA's funding of the program development, funding of the final E-34 orphan source acceptance program, cooperative agreements between States, application of a similar regulatory framework between AEA orphan sources and NARM orphan sources, and the use of NMED to track orphan sources, are discussed in more detail in Attachment 4. To date, the staff has found participation on the E-34 Committee to be a valuable mechanism for interacting with other organizations on the orphan source problem and for developing a potential solution to the orphan source problem.

Efforts to finalize the MOU with DOE

The Office of Nuclear Material Safety and Safeguards (NMSS) staff worked closely with the NRC's Office of the General Counsel (OGC) and DOE Office of Waste Management to redraft the MOU on management of sealed sources, in an attempt to address concerns expressed by DOE's OGC with the original 1995 draft MOU. In addition, NRC staff informed DOE about the Commission's direction in the SRM on SECY-97-273, to aggressively pursue finalization of the MOU. DOE Office of Waste Management staff agreed, in principle, to assist in this effort, and on December 18, 1998, DOE management signed the MOU and returned it to NRC in a letter of the same date. The signed MOU is being provided to the Commission, for approval, as Attachment 5. NMSS has coordinated with OGC on the final version of the MOU, and OGC has no legal objection to NMSS signing and issuing the MOU. Upon Commission approval, the staff is prepared to sign the MOU.

Options regarding an orphan source contract program

In considering the pros and cons of establishing an orphan source contract program that would enable licensees or DOE to take possession of, and arrange for proper transfer or disposal of, orphan sources, the staff evaluated: the required capabilities of such a contractor and the bounds of such a contract; whether NRC has the legal authority to issue such a contract; factors that would limit such a contract; contract alternatives; and the positive and negative attributes of such a contract. The steps the staff took to consider the pros and cons of establishing an orphan source contract, and an analysis of the legal and contractual complexities of such a program, are discussed in detail in Attachments 6, 7, and 8.

As shown in the analysis in Attachment 6, the staff identified four principal options for an orphan source contract:

1. NRC establishes an orphan source contract program, with a commercial firm or firms, for AEA material only.

2. NRC funds CRCPD to establish, implement, and manage a national orphan source program, once the E-34 Committee's pilot program is complete (~ mid CY 2000). NRC funding would be commensurate with the proportion of NRC licensees to all US licensees, and would be limited to only those efforts associated with AEA material.

3. NRC neither establishes nor funds an orphan source contract or program, but continues to work with the E-34 Committee, to develop a national orphan source program (the E-34 Committee's program would require funding from sources other than NRC).

4. A combination of Options 1 and 2. The combination would allow NRC to issue an orphan source contract while the E-34 Committee is continuing work on its national program, then end the contract and fund the E-34 Committee's program, once its development is complete.

The staff identified a number of pros and cons for each of the options (see Attachment 6). Based on the pros and cons and an analysis of the legal and contractual complexities of establishing an orphan source contract, the staff recommends that the Commission proceed with Option 2 (fund the E-34 Committee's program) as the preferred alternative. The staff expects that the E-34 Committee's program will contain the essential elements that NRC would require of an orphan source contract, or more, and funding the E-34 Committee's program presents several clear advantages over other options. For instance, the E-34 Committee's program would offer a seamless framework for both NARM and AEA orphan sources; minimize many legal uncertainties and potential conflicts of interest that an NRC contract would face; cover all States and jurisdictions; require fewer NRC full-time equivalent position resources; and promote inter-agency and Federal/State cooperation on the orphan source problem.

Estimate the costs of an orphan source contract program

The annual frequency of orphan source incidents, which is a dominant factor in the cost of an orphan source contract, is not known for a variety of reasons, as discussed in Attachment 9. Therefore, it is difficult to accurately estimate the costs of the orphan source contract options discussed in this paper. The staff has been able to provide a rough estimate for an orphan source contract, based on current information and discussions with waste brokers and waste handlers, with the assumption that the contract covers only AEA orphan source material in non-Agreement States. The staff's estimate of the annual cost of an orphan source program is only a rough approximation, and actual costs would be highly dependent on a number of variables. The staff's estimated costs for NRC funding the E-34 Committee's program implementation and continuation, with the assumptions that NRC's funding covers only AEA material and NRC shares the costs of the program proportionally with the Agreement States, results in an expectation of the same approximate costs. Estimates for the costs of funding the E-34

Committee's program should be better defined after the pilot program. The staff's estimate is that either option (an NRC contract program or NRC funding of the E-34 Committee's program) would cost approximately $450,000 per year. Actual costs would likely vary from year to year, possibly by as much as a couple hundred thousand dollars. More detail on these estimates, and the bases for the costs, are provided in Attachment 9.

RECOMMENDATIONS:

1. The Commission approve the staff's plans to sign the MOU with DOE on management of sealed sources.

2. The Commission proceed with Option 2 as the preferred alternative for an orphan source contract. If approved, the staff will provide the Commission with the status of the E-34 Committee's program development, and the E-34 Committee's cost estimates for the program, by mid-CY 2000. Funding for this option should not be required until the E-34 Committee's program is fully developed (FY 2001), and could be addressed during the current, ongoing-budget formulation cycle for the FY 2001 budget.

RESOURCES:

The resources in NMSS' budget are sufficient to support Recommendation 1. Although resources to implement Recommendation 2 have not been budgeted, if the Commission directs the staff to pursue any type of contract option that requires funding, NMSS will address the funding requirements in the next budget formulation cycle. Following initial implementation of a program, staff would use its experience to further refine cost estimates for future budget cycles.

COORDINATION:

OGC has reviewed this paper and has no legal objection. The Office of the Chief Financial Officer has reviewed this Commission paper for resource implications and has no objections.

William D. Travers
Executive Director
for Operations

Attachments:
1. SRM on SECY-97-273, dtd 4/13/98
2. Staff Efforts to Further Address Orphan Sources
3. Jurisdictions and Regulatory Responsibilities
4. Coordination with CRCPD
5. Letter transmitting signed MOU with DOE.
6. Pros and Cons of a Contract Program
7. Sources Sought Synopsis
8. Request for Legal Advice on a Contract Program
9. Cost Estimates for Contract Options

Commissioners' completed vote sheets/comments should be provided directly to the Office of the Secretary by c.o.b. **Monday, February 22, 1999.**

Commission staff office comments, if any, should be submitted to the Commissioners NLT **February 12, 1999,** with an information copy to SECY. If the paper is of such a nature that it requires additional review and comment, the Commissioners and the Secretariat should be apprised of when comments may be expected.

DISTRIBUTION:
Commissioners
OGC
OCAA
OIG
OPA
OCA
CIO
CFO
EDO
REGIONS
SECY

ATTACHMENT 1

SRM ON SECY-97-273
DATED APRIL 13, 1998

OFFICE OF THE SECRETARY

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

April 13, 1998

Action: Paperiello, NMSS/
Lieberman, OE/
Bangart, SP/
Funches, CFO

Cys: Callan
Thadani
Thompson
Norry
Blaha
Martin, AEOD
Knapp, RES
Lubinski, NMSS

MEMORANDUM TO: L. Joseph Callan
Executive Director for Operations

Jesse L. Funches
Chief Financial Officer

William M. Beecher, Director
Office of Public Affairs

FROM: Annette L. Vietti-Cook, Acting Secretary

SUBJECT: STAFF REQUIREMENTS - SECY-97-273 - STAFF REQUIREMENTS -- SECY-96-221 -- "IMPROVING NRC'S CONTROL OVER, AND LICENSEES' ACCOUNTABILITY FOR, GENERALLY AND SPECIFICALLY LICENSED DEVICES"

The Commission had disapproved the staff's recommendation and directs the staff take the following actions:

*8900090 and 9000192 (NMSS)

1. Terminate the rulemaking on 10 CFR Part 31.5* that was initiated in 1991 except those provisions that will enable NRC to request information from certain general licensees to provide the regulatory basis for initiation of a registration program in advance of the rulemaking described below. Those portions of the 1991 proposed rule should be renoticed for public comment.
(~~EDO~~) (NMSS) (SECY Suspense: ~~8/21/98~~) 8/14/98 9800070

2. Provide a set of milestones to the Commission for information for implementing the rulemaking described below. The milestones should be in lieu of the standard rulemaking plan required by Management Directive 6.3, but should meet the requirement for coordination with Agreement States.
(~~EDO~~) (NMSS) (SECY Suspense: ~~8/21/98~~) 8/14/98 9800071

SECY NOTE: SECY-97-273 WAS RELEASED TO THE PUBLIC ON DECEMBER 2, 1997. THIS SRM AND THE COMMISSION VOTING RECORD CONTAINING THE VOTE SHEETS OF ALL COMMISSIONERS WILL BE MADE PUBLICLY AVAILABLE 5 WORKING DAYS FROM THE DATE OF THIS SRM.

3. Draft a proposed rule to implement a registration and follow up program for the generally-licensed sources/devices identified by the NRC Agreement State Working Group, apply fees to these general licensees, and incorporate requirements for permanent labeling of sources/devices. The proposed rule should include the staff's preferred approach -- Attachment item 11, Option 3 -- to apply a registration fee, per licensee, at the time of initial registration and annual re-registration of sources/devices. The staff should explore the possibilities, advantages, and disadvantages of other fee approaches such as pro-rating the fees, e.g., per device (fixed or sliding scale) or per license and provide recommendations to the Commission. Determine the extent to which application of the small business rule will affect the fees.

(EDO/CFO) NMSS (SECY Suspense: ~~12/31/98~~ 12/24/98) 9800071

4. Use the results of the materials risk assessment study to restructure the current licensing and materials programs. Consider the findings when determining whether additional sources/devices should be subject to registration and follow up, and for performing the risk ranking necessary if a phase-in approach is used to reduce the initial resource surge associated with an increased regulatory program. Review the basis of the general licenses for adequacy with respect to consideration of the consequences of off-site accidents, such as loss of shielding or melting in metal making furnaces. The staff should provide the technical basis document for the risk assessment together with recommendations on how to proceed.

~~(EDO)~~ (NMSS) (SECY Suspense: ~~12/31/98~~ 12/24/98) 9800090

5. Include provisions in the registration program for follow up of cases where there are no responses or where discrepancies are found between responses and NRC records. Explore with vendors their willingness to voluntarily assist the NRC (and Agreement States) in the follow up effort. Develop follow up procedures which integrate the following fundamental concepts:

   a. the extent of follow up should consider the risk to public health and safety that the source or device in question poses as well as the likelihood of finding the device;

   b. considering the associated level of risk, there should be a point at which the follow up of certain low risk sources and devices is terminated;

   c. all information about lost sources should be made public in a timely manner.

   ~~(EDO)~~ (NMSS) (SECY Suspense: concurrent with effective date for final rule) 9800071

6. Implement an enforcement program that includes a short amnesty program for general licensees and increased civil penalties for both general and specific licensees for "lost" sources. The increased civil penalties should be significantly greater than the costs of proper disposal or transfer of a source or device. Work with Agreement States in

implementing enforcement programs such that their policies, practices, and procedures have the same impact as NRC's enforcement program.
~~(EDO)~~ (NMSS/OE/SP) (SECY Suspense: concurrent with effective date for final rule) 9800071

7. Provide an estimate of the resources needed to fully support this program. Preparation of this estimate should include:

   o Estimating resource needs for the various phases of the registration program including, in particular, the substantial "spike" of resources needed to carry out the follow up program.

   o Reviewing registration programs for general licensees that have been implemented by Agreement States for applicability of concepts, and exploring the possibility of utilizing other Federal agency registration programs and off-the-shelf commercial programs to minimize development and operating costs.

   o Exploring the possibility of contracting with the States to carry out this part of the program under authority of Section 274i of the Atomic Energy Act, as amended.

   o Identifying, through the Executive Council, resources to support the expanded program, and inform the Commission if other program areas need to be reduced. The Executive Council should consider program areas outside of NMSS. The Executive Council should also evaluate and inform the Commission of the impact of this change on the Strategic Plan, Strategic Goals, and specific programs.

~~(EDO)~~ (NMSS/CFO) (SECY Suspense: ~~12/31/98~~) 12/24/98 9800091

8. Continue efforts to further address the orphan sources. A guiding principle is that non-licensees who find themselves to be in possession of radioactive sources that they did not seek to possess should not be expected or asked to assume responsibility and cost for exercising control or arranging for their disposal. These efforts should include:

   o Consulting with DOE, EPA, FEMA and the States to define jurisdictions and regulatory responsibilities for addressing the orphan source problem, and continued close coordination with the Conference of Radiation Control Program Directors to ensure that a similar regulatory framework is applied to source/devices containing Atomic Energy Act (AEA) material and sources/devices containing naturally-occurring or accelerator-produced radioactive material.

   o The staff should aggressively pursue finalizing the MOU with DOE.

o Consider the pros and cons of establishing a contract program that would enable licensees or DOE to take possession of and arrange for proper transfer or disposal of orphan sources and provide an estimate of the costs of such a program.

(EDO) (NMSS) (SECY Suspense: ~~12/31/98~~ 12/24/98) 9800092

o If NRC funding is necessary for an orphan source recovery program, the staff should provide recommendations for funding the program including, as directed by the Commission in its December 1996 SRM, "exploring with Congress the possibility of removing specific program costs from the NRC's user fee base (e.g., orphan source recovery fund)."

(CFO) (SECY Suspense: 12/31/98)

The Office of Public Affairs should issue a press release concerning the Commission's decision.

(OPA) (SECY Suspense: 4/15/98)

Chairman Jackson
Commissioner Dicus
Commissioner Diaz
Commissioner McGaffigan
OGC
CIO
CFO
OCA
OIG
Office Directors, Regions, ACRS, ACNW, ASLBP (via E-Mail)
PDR
DCS

CONTINUED STAFF EFFORTS TO FURTHER ADDRESS ORPHAN SOURCES

1. COMMISSION DIRECTION

In the Staff Requirements Memorandum (SRM) on SECY-97-273, the Commission instructed the staff to, "Continue efforts to further address the orphan sources. A guiding principle is that non-licensees who find themselves to be in possession of radioactive sources that they did not seek to possess should not be expected or asked to assume responsibility and cost for exercising control or arranging for their disposal."

2. DEFINITION OF ORPHAN SOURCE

Before describing the staff's efforts with "orphan sources," it is important to define the term. A key concept in addressing the orphan source issue is answering the question: "What is an orphan source?" The answer is non-trivial. The answer bounds the extent of the orphan source problem. For instance, if the orphan source definition is considered to include unsealed material of any form, then very large volumes of contaminated soil or building materials might be considered to fit into the definition. This would result in a broad interpretation of the extent of the orphan source problem, requiring massive funding to address the problem. Conversely, if the orphan source definition is limited to just sealed sources, then small areas of volumetrically contaminated metals might not be considered to fit into the definition. Small amounts of material contaminated by a leaking sealed source also might not be considered to fit into the definition, although the leaking sealed source itself might fit the definition. This would result in a narrow interpretation of the extent of the orphan source problem, leading to an underestimate of the funding needed to address the problem.

The term "orphan source" may be, and has been, used to describe a variety of types and forms of radioactive materials in a multitude of conditions, for which there is no viable responsible party to provide for an appropriate disposition of the material. However, the generally accepted definition of an orphan source is radioactive material in discrete form (i.e., contained within a small volume such as a sealed source, activated metal, or materials encapsulated in similar small containers), containing either material covered by the Atomic Energy Act of 1954, as amended, or naturally occurring or accelerator-produced radioactive material that is in any one or more of the following conditions:

- In an uncontrolled condition that requires removal to protect the public health and safety from a radiological threat;
- Controlled or uncontrolled, but for which a responsible party cannot be readily identified;
- Controlled, but for which the continued security of the material cannot be assured and, if in the possession of a licensee, the licensee has little or no options for, or is incapable of providing for, the disposition of the material;
- In the possession of a person, not licensed to possess the material, who did not seek to possess the material; or

- In the possession of a State radiological protection program (either Agreement State or non-Agreement State) for the sole purpose of mitigating a radiological threat because of one of the above conditions, and for which the State does not have a means to provide for the appropriate disposition of the material.

The staff applies this definition of "orphan sources" in addressing orphan source issues. Although imperfect, this definition contains the extent of the orphan source problem to realistic, manageable levels.

3. CONTINUED STAFF EFFORTS TO FURTHER ADDRESS ORPHAN SOURCES

In addition to the specific activities listed in the SRM on SECY-97-273, the staff has continued a number of efforts to further address the orphan source issue. These staff efforts have included the following:

A. Working with the U.S. Department of Energy (DOE) to identify and remove (or schedule for removal) 57 americium-241:beryllium (AmBe) orphan sources, located in both Agreement and non-Agreement States, that are Greater-Than-Class-C (GTCC), in accordance with the waste classification in 10 CFR Section 61.55. In a letter dated September 5, 1996, DOE indicated that it intended to implement a pilot program to recycle AmBe sources. In subsequent discussions, DOE staff requested that the U.S. Nuclear Regulatory Commission (NRC) and the States identify up to 40 potential candidates for the pilot program. Based on information provided by the NRC regional offices and the States, the staff identified and prioritized 57 sources. The staff requested that the sources be accepted into DOE's pilot program, in letters to DOE sent between August 1997 and September 1998. DOE accepted all but one of the NRC-identified candidates into the program and expanded the pilot by an additional 16 sources, to 56 total sources. (The one candidate source not accepted had other available disposition options.) To date, 15 of the 57 sources have been received by DOE, with the remaining to be scheduled in early Calendar Year 1999. The staff will continue working with DOE in an effort to establish routine acceptance of AmBe sources, as well as to expand DOE's recycling program to include other GTCC sealed sources, such as plutonium-238 (Pu^{238}).

B. Responding to two requests from Agreement States for DOE assistance in situations involving GTCC material that was causing, or had a potential to cause, a threat to the public health and safety. These requests concerned a 213.5-Gigabecquerel (5.77-curie) Pu^{238}:Be sealed source used in a "neutron howitzer," and a pacemaker containing a 0.08-gram Pu^{238} sealed source.

C. Working with industry (primarily the metal recycling and manufacturing industries) to address issues concerning the identification and proper disposition of orphan sources, including:

   - Participation in a meeting, in April 1998, between NRC; DOE; the U.S. Environmental Protection Agency (EPA); members of the Conference of Radiation Control Program Directors E-34 Committee on Unwanted Radioactive Material (the E-34 Committee); and representatives of the Institute of Scrap Recycling Industries (ISRI); the American Iron and Steel Institute (AISI); the

Steel Manufacturer's Association (SMA); and the Specialty Steel Industry of North America, to introduce these stakeholders to the E-34 Committee's initiative, and to provide the stakeholders with an opportunity to identify areas of concern that need to be addressed by the E-34 Committee.

- Participation in a meeting, in July 1998, between the DOE National Center of Excellence for Metals Recycle, ISRI, and AISI, where EPA and NRC discussed current activities, within their agencies, concerning the recycling of and clearance levels for metals and orphan sources.

- Participation in a "Workshop on the Detection of Radioisotopes in Steel Scrap," in June 1998, that focused on identifying means to better detect radioactive material in the steel manufacturing and scrap recycling process. The workshop was sponsored by DOE's Office of Industrial Technology, which requested NRC to make a presentation concerning NRC's current efforts to better ensure the control and accountability of material and to address the orphan source issue. Representatives of the steel industry, including ISRI, AISI, and SMA attended this workshop.

- Participation in a June 1998, ISRI seminar, on "Radioactivity in the Scrap Recycling Process," that addressed how radioactive material enters the scrap recycling process, means to prevent this from occurring, ways to detect radioactive material in the scrap recycling process, and how to handle found material. NRC was requested to make a presentation on assistance in the identification of radioactive materials in the scrap recycling process. This presentation included a discussion of identifying markings on sources and devices; typical shapes and sizes of various types of sources and devices; industries in which sources and devices are typically used; common isotopes and activities found in sources or devices; and points, during the life-cycle of a source or device, when the potential for identification could be increased. Workshop participants and attendees included a number of representatives of the steel recycling industry; other governmental agencies (EPA, DOE, and the States); health physics consultants; and radiation detection equipment manufacturers.

- Participation in a December 1998, meeting, with the U.S. Department of State (DOS), concerning the creation of an International Radioactive Source Management (IRSM) initiative. The DOS is leading the IRSM initiative in response to international requests for assistance in the areas of orphan source management, and clearance levels for metals. The IRSM initiative is intended, in part, to develop a program for the prevention, identification, tracking, response, and remediation of radioactive materials being illegally imported and exported to and from nation-states, including the United States. NRC presentations concentrated on past initiatives in this area and current activities, including rulemakings on control and accountability of generally licensed devices, and clearance levels for certain materials. NRC presenters also discussed the staff's work on orphan sources issues and recycling of contaminated materials. Other participants and attendees included EPA, DOE, the U.S. Department of Transportation, the U.S. Customs Service, ISRI, AISI, SMA, radiation detection

equipment manufacturers, staff representatives from the House of Representatives and the Senate Sub-committee on Intelligence, and representatives of other government agencies.

D. Responding to a number of orphan source incidents, including incidents involving orphan sources that were melted at steel mills and uniformly distributed in steel products, and working with EPA, States, NRC's Office of International Programs, and the Federal Bureau of Investigation, to address policy issues concerning the licensing of products manufactured using the contaminated steel, attempting to recover stolen or lost radioactive material, and locating responsible parties

The staff recommends continuing outreach efforts with industry and stakeholders. These efforts will provide assistance to stakeholders in identifying orphan sources before they are shredded or melted; obtain information about the concerns and needs of the scrap recycling and metal manufacturing industries in the areas of orphan sources and clearance levels; identify and include other stakeholders; continue identifying other related orphan source areas that should to be addressed by NRC; and keep stakeholders informed of the status of NRC's other efforts in the orphan source area.

JURISDICTIONS AND REGULATORY RESPONSIBILITIES OF FEDERAL AGENCIES AND STATES IN ADDRESSING ORPHAN SOURCES

1. BACKGROUND

The issues of regulatory responsibilities and jurisdictions of the various Federal agencies and States in addressing orphan source issues have been complex, leading to overlap and potential gaps between the cognizant organizations. Roles, regulatory responsibilities, and jurisdictions of the organizations are particularly difficult to clarify, for a number of reasons. Orphan source incidents are inherently different, variable, and unplanned; a large number of Federal, State, and local agencies and organizations have responsibilities for different portions of orphan source incidents; and individual agencies may have different roles, or perceptions of roles, within their own staffs, at different locations.

The variability in orphan source incidents is tremendous. For instance, an incident may involve a foreign radioactive source imported into the United States, or a domestic orphan source. An incident could involve Naturally occurring or Accelerator-produce Radioactive Material (NARM), or material covered under the Atomic Energy Act of 1954, as amended (AEA). An incident could result from an accident or intentional misconduct, in which case law enforcement agencies could be involved. An incident could occur either in an Agreement State or a non-Agreement State. Responders may have the capability to immediately mitigate any public health hazards, or they may ask for State or Federal assistance. Responders may have the authority and facilities to take and store the orphan source, or they may not. An incident could lead to minimal hazards, or to widespread contamination. An incident could even potentially involve domestic or international terrorism, in which case the Nation's intelligence agencies could become involved. All 50 States, and no less than 11 Federal agencies (primarily the U.S. Nuclear Regulatory Commission (NRC), the U.S. Department of Energy (DOE), the U.S. Environmental Protection Agency (EPA), the Federal Emergency Management Agency (FEMA), and the U.S. Department of Transportation, and secondarily the U.S. Department of Defense, the Federal Bureau of Investigation, the U.S. Customs Service, the Central Intelligence Agency, the National Security Agency, and the U.S. Department of State) have some responsibility or jurisdiction for addressing the orphan source issue.

2. THE STAFF'S APPROACH TO DEFINING JURISDICTIONS AND REGULATORY RESPONSIBILITIES

To define jurisdictions and regulatory responsibilities for addressing the orphan source problem, the staff first researched and reviewed available guidance documentation for the Federal agencies on orphan source and similar incidents, including the following documents:

- The Federal Radiological Emergency Response Plan (FRERP);
- The National Contingency Plan (NCP), formally known as the National Oil and Hazardous Substances Pollution Contingency Plan;
- The Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended (CERCLA);
- NRC's Response Coordination Manual 1996 (RCM-96, NUREG/BR-0230);
- The Atomic Energy Act of 1954, as amended;

- The Energy Reorganization Act of 1974, as amended;
- The Department of Energy Organization Act; DOE Orders and guidance documents;
- Title 10 U.S. Code of Federal Regulations (10 CFR) Part 835 (DOE's regulations concerning the management of sealed sources, amended December 4, 1998);
- The draft NRC/DOE Memorandum of Understanding (MOU) concerning the management of sealed sources; and
- Other statements of purpose and responsibility found in agency brochures and Internet web pages.

Of these documents, the most significant for the overall coordination of an orphan source incident response would be likely the FRERP, because this plan is specifically designed for radiological emergencies where there would be a coordinated response involving both State and Federal resources. This plan does not grant authorities, but only delineates the process and procedure for coordinating the Federal response to a radiological emergency. In addition, the most significant document regarding the authorities granted to Federal agencies for the response to a radiological release (such as an orphan source), whether the release constitutes an emergency or not, would be the NCP as this plan specifically indicates the actions that Federal agencies may take in situations involving the release of radioactive material that require a Federal response.

Based on the documents described above, past orphan source incidents, a Lost Source Exercise conducted in September and October of 1997, and the report summarizing this exercise, the staff compiled a listing of the various roles, responsibilities, and tasks that could be required for addressing orphan source issues. Examples of areas included in this listing include prevention of orphan sources, response to both lost and found sources, enforcement, remediation, and investigation into orphan source incidents. To address the issue of Federal responsibilities and jurisdictions, the staff discussed the listing with representatives of DOE, EPA, and FEMA. The staff held discussions with representatives of DOE's Office of Environmental Management and EPA's Office of Radiation and Indoor Air (ORIA) in September and October 1998, respectively, where NRC staff presented the listing to the other agencies, and asked each representative to identify which roles, responsibilities, and tasks fell within its agency's responsibility or jurisdiction. Each agency provided a response to the NRC staff's request. These issues were also discussed telephonically with a representative from FEMA's Emergency Services Branch (who also had experience and responsibility in FEMA's Radiological Emergency Preparedness group). To address the issue of State responsibilities, the staff provided the listing to State representatives of the Conference of Radiation Control Program Directors (CRCPD) E-34 Committee on Unwanted Radioactive Material (E-34 Committee) and discussed State responsibilities during a committee meeting on October 14-16, 1998. In addition, the staff requested each State representative to further review the listing and provide responses, if able to, for both AEA material and NARM. To date, the staff has not yet received the State responses. However, during the October meeting, it was suggested that this issue about jurisdictions and regulatory responsibilities could also be raised at the next full CRCPD meeting, which is planned for mid-1999.

3. THE FRERP AND THE NCP

The scope of the FRERP covers "...any peacetime radiological emergency that has actual, potential, or perceived radiological consequences in the United States, its Territories, possessions, or territorial waters and that could require a response by the Federal

Government." In addition, the plan describes how the Federal response to a radiological emergency will be organized, and the circumstances under which each agency would be the Lead Federal Agency (LFA). The FRERP does not allocate resources or provide additional authorities to Federal agencies, but it does provide for the coordination of Federal resources in response to a request from a State or local government or from owners or operators of radiological facilities or activities. The FRERP also provides for the efficient integration of Federal resources with State and local resources, and the resources of the owner or operator of the facility or activity, through the use of an LFA. The LFA is identified, in general terms, as the "...Federal Agency that owns, authorizes, regulates, or is otherwise deemed responsible for the facility or radiological activity causing the [radiological] emergency and has authority to conduct and manage Federal actions onsite."

The FRERP specifically indicates that it is intended, in part, to address the coordination of the Federal response to radiological emergencies at or involving NRC and Agreement State licensees. In addition, the FRERP indicates that it is also intended to address radiological emergencies involving abandoned radioactive materials, imported radioactively contaminated material (including contaminated scrap metal), and shipments of foreign-owned radioactive material that have actual, potential, or perceived radiological consequences in the United States, its Territories, possessions, or territorial waters. These situations encompass, either directly or indirectly, a large portion of orphan source incidents.

The scope of the NCP covers a variety of incidents involving the release of a hazardous material, including radioactive material. The NCP specifically indicates that it covers "...releases into the environment of hazardous substances, and pollutants or contaminants which may present an imminent and substantial danger to public health or welfare of the United States." The NCP is not limited to either NARM or AEA material, but would not cover any situations involving the release of radioactive materials for which there were other viable options. For example, the NCP states that "...release of source, byproduct, or special nuclear material from a nuclear incident, as those terms are defined in the atomic Energy Act of 1954, if such release is subject to requirements with respect to financial protection established by the Nuclear Regulatory Commission under section 170 of such Act, or, for the purposes of section 104 of CERCLA or any other response action, any release of source, byproduct, or special nuclear material from any processing site designated under section 102(a)(1) or 302(a) of the Uranium Mill Tailings Radiation Control Act of 1978(42 U.S.C. 7901 et seq.)" are excluded from the definition of a release as these materials have financial assurance provisions relating to their release.

Similar to the FRERP, the NCP describes aspects of the response to the release of a hazardous material that presents an imminent and substantial danger to the public health or welfare of the United States. This includes the use of Federal, State, and local resources and their respective authorities and responsibilities. In contrast to the FRERP, the NCP identifies the mechanisms available for lead agencies, response teams, and/or On-Scene Coordinators (OSC) to obtain and allocate resources to address a response. The NCP is also similar to the FRERP as it designates a lead agency depending on the circumstances of the release, but is different from the FRERP in that the lead agency is not necessarily the agency which regulates or has jurisdiction over the hazardous material involved in the release, and an OSC is appointed by the lead agency and is responsible for the overall coordination of the response. For additional guidance on releases involving radioactive material, the NCP refers to the procedures contained in the FRERP, but states that "... most radiological discharges and releases do not

result in FRERP activation and should be handled in accordance with the NCP." This would be true for most orphan source incidents, but not necessarily for the same reason it is recognized in the NCP. Most orphan source incidents require a rapid initial response involving State and/or local emergency response personnel. As no Federal involvement typically occurs in this initial response, coordination of Federal resources and activities is not required. Following this initial response, the hazard or threat to the public and environment is typically temporarily mitigated. Although Federal involvement may occur following the initial response phase, the Federal response is typically not to the extent where the FRERP would need to be invoked for the coordination of Federal resources. However, in cases where the threat remained prevalent and a Federal response was required, the NCP would likely be the primary guiding document for the coordination of the Federal response.

Although the NCP addresses the availability of resources for response actions through available funding, it also states that response actions to a release "...shall be carried out under existing programs and authorities when available. Federal agencies are to make resources available, expend funds, or participate in response to discharges and releases under their existing authority." In addition, the NCP encourages industry groups, academic organizations, and other interested parties to commit resources for response operations and indicates that response operations shall not be carried out under the NCP in situations where a "state or political subdivision thereof" has the capability to carry out the various aspects of a response, including removal actions, except in certain special circumstances (e.g., where the release has the potential to affect Federal lands, releases affecting several states, etc.).

