



NUCLEAR ENERGY INSTITUTE

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October 6, 2000

Ms. Linda C. Suttora  
Division of Waste Management  
Uranium Recovery and Low-Level Waste  
Office of Nuclear Material Safety and Safeguards  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555-0001

**SUBJECT:** Comments on SECY-99-259 "*Exemption in 10 CFR 40 for Materials Less Than 0.05 Percent Source Material -- Options and Other Issues Concerning the Control of Source Material*"

Dear Ms. Suttora:

The Nuclear Energy Institute (NEI)<sup>1</sup>, on behalf of its industry members, welcomed the opportunity to participate in the September 20-21, 2000 kick-off meeting of the Jurisdictional Working Group. You requested meeting participants to submit comments on both SECY-99-259, which addresses proposed changes in the licensing and control of source material, and on the Jurisdictional Working Group Charter, which you developed in the working group meeting.

NEI has carefully reviewed both documents and we wish to appraise you of certain concerns with the staff's proposals. We fully endorse the NRC's program to risk-inform the licensing requirements applicable to Part 40 licensees and to implement, where needed, appropriate measures to protect public health and safety. We also support the Commission's efforts to clarify the jurisdictional responsibility for regulation of source material containing less than 0.05% by weight of uranium and/or thorium ("low-concentration material") among the NRC, other federal agencies and the States.

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<sup>1</sup> NEI is the organization responsible for establishing unified nuclear industry policy on matters affecting the nuclear energy industry, including the regulatory aspects of generic operational and technical issues. NEI's members include all utilities licensed to operate commercial nuclear power plants in the United States, nuclear plant designers, major architect/engineering firms, fuel fabrication facilities, materials licensees, and other organizations and individuals involved in the nuclear energy industry.

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We question, however, whether there is a true need for regulatory changes to 10 CFR 40 or legislative changes to the Atomic Energy Act (AEA) at this time. The existing 10 CFR 40 controls on the distribution of source material (possession, use, transfer and disposal) afford a very adequate level of protection to the public against any potentially adverse radiological effects. Furthermore, we believe the regulations of other federal agencies, such as the Environmental Protection Agency (EPA), the Occupational Health and Safety Administration (OSHA) and the Mine Safety and Health Administration (MSHA) and comparable Agreement State agencies, adequately protect workers and the public from the radiation effects of such low-concentration material. For example, the oft-cited concern in SECY-99-259 that beneficiation of mineral sands (zircon, monazite) may create a serious occupational health hazard are difficult to justify in light of the new process radiation exposure data presented at the Jurisdictional Working Group meeting by the representative of the zirconium industry. Workers in such operations are afforded protection against radiation exposure by OSHA, whose annual occupational exposure limit is 5,000 mrem, a value that far exceeds any measured radiation level in such a minerals sands plant. The likelihood that a member of the public could be exposed to such elevated levels of source material radiation are minimal, if not non-existent.

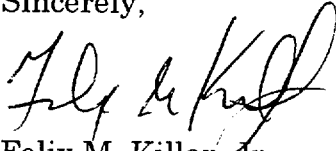
While industry fully supports the goal of risk-informing 10 CFR 40, we believe the first task of the Jurisdictional Working Group should be a critical examination of whether a health and safety problem truly exists. Are current regulations deficient in protecting public safety from low-concentration material, including NORM (naturally occurring radioactive material) and technologically-enhanced NORM (TENORM)? This examination may have to await release in 2001 of the National Academy of Science's BEIR VII report on low-level radiation effects and the role of the Linear, No-Threshold Model in development of regulations. Similarly, the EPA's study on the safety of NORM and TENORM, which is scheduled for release in the first calendar quarter of 2001, may warrant inclusion in this examination.

Revision of a regulation must be predicated upon the clear identification of a potential, credible risk to public health and safety. The staff has not demonstrated in SECY-99-259 any specific health hazard that would justify modifying the licensing requirements for source material. Revisions to 10 CFR 40 and the AEA in the area of source material control do not, therefore, appear necessary at this time.

