November 12, 1999

DOCKET NUMBER
PROPOSED RULE PR 20
(64FR35090)

(36)

Chief, Rules Review and Directives Branch
U. S. Nuclear Regulatory Commission
Mail Stop T6-D59
Washington, DC 20555-0001

'99 NOV 16 A11:37

To Whom It May Concern:

RE: Further comments on Radiological Assessments for Clearance of Equipment and Materials from Nuclear Facilities

Based on attendance at the Workshop on November 1-2, 1999, the following comments are offered.

What is driving the rule development?

One of the current methods of determining if materials are cleared for release for unrestricted use is to use Regulatory Guide 1.86. It was designed as a release criterion for materials that were contaminated on the surface, not those that were contaminated volumetrically. Reg Guide 1.86 is not a dose based standard, but was based on the sensitivity of measurement instrumentation. It was developed many years ago when the instrumentation to measure radioactivity was not as sensitive as the current technology. The other method for determination of clearance is a case by case determination of the materials from nuclear power plants that are allowed to go into the sewerage system or be released as municipal waste.

Methods such as surface scanning and case by case determinations seem unsophisticated in this age of dose modeling and risk estimation. Regulators want standards to enforce which are comprehensive, comprehensible, and protective. Yet, the stakeholders seemed to have a great resistance to changing the regulations, believing that the only change would be to loosen the standards and allow greater contamination to be released. In fact, a 1-mrem dose-based standard would tighten the standards in most areas. However, in those instances where the measured levels allowed for release would increase, there was concern and consternation.

There was a perception that there was an economic advantage that would be gained by nuclear power plant owners, especially during decommissioning, and a tremendous economic advantage to DOE facilities if volumetrically contaminated metals were allowed to be released. This economic advantage would occur at the expense of the public. How could this perception be changed? Ensure that any economic gain by the nuclear utility is dispersed to the ratepayers, not the shareholders. This would disperse the benefits of the rulemaking directly to the public. No one likes to think that the decommissioning of a nuclear power plant is a profit making operation, but it is possible that the clearance rule could have the effect of decreasing the cost of decommissioning to the extent that there would be additional money in a decommissioning fund. The rulemaking could require that where there were any excess decommissioning funds

accrued based on payment of utility bills by ratepayers, those funds would be paid back through decreased utility bills. As it stands now, any unused decommissioning funds would be used to compensate the utility company shareholders.

Clean-up of DOE facilities is a governmentally financed operation, so any cost advantage that may occur with release of volumetrically contaminated materials would certainly benefit the public in that less tax money would be spent on the clean-up. However, the cost could shift to the metal recyclers, who argue that their products would be perceived as unsafe, or "not as good as new", and they would be at a competitive disadvantage. Labeling of the products would call attention to their derivation, and would exacerbate the perception.

It is clear that there is a need for developing a new standard that is dose based and that covers volumetrically contaminated material which does not require case by case terminations which are time consuming and possibly inconsistent. But is it possible to craft a regulation that encourages re-use and recycling of these materials at NRC licensed facilities or DOE facilities? Don't nuclear power plants and DOE facilities need things made of metal? This, of course, begs the question about whether there is a need to reuse soil or sewage sludge, but that should be explored as well.

What is NRC's authority to regulate?

The real question is what is NRC's authority to de-regulate or un-regulate. However, granted that NRC has authority only over its licensees, the application of the clearance rule to additional facilities could have consequences beyond the NRC licensee community. Since the standards would be derived using sophisticated dose-based models, there is pressure to extend the standard to material released from DOE facilities and possibly to state controlled materials such as NORM and NARM. After all, the radionuclides are the same in many cases. While a strict analysis of alternatives would not have to consider these consequences, it appears that the stakeholders believe NRC must also consider them in their cost/ benefit analyses.

It was unclear how these regulations would handle release of soil. A NRC licensee, decommissioning their facility, would be allowed to leave soil contaminated with radioactivity up to a dose equivalent of 25 mrem. However, if that same soil were to leave the site, it would have to meet 1mrem? What is the market for soil? Are there many instances where soil is transported around after site clean up? Why is 25 mrem safe if the soil is left in place but 1mrem is safe if the soil is moved? How is MARSSIM applied to determine if 1mrem has been achieved?

Another question to consider is "what are NRC's goals with regard to this regulation?" It was suggested that the goal should be to provide controls that provide adequate protection to the physicians, patients, technologists, and the public in medical settings. Controls should not be an impediment to providing health care. Controls should be practical and simple.

