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Secretary  
Attn. Rulemaking and Adjudications Staff  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

**Re: Comments of the National Mining Association on the Release of Solid Materials at Licensed Facilities: Issues Paper, Scoping Process for Environmental Issues, and Notice of Public Meetings, 64 Fed. Reg. 35090 (June 30, 1999).**

The following comments are provided by the National Mining Association (NMA) on behalf of the uranium recovery industry in response to the Nuclear Regulatory Commission's (NRC's) June 30, 1999 Federal Register Notice regarding the release of solid materials at NRC licensed facilities. See 64 Fed. Reg. 35090 (June 30, 1999). NMA appreciates the opportunity to comment at this very early stage in the process. We provide below several very general comments regarding the NRC's consideration of rulemaking to regulate the release of solid materials as well as more specific comments addressing issues of particular concern to the uranium recovery (UR) industry.

**I. GENERAL COMMENTS**

NMA's initial reaction to the potential proposed regulations for release of solid materials is best characterized in the form of a question: Is a regulation truly necessary for the fuel cycle as a whole, and in particular, for uranium recovery licensees? In order to determine whether a regulation is necessary, there must be a reasonable basis for evaluating the significance of the doses resulting from the release of solid materials from NRC licensed facilities. Due to allegedly inconsistent results from the presently employed activity-measuring instrumentation, and the pathway dependent nature of dose calculation, it is difficult to determine whether the potentially differing doses attributable to materials released from licensed facilities are significant, *i.e.*, whether they pose a threat to public health and safety. Neither the June 30, 1999 Notice nor the underlying "Radiological Assessment for Clearance of Equipment and Materials from Nuclear Facilities" (NUREG-1640), show that the doses resulting from released solids are significant from a health and safety perspective and therefore warrant regulation.

NUREG-1640 suggests that about 1 millirem (mrem) per year exposure level is likely to

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be experienced from release of solid materials from licensed facilities. Assuming this is correct, this exposure would be "trivial" or fairly characterized as a "negligible individual risk" in accordance with the National Council on Radiation Protection's (NCRP) determinations. See NCRP Report No. 91, "Recommendations on Limits for Exposure to Ionizing Radiation," (June 1, 1987). Moreover, as indicated in NUREG-1640, one to two mrem per year exposure is at the lowest end of what is a fairly wide variation in the range of natural background exposures in the United States, which typically range from the low of under 100 mrem per year to highs in excess of 1,000 mrem per year. Furthermore,

[c]onditions that produce a distribution of radiation doses and risks to people within the normal range of natural background should be regarded as "natural."

Health Physics Society (HPS) Position Statement, "Radiation Standards for Site Cleanup and Restoration," June 1993 at 10. Thus, assuming that doses from solid material released from any licensed facilities are in the range of 1 to 2 mrem per year, regardless of measurement inconsistencies, NMA believes that it is hardly worthwhile to take the time and effort to develop a rule to address release of solids. As aptly stated by Professor Otto G. Raabe, Ph.D., CHP Institute of Toxicology & Environmental Health, University of California, Davis: "There is no known, measurable, or expected risk associated with radiation doses equal to normal background radiation levels. Hence, I would consider that an annual dose above background of 30 mrem (about 10% of background) represents a negligible risk or no risk at all."<sup>1</sup> Moreover, to put a 1 to 3 mrem per year dose into perspective, such a dose is roughly equivalent to the dose that would be received by one person sleeping in a double bed with another (resulting from natural radiation sources in the human body). John M. Matuszek, "Low Level Radioactive Waste Regulations: Science, Politics and Fear," Michael E. Burns, Ed., Lewis Pub., Inc. 1988, pp. 270-271.

Apportioning the 100 mrem per year annual dose limit for exposures of members of the public is not an unreasonable approach to developing regulatory limits for a potential source term, however, there must be some demonstration in the record that the number chosen for an apportioned part of the 100 mrem annual dose limit will protect against a potentially significant risk of harm to public health and safety. NMA submits that without some information regarding the differences in incremental doses as a result of differing instrumentation and, indeed, without some understanding of the significance of potential doses from volumetric contamination, it is simply impossible for NRC to develop a meaningful and appropriate number to apportion the 100 mrem dose based on some potentially significant risk to public health and safety. As the

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<sup>1</sup> Statement of Prof. Otto G. Raabe, Ph.D., posted on December 16, 1999 to Radiation Safety Distribution list. The distribution list is an electronic mailing list for Health Physicists, Medical Physicists, Radiological Engineers and others who have a professional interest in matters related to Radiation Protection.