A particular area of jurisdictional complexity involves situations where an orphan source has been identified, but the immediate hazard to members of the public has been mitigated, either through the actions of State and/or local emergency response personnel, actions by personnel at the facility where the orphan source is located, or because the type, activity, or configuration of the radioactive material does not present an immediate hazard. Once the immediate hazard is mitigated, but often before the source itself is removed, many response organizations' jurisdictions or responsibilities cease, leaving the facility with unwanted radioactive material. In addition, if the situation is no longer considered a radiological emergency, the FRERP is no longer applicable. State and Federal agencies having regulatory responsibility, or standards for release, for radioactive material, have employed a number of approaches to these types of situations. Differences in the approaches used in the past have occurred, in part, because of the differences in the conditions and situations associated with each individual orphan source incident. Examples of the different approaches taken include: 1) cases where the facility in which the material was found was required to provide for its disposition or to obtain a license to possess and store the material; 2) incidents where EPA provided for the disposition of material in some situations involving sources or devices that were determined to be of unknown or foreign origin, but indicated that it would not provide for the disposition of such material in other similar incidents; 3) situations where DOE assistance was requested to, and did, retrieve and/or dispose of radioactive material that presented a potential hazard to members of the public; and 4) several incidents where State agencies removed radioactive materials and either placed the materials in storage, pending a disposition option, or provided for disposition of the material via an orphan source contractor or other similar mechanism.

Although each of these situations was unique -- as is the case with almost all orphan source incidents -- they demonstrate that historically, there has not been a single, consistent, national approach to responding to orphan source incidents, both at the State and Federal levels. Some

agencies, such as FEMA and DOE, have clearly defined responsibilities, and other organizations' responsibilities are less clear. Considerable overlaps exist between regulatory jurisdictions in responding to orphan source issues. For instance, EPA is the LFA under the FRERP for responding to unidentified radioactive material in a public location, when assistance is requested by the State or local government. If the source is subsequently identified as NRC-licensed material, then NRC becomes the LFA, even if the material is in an Agreement State. The hand-off point between EPA and NRC, and the process for transfer of LFA responsibility, has never been clearly defined, so both agencies could reasonably believe that they have similar, overlapping responsibilities. If the response actions were in accordance with the NCP, the EPA would likely be the lead agency and would appoint an OSC for the coordination of the response activities. If the responsible party for the source was identified and determined to be an NRC licensee, the NRC would have certain regulatory responsibilities, including enforcement actions and working with the licensee to recover and properly dispose of the source, but the OSC may also have similar responsibilities including pursuing recovery of the costs associated with the response from the responsible party. It is unclear when OSC responsibilities would end and NRC (or other regulatory agency) responsibilities would begin. This issue was a subject of discussion during the 1997 Lost Source Exercise, but no definitive consensus was reached as to whether or when the handoff of LFA would occur. One option presented was that EPA would continue as the lead agency, with NRC assisting in its traditional regulatory role. Also, NRC has traditionally deferred to Agreement States to respond to orphan source issues within their own boundaries; however, NRC would have responsibility for the coordination of the Federal response to an incident if assistance was requested by the State, in accordance with the FRERP.

The FRERP and NCP are even less clear about responsibilities after the immediate public health and safety hazard has been mitigated or is determined to be non-existent (i.e., after the "emergency" is over). In several recent incidents, EPA (as the LFA for unidentified sources in public areas) determined that the low-level sources found in public locations did not present significant hazards, and EPA terminated its involvement in the incidents. Once EPA ceases involvement, it is entirely unclear whether NRC or the Agreement States have some responsibility to regulate the material, or investigate the source of the material, whether or not the NRC staff agrees with EPA's risk-informed decision. At present, for all reports that unidentified radioactive material is found in a public location (such as in a metal scrap yard, a municipal landfill, or a public street), EPA is initially the LFA.

Coordination work in this area over the past several years, especially following the creation of the FRERP, has helped to clarify the roles, responsibilities, and jurisdictions of the Federal agencies and the States, as well as provide a more consistent national approach in responding to orphan source incidents. This work has resulted in productive dialogue between NRC, EPA, DOE, the States, and stakeholders, all working toward a common approach. However, the accomplishments in this area have been made relatively recently, as the orphan source issue received greater attention at the national and international levels, and there is a need for continued improvement.

3. JURISDICTIONS AND REGULATORY RESPONSIBILITIES OF FEDERAL AGENCIES AND THE STATES

The following discussion provides detailed information on the identified and/or stated jurisdictions and regulatory responsibilities of EPA, DOE, FEMA, and the States regarding orphan sources issues:

EPA

The FRERP identifies EPA as the LFA for the response to a radiological emergency at a facility that is not licensed, owned, or operated by a Federal agency or an Agreement State. Included in this responsibility are radiological emergencies involving both AEA and non-AEA material. The EPA is additionally designated as the LFA for radiological emergencies involving radioactive material from a foreign or unknown source that has actual, potential, or perceived radiological consequences in the United States, its territories, possessions, or territorial waters. The FRERP indicates that "unknown sources of radioactive material" refers to those materials whose origin and/or radiological nature have not yet been established, and indicates that these include contaminated scrap metal and abandoned radioactive material.

The NCP also identifies responsibilities for a number of Federal agencies, including EPA. As stated in the report issued by EPA Region III on the Lost Source Exercise, CERCLA "...and the NCP provide EPA broad funding and response authority to protect public health and welfare and the environment." In addition, this report states, "The NCP provides authority for an EPA removal action (cleanup) to radioactive materials so long as the licensee does not fall under the financial assurance provisions of the Price-Anderson amendments Act (not a commercial nuclear power plant or DOE facility). While EPA is authorized to respond under the NCP to all releases not covered under Price-Anderson, EPA would not normally initiate a removal action using CERCLA funds unless other options to address the situation were exhausted or there was a request for assistance from another Federal agency." In this respect, the NCP does not distinguish between AEA material and NARM, and therefore, the identified authorities would not be limited to either of these types of material.

The EPA/ORIA's response, concerning jurisdictions and regulatory responsibilities in addressing the orphan source issue, conforms with the FRERP and the discussion in the Lost Source Exercise report. However, EPA/ORIA's response made the distinction that activities under CERCLA are limited to emergency situations, whereas the discussion in the Lost Source Exercise report made no such distinction, and the text in the FRERP states that EPA is the LFA in emergencies where the material "...has actual, potential, or perceived radiological consequences."

DOE

The jurisdictions and regulatory responsibilities of DOE for addressing the orphan source problem are relatively well-defined.

DOE's roles, responsibilities, and jurisdictions for the management of sealed sources are contained or described in a number of documents, including 10 CFR Parts 820 and 835; DOE Orders and Notices; DOE's Radiological Control Manual (RCM); and DOE's "Implementation Guide for Sealed Source Control and Accountability." These regulations, requirements, and

guidance documents contain the essential elements of a sealed source management program including the receipt, possession, use, transfer, security, reporting of events, inventory, accountability, leak-testing, record-keeping, enforcement, and emergency procedures for sealed sources. Specifically, these documents describe DOE's procedures and responsibilities for the reporting of lost or stolen material, or material otherwise unaccounted for, and for responding to the identification of lost, stolen, or otherwise unaccounted for material.

The FRERP identifies DOE as the LFA for the response to a radiological emergency at a facility owned or operated by DOE, as well as emergencies involving the transportation of radioactive materials shipped by or for DOE. Although DOE receives significant authority from the AEA, DOE's responsibilities and authorities are not limited to material that is covered by the AEA. DOE also possesses and uses NARM sealed sources and is responsible for the accountability of NARM material. The FRERP also designates DOE as responsible for the initial coordination of offsite Federal radiological monitoring and assessment during the response to a radiological emergency. The DOE Radiological Assistance Program (RAP) was developed for just this type of assistance, and was established by DOE Order 5530.3. DOE RAP teams will respond to requests for assistance from States in radiological emergencies, regardless of whether the response is coordinated under the FRERP guidelines. If the Federal response were being coordinated under the FRERP, DOE would remain responsible for the activities of a RAP team, but coordination authority for these Federal response activities would reside with the LFA.

In general, DOE has responsibility for addressing all aspects of orphan source incidents occurring at DOE-owned and -operated sites, and at all DOE activities. In the case of an orphan source incident occurring outside a DOE site, DOE has indicated that its roles and responsibilities for addressing the orphan source problem are limited to orphan sources that can be identified as having originated from within DOE jurisdiction. This would include radioactive materials owned, possessed, and/or used by DOE, or a DOE prime contractor, in the conduct of DOE activities, which become orphan sources; and radioactive materials that were inadvertently released from a DOE site. DOE's responsibility would be limited in situations involving radioactive materials owned by DOE but possessed and/or used by an NRC or Agreement State licensee under a DOE loan/lease, or similar, agreement. In such situations, the agreement stipulates the responsibility of both DOE and the licensee for the possession, use, and ultimate disposition of the material. Typically, DOE remains responsible for taking possession of the radioactive material at the end of the agreement term, but would not be responsible for the packaging and transportation of the material to a DOE site (i.e., DOE would accept the material once it is shipped to a DOE facility). DOE would also not be responsible for the cleanup of radioactive materials that were covered by one of these agreements, if the licensee lost control of the material resulting in the release of radioactive material or spread of contamination, unless the agreement specifically identifies the responsibility as DOE's.

FEMA

FEMA has only limited regulatory responsibility or jurisdiction for addressing the orphan source problem. In addition, FEMA has very limited response personnel and equipment for responding to incidents involving radiation sources or material. If an orphan source incident were to escalate to a radiological emergency, FEMA could serve in its traditional role of coordinating Federal resources for disaster relief, if requested by the Governor of the State, or in response to a Presidential disaster declaration. This high threshold would probably require that the incident be very large-scale, before FEMA would become involved. If FEMA did become

involved, FEMA's role and activities would include providing non-radiological assistance with finding medical, housing, and recovery resources for those injured or displaced by the incident; assisting in evacuation and/or relocation of individuals and animals; disseminating information and literature concerning the long-term effects to the surrounding areas, following the radiological emergency; and providing guidance to the public and non-radiological response personnel on ways to reduce their risks of injury from the radiological hazard. These activities may be performed through a number of methods, including public meetings, and radio and television broadcasts. However, FEMA typically would not become involved in orphan source incidents limited to a single location or to a small number of affected persons.

FEMA has certain roles and responsibilities, other than incident response, that may be applicable to the orphan source problem. FEMA routinely assists States and local governments and communities in the development of disaster contingency plans. These contingency plans may be site-specific or general in nature. These contingency plans may contain sections on responding to sealed sources or devices that present a radiological threat to members of the public, or the contingency plans may involve a site that possesses and uses sealed sources and/or devices. The Superfund Amendments and Reauthorization Act of 1986 (SARA) requires each community to establish a Local Emergency Planning Committee (LEPC) with responsibility for the development of such contingency plans. In addition, FEMA periodically provides training on the FRERP and other emergency and disaster response and planning, including contingency planning, for State and Federal participants. A number of the training programs apply to radiological emergencies, as well as other emergencies and disasters.

States

The FRERP discusses States' general responsibilities for responding to radiological emergencies. The FRERP notes that, other than in areas under Federal control, "...the State or local government has the responsibility for taking emergency actions, both onsite and offsite, with support provided, upon request, by Federal agencies,..." for minimizing the radiological hazard to the public. In addition, the FRERP states that "...the concept of operations [of the FRERP] recognizes the preeminent role of State and local governments for determining and implementing any measures to protect life, property, and the environment in areas not under the control of a Federal agency." To address the local government's role in emergencies, the SARA requires each community to establish an LEPC, with responsibility for developing contingency plans for emergencies and disasters. State and local governments bear the ultimate responsibility for taking the necessary steps to protect the public from hazards, including radiological hazards, in areas within their boundaries that are not under Federal control. If the State or local government is unable to adequately provide this protection during a radiological emergency, either because of the magnitude of the hazard or because of a lack of appropriate resources or equipment, Federal assistance may be requested in accordance with the FRERP provisions. The Federal assistance provided in response to such a request is only intended to supplement the capabilities of the State or local government, and is not intended to transfer the complete response to the radiological emergency to the applicable Federal agencies. Except in extremely rare cases, where the State or local government is found to be inadequately minimizing the hazard to the public, or where there are extremely large incidents (such as those involving several States), the entity that requested the assistance (e.g., State or local government, facility, etc.) remains responsible at all times for the response to the radiological emergency, and that entity makes the final determination as to when assistance is

no longer needed. Requests for assistance in accordance with the FRERP may include radiological emergencies involving both AEA and NARM materials.

In addition to the general responsibilities of all States, Agreement States have the additional regulatory responsibilities acquired under the NRC/State agreement, pursuant to subsection 274b of the AEA. These include establishing and implementing regulations and requirements for the control and accountability of licensed radioactive materials; enforcement programs for persons who lose control and accountability of their licensed material; and incident reporting and response programs that include orphan source incidents. Although the regulation of AEA material is limited to NRC or the Agreement States, the regulation of NARM is reserved to the States (except for NARM owned or used by or on a Federal facility). Excepting certain requirements of the Occupational Safety and Health Administration, there are few national requirements for the regulation of NARM. Consequently, the regulation of NARM varies considerably from State to State. In an effort that provides increased inter-State consistency, the CRCPD has issued "Suggested State Regulations" that address NARM, and numerous States have adopted these regulations.

Beyond Federally legislated requirements for the regulation of radioactive materials, some States have been granted the authority, by their legislatures, to expend resources for certain additional activities, such as the removal and temporary storage or disposal of radioactive material that presents a threat to the public. Under this authority, some States have developed effective programs that allow the States to take possession of, transfer, store, and dispose of orphan sources.

4. MECHANISMS FOR IMPROVING COORDINATION:

A number mechanisms may be utilized to continue to address this issue, including:

- Working directly and separately with other applicable agencies to address specific issues relating to NRC's working relationship with each agency in the area of orphan sources. This could include negotiating additional MOU's, similar to the DOE MOU, with other applicable agencies, where deemed necessary to formalize and document inter-agency agreements and procedures;
- Request the E-34 Committee to expand its charter to fully address this issue, as it deems appropriate for its national orphan source program, and continue participation on the E-34 Committee to ensure NRC views are expressed and understood in this area;
- Initiating an inter-agency Working Group (WG) comprised of representatives from the applicable Federal agencies; one or more State representatives (e.g., CRCPD and the Organization of Agreement States representing both Agreement and non-Agreement States); and other key stakeholders, such as industry, to provide a consensus position on this issue. The WG would need a defined focus so as to not duplicate efforts by other groups and initiatives.
- The NCP provides provisions for situations when there is insufficient national guidance, or questions, concerning interpretation of the NCP. These provisions provide that the National Response Team (NRT) may be requested to provide guidance and clarification on such matters. As a member of the NRT, NRC may request the NRT consider this issue as a matter of interpretation of the NCP, and request guidance and clarification from the NRT as a whole. The NRT has the authority to take steps to address issues brought before it, including the creation of a committee to address the issue. This may

have a similar result as the creation of an inter-agency WP as it would likely require input from all applicable NRT member agencies as well as the States;

- Following the 1997 lost source exercise, a number of States and participating organizations indicated the need for, and their support for, additional similar exercises. Specifically, the State of North Carolina has offered to host a second lost source exercise, which is currently planned for May 1999, and similar tabletop exercises have been conducted in Regions II and III. Continued support of, and participation in, these exercises will help to enhance an understanding of, and further define, the roles, responsibilities, and jurisdictions of both the participating Federal agencies, as well as State, local, and applicable stakeholder participants with the response to the identification of an unknown radioactive source that presents a threat to the public health and safety and the environment. To this end, NRC staff have built on the success of the original lost source exercise to enhance communication and cooperation with EPA, the OSCs, and the NRT, in the areas of inter-agency roles, responsibilities, and jurisdictions during the response to the identification of an unknown radioactive source that presents a threat to the public health and safety and the environment.
- As discussed above, FEMA has a role in orphan sources in the area of contingency planning and training. FEMA currently provides training in the area of response to radiological incidents (although, generally concentrating on potential incidents occurring at Nuclear Power plants) through the Training Subcommittee of the Federal Radiological Preparedness Coordinating Committee (FRPCC). The FRPCC Training Subcommittee may be requested to consider the development of training programs and exercises in this area, which would first require that they identify and/or develop a consensus position on this issue. Alternately, the FRPCC Training Subcommittee may decide to initiate a training workshop intended to address issues needing clarification. This process has been utilized in the past by the FRPCC Training Subcommittee for addressing FRERP issues needing clarification; and

The staff continues to attempt to identify additional areas which could enhance obtaining a national consensus position on roles, responsibilities, and jurisdictions in the area of orphan sources. Satisfactory resolution of this issue will likely require a combination of the currently available mechanisms being utilized and one or more of the new initiatives discussed above.

COORDINATION WITH CRCPD AND FUNDING OF CRCPD'S E-34 COMMITTEE

The staff continues to coordinate closely with Conference of Radiation Control Program Directors (CRCPD), through an advisory role on CRCPD's E-34 Committee on Unwanted Radioactive Material (the E-34 committee). In this role, the staff has striven to ensure that a similar regulatory framework is applied to sources/devices containing Atomic Energy Act (AEA) material and Naturally occurring or Accelerator-produce Radioactive Material (NARM), under CRCPD's developing orphan source program.

Funding from the U.S. Environmental Protection Agency (EPA) for the E-34 Committee provides authorization only for development of a national orphan source program and conducting a pilot program. EPA's funding does not provide for the implementation and continuation of an orphan source program once one is developed. The staff expects that funding for implementing a national orphan source program would probably come from a cooperative effort by the States and applicable Federal agencies. To this extent, the E-34 Committee has discussed potential cooperative agreements between States to pool resources and capabilities for addressing unwanted radioactive materials. The E-34 Committee has also proposed discussing the orphan source program, and cooperative agreements between States, at the next full CRCPD meeting, in mid-calendar year 1999.

The E-34 Committee has determined that, for an orphan source program to be most effective, such a program requires both the States and applicable Federal agencies to agree and participate in all aspects of the program, on a national scale. To address this goal, the E-34 Committee plans to recommend to the States that they consider ways to promote national cooperation and participation in the program. In particular, the E-34 Committee will recommend that the States use the Nuclear Material Events Database (NMED), not only for materials events, in general, but also for tracking unwanted radioactive material. The E-34 Committee also plans to recommend that States enhance their regulatory programs in the area of control and accountability of radioactive materials, to reduce the potential for lost material. The E-34 Committee will make these recommendations for both Agreement and non-Agreement States.

The staff has also supported the E-34 Committee's efforts by recommending that the Commission grant CRCPD's request to use NMED as a national database for tracking orphan sources. Use of NMED to track orphan sources will provide wide access to orphan source information, including NMED information about orphan sources/devices containing NARM. The staff's coordination with CRCPD also included meeting with the CRCPD Board on October 16, 1998, to discuss CRCPD's plans regarding the E-34 Committee and the orphan source problem, and to discuss NRC's efforts and activities in the orphan source area. The staff plans to continue participating in an advisory role on the E-34 Committee, meeting with CRCPD when requested on orphan source issues, and emphasizing that a similar regulatory framework should be applied to orphan sources/devices containing AEA material and orphan sources/devices containing NARM.

ATTACHMENT 5

LETTER FROM DOE, TRANSMITTING SIGNED MOU, DATED DECEMBER 18, 1998

Department of Energy
Washington, DC 20585

December 18, 1998

Mr. Carl J. Paperiello, Director
Office of Nuclear Material Safety
and Safeguards
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001

Dear Mr. Paperiello:

The purpose of this letter is to transmit the Memorandum of Understanding (MOU) between the Office of Waste Management and the Office of Nuclear Material Safety and Safeguards regarding the management of sealed sources. I have signed the enclosed MOU and am forwarding it to you for your signature.

Both of our staffs have put a great deal of time and effort into this document and I am happy to be able to bring this effort to closure. I look forward to continuing to work with you and your staff as well as your regional offices and the Agreement States to protect the public health and safety.

If there are any questions, please have your staff contact Robert Campbell at (301) 903-7127.

Sincerely,

Mark W. Frei

Mark W. Frei
Acting Deputy Assistant Secretary
for Waste Management
Environmental Management

Enclosure

MEMORANDUM OF UNDERSTANDING
BETWEEN THE
U.S. NUCLEAR REGULATORY COMMISSION
OFFICE OF NUCLEAR MATERIAL SAFETY AND SAFEGUARDS
AND THE
U.S. DEPARTMENT OF ENERGY
OFFICE OF WASTE MANAGEMENT
CONCERNING MANAGEMENT OF SEALED SOURCES

I. INTRODUCTION

The Federal Radiological Emergency Response Plan (FRERP) provides guidance for the response of Federal agencies in peacetime radiological emergencies that have actual, potential, or perceived radiological consequences within the United States, its Territories, possessions, or territorial waters. Although the FRERP encompasses a broad range of radiological emergencies, it does not provide specific actions that each agency must take when a radiological emergency is identified. This Memorandum of Understanding (MOU) defines the roles and responsibilities between the U.S. Nuclear Regulatory Commission (NRC) and the Department of Energy (DOE) in situations where the NRC is responsible for the Federal response to a radiological emergency, but that does not require an immediate response (i.e., activation of the NRC Incident Response Plan as described in NRC Management Directive 8.2), and where the transfer of licensed source, special nuclear, or byproduct radioactive material - as defined under the Atomic Energy Act of 1954, as amended (the Act) - primarily in the form of sealed sources and devices as described in section IV. B., to the DOE is determined to be necessary to protect the public health and safety and the environment.

II. BACKGROUND

This MOU formally defines the activities carried out since 1992 under agreements reached via exchange of correspondence between NRC and DOE. The need for this agreement arose due to the fact that licensed radioactive material which exceeds the Class C limits defined in §61.55, Title 10 Code of Federal Regulations (CFR) is not acceptable for disposal at commercial disposal sites. The Low-Level Radioactive Waste Policy Amendments Act of 1985 (PL 99-240) made DOE responsible for the ultimate disposition of this material. Until such time as the DOE has in place a disposal or routine acceptance and storage capability for the various types of this material, this agreement is necessary to allow transfer of material which exceeds Class C limits from NRC and Agreement State licensees to the DOE in limited situations which pose an actual or potential threat to the public health and safety.

Under limited situations, described in more detail in Section IV. A. of this agreement, DOE will consider accepting material at the request of NRC which does not exceed Class C limits, but only under situations where there is an actual or potential threat to the public health and safety that cannot be mitigated by other reasonable means.

III. PURPOSE

This MOU applies to the recovery and disposition of byproduct, source, and special nuclear material in the possession of licensees and in the public domain by the DOE at the request of NRC. Although this MOU is intended to apply to these materials in the form of sealed sources, it is envisioned that under rare circumstances this MOU will apply to the recovery and disposition of radioactive materials in other forms, as described in section IV. B. In addition, this agreement applies only to material in the private sector, licensed by NRC or an Agreement State, which represents an actual or potential threat to the public health and safety.

The determination of an actual or potential threat to the public health and safety will be made by the NRC as described in this MOU, in consultation with and participation by DOE, and may be based on such factors as condition of the material, environmental conditions that may affect the containment of the material, or loss of adequate controls by the licensee because of financial, technical, or other reasons. This MOU represents the process by which NRC may request assistance of DOE to mitigate or eliminate an actual or potential threat to the public health and safety from sealed sources and devices, after all other reasonable alternatives have been unsuccessfully explored.

This MOU does not apply to situations where the DOE has in-place the required capabilities for routine acceptance, storage, and/or disposal of material which exceeds the limits of §61.55, 10 CFR as specified in P.L. 99-240. Any agreements required under those situations will be entered into separately or as a specific modification of this MOU. In addition, this MOU does not apply to situations which require activation of the NRC Incident Response Plan, nor does it apply to safeguards or reactor incidents.

IV. SCOPE

A. Types of radioactive materials

This agreement is limited to only those radioactive materials which are defined under the Atomic Energy Act of 1954, as amended, as source, special nuclear, or byproduct materials. This agreement does not have the authority to require the NRC or DOE to respond to non-emergency situations, pursuant to this MOU, involving radioactive materials or to respond to emergency situations which do not involve materials regulated by the NRC.

This agreement is primarily intended to provide, under emergency situations as described in this MOU, for the proper recovery and disposition by the DOE of radioactive materials that are regulated by NRC that exceed Class C waste limits defined in §61.55, 10 CFR. Radioactive materials which do not exceed Class C limits are also covered by this agreement in circumstances that represent an actual or potential threat to the public health and safety and for which there are no other reasonable alternatives to mitigate the threat. NRC and DOE will consider situations involving radioactive material which does not exceed Class C limits on a case-by-case basis as described in section IV. E., or other agreed upon procedures.

Routine acceptance of material that does not exceed Class C limits is not a part of this MOU and would fall under the authority of the States in accordance with the intent of PL 99-240. No activities contained in this MOU are intended to undermine the authorities and responsibilities of the States as defined in PL 99-240. Further, situations which would be considered an emergency solely due to the lack of access to a compact or regional disposal site are not part of this MOU. These situations are covered in the emergency access provisions of PL 99-240 and must be addressed in accordance with 10 CFR Part 62. The purpose of 10 CFR Part 62 is to mitigate any serious or immediate threat to the public health and safety due to denial of access to a low-level waste disposal facility.

B. Form of Radioactive Material

This agreement primarily addresses the radioactive materials defined in section IV. A. in the form of sealed sources or in devices containing sealed sources. In general, the material must also be a form that is readily transportable, does not require significant special handling or unique handling equipment or capabilities, and is confined to a single location. Material forms which are determined to be outside these conditions will be handled on a case-by-case basis in accordance with section IV. E., or other agreed upon procedures.

C. Quantity of Radioactive Material

It is envisioned that most cases covered under this MOU will involve only a small number of sealed sources or devices, usually less than ten, and only relatively small licensees. Quantities of radioactive material contained in individual sealed sources or devices should not exceed the maximum authorized on the sealed source or device vendor's license. Situations involving significantly greater numbers of sealed sources or devices or large scale licensees will be considered on a case-by-case basis by the NRC and DOE in accordance with section IV. E., or other agreed upon procedures. Radioactive materials shall not be combined or altered for the sole purpose of meeting the conditions of this MOU.

D. Nature of the Threat to the Public and Response Required

This agreement does not apply to emergency situations requiring an immediate response, to situations for which immediate health and safety concerns have not been mitigated or to situations for which the NRC would not be designated as the Lead Federal Agency (LFA) for the federal response to a radiological emergency. This MOU addresses situations which the NRC determines, in consultation with DOE, represent an actual or potential threat to the public health and safety. The level of response required under this MOU will be based on an assessment of the potential health and safety consequences of the situation (e.g., amount of material involved, potential for radiation exposure or releases of radioactive material, and potential impact on the environment).

The authorities and responsibilities of certain Federal agencies (including NRC and DOE) for responding to radiological emergencies are specified in the FRERP. Activities under this MOU must be consistent with the FRERP for responses to radiological emergencies and must not interfere with or take precedence over FRERP activities. In

addition, actions necessary to mitigate an emergency requiring an immediate response, or to mitigate an immediate health and safety threat (radiological or otherwise) -- including temporary control over radioactive material -- must be taken prior to any DOE recovery or disposition activities.

Assistance by DOE to recover and manage the material may only be requested by NRC after all other reasonable alternatives to alleviate the situation are addressed. In addition, NRC shall identify the response requested of DOE. DOE shall determine the appropriate response to ensure the present or potential threat is mitigated or eliminated in such situations where existing controls may not be adequate to ensure long-term assurance of the public health and safety.

E. Exceptions to the primary intent of this MOU

The purpose of section IV, Scope, is to define the bounds of this agreement in specific terms. Paragraphs A-C of this section indicate that exceptions to the conditions of this agreement may be necessary. The reason for these exceptions is that it is recognized that situations involving actual or potential health and safety threats requiring DOE assistance will not be limited to only small quantities of sealed sources which exceed the Class C limits as defined in 10 CFR Part 61.55.

In situations where the materials involved do not meet the specific conditions described in paragraphs A-C above, but DOE assistance is determined by NRC to be necessary, then the NRC shall document the reason why it is appropriate to respond to the particular situation under the terms of this MOU, document why DOE assistance is necessary for the particular situation, and provide this information to DOE. The DOE shall review this information and document the response it intends to take based upon the information provided, and provide this information to the NRC. So as to not delay a response to a request for assistance, this exchange of information may take place electronically, so long as hardcopy follow-up is provided.

F. Other Limitations

This agreement, and subsequent DOE recovery and disposition actions, are generally limited to packaging, transport, and/or receipt of radioactive materials, and the associated requirements to conduct those activities.

This agreement is not intended to require or imply that DOE will provide decontamination or clean-up activities, except as a direct result of a DOE recovery operation, nor will DOE be expected to perform recovery or disposition actions for materials other than those specifically identified in this document.

This MOU does not apply to requests for radiological assistance from DOE Radiological Assistance Program teams.

V. AUTHORITY AND REGULATORY PROGRAMS

A. NRC

NRC is responsible for licensing and regulating nuclear facilities and material and for conducting research in support of the licensing and regulatory process, as mandated by the Atomic Energy Act of 1954, as amended; the Energy Reorganization Act of 1974, as amended; in accordance with the National Environmental Policy Act of 1969, as amended; and other applicable statutes. NRC responsibilities include protecting public health and safety, protecting the environment, and safeguarding nuclear materials in the interest of national security.

The Office of Nuclear Material Safety and Safeguards (NMSS) was established under Section 204 of the Energy Reorganization Act of 1974, as amended, and is charged with the responsibility of protecting the public health and safety through regulatory control of the safe use of byproduct, source, or special nuclear material, for medical, industrial, academic, and commercial uses. To accomplish this goal, NMSS uses licensing, inspection, enforcement, development and implementation of regulations, guidance and policy, safety reviews for products that use the material (including sealed sources and devices), and other means available according to 10 CFR.

B. Agreement States

Section 274 of the Atomic Energy Act of 1954, as amended, provides the NRC the authority to discontinue its regulatory authority over certain radioactive materials (including sealed sources and devises) within a State that has agreed to establish and maintain a regulatory program for the materials that is adequate to protect the public health and safety, and is compatible with NRC's program. States that have been found to meet these criteria and have entered into such agreements with NRC are called Agreement States. These Agreement States have independent authority to regulate the radioactive materials specified in the agreement within their boundaries, and are charged with protecting the public health and safety through the licensing, regulation, and enforcement of activities associated with the materials.

Under PL 99-240, each State is responsible for providing for the disposal of radioactive material which does not exceed a waste Classification of C that is generated within its boundaries. In addition, State and local governments have primary responsibility for determining and implementing appropriate measures to protect life, property, and the environment from radiological and other hazards.

C. DOE

DOE is responsible for conducting research and development, and other activities, to support the use of byproduct, source, and special nuclear materials for medical, biological, health, and other uses as mandated by the Atomic Energy Act of 1954, as amended; the Energy Reorganization Act of 1974, as amended; the Department of Energy Organization Act, as amended; and other applicable statutes.

