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**ComEd**

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Secretary  
U. S. Nuclear Regulatory Commission  
Washington, D. C. 20555-0001

DOCKET NUMBER  
PROPOSED RULE **PR 20**  
(64FR35090)

Attention: Rulemaking and Adjudications Staff

Subject: Response to Request for Comment, "Release of Solid Materials at Licensed Facilities: Issues Paper, Scoping Process for Environmental Issues, and Notice of Public Meetings"

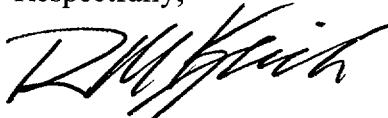
References: (1) Volume 64, Federal Register, Page 35090 (64 FR 35090), dated June 30, 1999

(2) Letter from Lynnette Hendricks (NEI) to U. S. NRC, "Release of Solid Materials at Licensed Facilities: Issues Paper, Scoping Process for Environmental Issues, and Notice of Public Meetings – 64 Federal Register 35090 – June 30, 1999," dated December 22, 1999

This letter provides Commonwealth Edison (ComEd) Company comments on the issues paper and scoping process described in Reference 1 for release of solid materials at licensed facilities. ComEd participated in one of the public workshops and is also involved with the Nuclear Energy Institute (NEI) Executive Task Force on this issue. In Reference 2, the NEI transmitted the industry's comments to the NRC. We fully endorse the NEI comments and offer additional comments in the Attachment to this letter.

We appreciate the opportunity to provide our input at this early stage of the process.

Respectfully,



R. M. Krich  
Vice President - Regulatory Services

Attachment

**Attachment**  
**Commonwealth Edison Company Comments on "Release of Solid Materials at  
Licensed Facilities : Issues Paper, Scoping Process for Environmental Issues, and  
Notice of Public Meetings"**

General Comments

Commonwealth Edison (ComEd) Company fully supports rulemaking to establish a standard for the unrestricted release of solid materials that contain trivial amounts of radioactivity and pose no health or safety risk to the public or environment. Significant societal benefits would be achieved from such a rule and include the following.

1. The establishment of a clear and safe dose-based standard for the release of solid materials will increase public confidence in the regulatory process and the controls on radioactive materials. The current "technology-based" standard which suggests to licensees "how hard to look" is inconsistent with the existing regulatory framework. The establishment of a standard for the unrestricted release of solid materials would provide the same level of protection for the public as do the existing requirements on the release of radioactivity in air and liquid effluents from NRC licensed facilities. Furthermore, the lack of an NRC standard has created a general misunderstanding within the public regarding the safety significance of minute levels of radioactivity that may be present in materials. The end result has been the requirement for licensees to experience significant costs for disposal of certain materials without any quantifiable benefit to public health and safety. A dose-based standard will facilitate:
  - The low cost disposal of large amounts of materials in municipal/industrial landfills and thereby reduce the impact on the industry of depleting available space at licensed low-level radioactive waste disposal facilities; and
  - The recycling of metals and other materials while reducing the environmental impacts associated with replacing these resources through mining and processing of raw ores.
2. The regulatory burden on licenses would be reduced in two significant ways.
  - Significant time and resources are expended using sophisticated survey techniques in an attempt to detect extremely low levels of radioactivity in volumetric materials (e.g., soils) and to determine the presence of surface radioactivity on solid materials. An appropriate dose-based standard would establish radioactivity levels which licensees could reliably detect 100% of the time and would eliminate the inconsistencies between licensees in their approach to release of solid materials.
  - Under current regulations, licensees may request NRC approval of alternate criteria for disposal of specific solid materials on a case-by-case basis. The cost to prepare such requests would be eliminated by a standard for unrestricted

release of solid materials. An added benefit would be the reduction in the use of NRC staff resources to process such requests.

3. The international community is moving forward with the establishment of a consistent dose-based standard. The establishment of an equivalent standard in the U.S. will ensure that American industries involved in licensed activities are not placed at a competitive disadvantage in the international market.

To achieve the maximum benefits, the following comments are provided.