It is important to consider the implications of the regulation to areas other than nuclear power plants and DOE facilities, and certainly the implications to the medical community should be analyzed. In particular the patient release criteria which leads to the generation of waste material such as diapers, sanitary pads, and vomit contaminated with radioactive materials which can then cause an entire load of municipal trash to be rejected at a landfill or resource recovery unit should be considered. It is important to note that a medical license is not a license to pollute. The implication that the fact that the radioactive materials are used in the diagnosis or treatment of cancer makes them somehow better than radioactive materials used in nuclear power generation is a fallacy. The clearance standard is about releasing radiation to the environment at some level that does not diminish public health. The medical profession, research included, should not be immune to the regulation.

What materials should be considered in the regulation?

The analysis has already been done for steel, copper, aluminum and concrete. It has not been done for nickel, titanium, soil or sewage. Given the controversy over the application of the clearance standards to recycling and reuse scenarios that appear to be material-specific, it would be advantageous to hear from those industries affected by clearance of those additional materials. The discussion on the scenarios considered for steel, copper, aluminum, and concrete was short, and not in depth. A full discussion, perhaps in breakout groups for each of those substances would be useful.

The comparison to decay in storage for medical waste was interesting. One possibility for the clearance standard would be to require that the volumetric contamination be consistent with a dose-based standard of 1 mrem, but that the material also clear a detection standard. This is analogous to the fact that medical waste must decay for 10 half lives and also be non-detectable with a pancake probe. The problems avoided with this type of dual test standard would be those involving responses to radiation alarms at scrap metal facilities, resource recovery facilities, or landfills.

There is a gap in the regulations between what is allowed to be released and what is accepted by waste handling facilities. One of the aims of this regulation should be to narrow that gap so that the regulation does not encourage abandonment of loads along transportation routes.

All of the scanning methods in use currently at scrap metal and resource recovery facilities are gamma scans. Tritium or other alpha or beta emitters would not be detected by this instrumentation. The scrap metal industry was not particularly concerned with contamination that was not detected by their portal monitors, but it could present a health hazard. The dose modeling that was done did not include a model of having a number of tritium exit signs incinerated in a resource recovery unit – something that could happen anytime. Under current regulations, consumers can discard their old smoke detectors and tritium containing devices in the regular trash at the end of their useful lives. While

general licensees that have a large quantity of these materials are encouraged to send them back to the manufacturer, there is no tracking system to ensure that this does occur. And without detection methods that would find these items, there have been only a few cases where problems have been identified – but those have involved exposure to the public at levels above 1 mrem.

While there is a difference between releases that are allowed, and those that are caught through unfortunate incidents involving transgressing the regulations, simply saying that if no problems are identified with the "legal" discharges does not mean that the regulations are good or that they are working. It is the unintentional exposures where regulations have been violated that demonstrate areas where the regulations could be improved. It would be useful to require that the regulated community have systems in place that would help them to self-identify releases and to recover the materials that were released. That may mean the addition of requirements for quality assurance programs that would include procedures to ensure that only legal releases would occur.

What are the international implications?

While Americans like to see themselves as trendsetters for the global market, we should consider the impact that our actions have in other countries. Our standard should be at least as restrictive as the IAEA, so as not to dump our problems on disadvantaged countries.

Another implication of a rule change that was stricter than the current criteria would be to highlight the fact that material which had been released under the less strict criteria was now out in the environment. There was discussion about how to recover this material. DOE flyovers seem to be a possible tool for identifying materials, however, the flyovers only detect gamma emitters, and would miss other radionuclides.

How can NRC build public confidence in the standards adopted using this enhanced participatory rulemaking?

First of all, NRC must seriously consider the issues raised by the participants, and try to craft a rule that avoids some of the problems identified. Second, NRC must delineate its enforcement power, by explaining the resources that it has available to make sure that licensees abide by the rule. If resources are too tight to thoroughly research new items for release such as soil, sewage, nickel, or titanium, those substances should be considered in a later rulemaking, and not just quickly analyzed to get the rule out on time.

Additionally, if there are not adequate resources to ensure that NRC licensees obey the rule, and oversight on DOE facilities to make sure they do not circumvent the rule, that must be divulged to the public and Congress. There will be many types of inspections that place a demand on NRC investigator's time. The fact that this is a low-risk regulation should not preclude it having adequate inspection resources devoted to ensuring compliance.

I look forward to working with you as you develop the regulation.

Sincerely,

Jill Lipoti, Ph.D.,
Assistant Director
New Jersey Dept. of Environmental Protection
Radiation Protection Programs
P.O. Box 415
Trenton, NJ 08625