DOE is responsible for the disposal of radioactive material which exceeds a waste Classification of C as defined in §61.55, 10 CFR as mandated by PL 99-240. DOE is required to assure the public health and safety as mandated by Section 102(13) of the Department of Energy Organization Act, as amended, and is responsible jointly with NRC for the development of contingency plans to recall or recapture radioactive

materials under Section 204(b)(2)(B) of the Energy Reorganization Act of 1974, as amended. In addition, DOE is granted the authority to take, requisition, condemn, or otherwise acquire any special nuclear, source, or byproduct material as authorized by Sections 55, 66, and 81, respectively, of the Atomic Energy Act of 1954, as amended.

VI. AGENCY RESPONSIBILITIES AND AGREEMENTS

NRC and DOE staffs will closely coordinate actions in both the planning and execution phases to: (1) ensure a timely response where DOE assistance is necessary; (2) provide adequate protection of the health and safety of the public and occupational workers involved in responding to requests for assistance; and (3) ensure cost effective operations. Each agency will develop, in consultation with the other, appropriate procedures as necessary to implement this agreement. Each agency will designate the organization and key personnel responsible for the day-to-day coordination and management of activities covered by this MOU.

A. NRC Responsibilities

1. Upon discovery of a potential radioactive material incident concerning NRC or Agreement State licensed material in an uncontrolled condition that does not require activation of the NRC Incident Response Plan, the NRC regional and headquarters offices will follow the procedures contained in NRC Manual Chapter (MC) 1301, "Response to Radioactive Material Incidents that do not Require Activation of the NRC Incident Response Plan," or Policy and Guidance Directive (P&GD) 9-12, "Reviewing Efforts to Dispose of Licensed Material and Requesting DOE Assistance," as applicable.

a. Manual Chapter 1301 is applicable to this MOU in situations where licensed material is in an uncontrolled condition in an unrestricted area and a responsible party cannot be readily identified. Incidents applicable to MC 1301 may include locations which are unlicensed, as well as licensed locations where the licensee is not authorized to possess the radioactive material. When requesting assistance of DOE is considered for these type incidents, MC 1301 will be consulted for the procedures and guidance to follow for determining whether DOE assistance is appropriate and necessary. Once DOE assistance is determined to be appropriate and necessary, MC 1303, "Requesting Emergency Acceptance of Radioactive Material by DOE," will be consulted for the procedures for making the request.

b. P&GD 9-12 is applicable to this MOU in situations where an NRC or Agreement State licensee is unable to safely maintain control over its licensed material, or there is a high potential for the licensee to lose control of its licensed material. NRC and Agreement State license reviewers will use this document to determine if DOE assistance with the material is appropriate and necessary, and for making the request. This document contains, in part, guidance for determining the need for DOE assistance based on an evaluation of: (1) whether viable options are available for recovery and disposition of the radioactive material, (2) the licensee's ability to adequately maintain control over the material and

available options for achieving this, and (3) whether the material is causing or has a high potential to cause a significant health and safety risk to members of the public.

2. Upon determining that DOE assistance is likely, NRC staff shall consult with DOE staff to: (1) provide appropriate information available on the incident (e.g., information listed in Enclosure 1 to P&GD 9-12 or MC 1303); (2) determine if any additional information is needed; and (3) identify any special conditions or requirements concerning the incident.

3. Upon determining that DOE assistance is appropriate and necessary, NRC staff shall formally request DOE assistance in accordance with MC 1303 or P&GD 9-12, as applicable. These documents specify the procedure for making an official request for DOE assistance, information that is to be provided to DOE (e.g., sealed source identification and condition information, licensee name, point of contact, applicable historical information, etc.), the DOE addressee for the request, and follow-up actions after the request is made. Prior to issuance of the formal request, NRC will notify the applicable DOE staff (via phone or electronic media) that the request is being made.

4. Prior and subsequent to requesting DOE assistance, NRC will determine the extent of assistance that other parties involved are responsible for, or are able to, provide for the recovery of the material to minimize the cost to the government. Examples include providing for the packaging and/or transport of the material.

5. Agreement States seeking DOE assistance applicable to this MOU shall make all requests through NRC, following the guidance in MC 1301, MC 1303, or P&GD 9-12. NRC staff will evaluate the Agreement State's request and determine if all applicable information has been provided and if requesting DOE assistance is appropriate and necessary. NRC will not forward the request to DOE until the request contains complete information and provides sufficient justification for requesting DOE assistance, and will work with the Agreement State to obtain this information. NRC will make all requests for DOE assistance. under this MOU on behalf of the Agreement States and shall serve as the single point-of-contact for evaluating the requests in accordance with this MOU.

6. NRC shall arrange for transfer of title of the recovered materials to DOE or to other parties who will take possession of the material, as designated by DOE.

7. Within its regulatory authority, NRC will ensure, and expedite where appropriate, license and/or certification reviews and amendments are performed as necessary to support safe and timely recovery of the materials and to minimize costs to the government incurred in recovery and shipment operations.

8. NRC shall coordinate the efforts of non-DOE involved parties in recovery operations, and participate, as appropriate and necessary, to ensure adequate protection of public/worker health and safety, and to ensure regulatory compliance, as applicable.

B. DOE Responsibilities

1. DOE staff will participate and consult with NRC in the determination process for requesting DOE assistance.

2. Upon receipt of a formal request for assistance, DOE will review the request against the requirements of this agreement, Departmental policies in effect at the time of the request, changes in legislative authority which may affect actions requested, and expected cost versus available funds to carry out the requested action. DOE will review each request to ensure all reasonable options for disposition have been exhausted prior to providing assistance. Upon completion of this review, DOE will notify NRC of the action it will take.

3. Upon acceptance of a request for assistance, DOE shall identify, package, transfer, receive, and/or store the radioactive material at a DOE or other appropriate facility; or contract with appropriately licensed firms for these services.

4. DOE will coordinate, through NRC, with the licensee and/or local authorities and other agencies, as appropriate, regarding the details of the recovery operations and provide information on progress and status.

5. DOE will take title of the radioactive material either at the material pickup location or at the designated receiving site, as determined on a case-by-case basis, or ensure title is transferred to appropriate parties contracted for services.

6. DOE may review procedures that NRC uses to determine: (1) that material is an imminent threat to the public health and safety; (2) that all available options for disposition of the material have been exhausted; and (3) that a request for DOE assistance with radioactive material is appropriate and in accordance with this MOU.

7. DOE will plan and budget, as appropriate, for its costs to provide for reasonably expected requests under this agreement.

8. DOE shall utilize its field elements, contractors, laboratories, and facilities, and private industry, as required, in recovery and disposition operations, for the safe, timely, and efficient conduct of these operations. The use of these facilities is limited to those sites with appropriate capabilities and compliance with applicable regulations, as well as necessary funding. If such a site or necessary funds are not available, DOE will consult with NRC and/or other Federal and State agencies to determine if managing the material may be accomplished by other means.

C. Coordination Officers

Each agency shall designate an individual(s) who will serve as the respective coordination officer(s), or point(s) of contact (POC). The POCs will coordinate and facilitate actions required by their respective agencies. Additionally, they will establish

and maintain a call list (names, phone, and fax numbers) of responsible persons for day-to-day contact on any matter related to this MOU, and shall provide this call list to each other, as requested and appropriate.

VII. ELEMENTS OF COORDINATION

A. Information Exchange

Both agencies agree to exchange information with respect to relevant programs and lessons learned. The purpose of the exchanges is to provide expert technical assistance to both agencies and to assist either agency by reducing or eliminating duplication of effort. The sharing of information between DOE and NRC (and Agreement States as appropriate) will be exercised to the extent authorized by law (i.e. NRC and DOE directives, statutes, and regulations), and will be consistent with each agencies' missions.

Both agencies recognize the need to protect from public disclosure, data and information that are exchanged between them, which fall within the definition of trade secrets, and confidential commercial or financial information. Both agencies agree to exchange proprietary information in accordance with applicable regulations and their regulatory authority. If a request calls for a disclosure determination regarding proprietary information obtained from either agency, such as a Freedom of Information Act request or response to a Congressional inquiry -- or either agency must comply with various regulatory or public information responsibilities -- the agency responsible for the information will be promptly notified, by the other agency, of the need for disclosure of the information. The responsible agency will make any needed contact with the submitter of the protected information and will accept the responsibility for evaluating the submitter's comments, before rendering the disclosure determination.

B. Sharing Other Information

DOE and NRC will also offer each other the opportunity to comment on regulations, regulatory guides, or other communications that refer to activities, policies, or regulations of the other agency, that are relevant to this agreement. If practicable, the documents will be provided for comment prior to issuance.

Either agency may request additional information, when such is deemed necessary to complete its mission.

VIII. MEETINGS

A. Annual Inter-Agency Meeting

The following are the offices and officers responsible for this agreement:

1. For the U.S. Nuclear Regulatory Commission:

   Director, Office of Nuclear Material Safety and Safeguards
   U.S. Nuclear Regulatory Commission

Mail Stop T8-A23
Washington, D.C. 20555
Telephone: (301) 415-7800

2. For the U.S. Department of Energy:

Deputy Assistant Secretary for Waste Management
Environmental Management
U.S. Department of Energy
Mail Stop 5B-040/FORS
Washington, D.C. 20585
Telephone: (202) 586-0370

The DOE and NRC responsible officers, or their designated representatives, shall meet at least annually to evaluate the activities related to this MOU and make recommendations to agency heads on its effectiveness. DOE and NRC will host the meeting on alternating years.

B. Coordination Officers

Coordination officers, POCs, or their designated representatives, shall meet, on a semiannual basis, to discuss technical issues related to this MOU, review the status of actions underway or planned, discuss any problems or issues, and recommend necessary changes. DOE and NRC shall host the meeting on alternate dates.

IX. OTHER LAWS AND MATTERS

Nothing in this MOU shall be deemed to restrict, modify, or otherwise limit the application or enforcement of any laws of the United States with respect to matters specified herein, nor shall anything in the MOU be construed as modifying, restricting, or directing the existing authority of either agency.

Nothing in this MOU shall be deemed to establish any right nor provide a basis for any action, either legal or equitable, by any person or class or persons challenging a government action or a failure to act.

This MOU shall not be used to obligate or commit funds or as the basis for the transfer of funds.

X. EFFECTIVE DATE, MODIFICATION, AND TERMINATION OF MOU

This MOU may be further implemented by supplementary agreements in which authorized representatives of DOE and NRC may further amplify or otherwise modify the policy or provisions in the memorandum or any of its supplements, provided that any material modifications of the provisions or any of its supplements shall be subject to the approval of the authorized signatories of this memorandum or their designated representatives.

This MOU will take effect when it has been signed and dated by the authorized representatives of DOE and NRC. It may be modified by mutual written consent, or terminated by either agency upon 60 days advance written notice. The agencies agree to reevaluate this MOU at least

every five years, at which time either agency has the option of renewing, modifying, or terminating this MOU.

Approved and accepted for the U.S. Nuclear Regulatory Commission

Carl J. Paperiello
Director
Office of Nuclear Material Safety
and Safeguards

Date

Approved and accepted for the U.S. Department of Energy

Mark W. Frei
Acting Deputy Assistant Secretary for
Waste Management
Environmental Management

12/18/98
Date

PROS AND CONS OF A POTENTIAL ORPHAN SOURCE CONTRACT PROGRAM

To consider the pros and cons of establishing a contract program that would enable licensees or the U.S. Department of Energy (DOE) to take possession of, and arrange for proper disposition of orphan sources, it was necessary to: a) define the required capabilities of such a contractor and the bounds of such a contract; b) determine whether the U.S. Nuclear Regulatory Commission (NRC) has the legal authority to issue such a contract; c) determine any factors that would limit such a contract; d) identify alternative means to accomplish the objectives of such a contract; and e) identify the positive and negative effects and consequences of such a contract and the alternatives.

A. Contractor Capabilities and Contract Bounds

To define the required capabilities of such a contractor and the bounds of such a contract, it was necessary to understand the types of orphan sources typically encountered, ascertain ranges of geographic locations and potential environmental and/or other hazardous or difficult conditions that may be encountered, determine appropriate response options to orphan source incidents, and identify appropriate disposition options.

Conditions Under Which One May Encounter an Orphan Source

Orphan sources may be encountered in a wide range of geographical and environmental conditions and may be found at any type of location, including industrial complexes, private residences, roadsides, school grounds, and in old and dilapidated structures, as well as buildings containing radioactive contamination and/or other hazardous materials. Therefore, for the contract to be effective, a contractor would be required to respond under all these types of conditions, not be restricted to any geographical region, and have the capabilities for dealing with other potentially hazardous situations. However, because States have the responsibility for protecting the public from health and safety threats (as first responders), and because NRC, U.S. Environmental Protection Agency (EPA), or an Agreement State radiation protection program would also respond, in all situations, if requested, to the immediate radiological hazards, to mitigate the threat to the public health and safety, the staff expects that the contractor would not be asked to respond to an orphan source incident unless all immediate threats had been mitigated, and the incident was in the recovery, remediation, or investigation phase.

One option for addressing the variety of geographical and technical needs of the contract is to issue contracts to multiple contractors. When deciding which contractor to use for a given orphan source situation, the staff would consider each contractor's special expertise and ability to respond in a timely manner to the particular incident, to ensure the best contractor is selected for an efficient and appropriate response.

Determine Appropriate Response and Identify Appropriate Disposition Options

The determination of an appropriate response would be based on reports from first responders and/or NRC, DOE, EPA, or Agreement State response personnel at the location of the incident, considering the experience, knowledge, and capabilities of the contractor. Although orphan source incidents are inherently variable, most orphan source incidents do have some aspects that are similar, including:

- Identification of the radioactive material is difficult (i.e., determination of isotope, activity, sealed source model and serial number, device model and serial number, and integrity of the sealed source or device);

- First responders are unequipped to determine former owners or responsible parties; and

- Only limited radiological information is know about the radioactive material (e.g., radiation levels at specified distances, other hazards involved, shielding capability, potential for the spread of contamination, etc.). Once the incident moves into the investigative phase, identifying information concerning the orphan source becomes increasingly more important, especially for determining the appropriate response to recover the material, and for determining an appropriate disposition.

NRC typically becomes aware of a radiological incident involving an orphan source only after response activities are well underway or completed. NRC's response to orphan source incidents is, therefore, usually based on information obtained from the first responders or the State radiological control program personnel. NRC would then use this information to request a response from the orphan source contractor. The contractor would respond at the incident location and make a determination/verification of the source isotope, activity, and a preliminary identification of source and/or device model and serial number. In addition, the contractor would be expected to respond with other appropriate equipment and capabilities to recover the source, package it in an appropriate transport container, and deliver it for transport to another licensee or to [one of] its licensed facilities. This would require that the contractor have the appropriate license authorizations and capabilities for handling, packaging, transporting or delivering for transport, and temporarily storing, a wide variety of radioactive materials. In addition, the contractor would be expected to determine disposition options/alternatives based on the initial information received from the first responders or State radiation protection program personnel. These disposition options may be modified once the material is recovered and further identified.

Further identification efforts by the contractor would include a determination of source and/or device model and serial number, and manufacturer or primary distributor. This additional information could be used in an attempt by NRC or Agreement States to locate a responsible party, but it could also be used by the contractor to identify other disposition options, such as identifying parties interested in acquiring the source for use. The staff expects that in some cases, the expense that would be incurred to determine sufficient information to identify a responsible party or to determine additional disposition options would be greater (and in some cases much greater) than the costs to act on a

particular disposition option initially identified by the contractor, or it may become clear that further identification efforts would have little or no chance for success. NRC would need to consider cases such as this carefully to avoid perceived impropriety. An impropriety could be perceived whether or not NRC pursued attempting to obtain additional information. For example: if NRC's contractor pursued efforts to further identify the source, it could be perceived as wasteful, if the efforts were not successful; if NRC decided to stop source identification efforts, because of resource or other considerations, the Agency could be perceived as not performing its regulatory duty to identify and take enforcement action against a responsible party.

Once the contractor's orphan source identification efforts of the orphan source is complete, the contractor could determine appropriate disposition options for the orphan source and present those options to NRC. The greater number or variety of options that the contractor is able to identify, the more cost-effective the contract will be. Therefore, this contract would require a contractor who is well-experienced in performing source recovery operations, as well as determining appropriate disposition options.

B. NRC Legal Authority to Issue an Orphan Source Contract

Previous informal discussions have indicated that NRC has the legislative authority to issue an orphan source contract, but that a number of legal issues (discussed below) would need to be addressed before issuance of such a contract. However, no documented, formal finding regarding the basis for NRC issuing an orphan source contract, and how, or to what extent, NRC's legislated roles and responsibilities or other legal issues would limit such a contract, could be identified.

Discussions with Office of the General Counsel (OGC) staff having responsibilities in the contractual and rulemaking areas were held to further investigate and clarify NRC's authority for establishing an orphan source contract, and any limitations on the contract caused by any legislation, contract law, or other legal or technical issues. These discussions reinforced that there were no legal or other limitations that could prevent NRC from establishing an orphan source contract (more specifically, a contract to take possession and dispose of radioactive materials that present a health and safety threat to members of the public). However, these discussions identified several specific limitations and conditions concerning what an orphan source contract could include and how it may be issued. Examples of these will be discussed in the next section.

C. Limitations of an Orphan Source Contract

As discussed above, through discussion with OGC, several specific limitations and conditions concerning what an orphan source contract could include and how it may be issued were identified. Examples of these include the following:

- Any contract issued to recover radioactive material for the purpose of protecting public health and safety could not include non-Atomic Energy Act (AEA) material [i.e., Naturally occurring or Accelerator-produce Radioactive Material (NARM)]. However, several potential scenarios are envisioned where NARM could be involved in an orphan source recovery and where it is possible that an NRC

contractor may be asked to respond. Attachment 8 discusses several of these potential scenarios.

- As long as there are commercial contractors available that could potentially have the capabilities necessary for an orphan source contract, NRC would be required to solicit interest in the contract as a competitive bid and would be prohibited from seeking a contract with DOE or a DOE prime contractor, unless it was determined that none of the commercial contractors could be accepted, nor was interested in the contract.

- The AEA provides the basis for NRC to take ownership of radioactive material, as needed to carry out its mission (including protecting the public health and safety), but NRC does not currently have the capabilities in place to take possession of the quantities and wide variety of types of radioactive materials that have been encountered in past orphan source incidents. NRC has taken ownership of radioactive materials on several occasions, but, on most of these, NRC only took title to the material and subsequently transferred title to the material to DOE for ultimate disposition without ever taking possession of the material. NRC has also taken possession of radioactive materials where there has been an imminent threat to the public health and safety from the material and no other actions could be taken to mitigate the threat. This was especially true a number of years ago when NRC had radioactive material storage capabilities at several of the regional offices. These storage capabilities are no longer maintained by any of the regional offices. In cases where NRC took title to material, but not possession, the material remained secured onsite until it could be removed by an authorized person.

Additional potential legal issues were identified after these preliminary discussions and were provided, via memorandum, to OGC for further consideration (see Attachment 8). OGC subsequently provided verbal responses to these issues which further clarified that NRC has the authority to issue a contract that would take title to abandoned radioactive materials and arrange for its disposition. However, any such contract would be limited by NRC's authorities, under the AEA, in as much as the contract could only include radioactive materials covered by the AEA (source, byproduct, or special nuclear materials). In addition, OGC indicated that, though possibly limiting the scope and effectiveness of such a contract, none of the issues identified in Attachment 8 would likely prevent the issuance of an orphan source contract.

Other potential limitations identified while developing this response include the following:

- Discussions with several licensees that were identified as potentially having the capabilities necessary to perform this type contract indicated that the licensees would be prohibited from applying for the disposal permits on behalf of NRC in cases where it was determined that disposal was the best alternative for disposition of the material. The licensees could file the applications for NRC, but the applications would be required to be signed by authorized NRC representatives. OGC staff was questioned concerning this issue and indicated that likely anyone within the agency could be designated as an authorized representative for the purposes of approving and signing the disposal permit

application. However, OGC continues to investigate whom this person would need to be designated by, and if there are any limitations or conditions as to who could be designated as the authorized representative.

- Any orphan source contract would need to be written so as to be flexible enough to allow for a wide variety of orphan source scenarios (e.g., all isotopes covered by the AEA, a large range of source activities, and the capability to respond to a large variety of locations and conditions). However, to enable interested solicitors to prepare comprehensive proposals and ones that would not reflect inflated costs because of uncertainties in contractor duties, the statement of work for the contract would need to be relatively specific as to the activities of the contractor. In 1997, DOE attempted to issue a contract that contained similar duties and responsibilities as were determined to be required of an orphan source contractor. DOE's experience with the responses received to the solicitation for bid was that the costs of such a contract would be exorbitantly expensive. DOE indicated that it attempted to write the solicitation for bid generally enough to cover a variety of situations, but the respondents indicated that the solicitation for bid was written too broadly and they had to assume worst case scenarios in their responses. DOE further discussed its needs for a contract with the respondents, to clarify the required capabilities. These discussions suggested that the costs of such a contract may be less than initially indicated. Ultimately, DOE did not issue the contract, but rather decided to use the existing capabilities of its national labs for the contract.

- It is expected, based on past experience, that a large portion of the activities that would be conducted by an orphan source contractor would be for the benefit of non-NRC licensees. To address fairness and equity concerns with the NRC licensees paying for an activity that does not benefit them, appropriation funding should be sought from the general fund.

- Radioactive material recovered by an NRC orphan source contractor could be traced to an Agreement State licensee. In this situation, it is expected that the applicable Agreement State would take appropriate actions against the licensee for the recovery of the material. However, if this were not the case (either because the Agreement State did not, or was not able to, take the appropriate actions), NRC's ability to require the responsible party to recover, or accept back, the material, could be very limited.

- Discussions with waste handlers and brokers and review of capability statements received indicate that there are commercial companies that would likely have some or all the appropriate capabilities to act as orphan source contractors. Several of the companies indicated that they had performed orphan source recoveries in the past and some were currently orphan source contractors for Agreement States. If NRC were to establish an orphan source contract program, it is unlikely that the contractor or DOE would be able or willing to take title to any recovered radioactive material, except for extremely limited periods.

D. Alternatives to NRC Issuance of a Contract

A number of viable alternative means to accomplish the objectives of such a contract were identified. It is clear that for an orphan source contract program to be most effective, useful, beneficial -- and conform to the guiding principle that non-licensees that find themselves in possession of radioactive sources which they did not seek to possess should not be expected nor asked to assume responsibility and cost for exercising control or arranging for their disposal -- it would need to cover the widest range of situations and radioactive materials. However, the greater the scope of the contract, the greater its potential cost. Dispersed radioactive materials were not considered to be within the scope of this evaluation because of the uncertainty in a required response and the high potential costs associated with their recovery. In addition, it was initially assumed that an NRC orphan source contract would not cover licensees who have a high potential to lose control over their material, as they would not fit within the guiding principle of persons that "...did not wish to receive the materials" (even though this situation is generally considered within the definition of an orphan source). However, to prevent persons who did not wish to receive the materials from inadvertently receiving them from this category of licensee, it may become necessary to remove the material from these licensees before they lose complete control over the material. These cases would need to be handled on a case-by-case basis to ensure all alternatives to NRC's contractor taking the material have been explored and discounted before use of the contractor for recovery of the material.

Based on discussions with NRC legal staff, it was determined that any NRC contract would be limited to AEA material only. Since AEA materials make up less than 50 percent of all orphan source incidents, this would severely limit the effectiveness and benefit of an orphan source contract program. For such a contract to be most effective and to provide the greatest coverage for all types of radioactive materials, a separate program to address all other radioactive material orphan sources would need to be in place and coordinated with the NRC orphan source contract program. This would rely on each State, or a combination of States, to establish and implement orphan source programs to cover NARM orphan sources discovered within their boundaries. In situations where a device contained both AEA material and NARM, or these materials were commingled at a single site, both the NRC orphan source contractor and the applicable State contractor for NARM would need to be coordinated to effectively mitigate the potential hazard at the site.

The Conference of Radiation Control Program Directors (CRCPD) E-34 Committee on Unwanted Radioactive Materials (the E-34 Committee) has been tasked to develop an orphan source program that would cover not only discrete sources, but also would cover both AEA material and NARM orphan sources. Dispersed radioactive materials are not within the charter of the E-34 Committee, but represent a similar problem that also needs to be addressed. The E-34 Committee plans to recommend to the CRCPD that dispersed radioactive materials also be addressed, to determine an appropriate approach for dealing with radioactive materials, in this form, that are possessed by persons that did not seek to possess them.

The E-34 Committee has used the general definition of an orphan source for its program, which includes licensees who have a high potential for losing control over their

radioactive materials. In addition, the E-34 Committee is using CRCPD's resources to develop an assistance referral program for determining an appropriate disposition of unwanted radioactive materials and for potentially locating alternative disposition options other than disposal. This has included creation of a video intended to familiarize viewers of the issues concerning lost and/or unsecured radioactive material and how to respond to the identification of such material, an Internet web site containing useful and helpful information on dealing with "unwanted radioactive material" and means to obtain assistance (www.CRCPD.ORG, under hot-key "What's New"), and includes plans for a toll free phone number for providing additional, one-on-one, assistance with unwanted radioactive material.

The E-34 Committee expects to finalize its program and initiate a pilot to test the effectiveness of the program in calendar year (CY) 1999. It is expected that the pilot program will contain all the essential aspects that an NRC contract program would require, and possibly more. However, it is uncertain how the program would be implemented following the pilot, or if CRCPD would continue to participate in the program. It is uncertain how long the pilot program will last, how extensive it will be, and what, if any, changes in the E-34 Committee's program will be required, based on the results of the pilot. The E-34 Committee's program will require funding for its implementation and continued operation, and it is envisioned that this funding would come from a cooperative effort of the States and applicable Federal agencies (i.e., NRC, DOE, EPA, and potentially others).

Based on the above considerations, four basic options were identified for NRC issuance of an orphan source contract program:

1. NRC establishes an orphan source contract program, with a commercial firm or firms, for AEA material only.

2. NRC funds CRCPD to establish, implement, and manage a national orphan source program, once the E-34 Committee's pilot program is complete (~ mid CY 2000). NRC funding would be commensurate with the proportion of NRC licensees to all US licensees, and would be limited to only those efforts associated with AEA material.

3. NRC neither establishes nor funds an orphan source contract or program, but continues to work with the E-34 Committee, to develop a national orphan source program (the E-34 Committee's program would require funding from sources other than NRC).

4. A combination of Options 1 and 2. The combination would allow NRC to issue an orphan source contract while the E-34 Committee is continuing work on its national program, then end the contract and fund the E-34 Committee's program, once its development is complete.

E. Positive and Negative Effects and Consequences of a Contract, and Alternatives

A number of pros and cons have been identified for each of the options listed above and are discussed in detail below.

Option 1

Pros

- NRC would have full control and accountability over the contract and would be able to decide which orphan sources would be considered for dispositioning and for determining which disposition option is most appropriate. If it was determined that the contract was not sufficiently flexible or did not meet all of NRC's needs, NRC would have the ability to modify the contract to provide for its needs. Since NRC would have complete control over the contract, it could ensure that the guiding principle, "Non-licensees that find themselves in possession of radioactive sources which they did not seek to possess should not be expected nor asked to assume responsibility and cost for exercising control or arranging for their disposal," would be followed.

- It is possible that the program being developed by the E-34 Committee may not be finalized until calendar year 2000, or later. It is likely that NRC could issue an orphan source contract well before full implementation of the CRCPD program.

- An NRC orphan source contract could be issued that would cover all 50 States, or be limited only to NRC jurisdiction. By covering all 50 States, NRC could use the contract on an as-requested basis to provide orphan source recovery capabilities that some Agreement States currently do not possess, but this would further increase the potential for NRC expending funds that would be for the benefit of non-NRC licensees (e.g., Agreement State licensees). Limiting the contract to only NRC jurisdiction would minimize the overall cost of the contract and would decrease, but not alleviate, the potential for expending NRC funds that benefit non-NRC licensees.

- NRC could require the contractor to have the ability to analyze each orphan source for identifying markings such that NRC could attempt to identify the responsible party. NRC could also direct the contractor to retain possession of the material until its investigation of the responsible party was complete.

Cons

- Any NRC contractor recovery activities involving AEA materials and NARM, where disposition of the NARM could not be coordinated with a State agency's orphan source program, would be perceived as only doing half the job, since the NARM could not be removed by the NRC contractor and would remain at the facility. This could reduce stakeholder confidence in the usefulness of the contract, especially if this scenario occurred on multiple occasions.

- Since the NRC contract would be limited to AEA material, in all cases, before the contractor could respond, some entity would have to identify whether the material were AEA or NARM. If the isotope could not be initially identified, the contractor might or might not be allowed to respond, depending on the situation. The contractor might be allowed to respond if the situation were such that the contractor needed to respond to mitigate a threat to the public or the environment. However, as previously indicated, it would be expected that all immediate threats to the public and the environment would be mitigated before the contractor arrived onsite. Accordingly, the situations where the contractor would need to respond to mitigate a threat would be rare. However, it is more likely that the contractor would need to respond to situations where the material is not yet identified, but presents no immediate threat. Since it would not be known whether the material were AEA or NARM, and since no immediate threat would exist, the contractor might be prohibited from responding. OGC is considering this issue. If it is determined that the contractor could respond, it would have to identify the material onsite. If the contractor identified the material onsite as NARM, it would be prohibited from proceeding with the source recovery and would be required to leave the material at the site. This would be further compounded in situations where AEA material and NARM were commingled in a device or container since the contractor would be allowed to remove and recover the AEA material, but not the NARM. The inability to respond, in cases involving NARM or where the material has not been identified, could seriously reduce stakeholder confidence in the effectiveness of the contract.

- NRC's establishing a contract for AEA material orphan sources would be a disincentive to other agencies and stakeholders for establishing similar orphan source contract programs for AEA material. A number of States currently have orphan source programs in place or have authority to establish such a program. Those States would have little incentive for continuing or initiating orphan source programs for AEA material if NRC had such a contract program in place. If NRC's contract were limited to non-Agreement States, then the contract would be a disincentive only to the non-Agreement States. In addition, an NRC contract could be a disincentive to State and local governments to provide resources and contingency plans for responding to orphan source incidents.

- Addressing the potential organizational conflicts-of-interest could limit the field of potential candidates for the contract or could limit the type and location of work a particular contractor could perform. All potential contractors would be required to address potential conflicts of interest. Attachment 8 lists a number of potential conflicts-of-interest for which legal advice was sought. Based on discussions with OGC, each of these conflicts of interest would likely be able to be addressed in some way, but the result may be a limitation placed in the contract.

