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U.S. Nuclear Regulatory Commission
Attention: Rulemaking and Adjudications Staff
Washington, DC 20555

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Dear Sirs:

I am writing to urge you to continue your efforts to consider your rulemaking to set requirements on the release of solid materials containing low levels of radioactivity, referred to as clearance of materials. I further urge you to support the adoption of American National Standards Institute (ANSI) Standard N13.12, which establishes dose-based clearance criteria consistent with international commerce. Adoption of National Consensus Standards is in keeping with the intent of Public Law 104-113, *National Technology and Transfer Act of 1995* and OMB Circular A-119 *Federal Participation in the Development and Use of Voluntary Consensus Standards*. **As explained below, this issue has implications for consumer affairs, foreign commerce, energy, and natural resources.**

I understand that emotions are running high on this subject and that there is a lot of misinformation being provided by some groups and individuals. I would like to provide you with my views on this subject, as the past Chair of the ANSI N13.12 Working Group, and as a current member of the Board of Directors of the Health Physics Society, **a professional society representing approximately 6,000 professionals dedicated to radiation safety.** Enclosed please find a recent position statement of the Health Physics Society on the subject of Clearance of Materials. **The motive for establishing clearance criteria is not to produce unnecessary sources of radiation, but rather to increase protection of the public by establishing strict standards and guidelines to ensure that harmful sources are controlled, while conserving our natural resources.**

International dose criteria for clearance have been defined by the International Atomic Energy Agency (IAEA). These criteria have been adopted by most nations and they state that the dose rate to a member of a critical group should not exceed 1 mrem/year. This dose rate is the primary criterion contained in ANSI N13.12. This dose rate is about 0.3% of the dose rate that Americans typically receive from natural background sources, including radon in their homes. This dose is also that level which is considered to be a "Negligible Individual Dose" by the Congressionally Chartered National Council on Radiation Protection and Measurements. Materials that meet the ANSI N13.12 criteria are only slightly contaminated and should not be confused with low-level radioactive waste. Part of the reason for selecting a dose rate so small is to ensure that individuals who may be exposed to multiple sources of radiation will receive only a fraction of the doses permitted by Federal regulations and a smaller fraction of the doses they receive from background sources. Attempts to estimate risks at low levels of radiation dose are likely conservative since there is no human health evidence that low levels of radiation exposure actually induce cancer. However, for comparison only, using risk conversion factors from the International Commission on Radiological Protection (ICRP), **a dose rate of 1 mrem/year has a hypothetical risk of fatal cancer of about 1 in 2 million. This level of risk is below the lower end of the risk range (i.e., a risk of cancer death of one in one million) established by the**

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**U.S. Environmental Protection Agency (EPA) for protecting the public following the cleanup of land contaminated with hazardous materials under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).** It should also be noted that the EPA rarely enforces the one in a million risk for environmental cleanup, and often regulates near the higher end of their established risk range (i.e., a risk of cancer death of one in ten thousand). For example, environmental cleanup of the Hanford Site (and most U.S. Department of Energy Nuclear Sites) is typically being controlled to a dose of 15 mrem/y to a member of the public, with an associated risk 15 times higher the proposed clearance levels. Further, the 1 mrem/y criterion is far lower than the decommissioning regulations adopted by the Commission, at 25 mrem/y.

Although the focus of the current debate is the recycle of contaminated metals, and fears that consumer products will become contaminated to unacceptable levels, the subject of clearance covers much more, including establishing uniform, dose-based, radiation survey criteria. In the current situation, many facilities release materials if no radiation can be detected using field instruments. This practice does not imply that no radioactive contamination exists since the lower limit of detection for a radiation survey is a function of the selected field instrumentation and the training of the individual conducting the survey. As a result, the determination of what can be detected can vary from facility to facility. **By establishing clearance in the regulations, and by adopting the criteria in ANSI N13.12, there will finally be uniform guidance in the U.S. on acceptable detection levels that are consistent with those recommended by the IAEA and accepted by the international community.** The existence and application of uniform monitoring and survey criteria should reduce the potential for the unintentional release of radioactive materials.

Recycle of cleared metals would not mean the dilution of highly contaminated metal with other metal in the industry. Rather, it would mean the careful sorting of metals, using standard criteria, such that no metals above the 1 mrem/year clearance criteria would find their way into commerce. Metals containing levels above the standard could be further decontaminated or sent to low-level radioactive waste disposal if decontamination to the clearance criteria could not be achieved. **The credibility of the United States' radiation protection framework is at stake since many other countries have already adopted clearance criteria and the U.S. currently does not have uniform criteria.**

The completion of the rulemaking and adoption of ANSI N13.12 will not mean the transfer of large quantities of radioactive metals and materials from low-level radioactive waste disposal into commerce. It will mean the **establishment of safe practices and controls to prevent the distribution of unnecessary sources of radiation using criteria that are consistent with those found in international commerce.**

**In closing, I strongly urge you support continue your rulemaking process to modify 10 CFR 20 to include clearance at a level of 1 mrem/y, and endorse the adoption of ANSI Standard N13.12.**

Sincerely,

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Enclosure

# CLEARANCE OF MATERIALS HAVING SURFACE OR INTERNAL RADIOACTIVITY

## POSITION STATEMENT OF THE HEALTH PHYSICS SOCIETY

Adopted: September 1999

Contact: Richard J. Burk, Jr.
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The Health Physics Society* welcomes the opportunity to participate in the process initiated by the Nuclear Regulatory Commission for development of standards for the clearance of materials having surface or internal radioactivity. The Society believes that the definition of clearance levels is an important part of the standards that provide for the safe handling, use, and disposal of radioactive materials.

