NRC NEWS

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Safety and Security of Cesium-137 Chloride Sealed Sources
Remarks by

The Honorable Peter B. Lyons
Commissioner
U.S. Nuclear Regulatory Commission

Workshop on the Security and Continued Use of Cesium-137 Chloride Sources
Rockville, MD
September 29, 2008

I am pleased to be here today and appreciate your willingness to participate. There can be no question that the uses of cesium-137 chloride sources benefit the world's medical, research, and industrial communities and the public. However, preserving these benefits, coupled with achieving adequate security, is a very real challenge.

After this workshop the U.S. Nuclear Regulatory Commission (NRC) staff will be developing recommendations for Commission deliberation. The discussions at this workshop will provide highly valuable input for this process. Because of the importance of these sources to society, it is imperative that we hear from you to help frame a strategy and a possible timeline to address this issue. I want to thank the NRC staff and all participants who have made this workshop possible.

I emphasize that I am providing only my personal views today, and not necessarily those of the Commission. I will keep my remarks relatively brief, to allow enough time for a few questions.

I should begin by pointing out that the NRC has not made any decisions regarding the suspension of the use of high-activity cesium-137 chloride sources. The information gathered at this workshop, combined with other studies, will provide useful insight for the Radiation Source Protection and Security Task Force's (Task Force) discussion and consideration of the continued use of cesium-137 chloride sources. The Task Force is made up of 14 Federal agencies and representatives from the Organization of Agreement States and the Conference of Radiation Control Program Directors, Inc.

The security of radioactive materials has been and continues to be a top priority for the NRC. Applying a risk-based approach, the NRC has enhanced security of radioactive materials and has reduced the potential threat from a radiological dispersal device or radiological exposure device. The security of these materials has been enhanced through additional requirements on access control, detection, trustworthiness, accounting, and other measures. Nevertheless, NRC continues to work closely with its domestic and international partners to continuously assess, integrate, and improve its security programs, and, when deemed necessary, to make risk-significant radioactive materials still more secure and less vulnerable to terrorists.

One such example of this coordination is the government-sponsored (Departments of Homeland Security and Energy) voluntary program to enhance the security of cesium-137 chloride irradiators by making design changes to further delay unauthorized access to the sealed sources. This is referred to as the "hardening program." This is a voluntary program, and the NRC and Agreement States have notified the user community about the program through generic communications. This program and its proposed changes to device designs have been vetted with the device vendors and users to ensure that the changes will have no impact on safety, maintenance, or operation of the devices.

The NRC has a number of initiatives currently underway to address security risks of cesium-137 chloride sources and to develop an integrated strategy toward their future use. I believe others have covered several of these this morning, and more discussion is planned at this workshop. However, I would like to briefly review a number of points that I believe are relevant to this workshop.

High-activity cesium-137 chloride sources are used for research and for industrial and medical purposes in devices regulated by the NRC and the Agreement States. These devices include self-shielded irradiators, research devices, and detection and dosimetry calibrators. Today, Russia's PA Mayak is the only manufacturer of high-activity cesium-137 sources for the international market. The commercial distributor of the Mayak sources in the U.S. is REVISS. The form of cesium-137 in such sources is cesium chloride, which is very soluble and dispersible. Some research and development of alternative forms of cesium-137 has been performed and indicates that less soluble and less dispersible materials may be able to be developed for use in some high-activity cesium-137 sources; however, Mayak will need time to develop commercial production lines for sources that would use a less dispersible form. We need your suggestions to determine an appropriate balance between increased control requirements and the continued use of these sources, until alternative forms can be made available, or feasible alternative technologies become widely used.

Prior to Sept. 11, 2001, regulations of the NRC and the Agreement States contained both safety and security components appropriate for that time. After Sept. 11, 2001, the safety and security requirements were enhanced through the use of increased security controls that aligned with the IAEA Code of Conduct recommendations. Concerns about safety and security of radiation sources and devices have grown partly in response to fears that radiation sources could be used to make a radiological dispersal device (RDD) or more often referred to as a dirty bomb.

Congress directed the NRC, via the Energy Policy Act of 2005, to take several actions. Among them was the request to undertake a study by the National Academy of Sciences (NAS)

to identify the uses of high-risk radiation sources and the feasibility of replacing them with lower- risk alternatives. NAS recommendations called for stopping the licensing of new cesium-137 chloride irradiator sources, prohibiting the export of cesium-137 chloride sources, providing incentives for decommissioning of existing sources, and replacing existing sources with a less dispersible form of radioactive cesium, with cobalt-60, or with non-radionuclide alternatives. Others have called for the replacement of cesium137 chloride sources, including House Bill H.R. 6816, "Nuclear Facility and Material Security Act of 2008."

Consistent with another recommendation of the NAS study entitled, "Radiation Source Use and Replacement," I agree that any effort to replace these radiation sources with alternative technologies should proceed with caution in order to minimize disruption in vital areas of industry, medicine, and research. To that end goal, the NRC is holding this public workshop, to ensure that all stakeholders are afforded an early opportunity to provide input on any potential regulatory changes. The Commission believes that a balanced consideration of stakeholder comments is essential to inform regulatory changes and will help quantify and possibly lessen any negative impacts of such changes.

The Task Force has formed several subgroups including: Cesium Chloride, Radiation Sources, and Alternative Technologies. The Cesium Chloride subgroup has issued its report to the Task Force, the Radiation Sources subgroup plans for a Fall 2008 report, and the Alternative Technologies subgroup's report is due in 2009. These studies, as well as other input, such as, for example, the ongoing study of the Advisory Committee on the Medical Uses of Isotopes on the efficacy of x-ray alternatives, will be used by the Task Force to develop recommendations in its next report to the President and the U.S. Congress, which is due in 2010. The 2010 report will include this issue, among other topics.

As we consider these issues, we need to pay careful attention to the consequences of our actions to avoid unintended consequences, both domestically and internationally. Thus, any resolution would benefit from an international consensus to avoid driving some applications offshore and to prevent sources of concern from becoming more easily accessible in other countries.

It may be useful during this workshop to discuss when security becomes sufficient. For example, should nuclear power plants that use these sources be required to replace them despite the enhanced security requirements at the facility? You could also offer valuable input to two additional questions: How feasible is it to stop licensing cesium-137 chloride sources now with a goal of complete replacement within 10 years? What should be done with the replaced sources/devices, i.e., how should we solve the disposal issue, and should we prohibit export of these sources and devices?

As I noted earlier, the NRC and its federal partners need broad stakeholder input on the potential impacts of actions and the range of alternatives that can potentially address issues associated with removing cesium-137 chloride sources from use. We clearly need your views on economic and societal costs associated with replacing these sources, including the effectiveness of replacements or on impacts to research if they were not available. Additionally, we need to understand the effect on your programs if such sources were replaced by x-ray machines or other alternatives, i.e., maintenance and efficacy issues and costs.

I look forward to the staff's recommendations on issues associated with cesium chloride sources that will be informed by the dialogue at this workshop, as well as by input from other previous and ongoing studies.

Thank you for your attention. I hope you have a very successful and productive workshop.