1. The proposed rulemaking needs to be comprehensive and include all metals, equipment and materials, including soil. Furthermore, the origin for such materials within the licensee's facility should not be a criterion for determining whether or not the standard applies to such materials. When releasing items such as tools and equipment, which cannot or will not be broken up into its requisite parts, it is important to have a single limit that applies. For example, to release a cable, it is not practical to strip the insulation and survey it to a certain standard, then survey the copper wiring to a different standard.
2. The dose-based standard needs to be set at an appropriate level to ensure public health and safety. A standard in the range of 1 to 5 millirem (mrem)/year is recommended. A dose standard in this range is consistent with 10 CFR 50, Appendix I, "Numerical Guides for Design Objectives and Limiting Conditions for Operation To Meet the Criterion 'As Low as is Reasonably Achievable' for Radioactive Material in Light-Water-Cooled Nuclear Power Reactor Effluents," which defines the criteria for demonstrating that doses are as low as reasonably achievable (ALARA) for gaseous and liquid releases to unrestricted areas. This standard is less than 2% of the annual dose received by the public due to natural background radiation. Furthermore, the National Council on Radiation Protection and Measurements (NCRP) has made recommendations in Report 116, "Limitation of Exposure to Ionizing Radiation," regarding acceptable levels of radiation exposure to the public. Specifically, a dose of 1 mrem/year is considered by the NCRP to present a trivial health risk. At the same time a dose standard of 1 to 5 mrem/year will result in the public and industry achieving the benefits noted above.
3. The technical basis and methodology for determining the permissible radioactivity (i.e., concentration in volumetric materials and the surface contamination levels for solid objects) for these materials needs to incorporate realistic scenarios on how members of the public will or could be exposed to such materials. For example, in draft NUREG-1640, "Radiological Assessments for Clearance of Equipment and Materials from Nuclear Facilities," overly conservative and unrealistic assumptions and input parameters used to model the doses to individuals during transport, handling and processing scrap metal yielded highly improbable results. The use of unrealistic dose scenarios will make material release impractical and will prevent the public and industry from achieving the safe, but cost effective benefits stated earlier. In addition, the dose models need to be specific to each release pathway. Metals and materials that will be disposed of in either a municipal (e.g., sanitary) or industrial landfill would likely have a different permissible level of radioactivity that

corresponds to the release standard (i.e., clearance level) than metals or materials that are recycled. However, in both cases the dose standard is met.

4. The screening levels provided in American National Standards Institute (ANSI) Standard N13.12, "Surface and Volume Radioactivity Standards for Clearance," are more realistic than the values specified in NUREG-1640, and would result in members of the public receiving less than 1 mrem/year, thereby ensuring public health and safety. Furthermore, the NUREG-1640 values are significantly more restrictive than the screening levels being considered by the European Commission and the International Atomic Energy Agency (IAEA). International consistency is an important factor because materials can be both imported and exported between the U.S. and other countries.

#### Specific Comments on Issues Paper

ComEd offers the following additional comments specific to the Issues for Discussion posed by the NRC in the Federal Register notice of June 30, 1999 (64 FR 35090).

Issue 1. – Should the NRC address inconsistency in its Release Standards by considering rulemaking on release of solid materials?

Yes, the benefits of rulemaking for the public and industry far outweigh the current situation where unrestricted release of solid material is not permitted (i.e., except with case by case approval from the NRC) regardless of how low the radioactivity content is in the material. Current release standards for air and liquid releases from NRC licensed facilities provide adequate protection of the environment and the health and safety of the public. A clearance level for solid materials that provides a dose-standard consistent with the air and liquid release standards will also ensure that public health and safety is maintained while providing for the benefits noted earlier. In addition, a standard for the release of solid materials would be consistent with the 10 CFR 20, "Standards for Protection Against Radiation," requirements for unrestricted use of decommissioned lands and structures.

- (1) Does the current system of NRC case-by-case decisions on release... provide an adequate regulatory framework?

No, the current approach is inefficient and costly. It is unnecessary and inappropriate to perform case-by-case analysis for solid material release pathways that can be encompassed by a generic dose model and incorporated by a rule.

- (2) Should the NRC develop dose-based regulations on release of solid materials?

Yes, for the reasons stated above, we support the development of a proposed rule in 10 CFR 20 for a dose-based regulation limiting releases of solid material.

- (3) To what extent would such a rule contribute to maintaining public safety, ... and reduce unnecessary regulatory burden?

