

September 6, 2005

Mr. Eugene E. Aloise
Director, Natural Resources
and Environment
U.S. Government Accountability Office
441 G Street, NW
Washington, D.C. 20548

Dear Mr. Aloise:

Thank you for the opportunity to review and submit comments on the U.S. Government Accountability Office (GAO) draft report, "Nuclear Security: DOE Needs Better Information to Guide Its Expanded Recovery of Sealed Radiological Sources" (GAO-05-967). The U.S. Nuclear Regulatory Commission (NRC) appreciates the time and effort you and your staff have taken to review this important topic.

Overall, the NRC believes the report to be well written and balanced. One general point I would like to make is that the proposed National Source Tracking System (NSTS) will provide information on sealed sources which the draft report notes is currently lacking (e.g., on page 32 of the draft report, the number of covered sources manufactured and actually possessed by licensees, the distribution of the sources, and their disposal). Knowing this information could permit the U.S. Department of Energy (DOE) to at least approximate the number of sources that DOE potentially may need to recover. On the other hand, requiring the reporting of certain information which the draft report asserts DOE would find useful (e.g., frequency of source use) could be extremely burdensome on licensees and the NRC, and would yield little, if any, practical benefit.

As written, the report does not accurately characterize a number of issues involving category 3 sources. For example, on page 34 of the draft report, the first paragraph states, "In a subsequent 2004 technical document, IAEA suggested that category 3 sources be included in a national registry of sealed radiological sources" and references "IAEA, Strengthening Control Over Radioactive Sources in Authorized Use and Regaining Control Over Orphan Sources: National Strategies, IAEA-TECDOC-1388 (Vienna, Austria: Feb. 2004, p. 5)." This reference does not suggest that category 3 sources must be tracked by a national system. Instead, the reference states that category 3 sources should be part of the national strategy for improving control over sources. The Code of Conduct recommends a minimum of category 1 and 2 sources to be included in a national source registry. On page 5, IAEA-TECDOC-1388 states:

The objective of this report is to provide practical guidance to States on the development of a national strategy for improving control over radioactive sources, particularly dangerous sources (categories 1-3). Part of this process involves the determination of the magnitude of the potential problem with orphan and vulnerable sources and indeed, whether or not a national strategy is needed.

The ultimate objective is that States will use this report to develop and then implement a plan of action that will result in all significant sources being managed in a safe and secure manner.

The NRC regulatory framework addressed all sources regulated by the NRC before the adoption of the International Atomic Energy Agency (IAEA) Code of Conduct, and it continues to do so today. The national strategy being implemented by the NRC is a risk-informed approach that also includes an evaluation of the adequacy of existing regulations to provide appropriate control of sources. Based on this risk-informed approach and regulatory review, the NRC issued orders requiring additional security measures, particularly for the higher risk sources in categories 1 and 2. Where appropriate, these security orders did address aggregation of any sources (category 3 and below) such that the net result could reach the category 2 threshold in a given physical location.

On page 34 of the draft GAO report, it states that the NSTS will only address the IAEA Code of Conduct category 1 and 2 sealed sources. Although this action is consistent with the IAEA Code of Conduct and the Energy Policy Act of 2005, limiting the NSTS to category 1 and 2 sources raises concerns by some individuals who believe that at least category 3 sources should be included as well. For the initial NSTS program, NRC decided not to include category 3 sources, at this time, based on (1) an assessment that category 3 sources represent a limited hazard as a radiological dispersal or exposure device and (2) a potential disproportionate burden of including category 3 sources on both the regulatory bodies and licensees. It is also important to note that, although the NSTS will provide a national tracking system for some sealed sources, licensees are responsible for appropriate tracking of all sources in their possession under their licenses. However, the notice of proposed rulemaking for the NSTS published on July 28, 2005 (70 FR 43646) acknowledged that the aggregation of category 3 sources could present a security concern. For this reason, the notice of proposed rulemaking specifically invites comments on including category 3 sources in the NSTS in the future. The public comment period is still open for this proposed rule. The Commission will evaluate the public comments received on this rulemaking, and will factor in comments from other Federal agencies and our international contacts, before deciding what additional action, if any, may be warranted for category 3 sources and below.