The position of the Society relative to radiation protection regulations and standards for the general public have been established in previous Position Statements of the Society. Portions of these positions relative to the clearance of materials having surface or internal radioactivity are:

(1) **we support regulations for radiation protection that are based on the National Council of Radiation Protection and Measurements' (NCRP) recommendations for dose limits for individual members of the public;**

(2) **we recommend that constraints[1] be applied to all regulated, non-medical, non-occupational sources of radiation exposure to the general public, excluding indoor radon, such that no**

[1] "Constraints" refer to restrictions placed on sources or practices in order to achieve the dose limits that apply to an individual.

**individual member of the public will receive in any one year a total effective dose equivalent (TEDE)[2] exceeding 100 mrem (1mSv)[3] from all such sources combined; and,**

(3) **we recommend that dose limits be applied only to individual members of the public, not to the collective dose to population groups**

Expansion and clarification of these recommendations specific to clearance of materials having surface or internal radioactivity further leads the Society to take the position that:

(4) **we recommend that regulations for radiation protection be based on consensus standards of the American National Standards Institute (ANSI) issued by the Health Physics Society Standards Committee in keeping with the intent of Public Law 104-113 "National Technology and Transfer Act of 1995" and OMB Circular A-119 "Federal Participation in the Development and Use of Voluntary Consensus Standards";**

(5) **we recommend that primary radiation protection standards be all pathway TEDE standards with screening levels related to quantities that can be measured such that compliance with these levels will result in the primary dose standards being met for reasonable and likely scenarios;**

(6) **we recommend that these screening levels be derived with consideration of the principle of as low as reasonably achievable (ALARA); and,**

(7) **we support the adoption of ANSI Standard N13.12 (1999), "*Surface and Volume Radioactivity Standards for Clearance*",** which is consistent with positions (1) through (6) above.

**ANSI Standard N13.12**

Clearance is the removal from further control, of any kind, of items or materials that may contain residual levels of radioactivity. In 1964, the Health Physics Society, under the auspices of ANSI, began the technical evaluation of clearance, resulting in early drafts of ANSI N13.12. These early drafts of the clearance standard were based primarily on detection levels that could be achieved using field instruments, with secondary concerns about the potential individual doses that may result. An early draft version of ANSI N13.12 was consistent with the surface contamination limits that were published by the U.S. Atomic Energy Commission in the 1974 version of Regulatory Guide 1.86, *Termination of Operating Licenses for Nuclear Reactors*, which is still in use today.

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[2] The total effective dose equivalent (TEDE) is the sum of the absorbed doses that will be delivered to the separate organs or tissues during the lifetime of an individual from one year's intake of radionuclides plus irradiation by external sources, with each organ or tissue dose weighted for the type of radiation producing the dose and with an estimate of the risk that the organ or tissue will develop a radiation induced cancer or result in a genetic effect.

[3] The Sievert (Sv) is the international (SI) unit of dose equivalent or of effective dose equivlent; 100 mrem = 1 millisievert (mSv). The Society endorses the use of SI units; however, because U. S. regulatory agencies continue to use traditional units in regulations, this position statement uses the traditional unit for dose equivalent, i.e., mrem, throughout the document.

In 1993, the Health Physics Society Standards Committee, in agreement with ANSI Committee N13, established a technical writing group to develop the final N13.12 clearance standard. The charter of the writing group was to develop a consensus clearance standard that would be protective of public health based on the recommendations of the International Commission on Radiological Protection (ICRP). Recommendations of the NCRP that have been adopted as the regulatory basis in this country are consistent with those of the ICRP. The standard was also chartered to consider both surface and volume radioactive contamination, consider radiation detection issues, and consider international issues such as the clearance principles outlined by the International Atomic Energy Agency and international trade implications for recycled or reused items or materials.

The final clearance standard was approved in August 1999 as N13.12, *Surface and Volume Radioactivity Standards for Clearance.* This standard provides both the individual dose criterion of 1 mrem per year for clearance and derived screening levels for groups of similar radionuclides. The standard also allows for clearance, when justified on a case-by-case basis, at higher dose levels when it can be assured that exposures to multiple sources (including those not covered by the standard) will be maintained ALARA and will provide an adequate margin of safety below the public dose limit of 100 mrem/y (TEDE). It was recognized that there were several complex issues that would make it difficult to fully implement the clearance standard. As a result, some of these issues were defined to be beyond the scope of the standard, including: naturally occurring radioactive materials, radioactive materials in or on persons, release of a licensed or regulated site or facility for unrestricted use, radioactive materials on or in foodstuffs, release of land or soil intended for agricultural purposes, materials related to national security, and process gases or liquids.

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* The Health Physics Society is a non-profit scientific professional organization whose mission is to promote the practice of radiation safety. Since its formation in 1956, the Society has grown to approximately 6,000 scientists, physicians, engineers, lawyers and other professionals representing academia, industry, government, national laboratories, the department of defense, and other organizations. Society activities include encouraging research in radiation science, developing standards, and disseminating radiation safety information. Society members are involved in understanding, evaluating, and controlling the potential risks from radiation relative to the benefits. Official position Statements are prepared and adopted in accordance with standard policies and procedures of the Society. The Society may be contacted at: 1313 Dolley Madison Blvd,. Suite 402, McLean, VA 22101; phone: 702-790-1745; FAX: 703-790-2672; email: HPS@BurkInc.com.