The establishment of a dose-based standard consistent with 10 CFR 50, Appendix I for gaseous and liquid releases would maintain public safety by establishing clear criteria that apply the ALARA principle to the release of solid materials. As noted earlier, public confidence in the regulatory process and the controls on radioactive material would be improved. Such rulemaking will help the public understand and put in perspective the risks that are associated with extremely small amounts of radioactivity. Failure to implement such rulemaking will only further enhance the perceived concerns and phobia that the public has regarding radiation at any level. The benefits that would be achieved in reducing regulatory burden are described above.

- (4) Would the issuance of an NRC rule ... resolve licensee questions regarding finality of NRC release decisions if [Environmental Protection Agency] EPA ... promulgates a rule at a later date?

We support the position that the NRC should have the lead on determining what an appropriate release standard should be for the unrestricted and restricted release of solid materials from NRC licensed facilities. We consider that the NRC and EPA need to work together to resolve any differences between the two agencies on an acceptable dose-based standard.

- (5) Would potential savings in resources by having a regulation in place offset the resources spent on rulemaking?

Yes, we consider that such rulemaking is necessary in order to achieve the benefits stated above.

Issue 2. – If NRC decides to develop a proposed rule, what are the principal alternatives for rulemaking that should be considered, and what factors should be used in making decisions between alternatives?

ComEd offers the following comments regarding the potential rulemaking alternatives.

- (1) We fully support the alternative to permit the release of materials for unrestricted use if the potential dose to the public from the material is less than a specified level determined during the rulemaking process. For the reasons stated earlier, we support a dose level of 1 to 5 mrem/year. A dose level of 5 mrem/year represents less than 2% of the natural background radiation received by people in the U. S.
- (2) We support a restricted release of solid materials that are being released for disposal only. Specifically, solid materials that are sent to a sanitary or industrial landfill and will not be recycled should have a higher clearance level provided the resulting dose pathway remains less than the dose standard (1 to 5 mrem/year) for landfill workers who process this waste material. We do not support a restricted release of materials based on the future use of the

materials. We have concerns that implementing a “restricted release” policy could further complicate the release of materials and add additional controls to the restricted material that would be difficult if not impossible to enforce. If the NRC chooses to implement this option in rulemaking, it is important that this material be distinguished as “unlicensed.”

- (3) We do not support the alternative that would “not permit either the unrestricted or restricted release of solid material that has been in an area where radioactive material has been used or stored.” This alternative is more restrictive than the current regulation and implies that all material that has ever been in such areas is automatically unsafe for human use regardless if it has any radioactive material content or not. Such a requirement is too restrictive. For example, under this alternative, it would be acceptable for people to enter and leave such areas but yet it would be unacceptable for tools and equipment to leave with the people even if surveys show no radioactive contamination.

We offer the following comments regarding the potential environmental impacts and cost-benefit considerations.

- (1) We support the comments made by the Nuclear Energy Institute (NEI) regarding the technical basis and assumptions contained in NUREG-1640. As stated above under the General Comments section, the assumptions used to determine the doses that members of the public may receive from the release of these materials are extremely conservative. Such an overestimation of dose would severely limit use of the regulation and is inconsistent with the regulatory need to balance costs versus safety. In fact, a realistic cost-benefit analysis cannot be properly performed when the risks are exaggerated many times by using unrealistic scenarios for modeling doses.
- (2) The continuing mining of new metal ores and the production of new products has a significant impact on the environment. The recycling of metals that could be safely released back into the public domain would provide an environmental benefit by reducing the amount of mining and raw ore processing needed to meet society’s needs.
- (3) The costs for products sold by NRC licensees include all the costs associated with producing the product including the disposal costs for wastes. The costs for the disposal of solid materials as radioactive wastes can be in the range of several dollars per pound. Solid materials that contain a trivial level of radioactivity are today being disposed of as radioactive waste. A safe dose-based standard that would permit the release of some solid materials would result in significant cost savings for the licensee and, in a competitive economic environment, result in lower product costs to the consumer. There should be no added costs for licensees to perform surveys to ensure that these solid materials do not contain radioactivity levels above the clearance level for two reasons. First, licensees perform such surveys today in order to classify the waste and complete appropriate documentation for disposal.

Second, a dose-based standard of 1 to 5 mrem/year with realistic scenarios and parameters for dose modeling would result in a readily measurable (i.e., detectable) clearance level. Survey techniques will be easier and more consistent than under the current rule wherein technicians must ascertain if any detectable radioactivity is present – a difficult task due to the variability of natural background radiation.

We offer the following comments regarding implementation considerations.