- An inability to take advantage of the disposition option of transferring the material to another authorized recipient would limit the effectiveness of the contract and would likely drive up the costs. Several of the Agreement States that have orphan source programs use an auction process to disposition orphan sources (e.g., sealed bids, etc.). In many cases, a licensee authorized to receive the material is willing to pay for the orphan source. The licensee obtains the material

for a low price and the State not only does not have to pay for the disposal of the source, but is also able to recoup some of its costs in the process. Discussions with OGC indicate that requesting the contractor to auction any recovered orphan sources would present a number of procurement and budget issues that would essentially make this option impractical (e.g., monies received may be required to be returned to the U.S. Treasury and would not be available to offset the costs of the contractor's fees; it is uncertain whether the contractor could be granted authority to sell Federal government property in this manner, etc.). In addition, there would be no incentive for the contractor to explore this disposition option as the contractor would essentially receive the same fee no matter which disposition option was employed. It is possible that the contractor could be authorized to transfer the orphan source to an authorized recipient without a fee, but there are certain procurement and legal issues associated with this option as well. An auditor could view employing this option as improper, since sufficient compensation was not received for government property. Also, this could present a fairness issue, regarding persons who may be seeking to procure radioactive materials, especially if two parties were interested in obtaining the same orphan source. There would be no criteria for determining who would receive the orphan source.

- Several of the waste brokers and handlers with whom the contract option was discussed indicated that they had certain geographic regions in which they worked. Primarily these regions corresponded to the surrounding area. In some cases, the geographic regions were broad, such as the East Coast, and were less limiting. At lease some of the waste brokers and handlers indicated that they were able to work in all of North America. To ensure complete coverage of the U.S. as well as to ensure appropriate capabilities throughout the U.S., it may be necessary to issue the contract to multiple contractors in different geographic regions.

- In cases where the material is located at a facility not licensed nor owned by a Federal agency, or of unknown or foreign origin, NRC contractor activities may be contrary to Federal Radiological Emergency Response Plan (FRERP) guidelines for the Federal response to a radiological emergency. The FRERP identifies EPA as the Lead Federal Agency (LFA) in radiological emergencies of this type. During the response to a radiological emergency, any State requests for assistance would be coordinated through the LFA. If the State requested assistance with the orphan source directly from NRC, in this capacity, NRC may be required to ensure that the request be coordinated through EPA as long as EPA remained the LFA. Once the Federal response to a radiological emergency was complete, this would no longer be an issue. This issue may be negated if NRC and the State had a preexisting agreement, as FRERP allows preexisting agreements to take precedence over FRERP coordination requirements.

- Determining what is covered by the contract and ensuring consistency in this area may be difficult when it comes to borderline discrete/diffuse material.

- If diffuse material were covered under the contract, this would drive the costs up significantly, but not covering diffuse material would not be completely consistent

with the guiding principle that non-licensees that find themselves to be in possession of radioactive sources which they did not seek to possess should not be expected nor asked to assume responsibility and cost for exercising control over nor arranging for their disposal

- Any amount appropriated from the general fund for the orphan source contract program would be fixed, however the costs for the program during a fiscal year may exceed the general fund appropriated amount because of the variability of orphan source incidents. Obtaining additional funds if this occurred could be very difficult.

Option 2

Pros

- Would allow for a seamless response to both NARM and AEA material, thereby increasing stakeholders confidence level in the effectiveness and value of the contract.

- The legal uncertainties of NRC's establishing a contract, such as potential organizational conflicts of interest and dispositioning material through its sale to an authorized recipient, would be reduced or alleviated.

- Would likely increase consistency with respect to the response to orphan source incidents as it would be a national program covering all States and jurisdictions. States and Federal agencies already providing funding for orphan source programs would have the option of providing funding for, and using, the CRCPD program instead.

- Would likely be better received and supported by the States and other Federal agencies because of the inter-agency cooperation used in its development.

- CRCPD would not be limited to only certain contractors and options for disposition. CRCPD would be able to select a contractor or disposition option based on a particular situation and required capabilities.

- CRCPD has a large network of contacts and is already well-recognized as a source for assistance with determining disposition options for radioactive materials.

- The program is intended to receive funding from a variety of sources sufficient to cover the entire United States. The program is not intended to be limited to only one funding source, such as NRC, and may even receive funding from applicable stakeholders.

- Because the program would be a national program, information concerning lost and found material may be more readily available to all applicable regulatory authorities. This could assist in the identification of a responsible party. (Currently, NRC is only able to search NRC databases. The E-34 Committee's

program may also allow for the use of databases in the States for searching capabilities, and vice-versa.)

Cons

- Any NRC funds provided for the program would be limited to only AEA material. Additional funding from other sources would be required to cover NARM.

- It is uncertain when the program will be fully in place. Completion of the program will be based on when the pilot program commences, how extensive the pilot program will be, when the pilot program will finish, and what changes to the program will be required following the pilot. It is not expected that the pilot will commence until mid- to late- CY 1999 and may not end until early- to mid-CY 2000. After completion of the pilot of the E-34 Committee's program and its development, the program would need to be agreed on, and implemented by, all applicable States and Federal agencies for it to be effective. This may be a long and arduous process, and there is no current projected date for full implementation of the program.

- It is uncertain whether CRCPD would continue to run the program. If not, it is uncertain if any other organization would run the program and who this would be. NRC may be unable to provide funding to whatever entity ran the program because of legal or technical problems or conflicts.

- The actual content and effectiveness of the CRCPD program will be unknown until it is completed and tested.

- It is uncertain if this program would meet NRC's needs for an orphan source program. The extent to which NRC could direct the implementation of the program could be limited.

- The organization responsible for administering the program may determine that the level of accountability to ensure that NRC funds are only used for AEA material, is prohibitive.

- Full funding of the program would rely on sources other than NRC, such as the States, EPA, or DOE. If this funding were not provided, the CRCPD program would have essentially similar limitations as the option of NRC issuing a contract.

- NRC may have limited control over the extent to which the material would be analyzed before its disposition, in an attempt to obtain information sufficient to track the responsible party. NRC may not be able to have the material held until its investigation of the responsible party were complete.

- This may be considered a disincentive for States providing funding for similar contracts within their jurisdictions. If Federal agencies provided funding for the program, it may be expected that the Federal agencies will provide funding for the entire program.

- This may be considered a disincentive for States to provide resources and contingency plans for responding to orphan source incidents in accordance with State responsibilities.

- This may be considered a disincentive, for some stakeholders that currently provide for the disposition of orphan source materials, to continue their own orphan source programs.

Option 3

In general, this option would have the same pros and cons as Option 2, with respect to the program developed by the E-34 Committee. Therefore, the following pro and cons relate only to the portion of this option relating to NRC not providing any funding to CRCPD for an orphan source program.

Pro

- There would be no legislative authority, conflict-of-interest, nor funding issues.

Cons

- NRC could be viewed as not supportive of a program, intended to mitigate a problem that is perceived by many as being caused by NRC (because of its perceived inadequate oversight of certain NRC licensees).

- NRC would have no control over the implementation of the program.

- Without NRC funding support, funding for the E-34 Committee program may not be sufficient to ensure its continuation or success.

- NRC would be required to either accept the E-34 Committee's program or consider other options after it is developed. NRC could be perceived negatively by the stakeholders if NRC did not accept the E-34 Committee's program, but instead pursued other options.

Option 4

The pros and cons for this option would essentially be the same as discussed in Options 1 and 2 above. However, this option presents several additional potential advantages and drawbacks:

Pros

- NRC would have in place an orphan source contract program that could provide for a response to a limited number of incidents, rather than having no such capabilities.

- NRC would have the option of continuing with its orphan source contract program if the E-34 Committee's program does not provide for NRC's desired benefits.

- This option would have a more definitive schedule for implementation, which would be under NRC's control, unlike the schedule for development of the E-34 Committee's program.

- This option could be viewed positively by the States and other applicable Federal agencies as a proactive step by NRC to "fill in the gap" until such time as the E-34 Committee completes its program.

Cons

- This option may be viewed negatively by the States and other Federal agencies as circumventing the efforts of the E-34 Committee.

- This option could be a disincentive to the E-34 Committee for continuing with its efforts on development of an orphan source program. It is more likely that this option would be an incentive to the E-34 Committee for developing a program that covered only those radioactive materials not covered by NRC's orphan source contract program.

- This option would have the highest resource implications on the NRC (full-time equivalent and funding requirements).

- This option would only be effective if funding for NRC's orphan source contract program could be obtained rapidly. If funding were not obtained until fiscal year 2000 or 2001, issuance of the contract could occur coincidently with, or even subsequently to, completion of the E-34 Committee's program. In addition, if the E-34 Committee's program does not sufficiently provide for NRC's needs, funding may be required on an ongoing basis for continuation of the contract after the E-34 Committee's program is developed.

- The effectiveness of this option would depend greatly on how the potential legal issues addressed above could be resolved and what, if any, limitations would be required for the contract.

ATTACHMENT 7

SOURCES SOUGHT SYNOPSIS FOR THE ORPHAN SOURCE RECOVERY PLAN

(Published in the Commerce Business Daily September 29, 1998)

September 25, 1998

MEMORANDUM TO: Mary Mace, Chief
Contract Management Branch 1
Division of Contracts
and Property Management
Office of Administration

FROM: Gary S. Janosko, Chief Original signed by:
Resource Management Branch
Program Management, Policy
Development and Analysis Staff
Office of Nuclear Material Safety
and Safeguards

SUBJECT: SOURCES SOUGHT SYNOPSIS

The Division of Industrial and Medical Nuclear Safety (IMNS), Office of Nuclear Material Safety and Safeguards, has prepared the attached sources sought request for the project entitled, "Orphan Source Recovery Program." This synopsis is not a request for proposals.

IMNS has requested that the synopsis be sent out for the minimum period of time required.

Attachment: Sources Sought Synopsis

CONTACT: Carolyn Boyle, NMSS/PMDA
301-415-7818

DISTRIBUTION:
RMB r/f

OFC	RMB	E	IMNS	E	IMNS	E	C:RMB	
NAME	CBoyle:cjb		DBroaddus		SMoore for		GJanosko	
DATE	09/24/98		09/25/98		09/25/98		09/25/98	

C = COVER E = COVER & ENCLOSURE N = NO COPY

OFFICIAL RECORD COPY
G:\BOYLE\SSS-IMNS.cjb

SOURCES SOUGHT SYNOPSIS FOR THE
ORPHAN SOURCE RECOVERY PROGRAM

The Office of Nuclear Material Safety and Safeguards (NMSS) is seeking a contractor to provide an ongoing, readily available capability for the recovery and transfer or disposal of discrete "orphaned" radioactive material -- referred to as an orphan source -- that may be causing a health and safety risk to members of the public. Examples of orphan sources include licensed and/or unlicensed radioactive material in any of the following conditions:

- In an uncontrolled condition which requires removal to protect the public health and safety from a radiological threat;
- Controlled or uncontrolled, but for which a responsible party cannot readily be identified;
- Controlled, but for which the continued security of the material cannot be assured; or
- In the possession of an unlicensed person who did not seek to possess the material.

This recovery may require the contractor to travel to the location of the material and recover, package, and deliver (or arrange for this service) the material for transport to an authorized licensee or licensed near-surface disposal facility. The contractor may also be requested to identify potential recipients (other authorized licensees or acceptable disposal sites) or attempt to identify the sealed source and/or device (by isotope, activity, model number, serial number, manufacturer, or other identifying marks on the sealed source or device) in which the material is contained. In addition, the contractor would be expected to be available to respond to an identification of an orphan source in as little as 24 - 48 hours, depending upon the health and safety threat posed by the material.

Types of radioactive material that may need to be recovered:

- Byproduct material (possibly also plutonium and depleted uranium shielding), as defined in the Atomic Energy Act of 1954, as amended, with a waste classification of C or less, as defined in §61.55 of 10 CFR Part 61;
- The above radioactive material contained in sealed sources, either unshielded or contained in devices, and in various conditions (possibly even damaged). In some cases, the sealed source may be leaking and/or breached;
- Unsealed radioactive material in a discrete condition (contained within a small area, such as activated metals or a sealed source that has been breached, but is contained); and
- Radioactive material which cannot initially be well-defined, such as unidentified isotope, activity, form, or condition.

Capabilities that would be required:

- "On-demand" responses to identification of an orphan source that would require recovery and transfer or disposal;
- Appropriate license(s) and/or authorization(s) that would allow recovery of a broad range of the radioactive materials, as outlined above, possessed by authorized and unauthorized persons;
- Ability to package and transport radioactive material, including:
    - knowledge and understanding of DOT and NRC packaging and transport regulations and requirements;
    - ability to prepare and transport Type A and Type B shipments, and determine which type shipment would be appropriate or required;
    - access to both Type A and B shipping containers; and
    - a quality assurance program approved in accordance with 10 CFR Part 71, Subpart H, and applicable Agreement State equivalents (i.e., authorization to package and transport Type B shipments from within NRC jurisdiction and from any Agreement State).
- Knowledge of the requirements for, and ability to prepare, radioactive material for disposal in a licensed near-surface land disposal facility (low-level waste disposal site);
- Ability to respond to locations within all 50 states and territories of the United States;
- Ability to separate, if needed, sealed sources from the devices in which they may be installed for disposal purposes; and
- Decontamination and clean-up ability would only be required for activities directly associated with a recovery operation.

Other factors that may or may not be required, but which would be helpful:

- Familiarity with sealed sources, and the devices in which they may be installed, for identification purposes and an ability to perform an analysis of the sealed source and/or device for the following:
    - isotope(s) identification;
    - activity determination;

  - determination of identifying markings (such as model number, serial number, manufacturer's logo or trademark, etc.) on the sealed source and/or device. This may require varying degrees of cleaning of the sealed source or device and magnification of identifying markings, such as micro-engraving (no greater than 50X magnification, typically 10X); and

  - rough dimensions (typically to within 10% accuracy; sealed sources may be as small as 1.0 x 1.0 mm (0.039" x 0.039").

- Ability to photograph (under magnification, if necessary) sealed source or device identifying markings for transmittal to NRC for identification purposes; and

- Means to identify interested parties who may want or be authorized to accept the radioactive material for reuse (i.e., determine potential alternatives to disposal). Examples include other licensed users, radioactive material sealed source and device manufacturers, waste brokers, and sealed source and device service companies.

Interested firms should submit written capability statements. The capability statements shall address the capability to conduct recovery and transfer or disposal activities discussed above. It is not a requirement for interested firms to show capabilities in the "other factors" areas discussed above, but capabilities in all areas are preferred.

ATTACHMENT 8

MEMORANDUM TO THE OFFICE OF THE GENERAL COUNSEL, REQUESTING LEGAL ADVICE ON AN ORPHAN SOURCE CONTRACT

November 9, 1998

MEMORANDUM TO: Stuart A. Treby, Assistant General Counsel for Rulemaking and Fuel Cycle, OGC

FROM: Donald A. Cool, Director (orig. signed by) FCombs, for
Division of Industrial and Medical Nuclear Safety, NMSS

SUBJECT: LEGAL QUESTIONS AND ISSUES ASSOCIATED WITH NRC ESTABLISHING A CONTRACT FOR ORPHAN SOURCES

In the Staff Requirements Memorandum (SRM) dated April 13, 1998, (Attachment 1) the Commission directed the staff, in part, to consider the pros and cons of establishing a contract program that would enable licensees or the U.S. Department of Energy (DOE) to take possession of and arrange for proper transfer or disposal of orphan sources. In considering the pros and cons of such a contract program, we have identified a number of potential legal issues on which we are requesting the Office of the General Counsel's (OGC's) advice. To assist you in your analysis of the issues involved, Attachment 2 contains background information on the orphan source problem, including the generally-accepted definition of an orphan source. Attachment 3 contains the specific questions and legal issues we have been able to identify Attachments 4 and 5 contain copies of letters referenced in Attachment 3. In considering the questions and legal issues raised in the Attachments, please provide information on any additional issues that would limit NRC's ability to pursue an orphan source contract, as well as any alternatives that you may suggest for dealing with a particular limitation. We have attempted to identify all possible legal issues that could be problematic for this type contract, but if you envision others, please let us know.

Our response to the SRM is due to the Commission on December 31, 1998, and we plan to draft a Commission Paper on orphan source issues much earlier than that, to meet the due date. Please provide your response to these issues by November 20, 1998, with a copy to the contact below. Given our tight deadline to respond to the Commission, it may be easier for you to have the contact person or persons within OGC for each of the numbered issues listed in Attachment 3 meet with the contact listed below to discuss the issues, rather than preparing a detailed response to each of the issues. We are available to meet at your convenience.

Attachments: As stated

CONTACT: Scott Moore, NMSS/IMNS
(301) 415-7875
e-mail @ SWM

DISTRIBUTION:
NRC Central File NMSS r/f IMNS r/f DMUmbel, PMDA
BWSmith BKildee, OGC

DOCUMENT NAME:
To receive a copy of this document, indicate in the box: "C" = Copy without attachment/enclosure "E" = Copy with attachment/enclosure "N" = No copy 11-4-98CE

OFFICE	OB	E	OB		OE		IMNS		
NAME	DABroaddus/ll		SWMoore		FCombs		DCool		
DATE	11/4 /98		11/4 /98		11/5 /98		11/ /98		

Proofed by: 11/4/98 /Dispatched by: _____ / OFFICIAL RECORD COPY

OFFICE OF THE SECRETARY

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C.

April 13, 1998

D/S: Callan
Thadani
Thompson
Norry
Blaha
Martin, AEOD
Knapp, RES
Lubinski, NMSS

MEMORANDUM TO: L. Joseph Callan
Executive Director for Operations

Jesse L. Funches
Chief Financial Officer

William M. Beecher, Director
Office of Public Affairs

FROM: Annette L. Vietti-Cook, Acting Secretary

SUBJECT: STAFF REQUIREMENTS - SECY-97-273 - STAFF REQUIREMENTS -- SECY-96-221 -- "IMPROVING NRC'S CONTROL OVER, AND LICENSEES' ACCOUNTABILITY FOR, GENERALLY AND SPECIFICALLY LICENSED DEVICES"

The Commission had disapproved the staff's recommendation and directs the staff take the following actions:

*8900090 and 9000192 (NMSS)

1. Terminate the rulemaking on 10 CFR Part 31.5* that was initiated in 1991 except those provisions that will enable NRC to request information from certain general licensees to provide the regulatory basis for initiation of a registration program in advance of the rulemaking described below. Those portions of the 1991 proposed rule should be renoticed for public comment.
(~~EDO~~) (NMSS) (SECY Suspense: ~~8/21/98~~) 8/14/98 9800070

2. Provide a set of milestones to the Commission for information for implementing the rulemaking described below. The milestones should be in lieu of the standard rulemaking plan required by Management Directive 6.3, but should meet the requirement for coordination with Agreement States.
(~~EDO~~) (NMSS) (SECY Suspense: ~~8/21/98~~) 8/14/98 9800071

SECY NOTE: SECY-97-273 WAS RELEASED TO THE PUBLIC ON DECEMBER 2, 1997. THIS SRM AND THE COMMISSION VOTING RECORD CONTAINING THE VOTE SHEETS OF ALL COMMISSIONERS WILL BE MADE PUBLICLY AVAILABLE 5 WORKING DAYS FROM THE DATE OF THIS SRM.

Attachment 1

BACKGROUND INFORMATION AND GENERALLY-ACCEPTED DEFINITIONS AND CONVENTIONS USED IN ADDRESSING ORPHAN SOURCES.

The Commission has directed the staff to consider the pros and cons of establishing a contract program that would enable licensees or DOE to take possession of and arrange for proper transfer or disposal of orphan sources and provide an estimate of the costs of such a program. The Commission further directed the staff to use as a guiding principle that non-licensees who find themselves to be in possession of radioactive sources that they did not seek to possess should not be expected or asked to assume responsibility and cost for exercising control or arranging for their disposal. NMSS plans to address the orphan source issues in a Commission Paper that responds to the Commission's April 13, 1998, SRM. In that paper, we will need to address the contractual issues that the Commission raised. Our due date for the SRM response is December 31, 1998.

The general term "orphan source" has been used within the regulatory community for a variety of types and forms of radioactive material for which there is no viable responsible party to provide for an appropriate disposition of the material. Generally-accepted guidelines for what constitutes an orphan source include discrete radioactive material [both material covered by the Atomic Energy Act of 1954, as amended, (AEA) and naturally occurring or accelerator produced radioactive material (NARM)] that is in any one or more of the following conditions:

- in an uncontrolled condition which requires removal to protect the public health and safety from a radiological threat, or
- controlled or uncontrolled, but for which a responsible party cannot readily be identified, or
- controlled, but for which the continued security of the material cannot be assured and, if in the possession of a licensee, the licensee has little or no options for, or is incapable of providing for, the disposition of the material, or
- in the possession of a person who is not licensed to possess the material and did not seek to possess the material, or
- in the possession of a State radiological protection division (either Agreement States or non-Agreement States) for the sole purpose of mitigating a radiological threat due to one of the above conditions, and for which the State does not have a means to provide for the disposition of the material.

To put these guidelines in context, a few examples of orphan sources include:

- An abandoned sealed source found in a public area, but which has not been removed from the public area or adequately secured, such that the material continues to pose a radiological health and safety risk to members of the public. In addition, if the source contains no identifying markings or if the material is in unsealed form (not encapsulated), identifying a responsible party would be nearly impossible.

- A gauging device containing a sealed source in the possession of a scrap recycler who is not licensed to posses the material, minimize -- but not completely remove -- the potential health and safety risk to members of the public (including employees of the recycling company). Unless identifying markings on the gauge are visible and apparent, or the recycler has records indicating where the gauge originated, identifying the responsible party may be difficult, and in some cases, virtually impossible without expending extensive resources (both on the part of the recycling company as well as the NRC or an Agreement State). Note that in this example, the gauging device is considered to be an orphan source as long as it remains intact. But, if the gauging device was shredded by the recycler, resulting in widespread (dispersed) contamination of the facility and equipment, the resulting contaminated material would not be considered orphan sources (see below).

- A well logging sealed source in the possession of a State radiological regulatory program that was confiscated in order to protect public health and safety because the State had little confidence the licensee could maintain security over the source.

- A licensee that is having financial difficulties and wishes to terminate its license, but the licensee still possess an old licensed device which is no longer in use and has little market value. Although the licensee may be diligently attempting to maintain control over its licensed material, in this situation the licensee may become financially unable to continue to maintain staff or facilities adequate to maintain security over the material. Although disposition options may be available for the licensee's material, due to its situation, the licensee could be incapable of providing for the disposition of the material.

The term orphan source does not generally include dispersed radioactive material, material evenly concentrated in metals or other materials, and surface contamination in a facility. However, the guidelines for classification as an orphan source are flexible, and whether a particular situation is determined to contain an orphan source or not will be, and has been, handled on a case-by-case basis. If the material is considered to be "discrete," then it may be considered to be an orphan source even if it is slightly dispersed, evenly concentrated in another material, or associated with limited surface contamination.

The subject of orphan sources nearly always includes a discussion of "responsible parties." For clarity purposes, a responsible party refers to the entity (person or company) whose responsibility it was to ensure for the proper control over or disposition of the material, but who did not reasonably provide it. The entity may or may not be a current or former NRC or Agreement State licensee, or the entity may be a foreign. The "responsible party" is not always the legally liable party. Several examples of entities who would and would not be considered responsible parties include:

- A licensee contracts with a waste broker to properly package the material and deliver it to an authorized disposal site, but the waste broker looses control over the material after it leaves the licensee's facility. In this case, it would seem that the waste broker was the responsible party, but the licensee is not.

- A scrap recycler purchases a load of scrap steel piping from a licensed facility that decommissioned a process line. The licensee neglects to remove one of its nuclear gauges, containing licensable amounts of cobalt-60, from one of the pipes. The scrap recycler does not detect the material as it enters its facility and accepts the load of scrap for processing. At some point in the recycling process, the radioactive material is detected and identified, and is traced to the licensee through the source or device model number and serial number. In this case, the recycler would not be the responsible party and the licensee who improperly transferred the gauge would be the responsible party.

Discussions with waste handlers and brokers, and past history in dealing with orphan sources indicate that the process of responding to an orphan source includes:

- proper recovery of the material;

- performing a characterization of the material (including determining the isotope and activity, and identifying any markings that could be used to trace the material to the responsible party or classify it for disposal);

- providing for the proper security of the material. Temporary storage of the material (either at the contractor's facility or other appropriate location) may be necessary while disposition alternatives are being considered, while the identity of the responsible party is investigated, or while attempts are made to require the responsible party to take back the material or properly dispose of it; and

- Selecting an appropriate disposition option and carrying it out, whether that disposition option is disposal, recycle, resale, or transfer back to the responsible party.

NMSS IDENTIFIED LEGAL ISSUES AND QUESTIONS CONCERNING
ESTABLISHING AN ORPHAN SOURCE CONTRACT

In considering the pros and cons of establishing a contract for the purpose of addressing orphan sources, we have discussed potential orphan source recovery/contract issues with a number of radioactive materials waste handlers and brokers. In all cases, representatives of the waste handlers and brokers indicated certain functions -- discussed below -- that they would be unable to perform, and that either the NRC or some other party (such as a State agency) would need to perform. Issues concerning these functions, and other issues that have been identified, bring into question whether NRC could create such a contract or, once created, whether the contract could be effective given the potential limitations of these issues. We request that the Office of the General Counsel (OGC) provide legal guidance on the specific issues outlined below:

1) Does NRC have the legislative authority to establish a contract to carry-out the process of responding to an orphan source?

Previous informal discussions with OGC have indicated that NRC does have this legislative authority, as long as the contract is used to mitigate a health and safety threat from the orphan source. If NRC does have the legislative authority to establish and implement a contract of this type, could the contractor's activities include the recovery and disposition of material in cases where the immediate health and safety threat had been mitigated [e.g., by the State or a Department of Energy (DOE) Radiological Assistance Program team], but the material remains in a controlled condition with a party that did not wish to possess it (e.g., secured at a scrap recycler's facility, a State radiation regulatory office, or a licensee who temporarily took possession of the material at the request of the NRC or a State to help mitigate the threat)? In these examples, the radiological threat is minimized because the party possessing the material took a responsible action to mitigate the threat, even though they were not the responsible party for the material.

2) If it is determined that NRC has the legislative authority to establish a contract to address orphan sources, it would seem that there may be the potential for numerous conflict of interest issues associated with this type contract. Please address the following conflict of interest issues, and the implications/limitations on the contract that any conflict of interest would have:

- Would it be a conflict of interest that NRC could only contract with an organization that has an NRC- or Agreement State-license for possession, storage, transfer, and disposal of radioactive material?

  All potential contractors would be required to have a valid license (or subcontract with a licensee), in order to conduct the activities described in the process of responding to an orphan source. Can NRC enter in a contract with an organization who would be required to have, and maintain, a license from NRC or an Agreement State that authorized the activities specifically required in the contract (i.e., could NRC enter in an orphan source contract with someone

NRC licensed to perform the activities specified in the orphan source contract)? Does it matter, in the conflict of interest considerations, that any potential contractors would have equal conflicts ---- that is, that all potential contractors would have to obtain and maintain an NRC or Agreement State license for these activities? Does it matter, in the conflict of interest considerations, whether the licensee is an NRC licensee vs. an Agreement State licensee (i.e., would an Agreement State licensee have a lessor conflict)? Would a DOE laboratory have the same conflict of interest issues, or would a DOE laboratory be a preferable contractor, from a conflict of interest perspective?

- Would it be a conflict of interest if NRC were the licensing authority over the contractor(s), and processed an application for amendment to the contractor's license in order to provide the contractor with a specific authorization determined to be necessary to handle a unique situation with an orphan source response for which NRC directed it to respond under NRC's contract?

  If unique situations occurred that were unanticipated such that the contractor(s) did not have the appropriate license authorizations to recover and properly disposition an "orphan source," a contractor would need to obtain a license amendment to obtain the appropriate authorization(s) prior to responding for NRC. It is very possible that the contractor could be licensed by the NRC, and would need to submit its license amendment application to NRC. For instance, NRC may need the contractor to recover, analyze, and appropriately disposition a rare nuclide that is not authorized in the contractor's license. The contractor would need to apply for an amendment, possibly to NRC, to receive the particular nuclide before taking action under the contract. Would it be a conflict of interest for NRC to accept, process, and act on the contractor's license amendment application? If this is a conflict of interest, how would this limit the activities of the license reviewer, the contract project manager (PM) or technical monitor (TM), and their supervisors? For example: could the license reviewer contact the PM or TM concerning the amendment request (e.g., for clarifications or confirmations); could the TM, PM, or their management, request expedited review of the request based on health and safety concerns; could the TM or PM provide any technical assistance to the license reviewer? If OGC determines that this process does present a conflict of interest, can OGC recommend an alternative process to remove or minimize the conflict of interest?

- Would it be a conflict of interest if, because of the use of this contract, it is perceived that NRC is not performing its legislated duty of providing for the protection of the public health and safety through the established processes of regulation, licensing, inspection, and enforcement?

  NRC's enforcement process provides a number of tools at its disposal (CAL's, Orders, etc.) for requiring licensees who loose control over their material to attempt to locate it and/or to recover it and regain its control. If an orphan source is found and NRC's contractor recovered it and identified its model number and serial number, we would expect that either NRC, the Agreement State, or the contractor would make an attempt to track down the responsible

party. If a responsible party is not found, but it is apparent that the material likely was at one time licensed by NRC or an Agreement State, it could present the perception, or be an actuality, that NRC is paying for the disposal of material for one of NRC's licensees. In addition, the contractor and NRC staff may feel that they have exhausted all likely avenues for identifying the responsible party, but it may be perceived by members of the public or other licensees that these efforts were not sufficient. Finally, in some cases, it may at some point become a greater expense (to NRC) to track down the responsible party than to just have the contractor recover and provide a proper disposition of the material, or it may be initially apparent that tracking down the responsible party would be a futile or highly costly endeavor. In these cases, are the potential conflict of interest issues resolvable, including perceived conflicts? If they cannot be resolved, does that bar establishment of such a contract?

- If the contractor is requested to respond to an orphan source at a facility where there is also other radioactive material that does not meet the definition of an orphan source containing AEA materia , but the facility desires that the additional material be dispositioned as well; would it be a conflict of interest (for either the NRC, the contractor, or the facility) if the facility contracts with the NRC orphan source contractor to perform these other disposal, decommissioning, or decontamination activities?

  A contractor who would have the appropriate capabilities to perform the orphan source disposition process would likely have decommissioning and decontamination capabilities as well, and have ongoing work in these areas. The contractor may also have contract arrangements directly with facilities to remove and dispose of an orphan source independent of NRC's contract activities (such as NORM or NARM sources). In order for this contract to be effective, it may require contractors in different locations throughout the country and it may be necessary to have contractors with differing specialized capabilities in order to handle unusual situations that may occur. Both of these conditions increase the potential for the contractor(s) to be involved in identical or related work at facilities that NRC would direct the contractor to respond to an orphan source. This is especially true at facilities, such as scrap recyclers, that may encounter various types of radioactive materials, including orphan sources containing AEA and non-AEA material, on a regular basis.

3) Could NRC be considered as the generator of the orphan source material such that NRC would be listed on the disposal permit as the generator?