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NEI appreciates this opportunity to provide comments on SECY-99-259. We should be please to further discuss our concerns and assessment or to answer any questions that you may have.

Sincerely,

A handwritten signature in dark ink, appearing to read 'Felix M. Killar, Jr.', written in a cursive style.

Felix M. Killar, Jr.  
Attachment

cc: Ms. Patricia Holohan, Chief, Rulemaking and Guidance Branch,  
Division of Industrial and Medical Nuclear Safety, NMSS  
Mr. Michael F. Michael Weber, Director, Division of Fuel Cycle  
Safety and Safeguards, NMSS

## NUCLEAR ENERGY INSTITUTE

### Comments On SECY-99-259

*"Exemption in 10 CFR 40 for Materials Less Than 0.05 Percent Source Material --  
Options and Other Issues Concerning the Control of Source Material"*

#### SECY Premise

SECY-99-259 focuses on the exemption to NRC licensing and radiation protection provisions for the possession, use, transfer and disposal of materials containing less than 0.05% by weight uranium and thorium ("low-concentration material"). The SECY seeks to broaden the regulatory oversight of such low-concentration material by the NRC, other federal agencies or by Agreement States in the belief that exposure to such material could be hazardous to the public health.

The SECY also seeks to restrict the use of a regulatory exemption that permits the transfer of low-concentration material and small quantities of source material (<15 lbs.) to persons exempt from licensing requirements. The staff is concerned that licensees could use this exemption to dispose of radioactive materials in solid waste landfills that are not licensed by the NRC.

Finally, the SECY seeks to impose new reporting requirements on General Licensees (*Material Transfer Reports*) that would enable the NRC to track what products and what quantities of low-concentration material and source material are distributed annually for exempt use. It also recommends creation of two new licenses to enable the NRC to monitor the distribution of such materials.

#### NEI Concerns

##### **(a) Existence of a Safety Issue?**

The staff expresses concern that exposure to large quantities of low-concentration material could result in a public exposure exceeding 100 mrem/yr. The SECY cites, as an example, the mineral processing industry in which uranium and thorium can be concentrated in beneficiation circuits to levels exceeding 0.05% by weight. The SECY notes that the processing of zircon mineral sands could potentially expose a worker to an annual dose of 3,500 mrem/yr. The SECY recommends that the NRC or another regulatory agency should license and regulate mineral processing operations in which trace concentrations of uranium and/or thorium could build up and potentially expose a worker or member of the public to >100 mrem/yr. A similar radiation exposure concern arises for workers at solid waste disposal sites who could receive a radiation dose exceeding 100 mem/yr from handling low-concentration or small quantities of source material.

SECY-99-259 fails to distinguish between permissible occupational and public radiation doses. It does not acknowledge the protection already afforded to workers by either Occupational Safety and Health Administration (OSHA) or Mine Safety and Health Administration (MSHA) regulations. OSHA regulations limit exposure of a worker to less than 5,000 mrem/yr occupational dose (29 CFR 1910.1096(b)) that would apply to mineral processing workers and MSHA grants a similar annual y-radiation exposure standard for mine employees (30 CFR 57.5047(d)). This exposure limit far exceeds the NRC's calculated exposure for zircon sand processing workers of 3,500 mrem/yr. The SECY does not explain how the public could be exposed to large quantities of low-concentration material (other than by living in areas having an anomalously high background level of radiation) or discuss the likelihood of such occurrences. The validity of the radiation exposure levels quoted for the mineral sands industry was questioned at the Jurisdictional Working Group as being too high by one or two orders of magnitude.