GAO is also concerned because category 3 and below sources account for over 98.5 percent of the total number of sources recovered to date by DOE but would not be covered by the NSTS. The DOE source recovery program includes orphaned sources determined to represent a risk to public health and safety. Focusing solely on the number of sources recovered is not a risk informed approach. The activity level of the sources provides a measure of the greatest risk. The category 1 and 2 sources recovered by the DOE program to date account for approximately 86 percent of the total activity recovered.

I would also like to stress that DOE, through its representatives on NRC working groups and committees developing the proposed NSTS, has had the opportunity to provide input on the design of the system and the potential usefulness of the system to assist it in its source recovery program. DOE and other stakeholders will have an additional opportunity to comment on these and other issues raised in the notice of proposed rulemaking published July 28, 2005 (70 FR 43646).

As you are aware, the NRC and GAO staffs have had multiple exchanges regarding the report's contents and context. These exchanges have been very beneficial. The enclosure provides specific comments on the draft report in addition to the matters discussed above. Should you have questions about these additional comments or the issues raised in this letter, please contact Ms. Melinda Malloy at (301) 415-1785, or Mr. Lance Rakovan at (301) 415-2589.

Sincerely,

/RA/

Luis A. Reyes
Executive Director
for Operations

Enclosure: Additional NRC Comments on Draft GAO-05-967

Additional NRC Comments on Draft GAO-05-967

1. On page 1, the first sentence of the first paragraph states, "the debate continues over the appropriate control of sealed sources..." The sentence should be revised to state that the Commission has determined the appropriate controls for sealed sources for the U.S. Nuclear Regulatory Commission (NRC) and Agreement State licensees. The Commission will continue to evaluate if additional actions may be warranted due to changing security concerns.
2. The first paragraph on page 1 also implies that sources used in moisture density gauges (category 4 and 5 sources), medical pacemakers (category 3 sources), and medical diagnostics (category 4 and 5 sources) are suitable for use in a radiological dispersal device (RDD). These sources should be removed from the list. In addition to the fact that their activity levels make them questionable for use in an RDD, medical pacemakers are no longer widely used and most are no longer in circulation, and medical diagnostic sources are more often unsealed material.
3. On page 2, the first full paragraph states: "As we reported in August 2003, NRC and the Agreement States disagreed about the appropriate state role in the regulation of sealed radiological source security. NRC and the Agreement States are currently attempting to reconcile their differences over the control of sealed radiological sources." We suggest that the report be revised to indicate that NRC and the Agreement States are currently working together to implement increased regulatory requirements for category 1 and 2 sources.
4. On page 2, in footnote 2, it should be noted that the Atomic Energy Act, as amended, allows NRC to relinquish certain parts of its authority. Even within Agreement States, NRC retains authority over some activities and facilities.
5. On page 3, the report states that both greater than class C (GTCC) and non-GTCC wastes have to be disposed of in NRC-licensed facilities. While GTCC must be disposed of in an NRC-licensed facility, non-GTCC can be disposed of in an NRC Agreement State licensed facility. This distinction should be noted.
6. On page 7, we suggest a change from, "We are recommending that NRC and DOE..." to "We are recommending that DOE, in coordination with NRC, ..." Similarly, on page 8, we suggest a change to, "We are recommending that DOE, in coordination with NRC, evaluate and report on whether a national source tracking..." and on page 37 we suggest a change of "whether a national source tracking system can be designed..." We believe these changes should be made because the focus of the report is the U.S. Department of Energy's (DOE) recovery and disposal of sources.
7. On page 11, the first sentence of the first full paragraph should read, "... sealed radiological sources within their jurisdictions and to promulgate new security measures." A new paragraph should be started after the sentence, "An NRC official told us that a final assessment should be completed by September 2005," and begin with "NRC and DOE have also been engaged in efforts to systematically track certain devices. In

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November 2003, NRC, with the assistance of ..." We believe that these changes separate the topics more clearly and better reflect NRC and DOE's interactions.