Radioactive waste shipments to a licensed disposal site require application for and issuance of a disposal permit before the material will be accepted for disposal. The permit requires that the generator of the material be listed, and the application for the permit be signed by the generator. In the case where material is found in the public domain, or a responsible party is not identified, there would not be an identifiable generator to list on the permit. In all cases, the waste handlers and brokers have indicated to us in conversations that they would be unable to be listed as the generator on the permit. In the case where material is found on private property, the owner of the

property may be listed as the generator, but past experience has shown that these persons are reluctant to do so. If another party could not be found that could, or would agree to be listed as the generator of the material, NRC may need to be listed as the generator. In a letter dated April 16, 1993, from Stephen H. Lewis to Robert S. Faron, the issue of whether NRC could take title to, and transfer title of, an "orphan source" (in this case it was described as abandoned radioactive material) to DOE for the purposes of a DOE contractor removing the material and dispositioning the material in accordance with the contract, was discussed. The radioactive material involved in this case was considered to meet the definition of an orphan source; control of the material was uncertain and the material presented a potential health and safety threat (see letter to DOE, dated December 7, 1992, requesting assistance with the disposition of the material). Based on the interpretation discussed in the April 13, 1993, letter, it would seem that if NRC is able to take title to material, NRC could also be considered as the generator of the material for disposal purposes.

4) If NRC could be considered as the generator of the orphan source material for disposal purposes, would there be any restrict ons as to whom within NRC could be authorized to sign the permit application, and if so, what are the restrictions?

Applications for a disposal permit require that an authorized representative of the generator sign the permit application. Who could be considered an authorized representative of the NRC -- as the generator of the material -- would be an important issue as it may determine if an orphan source recovery process would be efficient. It would seem that essentially, the person signing the disposal permit application would be authorizing transfer of NRC owned material to the licensed disposal facility.

5) Could the contractor respond to orphan sources containing non-AEA radioactive materials under any situations?

The orphan source issue is not limited to AEA material, and involves NARM in a large majority of situations. In addition, the response to an orphan source may include commingled material, such that it could not be separated into AEA and non-AEA material, or may contain separate discrete AEA and non-AEA material sealed sources that are contained in the same device or other container, but could be separated by removal from the device or container. Informal discussions with OGC indicate that a orphan source contract could not include NARM material since the regulation and oversight of NARM material is not covered under NRC's statutory authority.

In situations where AEA material and NARM are commingled or contained in separate discrete sources in the same device or container, could NRC's contractor recover and properly disposition all the material or would the contractor be limited to only dealing with the AEA material? If the contractor was limited to only dealing with the AEA material, could the contract authorize the contractor to separate the material and properly disposition only the AEA material, or would the separation need to be completed before the contractor could respond? If the material was commingled such that it could not, in all practicality, be separated into its AEA material and NARM components, could the contractor be allowed to dispose of all the material, or would this prohibit the contractor from responding? NRC practice has been that when material is

commingled, NRC continues to have certain regulatory authority over the material. In addition, certain isotopes, such as Cadmium-109, may be either AEA material or NARM, depending on whether they were produced in a reactor or in an accelerator. For orphan sources containing these types of isotopes, if the material's origin could not be traced to its method of production, could the contractor be authorized to recover and properly disposition the material, or would it have to be assumed that the material was NARM and not be covered by the contract?

6) Would the sale of an orphan source to an authorized recipient through the contractor be a disposition option available to the NRC, and if so, what are the options available to NRC concerning the disposition of the proceeds from the sale of such material?

Several State programs have "orphan source" contracts in place where they have a contractor recover and package the material, but the State takes possession of the material, pending an ultimate disposition. In many cases, the State solicits bids for the material as an alternative to its disposal. Discussions with waste brokers and handlers indicate that the option of selling the material to another licensee is, in many cases, the best disposition alternative due to high disposal costs or the lack of other disposition options. It is envisioned that NRC would employ this alternative, if available, but that the transaction would be handled through the orphan source contractor temporarily storing the material and attempting to find other interested parties willing to purchase it. If an interested party was found and purchased the material, would NRC be required to recover, or be barred from recovering, these funds, or could the contract be written such that these funds would go to the contractor or towards defraying the costs of the contractor's orphan source recovery activities? Or is this whole avenue of disposition (i.e., re-sale of orphan sources with the proceeds either going to the contractor, to the contractor to defray contract activities, or to NRC) prohibited under a potential contract?

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

APR 16 1993

Docket No. 030-00320
License No. 24-05592-01
Docket No. 999-90003
Non-Licensee
EA 92-172

Robert S. Faron, Esq.
Deputy Assistant General Counsel for Environment
United States Department of Energy
GC-11, 1000 Independence Avenue, S.W.
Washington, DC 20585

Dear Mr. Faron:

SUBJECT: ST. JOSEPH RADIOLOGY ASSOCIATES, INC. AND JOSEPH L. FISHER, M.D.; ABANDONMENT OF LICENSED MATERIALS

This letter relates to discussions between NRC and DOE regarding the retrieval of an abandoned cobalt-60 source and the head, if the shield contains depleted uranium, in a teletherapy unit on the premises of Joseph L. Fisher, M.D. at 702 Jules Street, St. Joseph, Missouri. DOE agreed to assist the NRC in effectuating the retrieval of these materials and, to that end, entered into a contract with Neutron Products, under which Neutron Products would remove the cobalt source and the head from Dr. Fisher's premises. Neutron Products, a licensee of an Agreement State (Maryland), is authorized to possess these types of materials and to retrieve these materials, provided it files a Form 241 with the NRC.

In the course of our discussions, you advised us of a request by Neutron Products that it receive clear title to the radioactive materials in question. As reflected in the enclosed letter (Enclosure 1) from James Lieberman, Director of the NRC's Office of Enforcement, to Dr. Fisher, and the Declaration of Transfer of Clear Title to U.S. Department of Energy, executed by Dr. Fisher on April 6, 1993 (Enclosure 2), the Licensee for these materials, St. Joseph Radiology Associates, Inc., is defunct and has abandoned the cobalt unit, which includes the materials identified above. Further, Dr. Fisher disclaims any "vested interest" in the teletherapy unit. Based upon discussions among NRC, DOE and Neutron Products, the NRC understands that the above documents satisfy the concerns of Neutron Products and of DOE regarding assuring that Neutron Products can acquire clear title to these materials.

In a previous conversation in which you and I participated, I informed you that the NRC had earlier determined that it has the authority to acquire title to abandoned radioactive material and to thereafter convey such title to DOE for purposes of having a DOE contractor retrieve such material and take such steps regarding the disposition of that material as the contract may permit and are in

accordance with applicable statutes and regulations. The statutory basis for that authority is section 161g of the Atomic Energy Act (42 U.S.C. 2201g), which provides in pertinent part, that:

> In the performance of its functions, the Commission is authorized to--
>
> > acquire...personal property...as agent of and on behalf of the United States...and to sell, lease, grant, and dispose of such personal property as provided in this Act.

Senate Report 93-980, regarding S.2744 (the Energy Reorganization Act), dated June 27, 1974, provides (at p. 84) that the authority conferred under section 161g was conveyed to both the NRC and DOE.

If you have any further questions regarding this matter, do not hesitate to contact either Mr. Lieberman or me.

Sincerely,

Stephen H. Lewis

Stephen H. Lewis
Senior Supervisory
Enforcement Attorney

Enclosures (2): As stated

cc with enclosures: Francis Kreysa, Esq.
Neutron Products

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON D C 20555

DEC 07 1992

U.S. Department of Energy
ATTN: Ms. Jill E. Lytle
Deputy Assistant Secretary
for Waste Management
Environmental Restoration
and Waste Management
Washington, D.C. 20585

Dear Ms. Lytle:

We are requesting the assistance of the Department of Energy (DOE) to store or dispose of a teletherapy sealed source containing approximately 600 curies of cobalt-60. This source is currently in the possession of Dr. Joseph L. Fisher who does not have a current license to possess byproduct material and has not filed an application for a license for this material. The source and associated teletherapy unit were previously covered under a license held by St. Josepn Radiology Associates, Inc., of which Dr. Fisher was a partial owner and which no longer exists as a legal entity. On October 16, 1992, the enclosed Nuclear Regulatory Commission Order (Effective Immediately) was issued to Dr. Fisher which required him to transfer the byproduct material to an authorized recipient within 45 days from the date of the Order. Dr. Fisher claims to be experiencing financial difficulties and has stated that he does not have sufficient funds to dispose of the source and as of the date of this letter has not transferred the byproduct material to an authorized recipient. Additionally, Dr. Fisher has claimed that he does not actually possess the byproduct material and denies responsibility for the byproduct material. Also enclosed for your information is a copy of the Atomic Safety and Licensing Board's denial of Dr. Fisher's October 22, 1992, request to set aside the immediate effectiveness of the Order.

Since control of the sources cannot be ensured, they must be removed from Dr. Fisher's possession as soon as possible to protect public health and safety. Attempts to find another licensee willing to take possession of the material have been unsuccessful. Additionally, our Regional Office does not have facilities to accommodate the sources. We believe that the situation with Dr. Fisher (St. Joseph Radiology Associates, Inc., and Fisher Radiological Clinic) meets the conditions specified by Mr. Leo P. Duffy in his letter of April 7, 1991, for emergency storage by DOE.

The exact location of the source can be obtained from Mr. Charles Norelius of our Region III Office. His phone number is (708) 790-5510. I am enclosing some additional information about the source and teletherapy unit for your information.

Your attention to this matter is greatly appreciated. If I can be of any assistance, please call me at (301) 504-3426.

Sincerely,

Richard E. Cunningham, Director
Division of Industrial and
Medical Nuclear Safety
Office of Nuclear Material Safety
and Safeguards

Enclosures: As stated

COST ESTIMATES FOR CONTRACT OPTIONS

The annual frequency of orphan source incidents is the most important factor in estimating the cost of any orphan source contract option, including options involving responses to only a portion of the orphan source incidents, or options involving U.S. Nuclear Regulatory Commission (NRC) funding of the Conference of Radiation Control Program Directors (CRCPD) Committee on Unwanted Radioactive Material's (E-34 Committee's) program. Unfortunately, the annual frequency of orphan source incidents is not known. The reasons that the regulatory community does not know the number of orphan source incidents occurring each year include: 1) some orphan source incidents are resolved but are never reported by the facility that receives the orphan source; 2) not all State and Federal agencies' reports of orphan source incidents are easily accessible or searchable, due in part to some organizations maintaining only written incident records; 3) orphan source incidents are not reported to a single national database; 4) reports listed in available databases may not be characterized for easy identification as orphan source incidents; and 5) there is not a common understanding in the regulatory community on what constitutes an "orphan source." A centralized and standardized national database of orphan sources, such as has been proposed by CRCPD for the Nuclear Material Events Database (NMED), would help to more accurately track orphan sources.

For planning purposes, the staff can provide a rough estimate of the cost of an orphan source contract program that would enable a contractor to take possession of, and arrange for, proper transfer or disposal of orphan sources. The staff's estimate is only a gross approximation, that is probably accurate to within a couple hundred thousand dollars. If the Commission directs the staff to proceed with an orphan source contract program, the staff will attempt to refine the estimate further (e.g., through more detailed discussions with waste handlers and brokers and with State radiation control program offices having experience with orphan source contractors, and based on the E-34 Committee's experience in developing the pilot program). Information necessary to further refine the estimate is not easily available, as discussed above. Developing a more accurate estimate would require additional effort; and will depend, in part, on State radiation control programs providing the necessary orphan source information to NRC. The staff believes that spending further resources to refine the estimate, before the Commission directed the staff to proceed further with a contract option, would not be consistent with the Commission's direction.

Based on the staff's limited experience in dealing with orphan source contractors, and information gained from currently available data, the staff estimates that the annual costs of an orphan source contract program would be approximately:

30 orphan sources/year x $15,000 per orphan source = $450,000/year

In arriving at this cost estimate, the staff made numerous assumptions regarding the number of orphan sources that would be addressed annually under the contract, the types of orphan sources involved, the average cost per orphan source response action, the contractors' costs of maintaining adequate response capabilities for different types of response actions and in different geographic areas, and the source disposition options available to the contractor.

Without firm data on the annual frequency of orphan source incidents, the staff relied on currently available data, such as NMED, State databases of scrap metal incidents in the U.S., and past orphan source incidents involving a request for Federal assistance. Based on this data, the staff expects that an NRC orphan source contractor could be requested to respond to 20 to 30 orphan source incidents per year (assuming only Atomic Energy Act (AEA) material in non-Agreement states). However, the actual number of incidents will vary from year to year. The number of incidents that would occur in the first-year would likely be in the higher range, because some existing orphan sources await disposition. In addition, the number of orphan source cases involving requests for NRC-contractor assistance could increase once the availability of NRC's contract becomes well known (i.e., States and non-licensees could request NRC assistance for orphan source cases that they are now resolving on their own).

Based on discussions with waste brokers and waste handlers that have performed orphan source recoveries in the past, the costs for such recoveries have ranged between $3000 and $20,000 per source, depending on the location and resources needed to respond. Staff used a value of $15,000 per source, to account for the increased costs of maintaining response capabilities for broad geographic areas and for rapid response, higher handling costs associated with sources that may be damaged or difficult to recover, and higher costs caused by the limitations on disposition options. For instance, a hypothetical orphan source recovery case may involve paying for the contractor to fly, on short notice, personnel and equipment to the incident location; conduct surveys and an analysis of the source; safely package the source; arrange for transport to a disposal location or waste processor; arrange for, and dispose of, the source at a licensed burial site; obtain the appropriate applications and authorizations from NRC; and document the whole process. The costs could quickly increase into the thousands of dollars, even for the most basic of sources or incidents. Again, the accuracy of this estimate is completely dependent on the number of orphan source incidents that occur each year, disposition options available and their associated costs, the type and condition of each orphan source involved in an incident, and the time allowed for the contractor to prepare and respond to each incident.

If the contract covered less than the total number of orphan source incidents that occurred in a single year, or if orphan source recoveries were deferred from one year to the next, the contract costs would drop. Similarly, if the contractor was permitted disposition options other than disposal at a low-level waste facility (e.g., transfer to an authorized recipient), then contract costs may also drop. Obviously, if the number of orphan source incidents rose, then the contract costs would also rise. The staff expects that, as existence of an NRC orphan source recovery contract program becomes more widely known, and services are more widely requested, the contract costs would increase. Additionally, if non-Agreement States who currently have orphan source recovery programs discontinue their programs, in favor of relying on NRC's orphan source contract, then the adverse impact would push up costs of NRC's program. As increased or decreased cost trends are identified, the staff would revise the funding requirements for an orphan source contract program.

The E-34 Committee has not developed an estimate of the level of funding necessary for implementation and continued operation of the E-34 Committee's program. However, assumptions similar to those made about an NRC contract can be made about the E-34 Committee's program. The E-34 Committee's program would likely not have the same limitations as an NRC contractor would have, which could reduce the average cost per orphan

source response. In addition, a national orphan source recovery program, versus independent programs conducted by NRC and each Agreement State, may lead to program efficiencies that could result in lower costs. However, the additional administrative burden of ensuring that NRC funds be applied only to AEA material would increase overhead costs for the program, possibly negating any savings from the E-34 Committee's program option.

To estimate an appropriate NRC share of this national program, the staff used the assumption that NRC would be responsible for only the portion of the program costs applicable to incidents that occur in NRC jurisdiction (i.e., non-Agreement States and Federal facilities) and involve AEA material (i.e., the same subset of incidents that an NRC contractor would be expected to respond to). Because the number of orphan source cases covered by NRC's contract would be roughly the same, under either NRC's own program or the E-34 Committee's program, then NRC's funding of the E-34 Committee program would be expected to be the same as the estimate for an NRC contract program: approximately $450,000 per year. Accordingly, the E-34 Committee's program would require additional funding from the Agreement States to cover that portion of the program that would be applicable to orphan source incidents involving AEA material occurring in Agreement State jurisdictions.

In reality, it is unlikely that all Agreement States would participate, or Agreement States would urge NRC to accept more of the funding burden, which would drive up NRC's costs. Also, NRC is limited to funding only AEA material disposition costs, whereas the States would need to fund all naturally occurring or accelerator-produce radioactive material orphan source recoveries. Nevertheless, funding CRCPD to implement the E-34 Committee's national orphan source program offers certain advantages over the other contract options.

(4)

POLICY ISSUE
(Information)

NOTE: SENSITIVE INFORMATION -- LIMITED TO NRC UNLESS THE COMMISSION DETERMINES OTHERWISE

January 17, 2002

SECY-02-0013

FOR: The Commissioners

FROM: William D. Travers
Executive Director for Operations

SUBJECT: ISSUES CONCERNING SELF-LUMINOUS TRITIUM CONSUMER PRODUCTS

PURPOSE:

This paper informs the Commission of staff plans to address issues related to distribution of self-luminous tritium consumer products.

BACKGROUND:

In SECY-01-0020, dated February 2, 2001, the staff discussed the U.S. Nuclear Regulatory Commission (NRC) policy on self-luminous tritium consumer products, in the context of a review of a license application requesting authorization to distribute flashlights with self-luminous tritium markers. In the Staff Requirements Memorandum (SRM) dated February 21, 2001, the Commission approved the staff's position that the tritium marker would not be considered a frivolous use. As discussed in SECY-01-0020, the staff requested comments from the Agreement States on this specific application of a self-luminous tritium product. Some of the State comments raised broader concerns about existing consumer products, as well as potential proliferation of new products. The staff is proceeding to complete the review of the license application.

CONTACT: Anthony Kirkwood, NMSS/IMNS
(301) 415-6140

NOTE: SENSITIVE INFORMATION -- LIMITED TO NRC UNLESS THE COMMISSION DETERMINES OTHERWISE

In addition, the staff has received numerous reports and allegations of unauthorized distribution and sales of self-luminous tritium products, some of which occurred in Agreement States. At the Commission meeting with the Organization of Agreement States (OAS) and the Conference of Radiation Control Program Directors (CRCPD) on August 15, 2001, the State of California representative expressed concern about unauthorized Internet sales of radioactive material, which also highlighted inconsistencies between the U.S. and other countries with respect to regulation of tritium consumer products. In light of such reports and allegations and Agreement State concerns, the staff has broadened its review of issues related to the regulation of
self-luminous tritium consumer products.

DISCUSSION:

1. Unauthorized Distribution of Self-luminous Tritium Consumer Products

   The staff has received numerous reports and allegations of unauthorized sales of self-luminous tritium consumer products on the Internet. The staff determined that the majority of the products, "Glowrings," were from the United Kingdom (UK), where domestic distribution is apparently authorized. The "Glowring" key ring contains approximately 17 gigabecquerels (GBq) [460 millicuries (mCi)] of tritium. After consultation with the Office of International Programs, the staff initiated informal telephone contacts with UK regulatory staff and the foreign manufacturer of the "Glowrings" to determine how these items were being distributed. After learning that U.S. regulations do not permit distribution of radioactive consumer products for frivolous purposes, the UK distributor stated that it will no longer ship the key rings to the U.S. In addition, the NRC and Agreement State staff contacted the U.S. Internet sellers by telephone, informed them that their activity was illegal, requested that they stop the sale of these items, and confirmed these discussions with formal letters. The staff does not plan any further enforcement action unless distribution by the sellers continues.

   In response to these incidents of unauthorized distribution of self-luminous tritium consumer products through sales over the Internet, the NRC staff, California, and Illinois have contacted Ebay, a major California Internet auction site, and asked Ebay to stop the sale of illegal radioactive material on its site. The State of California sent an October 1, 2001, Cease and Desist Order (Attachment) to Ebay directing them to stop facilitating the unauthorized distribution of radioactive material. In response to these contacts, Ebay is placing restrictions on its site which are designed to prevent unauthorized distribution of illegal radioactive material.

   With respect to unauthorized distribution of tritium consumer products, the staff's response has taken into consideration the low health risk posed by these products, as well as the importance of maintaining both public confidence and the integrity of NRC regulatory requirements. The staff has considered broad-based, resource intensive responses such as a moratorium or recall of tritium consumer products; a surveillance program to intercept illegal receipt and distribution of these types of products; and discussions with other countries to standardize regulations. However, because the health risk to the public from the types of consumer products that are similar in nature to the "Glowring" key chains is very low, we believe it is inappropriate to expend resources in this manner. Instead, the

staff will continue to respond to allegations or other specific reports of unauthorized distribution and sale of radioactive material on a case-by-case basis, coordinating with the states as appropriate. We will modify this approach should we become aware of new information that warrants a broader approach and coordinate with the states as appropriate.

2. Concerns Related to Authorized Distribution of Tritium Consumer Products

SECY-01-0020 discussed an application for an exempt distribution license for tritium markers in flashlights. The proposed flashlight markers contain a total of approximately 1.6 GBq (42 mCi) of tritium in two sources. The staff concluded that the flashlights with the tritium markers were not contrary to 10 CFR 30.19(c)(i.e., were not a frivolous use of a self-luminous product). In the Staff Requirements Memorandum dated February 21, 2001, the Commission agreed with this conclusion.

As indicated in SECY-01-0020, the staff solicited comments from the Agreement States on this particular application. We received comments from five states. Only one State thought the use of tritium markers in flashlights was frivolous, since certain designs of flashlights, such as light phosphorescent types, can be located in the dark without the use of radioactive material. The staff's information on the type of flashlights mentioned by the State, as well as those that have battery-operated locator lights, indicated that these types of flashlight markers would only illuminate for a short duration, whereas self luminous tritium markers would illuminate for years. The staff maintains its position that the proposed use of this particular consumer product is not frivolous and is currently completing its review of the license application on that basis.

Several of the States responding to our request for comments expressed broader concerns about tritium consumer products. The States noted that breakage and subsequent contamination from such consumer products may cause an increase in public concern, and require a resource-intensive response from radiation safety officials, despite the low health risk to the public. Because of this, some States are concerned generally about increased proliferation of consumer products containing radioactive material, although most did not have specific concerns with this particular application. In SECY-01-0020, the staff also identified this issue, and stated that we would carefully consider the safety issues of radiological risk and proliferation.

In light of State and NRC staff concerns with increased proliferation and illegal distribution of self-luminous tritium consumer products, the staff plans to review self-luminous product applications for exempt distribution with added emphasis on 10 CFR 32.22(b), which states, ". . . the Commission may deny an application for a specific license if the end uses of the product cannot be reasonably foreseen." For example, the staff has reviewed exempt "personal markers." When originally authorized, these "personal markers" contained 4.4 GBq (120 mCi) of tritium and were described as being used for friend/foe determination in military or police night operations. The one exempt distribution license issued for this product in 1997 was terminated this year at the request of the U.S. licensed distributor. The foreign manufacturer of this product recently requested its own exempt distribution license in order to resume distribution and sales, but because of the above considerations, the staff reassessed its previous licensing position on "personal markers."

This was because their design consists simply of a self-luminous tritium source fastened to a small plastic holder and could, after initial licensed distribution, conceivably be used in a fashion not originally reviewed and authorized by NRC. For example, a toy manufacturer could buy "personal markers," and distribute them as a novelty. For these reasons, the staff does not plan to license the exempt distribution of "personal markers" again.

3. Considerations Related to Terrorist Threats

The staff has considered the distribution of self-luminous tritium consumer products in light of the current terrorist threat environment. Tritium is a low-hazard radionuclide, and the tritium products contain low quantities, 1-100 GBq (2.7-270 mCi). Because of the very low health risk, the staff does not believe that additional restrictions on tritium consumer products are warranted based on the current threat environment.

This paper contains sensitive information regarding allegation and enforcement, and should not be released to the public.

COORDINATION:

The Office of the General Counsel has reviewed this paper and has no legal objection.

/RA/

William D. Travers
Executive Director
for Operations

in order to resume distribution and sales, but because of the above considerations, the staff reassessed its previous licensing position on "personal markers." This was because their design consists simply of a self-luminous tritium source fastened to a small plastic holder and could, after initial licensed distribution, conceivably be used in a fashion not originally reviewed and authorized by NRC. For example, a toy manufacturer could buy "personal markers," and distribute them as a novelty. For these reasons, the staff does not plan to license the exempt distribution of "personal markers" again.

3. Considerations Related to Terrorist Threats

The staff has considered the distribution of self-luminous tritium consumer products in light of the current terrorist threat environment. Tritium is a low-hazard radionuclide, and the tritium products contain low quantities, 1-100 GBq (2.7-270 mCi). Because of the very low health risk, the staff does not believe that additional restrictions on tritium consumer products are warranted based on the current threat environment.

This paper contains sensitive information regarding allegation and enforcement, and should not be released to the public.

COORDINATION:

The Office of the General Counsel has reviewed this paper and has no legal objection.

/RA/
William D. Travers
Executive Director
for Operations

ADAMS Accession: ML010790026
C:\MYFILES\CHECKOUT\SECY-01-XXXXGLOWRING_NO10_INFOPAPER.WPD
*: See previous concurrence
**: No legal objection via E-mail

OFC	MSIB	E	NMSS/Ed		MSIB		MSIB		IMNS	
NAME	ASKirkwood*		EKraus via fax		SCoffin*		JHickey*		DCool* JHickey for	
DATE	12/03/01		12/ 05 /01		12/04 /01		12/ 07 /01		12/ /01	

OFC	OSTP		OGC		OE		NMSS		DEDMRS	
NAME	PLohaus		STreby (by phone, NLO)		SMerchant for FCongel via Email		MVirgilio		CPaperiello	
DATE	12/ /01		12/ /01		12/ 11 /01		12/17/01		01/16/02	

OFC	EDO									
NAME	WTravers									
DATE	01/17/02									

C-COVER E-COVER & ENCLOSURE N-NO COPY
OFFICIAL RECORD COPY

NOTE: SENSITIVE INFORMATION - LIMITED TO NRC UNLESS THE COMMISSION DETERMINES OTHERWISE

OFFICIAL USE ONLY

NOTE: SENSITIVE INFORMATION – LIMITED TO NRC UNLESS THE COMMISSION DETERMINES OTHERWISE

POLICY ISSUE
INFORMATION

July 22, 2005 SECY-05-0129

FOR: The Commissioners

FROM: Luis A. Reyes
Executive Director for Operations

SUBJECT: STAFF PLANS TO ADDRESS AN ANTICIPATED SHORTAGE OF SPACE IN THE WHITE FLINT COMPLEX

PURPOSE:

To inform the Commission of the staff's plans to address an anticipated shortage of office space in the White Flint Complex (WFC).

BACKGROUND:

In April 2003, the Office of Administration (ADM) developed a space optimization plan for TWFN in anticipation of staff increases projected for FY 2004 through FY 2006. The plan involved the re-configuration of staff offices and support space on seven of the nine office floors in TWFN. The initial plan provided for construction of an additional 160 staff workstations in TWFN to accommodate growth in NSIR and NMSS. As of July 1, 2005, ADM had completed approximately 115 of the planned 160 additional workstations. The remaining 45 workstations will be completed by the end of FY 2005. Attachment 1 provides a list of the staff's space optimization efforts.

Despite these space optimization efforts, the amount of vacant, occupiable space in the WFC fell to a low of 4 percent during the summer of 2004 as a result of Agency growth and the arrival of approximately 60 summer hires. This shortage of space created operational inefficiencies as new employees had to be assigned workstations that were not contiguous to their work groups. The summer space "crunch" dissipated as students went back to school and additional workstations became available as a result of the ongoing space optimization effort in TWFN. However, office FTE projections indicated that this relief would be temporary and that the shortage of space would worsen at Headquarters (HQ) through FY 2006 and FY 2007.

CONTACT: Kathryn O. Greene, ADM/DFS
(301) 415-6222

OFFICIAL USE ONLY
May be exempt from public release under the Freedom of information Act (5 U.S.C. 552)

Exemption number 4
Nuclear Regulatory Commission review required before release.
Kathryn Greene, ADM
Name and organization of person making determination.

Date of Determination June 30, 2005

OFFICIAL USE ONLY

During the same time period, staff also explored the potential benefits of telecommuting as another opportunity to achieve more efficient use of office space and as a potential long-term solution to Agency space shortage concerns. On July 9, 2004, the staff met with representatives from agencies that have successfully implemented telecommuting (General Services Administration, Patent and Trademark Office, Equal Employment Opportunity Commission, and Department of the Treasury) to discuss their experiences, lessons-learned, and recommended best practices for telecommuting programs. A working group has been formed to examine the array of telecommuting options (desk sharing, office sharing, hoteling, etc.), and will begin a pilot effort to implement some of those options.

ADM tracks space use in the WFC using a database of digitized drawings of every workstation coupled with an integrated descriptive database of information on occupancy and use of the space. This Space Planning System (SPS) is used to generate reports showing Office occupancy rates, location of vacant offices, and various statistical analyses of office and special space use by building, floor and office. The SPS is also used extensively for planning large and small changes to office and special space configurations.

In the summer of 2004, the staff acquired the services of an independent contractor to assess the adequacy of NRC's SPS and overall space utilization at the WFC. The contractor noted that NRC's vacancy rate for HQ should be at least 10 percent and preferably as high as 15 percent to allow for a sufficient amount of swing space. The report concluded that maintaining this level of vacancy would increase the efficiency of Agency operations by allowing contiguous assignment of space and providing enough space to accommodate reorganizations, summer hires, rotational assignments and special projects.

Although comparison among organizations is difficult because space measurement is inconsistent among the organizations surveyed[1], the contractor also compared NRC's space with existing data on several NIH facilities in the Maryland suburbs. The data showed that NRC had the lowest average office size per person (96 sq. ft. vs. 107, 101, and 108), the lowest amount of circulation space per person (51 sq. ft. vs. 58, 56, and 57), and the highest amount of special space[2] per person (50 sq. ft. vs. 28, 28, and 26). Since the assessment was completed, the amount of special space per person has been reduced somewhat as a result of converting Library and File Center space into workstations, and further reductions in the amount of special space are being planned.

---

[1] U.S. General Services Administration, Office of Governmentwide Policy, Office of Real Property, *Real Property Performance Results*, December 2002.

[2] Special space includes space such as the auditorium, cafeteria, library, fitness center, conference rooms, health center, day care center, copy rooms, file rooms, credit union, exhibit area, and computer center.

DISCUSSION:

By the end of FY 2005, ADM's program to build new workstations will be completed and will bring the total number of workstations in the WFC to approximately 2,630. This number of workstations will accommodate the 2,289 FTE (FY 2005 FTE level) plus approximately 140 workstations needed for essential contractor support. It will also provide sufficient "swing space" (vacant offices) to support reorganizations, rotations, summer hires, and task force activities. This space optimization initiative will exhaust most of the opportunities for creating additional offices in the WFC without significantly impacting space used for other activities. Constructing a significant number of additional workstations within the WFC would require downsizing offices from the existing standards and further reducing special space including conference rooms. Such an effort would be disruptive and expensive, especially in view of the lack of sufficient "swing space" in either building to house displaced staff during the workstation reconfiguration and downsizing. Attachment 2 contains a list of special space in the WFC, along with the potential impact of relocating the activity offsite.

The staff estimates the maximum occupancy for the WFC to be approximately 2,350 FTE, allowing for a 5.5 percent vacancy rate and retaining the current level of onsite contractor staff. Although this vacancy rate is significantly lower than the desired level of "swing space" (10 percent) and will create some operational inefficiencies, the staff believes it is manageable. The Chairman's proposed FY 2007 budget includes a projected increase of 196 HQ FTE above the FY 2005 HQ FTE ceiling. Therefore, the FY 2007 HQ FTE level will be 135 FTE above the maximum occupancy level.