The NRC staff believes that public exposure to low-concentration material and naturally occurring radioactive materials (NORM) and technologically-enhanced NORM (TENORM) should be regulated.<sup>2</sup> The staff recommends that the NRC enter into a Memorandum of Understanding with other appropriate federal (and Agreement State) agencies, such as the Environmental Protection Agency (EPA), to delineate areas of jurisdictional responsibility for the regulation of such material. While NEI believes that Memoranda of Understanding serve a useful role in avoiding conflicting or dual regulatory authority, we do not see a need for such an agreement with the EPA, OSHA, the Agreement States or other regulatory entities at this time. Until the hazards to public health and safety from such material are clearly demonstrated and an unequivocal need established to regulate their control, discussing Memoranda of Understanding is premature. Over the last few decades the EPA has attempted without success to design a regulatory program for NORM. The lack of a scientifically defensible method to quantify the risks of NORM to human health and safety, the legal and practical ramifications of attempting to regulate immense quantities of naturally occurring soils, rock and other natural materials having trace quantities of radioactive minerals, and the absence of a cost-benefit analysis that identifies clear public health and safety benefits to classifying and regulating NORM have all frustrated the EPA's attempts to regulate this low-concentration material. NEI recommends that the NRC not attempt to regulate low-concentration material until potentially adverse radiological effects to the public health and safety, if any, are unequivocally demonstrated. There is, therefore, no immediate need for a Memorandum of Understanding with the EPA, other federal agencies or Agreement States. Additionally, as discussed above, there

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<sup>2</sup> Any material containing natural uranium and/or thorium that is excluded from the definition of Source Material in NRC regulations would presumably fall within the jurisdiction of the EPA (public exposures) or OSHA (occupational exposures). This will include low-concentration material, NORM and TENORM

is no regulatory gap. EPA regulates releases of radioactive material to the public while OSHA regulates all worker exposures except for those that are under NRC/Agreement State regulation or other federal agency.

### **(b) Control of Material Transfers**

The staff is concerned that the 10 CFR 40.51(b) exemption could be used by licensees to dispose of radioactive waste originating from decommissioning or decontamination of facilities at which source material was handled. Current regulations permit the transfer of low-concentration material (from exempt persons) and small quantities of source material (<15 lbs.) (from General Licensees) to persons who are exempt from the licensing requirements of the Atomic Energy Act (AEA). The staff is concerned that radioactive materials could be discarded as ordinary solid waste and placed in a municipal landfill without the knowledge of the landfill operator. Landfill personnel could, therefore, be unknowingly exposed to low radiation doses. The State of Colorado's Petition for Rulemaking seeks to limit use of the exemption to low-concentration materials that could neither exceed the occupational dose limits in 10 CFR 20 nor require use of personnel monitoring. The inability of the state to monitor or regulate the disposal of such exempt material seems to be of particular concern.

The staff's concern that the 10 CFR 40.51(b) exemption could potentially be used for "sham" disposal of radioactive materials is unfounded. Their principal concern -- that disposal facility workers could be unknowingly exposed to significant radiation doses -- fails to acknowledge protection afforded to them by OSHA regulations (discussed earlier). The hazards posed to the public by even large volumes of low-concentration material or small quantities (<15 lbs.) of source material are not discussed. Similarly, the SECY does not quantify any risk posed by disposal of low-concentration material and/or small quantities of source material dispersed throughout a solid waste landfill. Although data on material transfers are not reported, NEI suspects that the quantities of low-concentration material and source material that are being transferred to solid waste landfills under terms of the 10 CFR 40.51(b) exemption are small. The public should be informed that Part 40 specific licensees (such as mining, milling and conversion operations) are required to dispose of their radioactive wastes, including decommissioning materials, in NRC-licensed disposal facilities and to satisfy the site release criteria specified in 10 CFR 20.

### **(c) New Reporting and Licensing Requirements**

SECY-99-259 proposes significant new reporting requirements for General Licensees to report to the NRC products and quantities of source material and byproduct material distributed annually for exempt use. The NRC also seeks information on the identity and location of General Licensees. Information solicited

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by these new *Material Transfer Reports*, which will be similar to 10 CFR 32.52 and 32.56 reports, is to be used by the NRC to evaluate resultant exposures to the public. NEI does not see a clear need for such reports. Although the SECY nominally is concerned with doses received by the public, SECY Attachment 4 reveals that the staff's real concern is the exposure of workers to >100 mrem/yr. As noted earlier, such workers are currently afforded protection by OSHA and do not need the duplicate protection of OSHA and the NRC. Until a hazard can be demonstrated for exposure to low-concentration material or small quantities of source material, the need for Material Transfer Reporting does not seem warranted from a public health and safety perspective.