8. On page 11, the first full paragraph also states, "According to NRC officials, NRC has been working since November 2004 with the Agreement States and the regulated community on the need for protective measures for other licensees." We suggest it be changed to read: "NRC has been working with the Agreement States since January 2002, and with licensees since September 2002, using a risk-informed approach to enhance the regulatory requirements applicable to high-risk radioactive material. In June 2003 and January 2004, NRC issued its first set of protective measures to large irradiators and device manufacturers and distributors, respectively. Then in January 2004, NRC and the Agreement States turned their focus toward addressing increased controls for other licensees." We believe the added details more correctly explain our efforts.
9. On page 11, the term "high-risk" is used. To be more consistent with the use of terms between agencies, the term "risk-significant" should be used instead.
10. On page 12, we suggest deleting: "In response to an international joint convention addressing spent nuclear fuel and radioactive waste management, IAEA set forth the elements of an effective national legal and organizational structure that would provide for the safe and secure management of radioactive waste by appropriate national authorities. One of the key elements is that 'the amount of waste in storage awaiting disposal should depend only on operational considerations . . . and should not include a backlog due to an inability (technical, financial, organizational, etc.) to reduce the backlog,'" including the associated footnote 16.

The International Atomic Energy Agency (IAEA) developed, for the United Nations, an "indicator of sustainable development" for the management of radioactive waste. We are unaware of any IAEA safety standards or guides that prohibit or otherwise constrain the amounts of disused sources or radioactive waste in storage. NRC agrees that disposal is the preferred method for managing waste. However, we believe that it is acceptable to allow some licensees to store a backlog of sources in case of instances where disposal is not available.

11. On page 15, the report states, "The director stated that the fiscal year 2004 program budget was \$1.96 million, not including about \$3.49 million that was added to respond in part to unexpected requests from NRC to recover sources of security concerns" [emphasis added]. The sentence implies that the bulk of the cost was due to NRC, but the unexpected part from NRC should only be approximately \$500,000. Without additional information, we suggest deleting the reference to NRC.
12. On page 17, the radionuclide discussed in the first sentence of the first full paragraph should be cobalt-60, not cobalt-90.
13. On page 24, the second sentence should read, "DOE's source recovery project now includes, among other activities, the recovery and commercial disposal of non-GTCC sealed radiological sources that pose a health, safety, **security**, or environmental threat." This addition should also be made to the first sentence in the section entitled "DOE has

Recovered and Commercially Disposed of Some Non-GTCC Sealed Radiological Sources” on the same page. We believe that this addition better states the scope of DOE’s project.

14. On page 24, in the third sentence, the phrase “who cannot afford to dispose of them today” should be removed. The ability to afford disposal is not the sole concern.
15. On page 26, the report states that some higher activity non-GTCC waste cannot be disposed of at the Barnwell, South Carolina disposal site because the commercial license for this site sets limits on the upper end of Class C waste that is acceptable for disposal. This information is attributed to a source within DOE. We recommend that you verify this information with additional knowledgeable sources. The concentration limits in the Barnwell license are identical to those in NRC’s disposal regulation in 10 CFR Part 61. The Barnwell facility operator confirmed that there are no additional limitations on waste concentrations acceptable for disposal, other than those in 10 CFR Part 61.
16. On page 26, we recommend replacing “the chief of NRC’s Materials Safety and Inspection Branch” with “an NRC official.” There is no need to specify the position of the official in the report.
17. On page 30, in the second sentence of the paragraph that starts at the end of the page, the phrase, “neither DOE or any government agency has kept track of the number of sources manufactured” should be removed. We suggested the following re-write: “The current regulatory structure is based on authorizing uses and maximum quantities, while licensees and users are responsible for maintaining inventory for individual sources. Therefore, there is no centralized body of information regarding the number of sources possessed by U.S. licensees and users.” We suggest similar language be incorporated into the first sentence in the first full paragraph on page 32. We believe these changes will better describe the current regulatory structure.

Also, note that knowing the number of sources manufactured by U.S. manufacturers does not provide a good estimate of the number of sources that may need eventual disposal within the U.S. For example, it would not include sources that are manufactured outside the U.S. and then imported by users in the U.S., sources that are manufactured in the U.S. and then exported, nor allowance for sources that are recycled instead of sent to disposal intact.