Options Considered to Address Space Shortage in the WFC

The staff considered a variety of options to address both the short- and long-term office space shortages in the WFC. These are discussed below:

Make More Effective Use of Special Space

There are some opportunities in the WFC to make more effective use of special space, including the Professional Development Center (PDC), the Library, the Supply Store and conference rooms. The utilization of these spaces would avoid a large scale move of program staff that would interfere with accomplishing agency work and would create several vacant and contiguous spaces that could be re-configured with minimal disruption to staff.

The PDC occupies approximately 10,100 square feet of space on the third floor of TWFN. Moving the PDC to an offsite location would permit the construction of approximately 90 workstations on the 3rd floor of TWFN.

The size of the Library was reduced in FY 2005 by about 1,000 square feet to accommodate additional workstations as part of the ongoing WFC space optimization plan. The Library currently occupies approximately 5,700 square feet on the second floor of TWFN. Although further reducing the size of the Library would permit the construction of additional workstations, and may be considered in the future, no further changes to the Library are recommended at this time.

ADM plans to implement efficiencies in the supply activity, which will reduce the size of the Supply Store, making it possible to relocate the store without reducing services. Relocating the Supply Store from its present location would provide an optimum location for the approximately 30 document processing contractors currently on the 6th floor of OWFN, freeing up needed space for expansion of the Office of Nuclear Reactor Regulation and enhancing operational efficiency for the Document Processing Center (DPC).

During FY 2006, the staff also plans to remove temporary workstations from conference rooms and recover several of these rooms for general meeting room use. The staff is also exploring the use of adjacent offsite conference room space for conducting meetings.

Rent Additional Offsite Space to House NRC Staff

ADM queried the GSA on the availability of nearby office space comparable in quality to space in the WFC. GSA identified several locations within a half-mile radius that may meet NRC criteria for offsite office space where the NRC could create 150 additional workstations. GSA also identified space located 1.5 miles north of the WFC on Rockville Pike that is being vacated by the Food and Drug Administration and will be under lease by GSA through February 2009. Relocating there would provide the benefits of reduced cost of a long-term lease, along with the flexibility of consolidating NRC assets located outside the WFC complex in the FY 2008 or FY 2009 time frame to a more optimum location.

Move Onsite Contractors Out of the Complex

There are about 170 contractors occupying the equivalent of approximately 140 workstations in office space in the WFC, mostly supporting computer operations. Moving many of these contractors would not be feasible for operational reasons because it would substantially affect their ability to deliver needed services. For example, the efficiency of the DPC contractor operations is highly dependent on its location and accessibility to mail and office staff.

Plans to Provide Adequate Office Space Through FY 2007

Based on the Chairman's proposed FY 2007 Budget and the potential for additional funding to support security and new reactor licensing in FY 2006, the staff developed two scenarios. Scenario A assumes HQ FTE remain at the level contained in the Chairman's FY 2007 Budget. Scenario B assumes that NRC receives additional funding and HQ FTE to support security and new reactor licensing activities in FY 2006.

Scenario A

	FY 2005	FY 2006	FY 2007
HQ FTE	2,289	2,327	2,485
HQ FTE Growth		38	158

The staff intends to take the following steps with funds available in FY 2006 and FY 2007 to ensure that there is an adequate amount of office space for NRC employees in the WFC through FY 2007. The proposed items specified below along with the modifications to be accomplished by the end of FY 2005 will achieve a vacancy level of approximately 5.5 percent through FY 2007, assuming that NRC headquarters adds approximately 135 FTE above the maximum occupancy level of 2,350.

1. Move the PDC from TWFN 3rd floor to GSA space 1.5 miles north on Rockville Pike (3,500 feet from Twinbrook metro station) or another suitable site in the Rockville area by June 2006. Construct approximately 90 workstations on the TWFN 3rd floor. In order to occupy new workstations on the TWFN 3rd floor during the first quarter of FY 2007, NRC would have to submit space requirements to GSA no later than August 2005.

2. Continue to more efficiently use space within the WFC by building additional workstations in other available space. We estimate that about 20 additional workstations can be added without changing the office space standards or having a significant impact on amenities for staff. The staff will also continue to monitor use of office space for contractors to ensure use is reasonable, necessary and cost effective.

3. Relocate the DPC contractors from the OWFN 6th floor to the current Supply Store location. This will free up 30 workstations on OWFN 6th floor in FY 2007. ADM is exploring options for reducing Supply Store space through the use of automation. Based on the results of that analysis, ADM will identify a suitable location for the Supply Store on the P-1, lobby level, or second floor of OWFN.

Scenario B

	FY 2005	FY 2006	FY 2007
HQ FTE	2,289	2,406	2,485
Additional HQ Growth		117	79

The anticipated receipt of additional resources for new reactor licensing and security related work would result in approximately 117 additional HQ FTE in FY 2006. The staff anticipates an additional 20 onsite contractors in FY 2006 above the current occupancy level, based on office

projections at this time. If the additional resources are approved by Congress, the actions outlined above would need to be accelerated to accommodate this growth in FY 2006.

RESOURCES:

Table I contains the resources needed for Items 1 - 3 above.

Table I

	FY 2005	FY 2006		FY 2007	
Item	**Action**	**Cost**	**Action**	**Cost**	**Action**
1. Move PDC offsite and construct 90 workstations (WS) on T-3	Submit offsite space requirement of approx. 10, 000 s.f. to GSA in August 2005	$ 675K - ADM[3] $ 420K - OIS $1,095K	Move PDC offsite in June 2006 and begin construction on T-3	$ 850K - ADM $ 407K - OIS $1,257K	Move staff into 90 WS on T-3 in December 2006
2. Construct an additional 20 WS throughout WFC		$ 50K - ADM $ 58K - OIS $108K	Construct 10 additional WS in January 2006	$ 50K - ADM $100K[4] - OIS $150K	Construct 10 additional WS in January 2007
3. Relocate DPC to P1 and relocate and reduce size of the Supply Store			Identify new location for Supply Store in September 2006	$350K - ADM $153K - OIS $503K	Relocate Supply Store in January 2007. Relocate DPC to P-1 in April 2007.
Total		$ 725K - ADM $ 478K - OIS $1,203K		$1,250K - ADM $ 660K - OIS $1,910K	

Total resources for Items 1, 2 and 3 for FY 2006 are $725,000 for ADM and are included within ADM's FY 2006 budget. OIS' FY 2006 budget does not include the $478,000 required to complete these plans. However, there are sufficient resources in the additional FY 2006 funding currently being considered by Congress to cover this need.

[3]Assumes 4 months rent in FY 2006.

[4]Cost based on 20 new workstations being supported under seat management.

In FY 2007, the total resources for Items 1, 2 and 3 are $1,250,000 and 2 FTE for ADM and $660,000 and 6 FTE for OIS. Both the ADM and OIS FY 2007 budgets contain the necessary resources to implement this plan. The FY 2007 budget includes $4.5M for space and infrastructure to address uncertainties in the new reactor applications and associated growth in FY 2008 and beyond. Given those uncertainties, the CFO and I recommend no changes to our FY 2007 space planning budget at this time.

COORDINATION:

The Office of the Chief Financial Officer has reviewed this paper for resource implications and has no objections. The Office of the General Counsel has reviewed this paper and has no legal objection.

/RA/

Luis A. Reyes
Executive Director
for Operations

Attachments:
1. WFC Space Optimization Plan
2. WFC Special Space

Total resources for Items 1, 2 and 3 for FY 2006 are $725,000 for ADM and are included within ADM's FY 2006 budget. OIS' FY 2006 budget does not include the $478,000 required to complete these plans. However, there are sufficient resources in the additional FY 2006 funding currently being considered by Congress to cover this need.

In FY 2007, the total resources for Items 1, 2 and 3 are $1,250,000 and 2 FTE for ADM and $660,000 and 6 FTE for OIS. Both the ADM and OIS FY 2007 budgets contain the necessary resources to implement this plan. The FY 2007 budget includes $4.5M for space and infrastructure to address uncertainties in the new reactor applications and associated growth in FY 2008 and beyond. Given those uncertainties, the CFO and I recommend no changes to our FY 2007 space planning budget at this time.

COORDINATION:

The Office of the Chief Financial Officer has reviewed this paper for resource implications and has no objections. The Office of the General Counsel has reviewed this paper and has no legal objection.

/RA/

Luis A. Reyes
Executive Director
for Operations

Attachments:
1. WFC Space Optimization Plan
2. WFC Special Space

ADAMS ACCESSION No. ML051810591 (package)
ML051810562 (memo)
ML051810580 (attachment 1)
ML051960400 (attachment 2)

To receive a copy of this document, indicate in the box: "C" = Copy without attachment/enclosures "E" = Copy with attachments/enclosures "N" = No copy *See previous concurrence **via e-mail

OFFICE	ADM/DFS		D/ADM		OIS		HR		OGC	
NAME	KOGreene		TFHagan		JSchaeffer for EBaker**		JMcDermott**		SBurns**	
DATE	07/ /05		07/ /05		07/15/05		07/15/05		07/14/05	

OFFICE	CFO		DEDIA		EDO	
NAME	BFicks for LBarnett**		JESilber		LAReyes	
DATE	07/15/05		07/21/05		07/ 22/05	

OFFICIAL RECORD COPY

X SISP Review Complete _____ SISP Review Needed
This document should be placed in ADAMS:
This document should not be made available to the PUBLIC: KOG (Name or Initials) 06/17/05 (Date)
This document is SENSITIVE:

Summary

White Flint Complex Space Optimization Initiatives

December 2003 - Converted 4,000 square feet of file room space to construct 42 workstations.

June 2003 - Moved the Document Processing Contractor off the 4th floor and reconfigured this floor to accommodate NSIR and reconfigure workstations.

May 2004 - Substantially reconfigured the 8th floor to add 25 workstations. This included the removal of a small SCIF on this floor.

May 2004 - Constructed 42 workstations in 7 conference rooms to mitigate the effect of bringing on board summer hires. As of early June 2005, 38 of these workstations were occupied to support the persons displaced by construction in TWFN.

August - September 2004 - An assessment and analysis of the adequacy of the NRC Space Planning System and space utilization at NRC Headquarters was performed by our contractor, McManis & Monsalve Associates. This assessment showed we have a good infrastructure to monitor space usage, verified that we are using space effectively, and concluded that our occupancy levels were higher than preferred.

September 2004 - Substantially reconfigured the 9th floor to move the CFO Office Director and Staff from OWFN.

March 2005 - Expanded the computer center on the 5th floor by 4,000 square feet and moved in 35 OIS contractors, consolidating the Network Operations Center, the help desk, and the Computer Test Facility.

April - June 2005 - Demolished the Computer Test Facility (2,000 sq. ft.) and several other spaces on the 2nd floor of TWFN (including removing 1,000 sq. ft. of library space) to construct 35 additional workstations.

August 2005 - Developed plan to reconfigure several areas on the 6th floor to add 10 workstations. (ongoing)

Attachment 1

Special Space in the White Flint Complex

Area	Square Footage	Impact on NRC Staff of Relocating Space Off Site
Professional Development Center	10,100	Inconvenient to staff. Additional cost to provide shuttle service.
Supply Store	3,900	Delays in receiving required supply items.
Health Center	2,700	Potential impact on timely response to employee health and safety issues. Major component of mandatory employee wellness program. Reduces recruitment incentives. May contribute to higher employee absences.
Library	5,700	Already reduced by 1,000 s. f. in FY 2005.
Computer Center	5,300	Already reduced by 900 s. f. to consolidate OIS functions and gain 34 workstations in FY 2005.
Exhibit Area	2,900	Not conducive for office space due to high ceiling and cost to convert a unique area.
Cafeteria	5,000	Reduces recruitment incentives. Negative impact on employee moral.

Attachment 2

Area	Square Footage	Impact on NRC Staff of Relocating Space Off Site
Fitness Center	5,500	Reduces recruitment incentives. Not conducive for office space due to high ceiling and cost to convert a unique area. Negative impact on employee moral.
File Room	3,800	Already reduced by 4,000 s. f. to consolidate OIS functions and gain 45 workstations.
Day Care Center	9,600	Reduces recruitment incentives. Not conducive for office space due to cost to convert a unique area. Negative impact on employee morale.

13

POLICY ISSUE
NOTATION VOTE

July 29, 2005 SECY-05-0137

FOR: The Commissioners

FROM: Luis A. Reyes
Executive Director for Operations

SUBJECT: PROPOSED REVISED ABNORMAL OCCURRENCE CRITERIA

PURPOSE:

To obtain Commission approval of the draft revised abnormal occurrence (AO) criteria for the staff of the U.S. Nuclear Regulatory Commission (NRC) and Agreement States to use in identifying potential abnormal occurrences.

BACKGROUND:

In a Commission paper (SECY-04-0046), entitled "Fiscal Year [FY] 2003 Report to Congress on Abnormal Occurrences," dated March 18, 2004, the staff forwarded a draft of the AO report for 2003 (NUREG-0090, Volume 26) for Commission review and approval. In that Commission paper, the staff stated its intent to consider additional changes to the AO criteria in the future.

The staff of the Office of Regulatory Research (RES) subsequently established a working group in May 2004 to facilitate review of the existing criteria and determine whether any changes were warranted. That working group included representatives of RES and the NRC's Offices of Nuclear Reactor Regulation (NRR), Nuclear Material Safety and Safeguards (NMSS), Nuclear Security and Incident Response (NSIR), and State and Tribal Programs (STP), as well as the NRC's four regional offices. Working together, these representatives evaluated and revised the AO criteria to ensure that each criterion is consistent with the NRC's Strategic Plan for FY2004-2009, the Performance Measures and Metrics for FY2005-2006, and the NRC's recent rulemaking on Title 10 CFR Part 35, "Medical Use of Byproduct Material."

CONTACT: Stephanie P. Bush-Goddard, RES
(301) 415-6293

E-4

DISCUSSION:

Section 208 of the Energy Reorganization Act of 1974 (Public Law 93-438) defines an AO as an unscheduled incident or event that the NRC deems significant from the standpoint of public health or safety. This definition establishes the agency's statutory requirement for identifying and classifying events. The criteria established fall into the following categories:

I. For All Licensees
II. For Commercial Nuclear Power Plant Licensees
III. For Fuel Cycle Facilities
IV. For Medical Licensees
V. Other Events of Interest

As a result of its review, the staff proposes a change to the existing criteria to better align the AO criteria with the NRC Strategic Plan and Performance Measures. In proposing these changes, the staff has developed a proposed new structure for the criteria as follows:

I. For All Licensees
II. For Commercial Nuclear Power Plant Licensees
III. For All Transportation Events and Events at Facilities Other than Nuclear Power Plants
IV. Other Events of Interest

Re-structuring the categories better supports the changes made in the individual criteria and minimizes duplication that would be required if the existing categories were used. The proposed AO criteria are listed in Attachment 1 and the existing AO criteria are provided in Attachment 2. The remainder of this section identifies and discusses the specific changes to the AO criteria.

SECTION I, "FOR ALL LICENSEES"

Criterion B in Section I is entitled, "Discharge or Dispersal of Radioactive Material from Its Intended Place of Confinement at Fixed Facilities." This criterion is intended to capture significant events associated with the discharge or dispersal of radioactive material from license facilities. The staff proposes the following changes to the current criterion.

The first proposed change to Criterion 1.B.1 is to add the phase, "This does not include transportation events," to the end of the criterion. The staff proposes this change to clarify that the activity concentrations provided in Table 2 of Appendix B to 10 CFR Part 20 pertain to effluent releases at fixed facilities but not to transportation events. The second proposed change is to delete the current section, Criterion I.B.2., in its entirety to prevent confusion with the reporting thresholds for transportation-related events. The staff believes the existing criteria (Attachment 2) are sufficient to cover transportation events.

Criterion C in Section I is entitled, "Theft, Diversion, or Loss of Licensed Material, or Sabotage or Security Breach." This criterion is intended to capture significant security events. The staff proposes two changes to this criterion.

The first proposed change to Criterion I.C.1. resulted from a staff requirements memorandum (SRM), entitled "Discussion of Intergovernmental Issues," dated August 21, 2003. In that SRM, the Commission directed the staff to move forward with tracking radioactive sources that if abandoned, unsecured, unrecovered, or stolen could be used for malicious purposes to cause harmful health effects. The International Atomic Energy Agency (IAEA) described these high-risk sources and their activity thresholds in its draft TECDOC-1344, entitled "Categorization of Radioactive Sources." That document provides the supporting technical basis for the IAEA's Code of Conduct on the Safety and Security of Radioactive Sources, as listed in Categories 1 and 2 of Table 1 to the Code. The Commission has since codified these requirements in Appendix P to 10 CFR Part 110, "High-Risk Radioactive Material, Category 2," and plans to issue a Regulatory Information Summary, "RIS-2005-XX, Clarification of the Reporting Requirements in 10 CFR 20.2201," to clarify the reporting requirements for recovery of sources in accordance with the 10 CFR Part 20, "Standards for Protection Against Radiation." Consistent with the Commission's direction, the proposed change to the security AO criterion would require the NRC to report to Congress any events involving unrecovered losses or thefts of risk-significant sources if the quantities exceed the thresholds specified in Appendix P to 10 CFR Part 110, "High-Risk Radioactive Material, Category 2." Lost sources would be considered as "unrecovered losses" until they decay to below Category 2 thresholds or until they are recovered, whichever occurs first. In FY 2006, the Commission plans to complete the National Source Tracking System rulemaking and these AO criteria may be revisited at that time.

The second proposed change to Criterion I.C. is to add new language (as Criterion I.C.5) that would require the NRC to report to Congress any significant events involving unauthorized disclosures of classified and/or safeguards information that caused harm to national security. Currently, AO criteria do not speak to unauthorized disclosures of classified and/or safeguards information that could assist potential terrorists. The proposed wording would apply to any person, including NRC employees, whether or not affiliated with an NRC licensee, who discloses safeguards information or material, and/or classified information or material.

Criterion D in Section I is currently entitled, "Other Events (i.e., Those Concerning Design, Analysis, Construction, Testing, Operation, Use, or Disposal of Licensed Facilities or Regulated Materials)." This criterion was intended to capture other events not specifically identified in Criterion's A, B and C of Section I, "For All Licensees."

As the revised criteria for nuclear power plants are very similar to the events described under this existing criterion, the staff proposes to move this criterion from Section I, "For All Licensees," to a new section identified as, Section III, "For Facilities Other Than Nuclear Power Plants," under Subcriterion A, "For All Licensees Other Than Nuclear Power Plants."

The staff proposes a new Criterion D, in Section I, entitled, "Initiation of High-Level NRC Team Inspections," to capture significant operational events not covered under other criteria. This would ensure a more effective means to identify a "significant" incident while connecting the criteria to NRC actions such as Accident Review Groups and Incident Investigation Teams. The staff believes these proposed changes will yield consistent, more predictable, and less subjective results than the current criteria.

SECTION II, "FOR COMMERCIAL NUCLEAR POWER PLANT LICENSEES"

This section, entitled, "For Commercial Nuclear Power Plant Licensees," specifies criteria that are intended to capture significant safety events at commercial nuclear power plant facilities. The staff proposes to delete the current criteria in this section and replace them with new criteria that are based on the number and significance of NRC inspection findings and licensee performance indicators.

The proposed changes are consistent with those used for reporting to Congress in NRC's annual Performance Budget (NUREG-1100), and Performance and Accountability Report (NUREG-1542). Furthermore, the proposed changes integrate the various strategic planning, budgeting, and reporting processes; risk-inform the existing deterministic criteria; and ensure agency follow-up of issues reported to Congress.

Specifically, the proposed Criterion II.A includes any events or conditions evaluated by the NRC's Accident Sequence Precursor (ASP) program to have a conditional core damage probability (CCDP) given an occurrence of an initiating event or an increase in the core damage probability (CDP) due to a degraded condition of plant equipment of greater than $1x10^{-3}$. Such events have a probability of greater than 1 in 1000 (10^{-3}) of leading to a reactor accident involving core damage. An identical condition affecting more than one plant is counted as a single ASP-event if a single accident initiator would have resulted in a single reactor accident. Additionally, Criterion II.A also includes any conditions evaluated by the NRC's Reactor Oversight Process (ROP) to be Red, as described in NRC Management Directive 8.13, "Reactor Oversight Process." This includes any Red findings or Red performance indicators.

In addition, the proposed Criterion II.B includes any plants that are determined to have overall unacceptable performance, or that are in a shutdown condition as a result of significant performance problems and/or operational events, as described in NRC-Inspection Manual Chapter 0350, "Oversight of Operating Reactor Facilities in a Shutdown-Condition with Performance Problems."

SECTION III, "FOR FACILITIES OTHER THAN NUCLEAR POWER PLANTS"

Section III entitled, "For Facilities Other Than Nuclear Power Plants," is intended to capture significant safety and security events at all facilities other than nuclear power plants, including fuel cycle and medical facilities.

Criterion A in Section III is unchanged from the existing criterion, but was moved from the current Section I, D, as previously discussed.

Criterion B in Section III is intended to capture significant safety and security events at fuel cycle facilities. The proposed changes are intended to risk-inform the existing criterion to be commensurate with hazard, likelihood, and consequences. As such, the proposed criterion envelops NRC's regulated radiological and chemical hazards, is consistent with licensing and the certification bases, and aligns them with regulatory reporting requirements.

Criterion C in Section III is intended to capture significant safety events involving medical licensees. Changes proposed here are discussed below.

The first proposed change involves adding language to increase the dose threshold for gonads from 1 Gy (100 rads) to 2.5 Gy (250 rads). This is consistent with the recommendations of the International Commission on Radiological Protection (ICRP), as stated in Publication 60, "1990 Recommendations of the ICRP," that a dose range of 2.5 Gy (250 rads) to 6 Gy (600 rads) to the ovaries causes permanent sterility. By corollary, the dose range to the testes causing permanent sterility is 3.5 to 6.0 Gy (350 rads to 600 rads). This proposed change would ensure that the NRC would report to Congress only significant events with permanent adverse health effects.

The second proposed changed is to add the phrase "or tissue" to capture events involving structures that may not be considered organs (e.g., blood vessels). Doses used for therapeutic purposes in treating disease customarily approach or exceed the tolerance of normal tissue and are intended to kill cells. With this in mind, the staff proposes to modify the medical criterion to acknowledge the introduction of evolving therapeutic treatment procedures that deliver high radiation doses to localized portions of an organ or tissue with potential for significant injury to the patient.

The third change would capture events in which the administered dosage is at least 50 percent greater than prescribed, regardless of whether a written directive was required. The staff believes it is important to capture all patient administrations of byproduct materials that significantly exceeded the intended dose. Furthermore, the staff believes this change to the AO criteria can be made within the existing regulatory framework (i.e., without the need to amend the medical event criteria in 10 CFR Part 35.)

The fourth change is to add the term "unsealed byproduct material" to align the AO criteria with the language in 10 CFR Part 35, "Medical Use of Byproduct Material."

Finally, the fifth proposed change would capture events in which a significant administration of byproduct material was delivered to the wrong individual or human research subject. The staff believes it is important to capture these types of events for inherent safety reasons, and also to align the AO criteria with the medical event criteria in 10 CFR Part 35.

SECTION IV, "OTHER EVENTS OF INTEREST"

The staff proposes to amend the current Section V, entitled, "Other Events of Interest." This section (now Section IV) discusses events that do not meet the AO criteria but have been perceived by Congress or the public to be of high health and safety significance, have received media coverage, or have caused the NRC to increase its attention to or oversight of a program area, including a group of similar events that have resulted in licensed materials entering the public domain in a uncontrolled manner. The proposed change is to include examples of events that could be included in this area to facilitate identification of appropriate items to include.

COORDINATION:

The Office of the General Counsel has reviewed the proposed changes and has no legal objections.

RECOMMENDATION:

The staff recommends that the Commission authorize publication of the proposed Policy Statement for public comment. This proposed Policy Statement revises the AO criteria that the NRC would use to determine abnormal occurrences. A Federal Register Notice soliciting comment on the proposed criteria is provided as Attachment 3.

/RA/

Luis A. Reyes
Executive Director
For Operations

Attachments:
1. Draft Abnormal Occurrence Criteria and Guidelines for Other Events of Interest
2. Current Abnormal Occurrence Criteria and Guidelines for Other Events of Interest
3. Abnormal Occurrence Reports: Implementation of Section 208 of the Energy Reorganization Act of 1974; Revised Policy Statement

RECOMMENDATION:

The staff recommends that the Commission authorize publication of the proposed Policy Statement for public comment. This proposed Policy Statement revises the AO criteria that the NRC would use to determine abnormal occurrences. A Federal Register Notice soliciting comment on the proposed criteria is provided as Attachment 3.

/RA/

Luis A. Reyes
Executive Director
For Operations

Attachments: 1. Draft Abnormal Occurrence Criteria and Guidelines for Other Events of Interest
2. Current Abnormal Occurrence Criteria and Guidelines for Other Events of Interest
3. Abnormal Occurrence Reports: Implementation of Section 208 of the Energy Reorganization Act of 1974; Revised Policy Statement

Package No.: ML051790402; Att 1: ML051660502; Att2: ML051660519 Att3: ML051670190

E:\Filenet\ML051660483.wpd *SEE PREVIOUS CONCURRENCE
OAR in ADAMS? (Y or N) Y ADAMS ACCESSION NO.: ML051660483 TEMPLATE NO. SECY-012
Publicly Available? (Y or N) N DATE OF RELEASE TO PUBLIC N/A SENSITIVE? Y
To receive a copy of this document, indicate in the box: "C" = Copy without enclosures **"E"** = Copy with enclosures **"N"** = No copy

OFFICE	*DSARE		*DSARE		*Tech Editor		*D/DSARE		D/RES	
NAME	SBush-Goddard:jf		CTrottier		PGarrity		FEltawila		CPaperiello	
DATE	6 / 14 /05		6 / 14 /05		6 / 10 /05		6 /29 /05		6 / /05	
OFFICE	*D/NRR		*D/NMSS		*D/OSTP		*D/NSIR		*OGC	
NAME	JDyer		JStrosnider		PLohaus		RZimmerman		KCyr	
DATE	6 / 21 /05		6 / 24 /05		6 / 23 /05		6/ 28 /05		6 / 27 /05	

OFFICE	*CFO		ADM		EDO	
NAME	JFunches		MLesar		LReyes	
DATE	6/ 21 /05		07/27/05		07/29/05	

DRAFT ABNORMAL OCCURRENCE CRITERIA AND GUIDELINES FOR OTHER EVENTS OF INTEREST

Criteria by types of events used to determine which events will be considered for reporting as AOs are as follows:

I. For All Licensees.

A. Human Exposure to Radiation from Licensed Material

1. Any unintended radiation exposure to an adult (any individual 18 years of age or older) resulting in an annual total effective dose equivalent (TEDE) of 250 mSv (25 rem) or more; or an annual sum of the deep dose equivalent (external dose) and committed dose equivalent (intake of radioactive material) to any individual organ other than the lens of the eye, bone marrow, and the gonads, of 2,500 mSv (250 rem) or more; or an annual dose equivalent to the lens of the eye, of 1 Sv (100 rem) or more; or an annual sum of the deep dose equivalent and committed dose equivalent to the bone marrow, and the gonads, of 1 Sv (100 rem) or more; or an annual shallow-dose equivalent to the skin or extremities of 2,500 mSv (250 rem) or more.

2. Any unintended radiation exposure to any minor (an individual less than 18 years of age) resulting in an annual TEDE of 50 mSv (5 rem) or more, or to an embryo/fetus resulting in a dose equivalent of 50 mSv (5 rem) or more.

3. Any radiation exposure that has resulted in unintended permanent functional damage to an organ or a physiological system as determined by a physician.

B. Discharge or dispersal of radioactive material from its intended place of confinement which results in the release of radioactive material to an unrestricted area in concentrations which, if averaged over a period of 24 hours, exceeds 5,000 times the values specified in Table 2 of Appendix B to 10 CFR Part 20, unless the licensee has demonstrated compliance with § 20.1301 using § 20.1302 (b) (1) or § 20.1302 (b) (2) (ii). This does not include transportation events.

C. Theft, Diversion, or Loss of Licensed Material, or Sabotage or Security Breach[1]

1. Any unrecovered lost, stolen, or abandoned sources that the Commission has determined to be risk significant (exceeds the values listed in Appendix P to Part 110, "High Risk Radioactive Material, Category 2"). Excluded from

---

1 Information pertaining to certain incidents may be either classified information or material or safeguards information or material under consideration for classification because of national security implications. Classified information will be withheld when formally reporting these incidents in accordance with Section 208 of the ERA of 1974, as amended. Any classified or safeguards information details regarding these incidents would be available to the Congress, upon request, under appropriate security arrangements.

reporting under this criterion are those events involving sources that are lost, stolen, or abandoned under the following conditions: sources abandoned in accordance with the requirements of 10 CFR 39.77(c); sealed sources contained in labeled, rugged source housings; recovered sources with sufficient indication that doses in excess of the reporting thresholds specified in AO criteria I.A.1 and I.A.2 did not occur during the time the source was missing; and unrecoverable sources (sources that have been lost and a reasonable attempt at recovery has been made without success) lost under such conditions that doses in excess of the reporting thresholds specified in AO criteria I.A.1 and I.A.2 were not known to have occurred and the agency has determined that the risk of theft or diversion is acceptable.

2. A substantiated case of actual or attempted theft or diversion of licensed material or sabotage of a facility.

3. Any substantiated loss of special nuclear material or any substantiated inventory discrepancy that is judged to be significant relative to normally expected performance, and that is judged to be caused by theft or diversion or by substantial breakdown of the accountability system.

4. Any substantial breakdown of physical security or material control (i.e., access control containment or accountability systems) that significantly weakened the protection against theft, diversion, or sabotage.

5. Any significant unauthorized disclosures (loss or theft) of classified[2] and/or safeguards information.

D. Initiation of High Level NRC Team Inspections.[3]

II. For Commercial Nuclear Power Plant Licensees

A. Any reactor events or degraded plant conditions that are determined to be of high safety significance.[4]

---

2 Due to increased terrorist activities worldwide, the AO report would not disclose specific classified information or material or safeguards information or material and details considered useful to potential terrorists. Classified information or material or safeguards information or material is defined as information that would harm national security if disclosed in an unauthorized manner.

3 Initiation of any Incident Investigation Teams, as described in NRC Management Directive (MD) 8.3, "NRC Incident Investigation Program," or initiation of any Accident Review Groups, as described in MD 8.9, "Accident Investigation."

4 Any conditions evaluated by the NRC's Reactor Oversight Process (ROP) to be Red, as described in NRC Management Directive 8.13, "Reactor Oversight Process." In general, Red inspection findings are included in the fiscal year in which the final significance determination was made, and Red performance indicators are included in the fiscal year in which the NRC's external web page for the ROP was updated to show the Red indicator. Additionally, Criterion II.A also includes any events or conditions evaluated by the NRC's Accident Sequence Precursor (ASP) program to have a conditional core damage probability (CCDP) or change in the core damage probability (CDP) of greater than $1x10^{-3}$. An identical condition affecting more than one plant is counted as a single ASP-event if a single indicator would have resulted in a single reactor accident.