- (1) There are two potential issues that need to be addressed regarding the restricted release of solid materials for disposal at sanitary or industrial landfills. First, the NRC needs to address the issue with the Agreement States and work to resolve any differences regarding jurisdiction for what materials can be safely disposed of in sanitary or industrial landfills. Second, the NRC needs to provide clear guidance that can be provided to the landfill operators on the acceptability of materials with radioactivity levels below the clearance level. This guidance is needed in order for licensees to avoid the potential rejection of waste that may be surveyed at the landfill. Licensees would have the incentive to work with the landfill operators on developing alarm levels that correspond to the clearance level. Thus the radiation detectors used by landfill operators would provide an additional means for ensuring that materials containing radioactivity are below the clearance level and can safely be disposed.
- (2) As stated in the general comment section, we support the screening levels provided in ANSI N13.12 for both surface and volumetric measurements for the unrestricted release of solid materials. Licensees have readily available survey capabilities to detect radioactivity at these levels with a high degree of confidence. New and potentially costly survey capabilities and techniques would not be necessary. The specific survey techniques described in ANSI N13.12 would provide adequate guidance on how to determine if radioactivity is present at or above the clearance level. For materials that require survey, the survey methods should be the same regardless of where the material came from within the facility.
- (3) The clearance level criteria for the unrestricted and restricted release should be stated in terms of surface contamination (disintegrations per minute/100 square centimeters) and volumetric concentration (picoCuries/gram). The clearance criteria may be higher for the restricted release pathway provided the landfill workers and other members of the public receive less than the dose standard (1 to 5 mrem/year). In all cases, the clearance level criteria should translate to ensuring that members of the public receive less than the dose standard. The models used to translate the dose standard to surface and volumetric concentrations again needs to be realistic and also address the potential buildup of radioactivity in commerce.
- (4) The establishment of a clearance level must be based first on a consistent dose standard both internationally and within the United States. As stated in our

general comments, the international community is moving forward with establishing a consistent dose standard. For the U.S. to establish a different standard, or worse still, maintain the status quo with no rule change, would place our industries at a competitive disadvantage. This situation is similar to the regulations on the transport of radioactive material wherein the Department of Transportation (DOT) regulations were changed to be consistent with the international regulations of the IAEA. An agreement on a dose standard is just the first step of a two step process to ensure consistency. The second step is to ensure consistency between the dose pathway models used internationally. Using the current criteria in NUREG-1640 would result in significantly lower surface and volumetric radioactivity clearance levels than what is expected to be implemented by the international regulations.

- (5) The NRC should require Agreement States to implement the final rule as written to ensure 100% compatibility and consistency across all states for the same reasons listed for international consistency.

Issue 3 – If the NRC decides to develop a proposed rule ... could some form of restrictions on future use of solid materials be considered as an alternative?

As previously stated, we do not support a restricted release of materials based on the future use of the materials. We do, however, support release of slightly contaminated solid material, restricted to disposal only, at a municipal or industrial solid waste landfill. However, this should not be an alternative to the unrestricted release of material below the clearance level. Both unrestricted and restricted release criteria options should be available in the rule, notwithstanding the previously stated concerns regarding the category of “restricted release.”

For materials released for restricted disposal at a landfill, no special controls would be necessary to assure that the material would not be released for unrestricted use because the material would meet the dose-based standard for the landfill pathway. This situation is similar to how licensees process waste today, in that the licensee is responsible for ensuring that radioactive waste is transported for proper disposal. The only difference is that certain slightly contaminated materials are disposed of in a landfill instead of a licensed low-level radioactive waste disposal facility. The NRC would perform inspections of licensees to verify program compliance.

Issue 4 – If the NRC decides to develop a proposed rule, what materials should be considered?

We support a broad rule encompassing all materials but recognize the need to potentially limit the materials covered in the first rulemaking to metals, concrete and soils where current dose pathway models are developed, but need to be adjusted for realistic parameters and assumptions. Thus, we support alternative (3) with respect to unrestricted use for the group of materials noted in alternative (1), and to conduct rulemaking for the unrestricted use for the other materials in alternative (2) – sludge, sewage, wood, glass, and others at a later time. However, we consider that the initial rule should also include



the broader material in alternative (2) for the restricted release for disposal at municipal or industrial landfills. This is because the pathway model for the restricted release is well defined and similar for all materials being disposed.