18. On page 31, we suggest rewording the last sentence of the first paragraph to read, “However, as presently designed, this tracking system lacks information **that DOE might find useful** to plan and ...” We believe that it is an overstatement to say that it is necessary for DOE to have this information.
19. On page 32, we suggest changing the second sentence of first full paragraph to read, “NRC and the Agreement States only have information on the quantities and types of **byp product and source material** radioactive materials licensees are allowed to possess, not what they actually possess at any given time.” Information on quantities and types of special nuclear material is not handled the same way as other radioactive materials, and we believe it is necessary to specify the types of materials being discussed.

20. On page 32, we suggest changing the fourth sentence in the first full paragraph to state, “The information on sealed radiological sources that NRC provides to DOE for scheduling recovery also captures only **those sources that present a current need for recovery and does not include sources that licensees may be in possession of that may be unwanted.**” This additional information better explains the information NRC provides DOE.
21. On page 33, the third sentence should be rewritten to state, “Of the 2,600 licensees contacted, over **99 percent** voluntarily reported **information, with over half reporting** possessing **category 1 or 2** sources.” We believe these additional details better explain the number of responders and results of our discussions with licensees.
22. On page 33, the second paragraph states that there is mounting support from IAEA to track additional source categories. NRC is not aware of “mounting support.” A reference should be provided that supports this statement.
23. On page 34, the report states, “... it would not have captured about 98.5 percent...” We believe it is more appropriate to use the percentages of activity rather than the percentage of sources to explore the impacts here, because it is the activity totals that constitute the risk, not the total number of individual sources. Category 1 and 2 sources represent 86 percent of the activity recovered and, therefore, instead of saying a national tracking system with category 1 and 2 sources would only capture 1.5 percent of the sources, it seems more appropriate to state that a national tracking system with category 1 and 2 sources would capture 86 percent of the activity. In this vein, including category 3 sources would have captured only about 13 percent of the activity DOE recovered. Also note, that of the 98.5 percent referenced in the statement, over 50 percent were category 4 and 5 and, therefore, would not be captured at all.
24. On page 34, we suggest adding the following text before the sentence, “Table 3 provides a breakdown...” to add perspective on the aggregation of sources: “Source aggregation is a logically complex issue, including issues of co-location and barriers. Note that many facilities are large and although aggregation over the total on-site inventory may exceed category 2, the sources under normal storage may not be considered co-located for security purposes (although they may be in near enough proximity to facilitate recovery).”
25. On page 35, the first paragraph states, “NRC offers that one way to address the accumulation of sources of concern would be to lower the threshold for source tracking to include all IAEA category 3 sources.” The accumulation of any category of sources is addressed by the Increased Controls that will be issued by NRC and the Agreement States.
26. On page 35, the report states, “As a result, he commented that tracking IAEA category 3 sources might raise public concerns about why protective measures have not been developed for licensees possessing a category 3 source, even though the risk is with the aggregation of these sources in one location.” NRC does not understand this comment. Although we decided to not include category 3 sources in the tracking system at this time, we believe that NRC has addressed aggregation of category 3 sources through our security orders. The decision to not include category 3 sources in

the tracking system was based on an assessment of the impacts on both regulators and users.

27. On page 36, we suggest adding the highlighted phrase to the first full sentence, “... in the design of the tracking system because of the low response rate to this question on the initial survey and because its security regulations...” This addition better conveys the complete reason NRC no longer asks for information on licensees’ disposal plans.
28. On page 36, in the final sentence of the first paragraph, we suggest that the phrase “... are properly secured and ...” be removed from the sentence. Determining whether sealed sources are properly secured is beyond the scope of the proposed NSTS rule, which requires reporting of certain “transactions” involving certain sealed sources (i.e., origin and endpoint of the sources).
29. On page 37, we suggest revising the first sentence under “Recommendations for Executive Action” to read, “We recommend that the Secretary of Energy, in collaboration with the Chairman of the Nuclear Regulatory Commission and the Task Force on Radiation...” As noted in Comment 6, we believe that the focus of the report is DOE’s recovery and disposal of sources.
30. Throughout the document, the distinctions between sources and GTCC waste are not always clear or accurate. Sources are not GTCC until they are determined to be waste, and then the actual waste classification will depend on packaging and concentration. We suggest that clarifications/corrections be made throughout the report.