B. Any operating reactor plants that are determined to have overall unacceptable performance, or that are in a shutdown condition as a result of significant performance problems and/or operational event(s).[5]

III. For All Transportation Events and Events at Facilities Other than Nuclear Power Plants

A. Events Concerning Design, Analysis, Construction, Testing, Operation, Transport, Use, or Disposal of Licensed Facilities or Regulated Materials

1. An accidental criticality [10 CFR 70.52(a)].

2. A major deficiency in design, construction, control, or operation having significant safety implications requiring immediate remedial action.

3. A serious safety-significant deficiency in management or procedural controls.

4. Series of events (where individual events are not of major importance), recurring incidents, and incidents with implications for similar facilities (generic incidents) that create a major safety concern.

B. For Fuel Cycle Facilities

1. Absence/failure of all safety-related or security-related controls (engineered and human) for an NRC regulated lethal hazard (radiological or chemical) while the lethal hazard is present.

2. An NRC ordered safety-related or security-related immediate remedial action.

C. For Medical Licensees

A medical event that:

1. Results in a dose that is

a. equal to or greater than 1Gy (100 rad) to a major portion of the bone marrow, or to the lens of the eye; or 2.5 Gy (250 rad) to the gonads; or
b. equal to or greater than 10 Gy (1,000 rad) to any other organ or tissue; and

2. Represents either

---

5 Any plants assessed by the ROP to be in the unacceptable performance column, as described in NRC Inspection Manual Chapter 0305, "Operating Reactor Assessment Program." This assessment of safety performance is based on the number and significance of NRC inspection findings and licensee performance indicators.

a. a dose or dosage that is at least 50 percent greater than that prescribed, or
b. a prescribed dose or dosage that
    (i) is the wrong radiopharmaceutical or unsealed byproduct material; or
    (ii) is delivered by the wrong route of administration; or
    (iii) is delivered to the wrong treatment site; or
    (iv) is delivered by the wrong treatment mode; or
    (v) is from a leaking source or sources; or
    (vi) is delivered to the wrong individual or human research subject.

IV. Other Events of Interest

The Commission may determine that events other than AOs maybe of interest to Congress and the public and should be included in an appendix to the AO report as "Other Events of Interest." Guidelines for events to be included in the AO report for this purpose may include, but not necessarily be limited to, events that do not meet the AO criteria but that have been perceived by Congress or the public to be of high health and safety significance, have received significant media coverage, or have caused the NRC to increase its attention to or oversight of a program area, or a group of similar events that have resulted in licensed materials entering the public domain in an uncontrolled manner. Examples include 1.) any significant adverse trends in industry safety performance, 2.) the initiation of an Augmented Inspection Team per MD 8.3., or 3.) any plant that enters the Multiple/Repetitive Degraded Cornerstone Column of the ROP Action Matrix.

CURRENT ABNORMAL OCCURRENCE CRITERIA AND GUIDELINES FOR OTHER EVENTS OF INTEREST

An accident or event will be considered an abnormal occurrence (AO) if it involves a major reduction in the degree of protection of public health or safety. This type of incident or event would have a moderate or more severe impact on public health or safety and could include, but need not be limited to, the following:

(1) Moderate exposure to, or release of, radioactive material licensed by or otherwise regulated by the Commission;

(2) Major degradation of essential safety-related equipment; or

(3) Major deficiencies in design, construction, use of, or management controls for facilities or radioactive material licensed by or otherwise regulated by the Commission.

The following criteria for determining an AO and the guidelines for "Other Events of Interest" were stated in an NRC policy statement published in the *Federal Register* on December 19, 1996 (61 FR 67072). The policy statement was revised to include criteria for gaseous diffusion plants and was published in the *Federal Register* on April 17, 1997 (62 FR 18820).

Note that in addition to the criteria for fuel cycle facilities (Section III of the AO criteria) that are applicable to licensees and certificate holders, such as the gaseous diffusion plants, other criteria that reference "licensees," "licensed facility," or "licensed material" also may be applied to events at facilities of certificate holders.

The guidelines for including events in Appendix C "Other Events of Interest" of this report were provided by the Commission in the Staff Requirements Memorandum on SECY-98-175, dated September 4, 1998, and are listed at the end of this Appendix.

Abnormal Occurrence Criteria

Criteria by types of events used to determine which events will be considered for reporting as AOs are as follows:

I. For All Licensees

A. Human Exposure to Radiation from Licensed Material

1. Any unintended radiation exposure[1] to an adult (any individual 18 years of

---

1 An unintended radiation exposure for the purpose of reporting as an AO includes any occupational exposure, exposure to the general public, or exposure as a result of a medical event involving the wrong patient that exceeds the reporting values established in the regulation. All other reporting medical events will be considered for reporting as an AO under the criteria "For Medical Licensees."

In addition, unintended radiation exposures includes any exposure to a nursing infant, fetus, or embryo as a result of an exposure (other than an occupational exposure to an undeclared pregnant woman) to a nursing mother or pregnant woman.

age or older) resulting in an annual total effective dose equivalent (TEDE) of 250 mSv (25 rem) or more; or an annual sum of the deep dose equivalent (external dose) and committed dose equivalent (intake of radioactive material) to any individual organ other than the lens of the eye, bone marrow, and the gonads, of 2,500 mSv (250 rem) or more; or an annual dose equivalent to the lens of the eye, of 1 Sv (100 rem) or more; or an annual sum of the deep dose equivalent and committed dose equivalent to the bone marrow, and the gonads, of 1 Sv (100 rem) or more; or an annual shallow-dose equivalent to the skin or extremities of 2,500 mSv (250 rem) or more.

2. Any unintended radiation exposure to any minor (an individual less than 18 years of age) resulting in an annual TEDE of 50 mSv (5 rem) or more, or to an embryo/fetus resulting in a dose equivalent of 50 mSv (5 rem) or more.

3. Any radiation exposure that has resulted in unintended permanent functional damage to an organ or a physiological system as determined by a physician.

B. Discharge or Dispersal of Radioactive Material from its Intended Place of Confinement

1. The release of radioactive material to an unrestricted area in concentrations which, if averaged over a period of 24 hours, exceeds 5,000 times the values specified in Table 2 of Appendix B to 10 CFR Part 20, unless the licensee has demonstrated compliance with § 20.1301 using § 20.1302 (b) (1) or § 20.1302 (b) (2) (ii).

2. Radiation levels in excess of the design values for a package, or the loss of confinement of radioactive material resulting in one or more of the following: (a) a radiation dose rate of 10 mSv (1 rem) per hour or more at 1 meter (3.28 feet) from the accessible external surface of a package containing radioactive material; (b) a radiation dose rate of 50 mSv (5 rem) per hour or more on the accessible external surface of a package containing radioactive material and that meet the requirements for "exclusive use" as defined in 10 CFR 71.47; or (c) release of radioactive material from a package in amounts greater than the regulatory limits in 10 CFR 71.51(a)(2).

C. Theft, Diversion, or Loss of Licensed Material, or Sabotage or Security Breach[2]

1. Any lost, stolen, or abandoned sources that exceed 0.01 times the A_1 values, as listed in 10 CFR Part 71, Appendix A, Table A-1, for special

---

2 Information pertaining to certain incidents may be either classified or under consideration for classification because of national security implications. Classified information will be withheld when formally reporting these incidents in accordance with Section 208 of the ERA of 1974, as amended. Any classified details regarding these incidents would be available to the Congress, upon request, under appropriate security arrangements.

form (sealed/nondispersible) sources, or the smaller of the A_2 or 0.01 times the A_1 values, as listed in Table A-1, for normal form (unsealed/dispersible) sources or for sources for which the form is not known. Excluded from reporting under this criterion are those events involving sources that are lost, stolen, or abandoned under the following conditions: sources abandoned in accordance with the requirements of 10 CFR 39.77(c); sealed sources contained in labeled, rugged source housings; recovered sources with sufficient indication that doses in excess of the reporting thresholds specified in AO criteria I.A.1 and I.A.2 did not occur during the time the source was missing; and unrecoverable sources lost under such conditions that doses in excess of the reporting thresholds specified in AO criteria I.A.1 and I.A.2 were not known to have occurred.

2. A substantiated case of actual or attempted theft or diversion of licensed material or sabotage of a facility.

3. Any substantiated loss of special nuclear material or any substantiated inventory discrepancy that is judged to be significant relative to normally expected performance, and that is judged to be caused by theft or diversion or by substantial breakdown of the accountability system.

4. Any substantial breakdown of physical security or material control (i.e., access control containment or accountability systems) that significantly weakened the protection against theft, diversion, or sabotage.

D. Other Events (i.e., Those Concerning Design, Analysis, Construction, Testing, Operation, Use, or Disposal of Licensed Facilities or Regulated Materials)

1. An accidental criticality [10 CFR 70.52(a)].

2. A major deficiency in design, construction, control, or operation having significant safety implications requiring immediate remedial action.

3. A serious deficiency in management or procedural controls in major areas.

4. Series of events (where individual events are not of major importance), recurring incidents, and incidents with implications for similar facilities (generic incidents) that create a major safety concern.

II. For Commercial Nuclear Power Plant Licensees

A. Malfunction of Facility, Structures, or Equipment

1. Exceeding a safety limit of license technical specification (TS) [10 CFR 50.36(c)].

2. Serious degradation of fuel integrity, primary coolant pressure boundary, or primary containment boundary.

3. Loss of plant capability to perform essential safety functions so that a release of radioactive materials, which could result in exceeding the dose limits of 10 CFR Part 100 or 5 times the dose limits of 10 CFR Part 50, Appendix A, General Design Criterion (GDC) 19, could occur from a postulated transient or accident (e.g., loss of emergency core cooling system, loss of control rod system).

B. Design or Safety Analysis Deficiency, Personnel Error, or Procedural or Administrative Inadequacy

1. Discovery of a major condition not specifically considered in the safety analysis report (SAR) or TS that requires immediate remedial action.

2. Personnel error or procedural deficiencies that result in loss of plant capability to perform essential safety functions so that a release of radioactive materials, which could result in exceeding the dose limits of 10 CFR Part 100 or 5 times the dose limits of 10 CFR Part 50, Appendix A, GDC 19, could occur from a postulated transient or accident (e.g., loss of emergency core cooling system, loss of control rod system).

III. For Fuel Cycle Facilities

1. A shutdown of the plant or portion of the plant resulting from a significant event and/or violation of a law, regulation, or a license/certificate condition.

2. A major condition or significant event not considered in the license/certificate that requires immediate remedial action.

3. A major condition or significant event that seriously compromises the ability of a safety system to perform its designated function that requires immediate remedial action to prevent a criticality, radiological, or chemical process hazard.

IV. For Medical Licensees

A medical event that:

A. Results in a dose that is (1) equal to or greater than 1Gy (100 rad) to a major portion of the bone marrow, to the lens of the eye, or to the gonads, *or* (2) equal to or greater than 10 Gy (1,000 rad) to any other organ; and

B. Represents either (1) a dose or dosage that is at least 50 percent greater than that prescribed in a written directive or (2) a prescribed dose or dosage that (i) is the wrong radiopharmaceutical,[3] or (ii) is delivered by the wrong route of administration, or (iii) is delivered to the wrong treatment site, or (iv) is delivered by the wrong treatment mode, or (v) is from a leaking source or sources.

Guidelines for "Other Events of Interest"

The Commission may determine that events other than AOs may be of interest to Congress and the public and should be included in an appendix to the AO report as "Other Events of Interest." Guidelines for events to be included in the AO report for this purpose may include, but not necessarily be limited to, events that do not meet the AO criteria but that have been perceived by Congress or the public to be of high health and safety significance, have received significant media coverage, or have caused the NRC to increase its attention to or oversight of a program area, or a group of similar events that have resulted in licensed materials entering the public domain in an uncontrolled manner.

3 "The wrong radiopharmaceutical" as used in the AO criterion for a medical event refers to any radiopharmaceutical other than the one listed in the written directive or in the clinical procedures manual.

[7590-01-P]

U.S. NUCLEAR REGULATORY COMMISSION

ABNORMAL OCCURRENCE REPORTS: IMPLEMENTATION OF SECTION 208 OF THE ENERGY REORGANIZATION ACT OF 1974; REVISED POLICY STATEMENT

AGENCY: U.S. Nuclear Regulatory Commission.

ACTION: Issuance of Revised Policy Statement on Abnormal Occurrence Criteria and Solicitation of Comments.

SUMMARY: Section 208 of the Energy Reorganization Act of 1974 (Public Law 93-438) defines an abnormal occurrence (AO) as an unscheduled incident or event which the U.S. Nuclear Regulatory Commission (NRC) determines to be significant from the standpoint of public health or safety. This policy statement presents the revised AO criteria the NRC will use in submitting its annual report to Congress and the public. The AO criteria have been amended to ensure that each criterion is consistent with the NRC's Strategic Plan for Fiscal Year (FY) 2004–2009; the FY 2005–2006 Performance Measures and Metrics; and NRC rulemaking on Title 10, Part 35, of the Code of Federal Regulations (10 CFR Part 35), "Medical Use of Byproduct Material." Some sections of the AO criteria also have a revised structure and new titles. Restructuring the categories better supports the changes made in the individual criteria and minimizes duplication that would be required if the existing categories were used.

DATES: Submit comments by (insert date 90 days after publication in the Federal Register). Comments received after the above date will be considered if it is practicable to do so,

but assurance of consideration cannot be given to comments received after that date.

ADDRESSES: You may submit comments by any one of the following methods. Comments submitted in writing or electronic form will be made available for public inspection. Mail comments to: Secretary, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, ATTN: Rulemakings and Adjudications Staff. E-mail comments to: SECY@nrc.gov. If you do not receive a reply e-mail confirming that we have received your comments, contact us directly at (301) 415-1966. Hand deliver comments to: 11555 Rockville Pike, Rockville, Maryland 20852, between 7:30 a.m. and 4:15 p.m. on Federal workdays (telephone (301) 415-1966). Fax comments to: Secretary, U.S. Nuclear Regulatory Commission at (301) 415-1101.

Publicly available documents may be viewed electronically on the public computers located at the NRC's Public Document Room (PDR), One White Flint North, 11555 Rockville Pike, Room O1-F21, Rockville, Maryland. The PDR reproduction contractor will copy documents for a fee. The public can gain entry into the NRC's Agencywide Document Access and Management System (ADAMS) through the agency's public Web site at www.nrc.gov. This Web site provides text and image files of the NRC's public documents. If you do not have access to ADAMS or if there are problems in accessing the documents located in ADAMS, contact the NRC Public Document Room (PDR) Reference Staff at 1-800-397-4209, 301-415-4737 or by email to pdr@nrc.gov.

FOR FURTHER INFORMATION CONTACT: Sheryl Burrows, telephone: (301) 415-6086; e-mail: SAB2@nrc.gov; USNRC, Office of Nuclear Regulatory Research, Mail Stop T9-F31, Washington, DC 20555-0001.

A copy of the final supporting statement may be viewed free of charge at the NRC Public Document Room, One White Flint North, 11555 Rockville Pike, Room O-1 F21, Rockville, Maryland.

SUPPLEMENTARY INFORMATION:

I. Background

Section 208 of the Energy Reorganization Act of 1974 (Public Law 93-438) defines an abnormal occurrence (AO) as an unscheduled incident or event which the U.S. Nuclear Regulatory Commission (NRC) determines to be significant from the standpoint of public health or safety. The Federal Reports Elimination and Sunset Act of 1995 (Public Law 104-66) requires that AOs be reported to Congress annually. As required by Section 208, the discussion for each event includes the date and place, the nature and probable consequences, the cause or causes, and the action taken to prevent recurrence. The Commission also shall provide wide dissemination to the public of the information within 15 days of publishing the AO report to Congress.

Abnormal Occurrence Reporting

The AO statement of policy has been developed to comply with the legislative intent of Section 208 of the Energy Reorganization Act of 1974, as amended. It keeps Congress and the public informed of unscheduled incidents or events which the Commission considers significant from the standpoint of public health and safety. The policy reflects a range of health and safety concerns and is applicable to incidents and events involving a single individual, as well as those having overall impact on the general public. The Commission has established reporting thresholds at a level that will ensure that all events that should be considered for reporting to Congress will be identified. At the same time, the thresholds are generally above the normal level of reporting to NRC to exclude those events that involve some variance from regulatory limits, but are not significant from the standpoint of public health and safety.

Licensee Reports

This general statement of policy will not change the reporting requirements imposed on NRC licensees by Commission regulations, license conditions, or technical specifications (TS). NRC licensees will continue to submit required reports on a wide spectrum of events, including events such as instrument malfunctions and deviations from normal operating procedures that are not significant from the standpoint of the public health and safety, but do provide data useful to the Commission in monitoring operating trends of licensed facilities and in comparing the actual performance of these facilities with the potential performance for which the facilities were designed and/or licensed.

II. The Commission Policy: General Statement of Policy on Implementation of Section 208 of the Energy Reorganization Act of 1974, as Amended.

Applicability

Implementation of Section 208 of the Energy Reorganization Act of 1974, as amended, Abnormal Occurrence Reports, involves the conduct of Commission business and does not impose requirements on licensees or certified facilities. Reports will cover certain unscheduled incidents or events related to the manufacture, construction, or operation of a facility or conduct of an activity subject to the requirements of Parts 20, 30 through 36, 39, 40, 50, 61, 70, 71, 72 or 76 of Chapter I, Title 10, Code of Federal Regulations (10 CFR).

Through an exchange of information, Agreement States provide information to the NRC on incidents and events involving applicable nuclear materials that have occurred in their States. Those events reported by Agreements States that reach the threshold for reporting as an AO are also published in the "Report to Congress on Abnormal Occurrences."

Abnormal Occurrence General Statement of Policy

The Commission will apply the following policy in determining whether an incident or event at a facility or involving an activity that is licensed or otherwise regulated by the Commission is an AO.

An incident or event will be considered an abnormal occurrence (AO) if it involves a major reduction in the degree of protection of public health or safety. This type of incident or event would have a moderate or more severe impact on public health or safety and could include, but need not be limited to, the following:

(1) Moderate exposure to, or release of, radioactive material licensed by or otherwise regulated by the Commission;

(2) Major degradation of essential safety-related equipment; or

(3) Major deficiencies in design, construction, use of, or management controls for facilities or radioactive material.

Criteria by type of event used to determine which incident or events will be considered for reporting as AOs are set forth in Appendix A of this policy statement.

Commission Dissemination of AO Information

(1) The Commission will provide wide dissemination of information to the pubic.

(2) Each year, the Commission will submit a report to Congress listing for that period any AOs at or associated with any facility or activity which is licensed or otherwise regulated pursuant to the Atomic Energy Act of 1954, as amended, or the Energy Reorganization Act of 1974, as amended. This report will contain the date, place, nature, and probable consequences of each AO, the cause or causes of each AO and any action taken to prevent recurrence.

Appendix A: Abnormal Occurrence Criteria

Criteria by types of events used to determine which events will be considered for reporting as AOs are as follows:

I. For All Licensees

A. Human Exposure to Radiation from Licensed Material

1. Any unintended radiation exposure to an adult (any individual 18 years of age or older) resulting in an annual total effective dose equivalent (TEDE) of 250 mSv (25 rem) or more; or an annual sum of the deep dose equivalent (external dose) and committed dose equivalent (intake of radioactive material) to any individual organ other than the lens of the eye, bone marrow, and the gonads, of 2,500 mSv (250 rem) or more; or an annual dose equivalent to the lens of the eye, of 1 Sv (100 rem) or more; or an annual sum of the deep dose equivalent and committed dose equivalent to the bone marrow, and the gonads, of 1 Sv (100 rem) or more; or an annual shallow-dose equivalent to the skin or extremities of 2,500 mSv (250 rem) or more.

2. Any unintended radiation exposure to any minor (an individual less than 18 years of age) resulting in an annual TEDE of 50 mSv (5 rem) or more, or to an embryo/fetus resulting in a dose equivalent of 50 mSv (5 rem) or more.

3. Any radiation exposure that has resulted in unintended permanent functional damage to an organ or a physiological system as determined by a physician.

B. Discharge or dispersal of radioactive material from its intended place of confinement which results in the release of radioactive material to an unrestricted area in concentrations which, if averaged over a period of 24 hours, exceeds 5,000 times the values specified in Table 2 of Appendix B to 10 CFR Part 20, unless the licensee has demonstrated compliance with § 20.1301 using § 20.1302(b) (1) or § 20.1302(b) (2) (ii). This does not include transportation events.

C. Theft, Diversion, or Loss of Licensed Material, or Sabotage or Security Breach[1]

1. Any unrecovered lost, stolen, or abandoned sources that the Commission has determined to be risk significant (exceeds the values listed in Appendix P to Part 110, "High Risk Radioactive Material, Category 2"). Excluded from reporting under this criterion are those events involving sources that are lost, stolen, or abandoned under the following conditions: sources abandoned in accordance with the requirements of 10 CFR 39.77(c); sealed sources contained in labeled, rugged source housings; recovered sources with sufficient indication that doses in excess of the reporting thresholds specified in AO criteria I.A.1 and I.A.2 did not occur during the time the source was missing; and unrecoverable sources (sources that have been lost and a reasonable attempt at recovery has been made without success) lost under such conditions that doses in excess of the reporting thresholds specified in AO criteria I.A.1 and I.A.2 were not known to have occurred and the agency has determined that the risk of theft or diversion is acceptable.

---

1 Information pertaining to certain incidents may be either classified or under consideration for classification because of national security implications. Classified information will be withheld when formally reporting these incidents in accordance with Section 208 of the ERA of 1974, as amended. Any classified details regarding these incidents would be available to the Congress, upon request, under appropriate security arrangements.

2. A substantiated case of actual or attempted theft or diversion of licensed material or sabotage of a facility.

3. Any substantiated loss of special nuclear material or any substantiated inventory discrepancy that is judged to be significant relative to normally expected performance, and that is judged to be caused by theft or diversion or by substantial breakdown of the accountability system.

4. Any substantial breakdown of physical security or material control (i.e., access control containment or accountability systems) that significantly weakened the protection against theft, diversion, or sabotage.

5. Any significant unauthorized disclosures (loss or theft) of classified[2] and/or safeguards information.

D. Initiation of High-Level NRC Team Inspections.[3]

II. For Commercial Nuclear Power Plant Licensees

A. Any reactor events or conditions that are determined to be of high safety significance.[4]

---

2 Due to increased terrorist activities worldwide, the AO report would not disclose specific classified information and details considered useful to potential terrorist. Classified information is defined as information that would harm national security if disclosed in an unauthorized manner.

3 Initiation of any Incident Investigation Teams, as described in NRC Management Directive (MD) 8.3, "NRC Incident Investigation Program," or initiation of any Accident Review Groups, as described in MD 8.9, "Accident Investigation."

4 Any conditions evaluated by the NRC's Reactor Oversight Process (ROP) to be Red, ad described in NRC Management Directive 8.13, "Reactor Oversight Process." In general, Red inspection findings are included in the fiscal year in which the final significance determination was made, and Red performance indicators are included in the fiscal year in which the NRC's external web page for the ROP was updated to show the Red indicator. Additionally, Criterion II.A also includes any events or conditions evaluated by the NRC's Accident Sequence Precursor (ASP) program to have a conditional core damage probability (CCDP) or change in the core damage probability (CDP) of greater than $1x10^{-3}$. An identical condition affecting more than one plant is counted as a single ASP-event if a single indicator would have resulted in a single reactor accident.

B. Any operating reactor plants that are determined to have overall unacceptable performance, or that are in a shutdown condition as a result of significant performance problems and/or operational event(s).[5]

III. For All Transportation Events and Events at Facilities Other than Nuclear Power Plants

A. Events Concerning Design, Analysis, Construction, Testing, Operation, Transport, Use, or Disposal of Licensed Facilities or Regulated Materials

1. An accidental criticality [10 CFR 70.52(a)].

2. A major deficiency in design, construction, control, or operation having significant safety implications requiring immediate remedial action.

3. A serious safety-significant deficiency in management or procedural controls.

4. Series of events (where individual events are not of major importance), recurring incidents, and incidents with implications for similar facilities (generic incidents) that create a major safety concern.

B. For Fuel Cycle Facilities

1. Absence/failure of all safety-related or security-related controls (engineered and human) for an NRC-regulated lethal hazard (radiological or chemical) while the lethal hazard is present.

2. An NRC ordered safety-related or security-related immediate remedial action.

C. For Medical Licensees

A medical event that:

---

5 Any plants assessed by the ROP to be in the unacceptable performance column, as described in NRC Inspection Manual Chapter 0305, "Operating Reactor Assessment Program." This assessment of safety performance is based on the number and significance of NRC inspection findings and licensee performance indicators.

1. Results in a dose that is
   a. equal to or greater than 1Gy (100 rad) to a major portion of the bone marrow, or to the lens of the eye; or 2.5 Gy (250 rad) to the gonads; or
   b. equal to or greater than 10 Gy (1,000 rad) to any other organ or tissue; and
2. Represents either
   a. a dose or dosage that is at least 50 percent greater than that prescribed, or
   b. a prescribed dose or dosage that
      (i) is the wrong radiopharmaceutical or unsealed byproduct material; or
      (ii) is delivered by the wrong route of administration; or
      (iii) is delivered to the wrong treatment site; or
      (iv) is delivered by the wrong treatment mode; or
      (v) is from a leaking source or sources; or
      (vi) is delivered to the wrong individual or human research subject.

IV. Other Events of Interest

The Commission may determine that events other than AOs maybe of interest to Congress and the public and should be included in an appendix to the AO report as "Other Events of Interest." Guidelines for events to be included in the AO report for this purpose may include, but not necessarily be limited to, events that do not meet the AO criteria but that have been perceived by Congress or the public to be of high health and safety significance, have received significant media coverage, or have caused the NRC to increase its attention to or oversight of a program

area, or a group of similar events that have resulted in licensed materials entering the public domain in an uncontrolled manner. Examples include (1) any significant adverse trends in industry safety performance, (2) the initiation of an Augmented Inspection Team per MD 8.3, or (3) any plant that enters the Multiple/Repetitive Degraded Cornerstone Column of the ROP Action Matrix.

[5 U.S.C. 552(a)]

Dated at Rockville, Maryland, this _____ day of _____, 2005.

For the U.S. Nuclear Regulatory Commission,

_____

Annette L. Vietti-Cook,
Secretary of the Commission

POLICY ISSUE
(Notation Vote)

June 18, 2010 SECY-10-0080

FOR: The Commissioners

FROM: R. W. Borchardt
Executive Director for Operations

SUBJECT: ECONOMIC CONSEQUENCE MODELING FOR POSTULATED RADIOLOGICAL EVENTS

PURPOSE:

The purpose of this paper is to inform the Commission of the process by which Federal Protective Action Guides (PAGs) have been incorporated into an economic consequence assessment model for potential radiological events and seek the Commission's agreement with the staff's recommendation to continue supporting the Federal interagency processes for the inclusion of the DHS PAGs into economic consequence assessments.

BACKGROUND:

In the Staff Requirements Memorandum (SRM) for SECY-09-0051, dated June 23, 2009, the Commission directed the staff to produce a policy paper discussing how guidance from the U.S. Environmental Protections Agency's (EPA's) Manual of PAGs could be incorporated into an improved economic consequence model.

CONTACTS: Patricia A. Milligan, NSIR
(301) 415-2223

Cynthia G. Jones, NSIR
(301) 415-0298

E-5

The EPA published a draft of its updated PAGs Manual in January 2009, for review and comment. The draft fully incorporated the Department of Homeland Security (DHS) document, "Planning Guidance for Protection and Recovery following Radiological Dispersal Device (RDD) and Improvised Nuclear Device (IND) Incidents (DHS PAGs)," issued in 2008. The DHS planning guidance focused on optimization as the basis for economic consequence considerations and not on pre-established dose limits. The term "optimization" refers to a flexible, multi-attribute decision-making process that seeks to weigh many factors.

Optimization analyses are interrelated, quantitative, and qualitative assessments that are independently applied at each stage of a decision-making process for an event. Optimization includes economic (i.e., cleanup costs, waste disposal costs, economic impact on places of historical significance, economic impact on businesses, and medical costs) effects, psycho-social effects, human health risk, ecological risk, and technical feasibility factors. The development of this PAG guidance was directed by the White House, Office of Science and Technology Policy, through the National Science and Technology Council, Committee on Homeland and National Security, Subcommittee on Standards (SoS). In 2003, the SoS convened a senior level Federal working group, chaired by DHS, to develop this guidance. The Nuclear Regulatory Commission (NRC) staff was part of this senior level working group.

The EPA withdrew the draft PAGs Manual from review in early 2009, and according to the agency's website, "...The new team at EPA wishes to review the PAGs revisions before proceeding with a notice of availability and public comment." No additional information has been available from EPA regarding the agency's plans for the PAGs revision. However, interagency planning and continued refinement of the optimization methodology has continued to progress. The PAGs from the EPA manual that are relevant to the discussion of economic consequence models are the DHS PAGs which were, as noted above, incorporated in full into the EPA PAGs. Therefore for the purposes of this paper, the staff will refer to the DHS PAGs rather than the EPA PAGs.

DISCUSSION:

Consequence analyses for potential radiological events are of interest to the NRC as well as to the Federal government at large. The optimization methodology, as outlined in the DHS PAGs, has been implemented in the evaluation of economic consequences for the purposes of threat analysis, risk reduction, and radiological exercises. Examples include analysis initiatives by the Department of Energy (DOE) and DHS, and exercises conducted as part of the National Exercise Program.

The optimization process for consideration of economic consequences was used by the DOE, National Nuclear Security Administration (DOE/NNSA) Global Threat Reduction Initiative in the development of a classified report that examined the magnitude of the economic impact of an RDD in a major urban center. The classified report was developed in cooperation with several Federal agencies, including the NRC. DOE/NNSA compared a particular area before the detonation of an RDD to the same area after the event using a methodology designed to estimate the nature and extent of the physical damages to the affected area. This included: a

determination of the size and geographic location of the area exposed to radioactive contamination; an estimate of both the cost and time needed to decontaminate the area based upon various doses (considering optimization as a process); an estimate of how other critical infrastructures are affected by the blast (either through damage to the buildings or through decreased workforce participation and lost revenues); and an estimate of the health impacts of the blast and resulting contamination. This was a multi-step, months-long process that involved expert elicitation and judgment, as well as the use of multiple computer codes. This methodology was created to develop realistic order of magnitude estimates of potential economic impacts that encompass many categories, including losses in gross domestic products, decontamination, demolition, and disposal of radioactively contaminated structures, new construction of structures deemed too expensive to decontaminate, health care costs, residential and business relocation costs, and perception-based impacts. This process, as agreed upon by the Federal partners, is the procedure by which the DHS PAGs would be incorporated into an economic consequence model.