International Commission on Radiological Protection (ICRP) has pointed out, any regulatory intervention to limit radiation dose on a generic basis or an individualized basis should be designed to do more good than harm. In considering this, NRC must consider both the radiological and non-radiological benefits and costs associated with a new regulatory program. As HPS has concluded, “[i]t would be inappropriate to devote the same magnitude of effort or resources to reducing undetectable risks as are appropriate for risks that [have] observable health effects.” HPS, “Scientific and Public Issues Committee Position Statement: Radiation Dose Limits for the General Public,” May 1993 at 14. Or, said another way, “[w]e do not believe it is in the public interest to spend large amounts of public funds for remediation of a calculated public health detriment that is too small to be observed.” HPS, “Radiation Cleanup Standards” at 9. Without more information, there is no way of knowing whether the proposal is doing more harm than good.

NMA wonders whether a study that cross-calibrates the various instruments used in order to identify what the true differences between various instruments may be and may mean with respect to dose would be a useful first step prior to embarking on a full-fledged rulemaking process. Also, NMA suggests that a uniform dose limit does not necessarily result in uniform doses as dose determination is highly pathway dependent and even assuming uniform pathway doses, some may be close to the limit, some in the middle and some far below (e.g., per ALARA). Unless the differences in doses based on different instrumentation are significant, there would appear to be little basis for demonstrating a sound legal justification for regulation.

With respect to who should be regulated, it remains unclear to NMA how the specific requirements on releases of solid materials that NRC is considering developing would affect UR facilities. Specifically, while the Notice and some commenters have addressed soils, they generally ignore the fact that UR facilities are presently subject to strict requirements under 10 C.F.R. Part 40 and Appendix A to that part and that most soils at UR facilities are classified as 11e.(2) byproduct material which cannot be disposed of in a low level radioactive waste impoundment. Moreover, solid materials that are not soils at UR facilities, such as equipment, are subject to existing standards which must be met before release into commerce. Notably, most, if not all, equipment at a uranium recovery facility that would potentially be affected by the rulemaking is merely surface contaminated, therefore, normally can be cleaned prior to release into commerce. This is far different than neutron activation of materials from nuclear reactors. Neutron activated materials are rendered radioactive as far into the material as the neutrons have penetrated. In some cases, depending on the materials, penetration can be quite far. For example, at the Fort St. Vrain reactor, some concrete was activated as far in as five feet.

Finally, due to the breadth of the potential rule and its impacts on existing regulatory regimes, NMA believes that the scoping process should be extended to allow for potentially affected industries and the interested public to develop data and comment further.

## II SPECIFIC COMMENTS

1. The Federal Register Notice mentions soils in several places. As discussed above, NRC's UR program already has criteria for contaminated soils set forth in 10 C.F.R. Part 40, Appendix A, Criteria 6(6), with respect to radium, uranium or thorium at a UR facility. NRC's

potential new rule should state clearly that any soil release limits for solids will not be applicable to UR facilities as soil release limits are already in place for such facilities.

2. Releases of equipment from UR facilities are adequately regulated due to the strict standards already in place. In addition, contamination of equipment and materials at UR facilities is essentially only surficial and therefore concerns, particularly with respect to equipment or volumetric contamination, are not relevant.

3. NMA believes that activity-based standards make the most sense because they are: (1) easy to measure, and (2) potential doses are difficult to calculate and depend on pathways and how objects and equipment or materials are or will be used after they are beyond a licensee's control. Moreover, methods for determining doses under such circumstances could be inherently overly conservative, and unrealistic due to the essentially speculative assumptions necessary to develop some dose pathway. The result, therefore, perhaps will provide little if any benefits to public health and safety particularly in light of the potential cost and upheaval to the current regulatory process that may result. Finally, NMA would note that when dose criteria are essentially near or at zero, extremely sensitive equipment is required that is very expensive and difficult to maintain and therefore contributes yet another practical problem to the approach of setting dose-based limits at very, very low levels.

4. NMA believes that any proposed rule should be narrowly focused on examples of potential problems or types of materials where problems of control and potential for significant exposures have been demonstrated, e.g., recycled metal may be a serious problem in some respects that could be addressed by what can be termed a "capture license." Under this scenario, scrap recyclers and steel mills would be issued a license for their portal monitors. The restricted area for the license would be the area scanned by the portal monitor, and hence entrance and exit scans would be the result of one measurement. The "capture license" would, in effect, be prospective. That is, the current inventory of licensed material at license issuance would be zero. If incoming material triggers the portal alarm (alarm levels to be consistent with NRC guidance or the result of this rulemaking) the material would be captured by the license. Radioactive materials below one millirem then could, with proper documentation, continue in commerce. Materials exceeding this level that were previously subject to AEA licensing (e.g., source gauges that were melted into scrap steel) would then become low level radioactive waste, using the theory of Mr. Paul Lohaus of the NRC that any material within a restricted area that does not meet release limits is low level radioactive waste. The above described scenario would not be relevant therefore to just any radioactive material which triggers the portal alarm. If the material triggering the portal alarm was oilfield pipe coated with naturally occurring radioactive material or NORM (e.g., radium contaminated precipitates), it would not become low level waste subject to NRC regulation but would be subject to any relevant State NARM/NORM regulation. In this matter, the industry that is most concerned about radioactive materials in commerce would be spending money to help cure any problem.

