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 Reg Guide

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Secretary of the Commission
 US Nuclear Regulatory Commission
 ATTN: Docketing and Service Branch
 Washington, DC 20555



Dear Sir:

As per telephone conversation between Mr. Abraham of the NRC Regional Office in King of Prussia, PA, and Mr. McCahill of this office on 7 April 1980, we are submitting our comments on "Measurement of Radiation Levels on Surfaces of Packages of Radioactive Materials," dated December 1979, Division 7, Task TP 914-4.

As explained in reference conversation, it is requested that these comments be accepted for late filing since the basic document was not received until March and then had to be put out for comments, administrative delays precluded any earlier response.

Subject NRC Guide is incorrect in its approach, technique, and attempt at solution to the problem it describes.

Unless there is substantive information to the contrary, the 200mR/hr level described in 10CFR 20.205 is an arbitrary number to begin with. That is, it has no scientifically determined value or relation to any specific hazard, but is an administratively determined number to enable an action to be taken by a regulatory agency, i.e., the NRC. Also note that the wording is, "in excess of 200mR/hr," the implication being that some level above 200mR/hr could create a hazard of some degree, which should, correctly, be controlled by regulations. However, it does not, and cannot mean that 199mR/hr is absolutely safe and 201mR/hr is an extreme hazard. Viewing the proposed guide with this approach results in the assorted comments to follow.

If the requirement of "in excess of 200mR/hr" is too high a number as an approximation, then the regulations should be changed to 100 or 150mR/hr, so that any meter reading on any size package would still be

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well within "safe" limits, whatever that may mean. The CFR also, correctly, does not specify the action to be taken by NRC or the results of, or the degree of hazard of a package in excess of 200mR/hr. One should be able to correctly assume that an error in meter reading, which, if caught and corrected, results in a reading somewhat in excess of 200mR/hr the full power of the agency would not be used against the "culprit." However, a package which shows 2R/hr probably should result in severe penalties, if done deliberately or even out of ignorance. Also, the change to a lower regulatory number would preclude the possibility of error in readings and would automatically guarantee the statement of page 3, third and fourth line. It would necessitate the development of internal policies within the NRC on responses to the regulatory requirement, which, of course, would make the agency's job more difficult, while simplifying the user's requirement to comply.

The notification level should be such that the trained specialists in the NRC can determine the degree of hazard of readings near the regulatory level. The regulation should also be able to assure that no real hazard exists if actual readings exceed a recorded reading of 200mR/hr.

Since the 200mR/hr number is arbitrary, the differences caused by meter and package size do not really matter at all. It would hurt no one (except the regulatory agency) if the regulation stated that "If there is any question about the reading on the surface of the package, a telephone request for information may be made to the NRC Regional Office described." Also, any reports made of levels in excess of 200mR/hr which are false or any "missed" or unreported values slightly in excess of the 200mR/hr level, if subsequently detected, should not result in any hazard, or penalty, if within the cumulative errors on meter readings.

The personnel using meters to take these readings may not always be well trained or knowledgeable about meter techniques or the significance of the readings. This statement is confirmed by the guide proposal comment beginning paragraph B, i.e., "Licensees have expressed concerns..." This proposed guide could further confuse, confound, and complicate the apparent issues involved in the regulation.

The meters normally used to make the package measurement required are not always all that accurate. Meter design and calibration may not be better than plus or minus 20% of the correct value. The meter time constant and counting rate coupled with the operator's monitoring technique could easily introduce another 20% error in reading. Thus, a recorded value of 150mR/hr could actually be anywhere from 90 to

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210mR/hr, which covers the entire range described in this guide!

There appear to be two types of errors in the tables in the guide. No plus or minus error limits are specified in either table. While not essential, that information would more properly identify the "correct" readings. Each table identifies the column as "maximum instrument reading." Since the meters used are rate meters, each with its own time constant, the correct value to be read is the average value on the meter, not the maximum, because the rate is a statistically determined function and is closer to the average reading or "the reading at which the needle rests most of the time." The NRC should not be guilty of promulgating a faulty technique for reading a survey meter, even if that technique results in errors on the "safe" side, as this does.

On page 5 of the guide, reference is made to the surface radiation exposure from radiographic devices. This statement is at least partially false, in that many, if not most, radiographic sources in the mode for shipping and storage are in the same kind of shipping container as any other source, and may even be an "ordinary" source which is to be used for radiographic work. Many of these sources are removed from the container for radiographic purposes. Therefore, the container does not scatter the radiation to any extent greater than a nonradiographic source container. Some configurations of radiographic sources for special purposes may meet this exception, but the guide should not appear to indicate that this is universally true.

This guide should not be implemented as it does not accurately or correctly speak to the problem. It is of no real value in determining the actual readings on the package or of determining the meaning of that value. It only provides a means of modifying a less exact reading to a probably more correct value. It has been the observed custom or practice of the NRC to enforce "regulatory guides" as "regulations." If that is the case, then much more work is needed on this "guide" to make it correct in its applications and procedures. It would be far better for the NRC to develop internal guides, procedures, policies, or whatever for action it would direct its agents to take on various levels of "high" readings on shipping containers. The kind of material in this guide should be provided for information only, not as a regulatory guide.


If this guide is to be adopted, it must emphatically state that this represents only one possible way to measure the rate and should greatly expand comments to that effect in paragraph B. It should make it obvious that this should be used by those who do not understand the

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meaning and significance of the readings being taken and that an organization which does know, i.e., the NRC, will be contacted for any questionable shipments.

Should there be a need for clarification relative to comments above, point of contact is James McCahill, Radiological Protection Officer, (201) 328-6821.

Sincerely,


ROBERT A. WALTERSCHIED
Chief, Safety Office

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