In addition to the optimization processes described above, DHS conducts an Integrated Chemical, Biological, Radiological, and Nuclear (CBRN) Terrorism Risk Assessment (ITRA) as directed under Homeland Security Presidential Directive (HSPD) -18, "Medical Countermeasures against Weapons of Mass Destruction," to provide a risk-informed decision support tool to agencies across the Federal government responsible for reducing and mitigating the CBRN terrorism risk. Biennial completion of the ITRA, as required by HSPD-18, is achieved through interagency coordination with Federal partners. The resultant assessments are intended to support those same Federal partner agencies and their component organizations by providing a detailed assessment of the agents/materials and scenarios contributing to risk. In addition, tailored assessments are conducted within the ITRA at the request of Federal partners to evaluate the risk reduction potential associated with proposed Federal strategies and programs designed to reduce and/or mitigate CBRN terrorism risk.

The 2011 ITRA plans to address economic consequences by applying a modeling structure that ensures consistent estimates of terrorism economic risk across CBRN threats. This approach ensures that the assessment can be used as a comprehensive planning tool by other Federal agencies. Thus, there is a strong case for individual agencies not to invest significant resources in research that is similar or duplicative. In addition to the ITRA, DHS performs individual Radiological and Nuclear Terrorism Risk Assessment (RNTRA) threats. Each of these assessments is also performed biennially by DHS per HSPD-22, "Domestic Chemical Defense," HSPD-10, "Biodefense for the 21st Century," and HSPD-18, respectively. One of the ongoing goals of the ITRA, as well as the RNTRA economic model, is to produce economic consequence metrics that can inform the risk mitigation decisions made by DHS and other Federal agencies.

SRM-SECY-09-0051 also directed the staff to: continue to participate in multi-agency organizations such as the Federal Radiological Preparedness Coordinating Committee (FRPCC) and to continue to coordinate with NRC's Federal partners such as DHS, EPA, and

the Radiation Source Protection and Security Task Force[1]; encourage broader acceptance of the methodology and the modeling through additional studies as suggested by the NNSA report and use the methodology and modeling tools as part of a future RDD exercise to test its utility for decision making.

The NRC has been, and continues to be, an active participant in the multi-agency working groups such as the FRPCC and the Radiation Source Protection and Security Task Force, as well as a participant in the national level exercise program. The NRC responds to radiological events in accordance with its responsibilities under the National Response Framework[2]. In June 2009, the NRC participated in the EMPIRE 09 exercise, which explored the impact of an RDD on Albany, New York. State and local officials, in consultation with Federal experts, worked through the optimization process as outlined by the DHS PAGs using their local knowledge and local priorities to achieve an effective plan for evacuation and relocation of the impacted populations. More recently, in April 2010, the NRC participated in Liberty RadEx, an EPA-led exercise that explored long-term recovery issues related to a large RDD explosion in an urban area (Philadelphia). This exercise was unique in that it focused only on long-term issues, as the start time of the exercise was 45 days into the event. Commonwealth of Pennsylvania officials used the DHS PAGS and its optimization process as a basis to request that acceptable and practical limits for relocation and return be determined, and that these limits include associated economic impacts as economic considerations will help define what is possible or practical.

The NRC has been an active partner within the Federal interagency working groups to develop economic consequence assessment models for radiological events. These efforts have proven to be an effective use of resources to ensure a consistent approach within the Federal government to assess economic risks from potential radiological events.

---

[1] In 2005, the Energy Policy Act of 2005 (Public Law 109-58) [EPAct 2005], established an interagency task force on radiation source protection and security under the lead of the U.S. Nuclear Regulatory Commission (NRC) to evaluate and provide recommendations to the President and Congress relating to 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 or radiation emission device (RED). This task force, in response to an additional request from DHS for further analysis of RDD consequences, formed a multi-agency Radiation Sources Subgroup to evaluate, among other things, consequences other than the deterministic health effects that form the basis of the established International Atomic Energy Agency (IAEA) categorization (e.g., economic, physical, psychological, and social disruption consequences).

[2] Due to the several categories of potential radiological incidents and impacted entities, the NRF identifies different Federal agencies as "coordinating agencies" and "cooperating agencies" and associated strategic concepts of operations based on the authorities, responsibilities, and capabilities of those departments or agencies. The NRC is the coordinating agency for incidents involving materials or facilities licensed by the NRC or Agreement States. During events that do not involve NRC or Agreement State licensed materials, the NRC supports other Federal agencies in its role as a cooperating agency. DHS is the coordinating agency for all deliberate attacks involving nuclear/radiological facilities or materials, including RDDs and INDs.

RECOMMENDATION:

The staff recommends that the policy of the NRC should be to continue supporting the Federal interagency processes for the inclusion of the DHS PAGs (and when they are issued, the EPA PAGs as appropriate) into economic consequence assessments.

RESOURCES:

There are no resource implications for the NRC. Activities in this area have been and will continue to use selected members of the agency's Senior Level Service staff.

COORDINATION:

The Office of the General Counsel reviewed this package and has no legal objection.

/RA Martin Virgilio for/

R. W. Borchardt
Executive Director
for Operations

RECOMMENDATION:

The staff recommends that the policy of the NRC should be to continue supporting the Federal interagency processes for the inclusion of the DHS PAGs (and when they are issued, the EPA PAGs as appropriate) into economic consequence assessments.

RESOURCES:

There are no resource implications for the NRC. Activities in this area have been and will continue to use selected members of the agency's Senior Level Service staff.

COORDINATION:

The Office of the General Counsel reviewed this package and has no legal objection.

/RA Martin Virgilio for/

R. W. Borchardt
Executive Director
for Operations

ADAMS Accession No.: ML101600442 **WITS200900135/SECY-2009-0320** **Log No.:** 2777

OFFICE	NSIR/DPR	TECH EDITOR	NSIR/DPR:D	OGC
NAME	PMilligan/CJones	KAzariah-Kribbs	BMcDermott SMorris f	NStAmour
DATE	06/08/10	06/04/10	06/15/10	06/16/10
OFFICE	NSIR:D	OEDO		
NAME	JWiggins	RWBorchardt		
DATE	06/16/10	06/18/10		

OFFICIAL RECORD COPY

POLICY ISSUE
INFORMATION

November 5, 2010 SECY-10-0146

FOR: The Commissioners

FROM: Charles L. Miller, Director
Office of Federal and State Materials
and Environmental Management Programs

SUBJECT: STATUS OF INTERAGENCY RESEARCH TO IDENTIFY A LEAD AGENCY TO CHAMPION DEVELOPMENT OF ALTERNATE CHEMICAL FORMS OF CESIUM-137

PURPOSE:

The purpose of this paper is to respond in part to the Staff Requirements Memorandum (SRM) to SECY-08-0184, "Strategy for the Security and Use of Cesium-137 Chloride (CsCl) Sources." The SRM directed the staff to identify a lead Federal government agency to champion a national approach for development of alternate chemical forms of cesium-137 (Cs-137) to diminish the utility of such sources in a radiological dispersal device (RDD). This paper does not address any new commitments or resource implications.

SUMMARY:

On April 15, 2009, the Commission issued the SRM to SECY-08-0184, which directed the staff, in part, to engage its Federal partners to identify a lead agency or agencies to conduct research into the development of, and/or provide incentives for, alternate forms of Cs-137 that would diminish the utility of such sources in an RDD. Both domestic and international production facilities were envisioned to be involved in this research and development work and the results were to be shared with our international partners.

CONTACTS: John Jankovich, FSME/MSSA
(301) 415-790

Cynthia G. Jones, NSIR
(301) 415-0298

E-10

The staff worked with Federal partners, industry, various domestic and international stakeholders, and the Radiation Source Protection and Security Task Force to find solutions and provide recommendations to the Commission on the path forward. The staff was not able to identify a Federal agency willing to take the lead or fund research for alternate chemical forms for Cs-137 sources. In addition, the staff has concluded, based on classified risk analyses, that development of alternate forms of Cs-137 would not significantly reduce dispersibility and clean-up costs associated with the malevolent use of such sources. Therefore, for the reasons set forth below, the staff is not recommending further Federal efforts to identify a lead agency or agencies to conduct research to facilitate development of alternative chemical forms for cesium-137.

BACKGROUND:

At the present time, CsCl sources with activity levels in International Atomic Energy Agency (IAEA) Categories 1 and 2 (i.e., above 27 Ci) are widely used in self-shielded irradiators in three major modes of application: blood irradiation, bio-medical research, and calibration. CsCl is used because of its unique properties of Cs-137, including its desirable single (662 keV) energy spectrum, long half-life (30.17 years), low cost, and moderate shielding requirements relative to other nuclides. In the irradiators, the CsCl in a compressed powder form is doubly-encapsulated in a stainless steel capsule. This physical form is used because of its high specific activity (gamma emission per unit volume) and manufacturability; but because of this chemical composition, it is highly soluble in water and can be dispersible in aerosol form, which may present potential security concerns if used malevolently.

The staff conducted a number of initiatives regarding the technological issues of Cs-137 as well as maintaining continual interactions with other Federal agencies as described below.

The staff's initial effort to address the issue of alternative chemical forms of Cs-137 involved a pilot study (ML090060079), conducted under contract with Brookhaven National Laboratory (BNL), aimed to identify Cs-137 compounds that possess a high concentration of Cs-137, low solubility and high thermal, radiation and mechanical resistance. The information in the study was based primarily on research conducted by PA Mayak and the Research and Production Association "V.G. Khlopin Radium Institute," in Russia, under subcontract with BNL. The results delineated that alternative forms, such as glass and ceramic, have only been used in lower activity Cs-137 sources (<10 Ci) in medical and well-logging applications. The study concluded that the most promising alternative forms were phosphate ceramics and cesium alumophosphate glass, but technology and fabrication facilities were not available to scale up the activity level for these materials to levels necessary for irradiator sources (i.e., 400-2000 Ci). As a result, the study concluded that significant further research and development were needed to ascertain if there could be a capability developed for the manufacture of such high activity sources. However, the development of new forms of cesium is outside the scope of the U.S. Nuclear Regulatory Commission (NRC) mission, and no further research has been conducted by the (NRC).

The staff prepared a Commission Memorandum (ML093160735), dated December 23, 2009, which summarized the status of interagency activities on CsCl research at that time. In that paper, the staff discussed the results of a classified study[1] performed by Sandia National Laboratory (SNL) for the U.S. Department of Energy's National Nuclear Security Administration (NNSA), and recommendations provided by the White House's Office of Science and Technology Policy (OSTP) staff.

In response to the direction in SRM COMSECY-09-0029 (ML101440306), the staff published a notice in the *Federal Register* (75 FR 37483) on June 29, 2010, issuing the NRC "Draft Policy Statement on the Protection of Cesium-137 Chloride Sources" for public comment. This Notice also announced a public meeting in November 2010 to solicit public input on major issues associated with the draft policy statement regarding the current use of certain forms of Cs-137 sources used by NRC – and Agreement State – licensees. A second notice was published on September 29, 2010, in the *Federal Register* (75 FR 60149) providing the meeting agenda and an Issues Paper which listed the discussion points for each session of the meeting. The public meeting will be held on November 8 - 9, 2010. The staff is currently considering the comments received on the draft policy statement and is scheduled to submit to the Commission, in April 2011, a final Policy Statement that will include a discussion of the comments received.

On August 11, 2010, the NRC provided the President and Congress with a report (ML102230141) documenting the efforts of the interagency Radioactive Source Protection and Security Task Force (Task Force). The Task Force, established by the Energy Policy Act of 2005 (Public Law 109-58), includes 12 Federal agencies and named the NRC Chairman (or designee) as its chair. The Task Force was charged with evaluating and providing recommendations, every four years, to the President and Congress relating to the security of radiation sources in the U.S. from potential terrorist threats, including acts of sabotage, theft, or use of a radiological source in a radiological dispersal device. The first Task Force report was submitted in August 2006. The second report issued in August 2010, referenced above, included 11 recommendations to improve source security in the U.S. Two of the recommendations are associated with research related to CsCl sources (i.e., 2010 Recommendations 10 and 11). The recommendations did not propose direct or immediate research; rather they indicated that it is prudent for industry to develop viable alternative technologies and sources. Furthermore, the report recommended making replacement of these sources contingent upon the availability of a disposal pathway for sources currently in use and the viability of alternative technologies.

The staff maintained continual interaction, through regularly scheduled periodic meetings ("Trilateral Meetings"), with the Federal agencies who conduct research related to the use of radioactive materials, i.e., the NNSA, and the Department of Homeland Security's Domestic Nuclear Detection Office (DNDO). These agencies have stated that they do not plan to pursue research for the development of alternate forms of Cs-137. Currently, the budgets of these agencies do not include funds for research on CsCl issues. These agencies have indicated that they do not intend to request funding for such research in their upcoming budget cycles.

[1] *Radioactive Sources Relative Risk Reduction Study (U),* Phase 1 Results, Sandia National Laboratory, September 16, 2009.

In addition, the staff also discussed the possibility of initiating research on the development of alternate forms for Cs-137 sources with the White House's OSTP. At that time, OSTP staff stated that given the results of the 2009 SNL *Radioactive Sources Relative Risk Reduction Study (U),* they would recommend continuing with: (1) the existing source security requirements for Cs-137 (and roll-up of these requirements into a new 10 CFR Part 37); (2) working with NNSA, Agreement States and licensees on NNSA's voluntary supplemental irradiator security upgrades; and (3) monitoring the threat environment and requiring additional security measures, if needed, instead of conducting additional research because alternative forms of Cs-137 would not provide enough risk reduction to warrant the high cost of initial research (~ $5-7 million per year for the first five years at PA Mayak).

The staff has also maintained a continual dialog with representatives of the Cs-137 source supply industry. One source manufacturer indicated that their voluntary research program demonstrated with developmental sources that scaling up alternative chemical forms of Cs-137 sources to larger activity [Vendor Proprietary Information: up to 1,000 Ci levels], suitable for use is attainable (e.g., 5-10 years). However, private industry also indicated that, without market demand (including international markets as well), the finalization of the development of the manufacturing technology for this type of source is not financially viable at the present time.

DISCUSSION:

As stated in the Draft Policy Statement, it is outside the scope of the NRC's mission to conduct developmental research on alternative forms of Cs-137. In response to the Commission direction in the SRM to find a lead agency to conduct the research, the staff has identified one Federal agency, NNSA, which has the mission and the qualified staff to lead research for alternative chemical forms of Cs-137. However, when asked, NNSA stated that they do not have an interest in and do not have budgets for such an initiative. The focus of current NNSA research is aimed at developing alternate, non-radioactive technologies to substitute certain applications of radioactive sources, such as in well-logging and in nondestructive testing (i.e., radiography). The mission of DNDO is to protect against terrorist attacks using nuclear and radiological devices or materials through coordinated detection, analysis, and reporting on the unauthorized importation, possession, storage, transportation, development, or use of such devices or materials. Thus, conducting research for alternate forms of Cs-137 is outside the scope of DNDO's mission.

The staff also has determined that it would not be cost effective to engage in this research effort. Systematic risk and threat studies conducted both by the NRC and other Federal agencies indicate that there continues to be no specific, credible threat directed towards U.S. nuclear facilities or licensed radioactive material, including CsCl sources. The security measures in place in the U.S. are adequate for the current threat environment. The NRC, in cooperation with other Federal and law enforcement agencies, has processes to monitor changes in the threat environment and could issue further security requirements in the event that the threat environment necessitates regulatory action. Lastly, classified risk analyses indicate that, given the uncertainties in the analyses and estimates for clean-up levels, the use of Cs-137 in an alternate chemical form would not provide significant risk reduction with respect to costs for clean-up of contamination from a malicious or malevolent event.

Therefore, the reduced dispersibility of alternative chemical forms of Cs-137 would not significantly reduce explosive dispersion and cleanup costs.

In summary, the staff was not able to identify a Federal agency to promote or to lead research for alternate chemical forms in Cs-137 development. In addition, the staff has concluded, based on classified risk analyses, that development of alternate forms of Cs-137 would not significantly reduce dispersibility and clean-up costs. Consequently, there does not appear to be sufficient benefit to outweigh the cost to pursue research efforts at the Federal level for the development of alternate chemical forms of Cs-137 sources. Given the current threat environment, security measures in place in the U.S., coupled with the recent NNSA voluntary supplemental irradiator security upgrades, provide an adequate level of protection for the public's health and safety.

COORDINATION:

The Office of the General Counsel has reviewed this paper and has no legal objection.

***/RA by* Cynthia A. Carpenter Acting For/**

Charles L. Miller, Director
Office of Federal and State Materials
and Environmental Management Programs

Therefore, the reduced dispersibility of alternative chemical forms of Cs-137 would not significantly reduce explosive dispersion and cleanup costs.

In summary, the staff was not able to identify a Federal agency to promote or to lead research for alternate chemical forms in Cs-137 development. In addition, the staff has concluded, based on classified risk analyses, that development of alternate forms of Cs-137 would not significantly reduce dispersibility and clean-up costs. Consequently, there does not appear to be sufficient benefit to outweigh the cost to pursue research efforts at the Federal level for the development of alternate chemical forms of Cs-137 sources. Given the current threat environment, security measures in place in the U.S., coupled with the recent NNSA voluntary supplemental irradiator security upgrades, provide an adequate level of protection for the public's health and safety.

COORDINATION:

The Office of the General Counsel has reviewed this paper and has no legal objection.

Cynthia A. Carpenter for
Charles L. Miller, Director **/RA/**
Office of Federal and State Materials
and Environmental Management Programs

ML103050379 WITS 200900093/EDATS: SECY-2010-0529

OFC	FSME/MSSA	NSIR/OD	FSME/MSSA	FSME/MSSA	FSME/MSSA
NAME	JJankovich	CJones	AMauer	TReis	RLewis **(TReis acting)**
DATE	9/14/10	9/21/10	9/14/10	9/29/10	11/1/10
OFC	NSIR	OGC	FSME/ TechEd	FSME	
NAME	JWiggins/NSIR	EBowdenBerry	CPoland	**(CCarpenter for)** CMiller	
DATE	10/25/10	10/29/10	11/02/10	11/05/10	

OFFICIAL RECORD COPY

POLICY ISSUE
(Information)

February 10, 2011 SECY-11-0020

FOR: The Commissioners

THRU: E. Roy Hawkens
Chief Administrative Judge

FROM: Daniel J. Graser
Licensing Support Network Administrator

SUBJECT: LICENSING SUPPORT NETWORK PROGRAM ADMINISTRATION - ANNUAL REPORT

PURPOSE:

This is to inform the Commission, in accordance with 10 C.F.R. § 2.1011(c)(5), of the status of the Licensing Support Network (LSN) and the activities of the LSN Administrator (LSNA) for the year ending December 31, 2010.

BACKGROUND:

The Commission's Staff Requirements Memorandum (SRM) dated January 31, 1992, directed the submission of a semiannual report on the activities of the LSNA (formerly the Licensing Support System (LSS) Administrator). Per notification from Ken Hart on March 27, 2009, the Commission revised the frequency of this report by changing it to an annual report. The scope of this report now includes LSN program activities from January 1, 2010, through December 31, 2010.

CONTACT: Daniel J. Graser, LSNA/ASLBP
301-415-7401

DISCUSSION:

I. Activities

A. Licensing Support Network Administrator (LSNA) and Staff

LSN staffing consists of the LSN Administrator (.5 FTE) and the LSN Project Manager (1.0 FTE), augmented by information technology (IT) security and local participant training support from the Las Vegas Facility Manager (.5 FTE), as needed.

B. Federal Advisory Committee Act (FACA)-Related Activities

Dr. Andrew Bates of the Office of the Secretary (SECY) continues to serve as the LSN Advisory Review Panel (LSNARP) Chair. The agency announced renewal of the charter for the LSNARP through December 3, 2012, in the Federal Register (75 Fed. Reg. 76,757) of December 9, 2010.

C. LSN Advisory Review Panel (LSNARP) Activities

No LSNARP meetings occurred during the reporting period.

D. LSN Administrator Guidelines

No new LSNA Guidelines were promulgated and no existing LSNA Guidelines were revised during the reporting period. The technical bases for LSN operations, including participant organization technologies, remain stable.

E. Interactions with Other NRC Offices and Entities

The LSNA met with the Records Officer of the Department of Energy (DOE) and representatives of the Office of Information Services, Information and Records Services Division (OIS/IRSD) and the National Archives and Records Administration (NARA) to clarify the status of collections of material associated with the HLW proceeding. As of the end of September, comments were provided to OIS/IRSD regarding revisions to the initial sections of the draft records retention schedule describing adjudicatory hearing support systems to have those sections more accurately reflect the business uses of the LSN (and digital recordings of hearings used by the Digital Data Management System (DDMS) application). Those comments are under consideration by OIS/IRSD for incorporation into the proposed records retention schedule that ultimately will require NARA approval.

1. The Commission

The previous LSNA semiannual report (SECY-10-0010) was submitted to the Commission on January 29, 2010.

On June 29, 2010, the LSNA responded to a question from Commissioner Magwood's office regarding the then-proposed FY 2012 budget for the LSN and what it would mean for knowledge retention. The LSNA explained that because the LSN contains no "content" other than indexes, funding under the FY 2012 budget would be for purely

technical operations, with any knowledge retention activities falling into the hands of the parties. The NRC's HLW document collection, which resides within the Agencywide Document Access Management System (ADAMS), is one such participant collection.

2. Office of Nuclear Material Safety and Safeguards (NMSS)

Interactions with the Office of Nuclear Material Safety and Safeguards (NMSS) regarding LSN technical coordination were routine. Beginning in April 2010, OIS, in conjunction with NMSS, tested and then implemented the upgraded NRC LSN document repository web site. Later in the summer, LSN program staff worked with OIS to support NMSS in upgrading the File Transfer Protocol (FTP) software (WS_FTP) used to effect the indexing of NRC staff documents submitted to the LSN.

3. Office of Administration/Division of Contracts (ADM/DC)

A new LSN operations and maintenance (O&M) contract was awarded in February 2010. The period of performance for the newly awarded contract is February 25, 2010, through February 24, 2011, but includes four 1-year options.

F. Interactions with the DOE Office of Civilian Radioactive Waste Management on Its Efforts and Readiness to Meet LSN Commitments

In March 2010, DOE notified the LSNA of its intent to shut down the continuity of operations servers formerly maintained at its contractors' Hillshire facility in Las Vegas. Its so-called "V-Cops" facility allowed DOE to switch from the Hillshire servers to servers in Ballston, Virginia, nearly instantaneously if something happened in Las Vegas. The LSNA advised that providing backup capability, in addition to being consensus guidance generated by the LSNARP technical working group is, from a technical perspective, a best-practice in operating a major information technology (IT) system. DOE was encouraged to continue to adhere to good IT practice, the consensus direction of the FACA-chartered LSNARP, and its commitment to maintain the LSN collection.

DOE subsequently closed its "V-Cops" facility, although DOE asserts that it still has back-up capability that may take a little longer to retrieve files if there is a problem with the main servers.

G. Interactions with Other Participants in Conjunction with Their Efforts to be Ready to Meet LSN Commitments

In the same time frame that DOE filed a March 3, 2010 motion to withdraw its pending license application for a permanent geologic repository at Yucca Mountain, Nevada, the State of South Carolina, the State of Washington, and Aiken County, South Carolina, filed petitions to intervene in the HLW proceeding. Thereafter, on March 15, the National Association of Regulatory Utility Commissioners and the Prairie Island Indian Community filed petitions to intervene. As a consequence, these five petitioners were added as new LSN participants.

By the end of May 2010, the LSN staff and contractors had completed integration efforts with the Prairie Island Indian Nation, making it the last of the five petitioners to

successfully establish LSN document collection servers in preparation for the oral argument sessions on the DOE motion to withdraw subsequently held in Las Vegas on June 3-4, 2010.

H. LSN Project Plan Implementation

1. Ongoing Upgrades and Expansion to the LSN

Consistent with the program plan, a number of technical activities were successfully completed during this reporting period.

On March 24, 2010, the LSNA and the LSN project manager, Matt Schmit, performed a contract deliverable walkthrough of a new computer room at AT&T's Tyson's Corner offices that now houses the LSN test and development suite. This effort marked the completion of the first phase of LSN modernization. Subsequently, we began the technology refresh activity for the production system. LSN contractor staff previously had acquired the hardware power cords, fiber cables, upgraded firewall/Intrusion Detection System (IDS) and switches, and other components necessary to implement this technology refresh of the LSN production configuration, which is housed at the AT&T facility in Ashburn, Virginia.

The technology refresh, which is comprised of 19 new production servers, should be completed by early February 2011.

2. Administration of the LSN

During the course of the year, a number of routine administrative tasks were completed. The LSN Control Phase Status Update was presented to the Information Technology Business Council (ITBC) on June 29, 2010. No action items resulted, although there were a number of questions about contingency plans should the HLW proceedings terminate. A comprehensive hardware inventory of all LSN computer resources was performed in July 2010. In August 2010, the LSNNET.GOV domain name was renewed with the General Services Administration (GSA).

LSN staff project management performance continues to achieve planned system milestones for user access, participant support, and document loading timeliness.

Entering this reporting period, the LSN was comprised of twenty-one participant organizations' document collections and contained 3,685,786 documents.

During the year, five additional participant collections were connected and another 6,028 (net) documents were added.

System availability, against scheduled availability, was 100 per cent throughout the course of the year and there were no unscheduled outages.

The following table presents cumulative performance metrics for the LSN during the reporting period:

	As of January 1, 2010	As of December 31, 2010	Change +
Total Number of Participants	21	26	5
Total Number of Documents	**3685786**	**3691814**	**6028**
City of Las Vegas	1	1	0
Churchill County	46	58	12
Clark County	86	90	4
Eureka County	58	60	2
Lander County	71	72	1
Lincoln County	61	61	0
Mineral County	51	52	1
Nye County	2267	2308	41
White Pine County	98	98	0
Esmeralda County	32	36	4
Inyo County, California	389	425	36
State of Nevada	5446	5450	4
Department of Energy I	1321931	1327013	5082
Department of Energy II	2324130	2324125*	(5)
Nuclear Energy Institute	795	797	2
Nuclear Regulatory Commission	29599	30413	814
California Energy Commission	611	611	0
City of Caliente	23	23	0
Joint Timbisha Shoshone**	11	11	0
Timbisha Shoshone Indian Tribe	43	43	0
Timbisha Shoshone Yucca Oversight Program	34	34	0
Native Community Action Council	3	3	0
Aiken County, SC	0	11	11

	As of January 1, 2010	As of December 31, 2010	Change +
National Association of Regulatory Utility Commissioners	0	1	1
State of South Carolina	0	5	5
State of Washington	0	10	10
Prairie Island Indian Community	0	3	3

* Five documents were removed from the DOE II web site. The documents did not make it into the search system as they contained invalid characters and subsequently were removed by DOE as it determined the documents did not constitute LSN "documentary material."

** The Timbisha Shoshone Indian Tribe and Timbisha Shoshone Yucca Oversight Program agreed in May 2009 to litigate as a single tribal entity.

3. Security Profile of the LSN

The LSN was successful in obtaining its security recertification and an Authority to Operate (ATO) was issued on October 12, 2010. The system, which was accredited without any significant security restrictions or limitations, has an ATO that is valid for three years, i.e., through October 2013. Pursuant to a condition of the re-certification of the system, priority users accounts were reviewed in November 2010 and, acting on a request from the LSNA, unused accounts were purged by all participant organizations except DOE, which finally responded in January 2011 (after the period covered in this report).

On November 3, 2010, ASLBP submitted a plan responding to another of the system-specific conditions of the renewed ATO that required the completion of a web application security assessment.

No system downtime was experienced during the reporting period because of hacker attacks directed against the LSN.

Routine IT security activities were performed during this reporting period and all milestone dates for products and deliverables were met. LSN staff completed the annual Security Controls and Contingency Plan Tests as required for compliance with the Federal Information Security Management Act (FISMA).

LSN staff including the Information System Security Officer (ISSO) had a 100 per cent completion rate for the required IT security training modules corresponding to staff roles and responsibilities.

II. Issues

Budget Issues

As of this time, FY 2011 budget resources are being used to sustain operations for the ongoing HLW adjudication, which continues in light of the June 29, 2010 decision by Construction Authorization Board (CAB)-4 rejecting DOE's motion to withdraw its

application. That decision remains pending before the Commission as it deliberates whether to grant review and, if review is granted, whether to affirm or reverse.

In the meantime, the December 20, 2010 Administration budget pass-back from the Office of Management and Budget eliminates all funding for the LSN effective October 1, 2011. Assuming the Administration's approach to funding is accepted by the Congress, the LSN faces a shutdown that must be completed as of October 1, 2011.

Because the LSN is essential to the agency's ability to comply with the adjudicative milestones in the Nuclear Waste Policy Act, the LSNA has long understood that this vital IT infrastructure would be maintained until the Commission directed the ASLBP to initiate shutdown procedures. In light of this situation, as well as the consequences of shutting down the LSN (addressed below), the ASLBP plans to send a memorandum to the Commission in February that discusses this matter more fully and includes key action points for an orderly shutdown.

Issues Associated with Restoration of the LSN

If subsequent events result in resumption of active HLW adjudication, the lack of funding and FTE allocation in FY 2012 and beyond for the LSN places the agency's ability to conduct a timely adjudication on the DOE application at significant risk.

The LSNA's assessment is that if the LSN system is discontinued, staff recruitment, budget cycle, procurement, and IT security certification timelines make it likely that it will take 2 to 3 years to resurrect the NRC-managed aspects of the system should it be needed in the future.

III. Future LSN-Related Activities

Absent congressional funding, the LSN will be shut down effective October 1, 2011.

LSN staff will work with the LSNARP Chairman to schedule a meeting with parties to the HLW proceeding to coordinate the timing of the LSN website shutdown and what actions the parties will need to take should they decide to continue their document collection availability independent of the LSN system.

COORDINATION:

The Office of the General Counsel has no legal objection.

This paper contains pre-decisional budget information as well as planning information relating to an adjudicatory matter currently before the Commission and should be withheld from public disclosure.

/RA/

Daniel J. Graser
Licensing Support Network Administrator
Atomic Safety and Licensing
Board Panel

Distribution:
Commissioners
OGC
ASLBP
CFO
EDO
SECY
OPA
OCA

COORDINATION:

The Office of the General Counsel has no legal objection.

This paper contains pre-decisional budget information as well as planning information relating to an adjudicatory matter currently before the Commission and should be withheld from public disclosure.

/RA/

Daniel J. Graser
Licensing Support Network Administrator
Atomic Safety and Licensing
Board Panel

Distribution:
Commissioners
OGC
ASLBP
CFO
EDO
SECY
OPA
OCA

ADAMS: ML 110330107 * See Previous Concurrence

ASLBP	ASLBP/Editor	ASLBP/OD	OGC	SECY
D. Graser:DJG*	P. Bollwerk:GPB*	E. Hawkens:ERH*	S. Burns*	A.Vietti-Cook
02/02/11	02/021/11	02/02/11	02/08 /11	02/ 10/11

OFFICIAL RECORD COPY