5. Restricting release of *all* materials used and/or stored in connection with radioactive materials is unrealistic and unnecessary. Minimal exposures that are within the lower range of variations in natural background should be regarded as natural and do not mandate a very expensive and highly restrictive control of materials and/or equipment. NMA wonders

about such things as trucks, railroad cars or other receptacles that have been used for transport and/or storage of radioactive materials -- must all of these, whether they are subject to being cleaned or not, be permanently disposed of as low level waste? If so, the cost of such disposal would be astronomical and totally without any relation to the potential benefits since in most cases, unless there has been contamination by activation, surficial contamination can be removed more than adequately to protect public health and safety. Any such policy would conflict with the NCRP's negligible individual risk level (NIRL) rationale and indeed the explanations associated with the American National Standards Institute (ANSI) standard relating to these matters. Finally, there is not enough waste disposal capacity for existing low level radioactive waste, particularly high volume low level radioactive waste, and the new NRC decommissioning rules will create additional significant volumes of materials that may need to find a disposal home. Restricting release of any and all solids that have been involved with any radioactive materials of any kind would just exacerbate the shortage of capacity problem even further. Indeed, any rule setting a 1 or 2 mrem dose limit for the release of contaminated materials will generate enormous quantities of very low level waste. NMA wonders how these new volumes of materials will be handled given the shrinking disposal capacity in the United States. Creation of additional quantities of wastes and the problems related to the disposal of that waste will impede the decommissioning of many licensed sites throughout the United States by increasing costs and by preventing decommissioning through sheer lack of disposal capacity. Has the NRC considered the impact of new regulation on decommissioning and has the NRC considered the risks related to release versus the risks posed by delaying the decommissioning process?

6. While the ANSI Standard may make some sense as guidance, there must be a clear understanding that the criteria for developing an ANSI Standard as opposed to the criteria for an agency justifying mandatory regulatory limits are entirely different. ANSI Standards are not based on demonstration of a significant risk to public health and safety which is the requirement for a regulatory limit.

7. The Federal Register Notice indicates that Agreement States regulate a large volume of solids materials. NMA questions whether the Agreement States have been pressing for new regulations. This is not clear from the NRC's notice. If Agreement States are pressing for dose-based NRC regulatory guidelines, or regulations, NRC must address the compatibility issue directly and clearly. The compatibility issue is a difficult one and is not, to our knowledge, dealt with by NRC in a very clear and direct manner even in its Agreement State guidance.

8. The Notice does not address the averaging of soil contamination such as is provided for in Criterion 6(6) of Appendix A and 40 C.F.R. § 192; therefore, the issue of "hot spots" has not been directly addressed. The standards referenced above specifically allow for averaging and indeed licensees have been proposing alternatives under § 84(c) of the Uranium Mill Tailings Radiation Control Act of 1992 and the introduction of Appendix A with respect to such things as homogenizing soils where contamination is surficial and of a limited nature. Any guidelines or regulations for release of solids addressing soils will have to address this at least with respect to UR licensees.

9. The Federal Register Notice suggests that it may be necessary to discuss changing

the definitions of "solid waste" and "by-product material" as a result of developing a regulatory program governing release of solids. This cavalier statement about changing the definitions of "solid waste" and "by-product material" is unacceptable. NRC should make it clear that it will only address any such definitional changes with full recognition that there are a multitude of legal ramifications associated with such changes. For example, NRC's varying interpretations regarding pre-1978 11e.(2) by-product material has led to major ongoing controversy.

10. The term "volumetric contamination" is not adequately defined in NRC's discussion in the Federal Register Notice. What is it that NRC is concerned about and in what kinds of materials and in fact as noted above, is the dose from volumetric contamination (to the extent that it has been identified) potentially significant?

11. Background is not adequately defined in the context of the release of solids. Part 20 will be unusable with respect to naturally occurring radionuclides in conditions that are regularly experienced at UR facilities.

12. It is unclear from NRC's statement whether the Agency's \$20,000 per person rem guideline is applicable.

13. It remains unclear from the discussion in the proposal whether the unity rule is applicable. NRC should clarify whether the rule applies or not.

In conclusion, NMA appreciates the opportunity to comment at this scoping stage and recommends that the NRC extend the scoping process so as to allow for further industry and interested public comment. If you have any questions or concerns regarding our comments, please contact me at 202-463-2627.

Sincerely,

/s/

Katie Sweeney