

Description of Radium-226 Jurisdictional Issues and Recommended Resolution

1. Potential for unnecessary dual regulation under the Atomic Energy Act of 1954, as amended (AEA) and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and lack of finality of the military remediation if the U.S. Nuclear Regulatory Commission (NRC) is not involved during military remediation and before the transfer of remediated property to non-military owners.

According to the Statement of Considerations (SOC) for the Naturally Occurring and Accelerator Produced Radioactive Material (NARM) rule, NRC would not have jurisdiction over the military's remediation of radium-226 contamination because it is considered military operational material that is under military control. However, NRC or an Agreement State would have jurisdiction for radium-226 that remains after completion of the military remediation for either unrestricted or restricted release when the land ownership (and any residual contamination) is transferred out of military control to a non-military owner. Consequently, NRC or an Agreement State could face a conflict when military control ceases of either: 1) agreeing to a remediation in which they were not involved and that could pose excessive risk to the public or environment, or 2) requiring the new owner to further remediate the site after the military remediation had been completed and the site has been transferred to a new owner. Such a circumstance could result in unnecessary dual regulation and lack of finality of the remediation completed by the military.

The staff's recommended graded regulatory approach provides options for NRC's regulatory involvement during the military's remediation process and therefore avoids the need for NRC action after the military remediation and transfer of the land out of military control to the public.

2. Potential for significant impacts to community redevelopment and reuse of remediated military property unless NRC is involved during remediation.

If NRC or an Agreement State jurisdiction became effective only after the transfer of property ownership and after completion of the military's remediation, NRC or an Agreement State would need to determine what action, if any, might be needed to ensure the property met the applicable release criteria. Even a determination that no further action is needed would take time to prepare. It is conceivable that additional actions could be identified as necessary to comply with NRC's decommissioning requirements such as additional remediation, additional institutional controls or restrictions on future land use, revised engineered barrier designs, or requests for dose assessments consistent with NRC or Agreement State guidance. The additional time required for any of these possibilities could delay redevelopment plans important to the local community and could add significant costs to complete remediation.

The recommended graded regulatory approach would involve NRC during military remediation, thereby avoiding impacts on community redevelopment, reuse, and unnecessary additional costs.

3. Regulatory uncertainty and inconsistent understanding regarding NRC's jurisdiction unnecessarily complicates military remediation.

The military and the State of California have questioned the staff about NRC's jurisdiction over military remediation of radium-226 contamination. The military also noted its difficulties, in some cases, in determining whether buried or degraded radium-226 devices in landfills were used for military operations or medical or research activities. As indicated in the NARM rule SOC, medical and research radium-226 would be subject to NRC regulation. Thus, determining whether NRC has jurisdiction for degraded devices can be uncertain and illustrates one potential complication for remediation. The Navy recently identified an example where current NRC jurisdiction is confusing to understand. This example involves radium-226 contamination in military landfills that is co-mingled with strontium-90 contamination that is under NRC jurisdiction. The Navy replaced radium-226 devices with strontium-90 as a self-luminescent material in various instruments during the early 1960s. Instruments with both radionuclides have been disposed of together in some Navy landfills, resulting in the concentration of many degraded instruments. This commingling of licensable and non-licensable material and different jurisdiction further complicates determining and explaining appropriate jurisdiction and applicable regulations.

The recommended clarification would result in clear and consistent jurisdictional determinations for all radiological contamination. Uncertainties about past uses of material or comingling of material would no longer need to be addressed. Thus, the military would be confident of their remediation process and the process for many sites would be less complicated. The clarification and NRC's graded approach would be documented in the Master Materials License (MML) Letter of Understandings (LOUs) and guidance for the Navy and Air Force and in appropriate documents for the Army.

4. Regulatory uncertainty regarding jurisdiction over storage and decontamination of equipment and items containing radium-226.

In addition to issues associated with remediation of radium-226 contamination, the military raised a question about NRC's potential jurisdiction for decontamination of Army vehicles. Specifically, the Army's question pertained to the removal of dials and gauges containing radium-226 so that trucks used by the Army in the 1960's could be released to the public. It was not clear whether the decontamination of this material should be excluded from NRC authority because the trucks were to be sold to the public and, therefore, were no longer intended for use in military operations. The decontamination activities also raised questions about the need for records of decontamination activities and radiological surveys to be retained for future historical radiological assessments in preparation for remediation of the site. Finally, this activity also raised a question about NRC's potential jurisdiction for items or equipment containing radium-226 that currently are kept in storage by the military.

The recommended clarification would result in clear and consistent jurisdictional determinations for decontamination of equipment that contains radium-226 that would be released to the public. It also clarifies jurisdiction for items and equipment in storage. Thus, the military would be confident in its storage and decontamination process and the process would be less complicated. The clarifications and NRC's regulatory approaches would be documented in the MML LOUs and guidance for the Navy and Air Force and appropriate documents for the Army.

5. Potential implications for health and safety from the unregulated sites being remediated and the uncharacterized sites with suspected radium-226.

In addition to the issues above, the following unique challenges are posed by radium-226 at this time and should be consistently addressed by the military under NRC's regulation to ensure protection of public health and safety and the environment.

- There is no independent oversight of military remediation of sites not listed on the NPL, although states are generally involved to various degrees under the CERCLA process. Agreement States do not have authority for Federally owned AEA material;
- The remediation process for non-NPL sites varies, depending on factors such as the source of funding and urgency. The CERCLA process is only used for remediation with Environmental Restoration funds;
- Lack of past requirements for maintaining historical records of radium-226 disposal and documentation of past remediation along with no characterization data presents a challenge in identifying the location and extent of "suspected" radium-226 contamination in the subsurface (e.g., onsite burials and sewer lines);
- The adequacy of specific controls for sites with "suspected" radium-226 to ensure protection is unclear, although these sites are on military property and under military control;
- Inventories of items in storage and equipment containing radium-226 are not yet complete for all the military services.