The SECY seeks to introduce a new "*Exempt Source Material Distribution License*" that would require annual reporting of material transfers and a new "*Distribution License*" for those who distribute low-concentration and source material to §40.22 General Licensees. The SECY does not provide any information on how such new licenses and the new *Material Transfer Reports* could effectively be used to improve protection of public health and safety, especially when no public harm or adverse health effects have been demonstrated. There appears no justification for the additional reporting requirements and no explanation of how such collected data would be used to protect public health and safety beyond current practice. NEI recommends against introduction of the staff's proposed new licensing requirements and the need to file *Material Transfer Reports*.

#### **(d) Cost-Benefit Analysis**

A cost-benefit analysis must be undertaken to examine the impacts of the proposed tightening of controls on source material. Were, for example, the SECY's recommendation to lower the uranium + thorium concentration in the definition of source material implemented, NRC regulatory oversight of essentially all of the mineral processing industry would result. Tightening (or elimination) of the 10 CFR 40.51(b) material transfer exemption would significantly increase the costs and quantities of decommissioning and decontamination wastes directed to low-level waste disposal facilities without demonstrably increasing public health and safety.

#### **(e) Summary**

SECY-99-259 proposes significant changes in the licensing and control of low-concentration material. NEI has reviewed the proposed changes and the staff's supporting arguments, but concludes that the suggested modifications to 10 CFR 40 are not needed to improve protection of human health and safety. We do not support the staff recommendation to change the definition of 'source material' to include material containing as low as 0.001-0.002% (10-20 ppm) uranium. Risk-informing 10 CFR 40 must start with a critical examination of whether existing regulations offer inadequate protection against public exposures to low-

concentration materials. What scenarios would permit a member of the public to exceed the 100 mrem/yr radiation standard and what is the likelihood of occurrence of any such scenarios?

The NRC regulatory oversight should primarily be limited to nuclear fuel cycle operations and not be extended to cover a majority of mineral processing operations. Existing practices in, for example, the phosphate fertilizer industry whereby the operators obtain and "activate" an NRC Part 40 license whenever recovery of source material from side-streams is made, need only be more widely communicated by the NRC and other regulatory bodies. Radiation risks to the public from such mineral beneficiation operations have not been identified. OSHA and MSHA regulations currently afford mineral processing workers an adequate measure of radiation safety. We recommend against NRC (and EPA) attempts to regulate low-concentration material (or NORM), simply because the hazards of such material to the public health and safety are not apparent and the logistics of regulating naturally occurring materials will prove impossible. NEI does not support introduction of new reporting requirements for source material, as the SECY does not make clear how such information will materially improve implementation of the NRC's mandate of protecting human health and safety and the environment. Similarly, how introduction of two new licenses ("*Exempt Source Material Distribution License*" and "*Distribution License*") will assist the NRC in fulfilling its mandate is unclear. Any revisions to the licensing and source material control provisions of 10 CFR 40 should only be considered if a cost-benefit analysis clearly demonstrates a significant improvement to protection of human health and safety and the environment from their implementation.

NEI encourages the Jurisdictional Working Group to first determine whether a health and safety problem truly exists from public exposure to low-concentration material. This determination may have to await release in 2001 of the National Academy of Science's BEIR VII report on low-level radiation effects and the role of the Linear, No-Threshold Model in development of regulations. Similarly, the EPA's study on the safety of NORM and TENORM, which is scheduled for release in the first calendar quarter of 2001, may bear on this issue.

NEI fully supports the policy goal of risk informing 10 CFR 40, but until the hazards of public exposure to low-level and small quantities of source material can be demonstrated, revisions to the licensing and control of such materials are inappropriate. We suggest that the Jurisdictional Working Group Charter be revised to identify its first priority to be examination of the health and safety impacts of low-concentration material and the need for any regulatory changes to 10 CFR 40 or legislative changes to the AEA.