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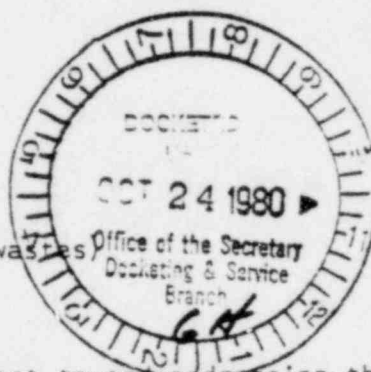
ARTHUR J. SOLARI
Director

DOCKET NUMBER PR 20 (45FR67018)
PROPOSED RULE October 20, 1980

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Secretary of the Commission
US Nuclear Regulatory Commission
Attn: Docketing and Service Branch
Washington, D.C. 20555

Reference: 45 FR 67018 - 67020, October 8, 1980
Proposed Rule - (Disposal of specific wastes)



Gentlemen:

The above referenced proposed rule marks a good start toward addressing the overall problem of low level radioactive waste disposal. My comments are aimed at (1) clarifying certain ambiguities in the proposed rule and (2) suggesting changes in the proposed rule which would be beneficial to the generators of low level radioactive wastes and to the operators of the various burial sites without adversely affecting either the public interest or the regulatory process.

1. Clarification of ambiguities

The proposed rule is somewhat ambiguous as to the meaning of the term "Liquid Scintillation Medium."

At this and other institutions, liquid scintillation "cocktail" is removed from the vials and stripped for disposal as absorbed liquid. The emptied vials are shipped as solid waste. This method of handling significantly reduces the physical volume shipped for burial because of differences in packaging requirements for emptied vs. filled vials. This method also results in a savings in shipping, materials, and disposal fees of several cents per vial. When an institution ships many hundreds of thousands of vials per year, these monetary savings can be substantial.

The proposed rule is ambiguous in that it could be interpreted to mean that the contents of liquid scintillation vials (meeting the stated concentration limits) could be disposed of without regard to radioactivity, but that emptied vials would still have to be handled as "radioactive waste" even though any radioactivity present would be only a minute residuum of the original contents.

Further, if emptied vials were to be crushed and washed prior to disposal as "normal" trash, the proposed rule could be interpreted as requiring that the wash solution (water or some other solvent) be handled as liquid radioactive waste or as a radioactive effluent to the sanitary sewerage system. The only claim such liquid might have to being "radioactive" would be that it had been used to remove the minute residuum of radioactivity from the emptied vial

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after the contents had been removed and disposed of without regard to radioactivity. Qualitative and quantitative assay of such "liquid radioactive waste" would almost certainly defy the limits of detectability.

If handling of containers and wash solutions as described above are considered to be "disposals of licensed material," the documentation requirements of 10 CFR 20.401 would impose a major and unnecessary administrative burden on licensees. Massive volume of meaningless paper would be generated to document the disposal of the minute residuum remaining after the disposal "without regard to radioactivity" (and without specific record-keeping requirements) of the liquid contents. Such an interpretation of the proposed rule would be technically indefensible and would have absolutely no significance in protecting the health and safety of a licensee, an employee of a licensee, the general public, or the environment.

This potentially crippling ambiguity in the proposed rule could be clarified if the rule were to clearly state that "liquid scintillation medium" means a mixture of liquid scintillation cocktail containing radioactive material plus any vial, bottle, or other container used to hold the mixture and any other material (solid or liquid) which may come in contact with the mixture.

A second ambiguity exists in that the proposed rule defines the limits which can be disposed of without regard to radioactivity in terms of "microcuries per gram." This works well for animals and other solids. However, several serious difficulties arise when one attempts to apply it to "liquid scintillation medium." First - one would have to correct for the density of the liquid before a decision could be made regarding acceptable disposal methods. Second, - does "microcuries per gram" mean microcuries per gram of liquid or microcuries per gram of (liquid plus container)? Third - How does one assay residual activity in an emptied vial?

The proposed rule should be clarified so that concentration units for liquid scintillation (and liquid scintillation related) waste are in microcuries per milliliter of the liquid, contained in the vials. These units would facilitate meaningful assay and could also be applied with ease to emptied containers used to hold the liquid and to solutions used to wash such containers.

11. Recommended substantive changes

The proposed rule could easily be expanded to make it more beneficial to all. The proposed rule effectively establishes "de minimis" levels for H-3 and C-14, but only when these isotopes are contained in animal carcasses or in something called "liquid scintillation medium." Still considered to be "radioactive waste" are gloves, absorbent paper, disposable syringes, glassware, and a myriad of other items which are used during the handling and manipulation of animals and "liquid scintillation medium."

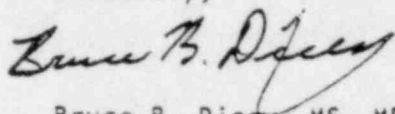
The proposed rule should be changed to allow all materials meeting the H-3 and C-14 concentration limits to be disposed without regard to radioactivity and without regard to chemical or physical form.

The assumptions which were used to derive the "de minimis" levels for H-3 and C-14 in the proposed rule should also be used to compile a list of such levels for all isotopes. Such a list should be published as an appendix to 10 CFR 20. With such an appendix, proposed 10 CFR 20.306 could specify simply that

any licensee may dispose of licensed material without regard to its radioactivity provided that (a) the material disposed of does not exceed the concentration limits (in microcuries per ml or per gram) in the appendix to 10 CFR 20 and (b) material may not be disposed of in a manner that would permit its use either as food for humans or as animal food.

The proposed rule as published in 45 FR 67018 represents a good start towards addressing the low level radioactive waste problem in a responsible professional manner. The clarifications and changes which I have recommended would strengthen the rule and would better serve the public interest, the interests of licensees, and the interests of the NRC.

Sincerely,

A handwritten signature in cursive script that reads "Bruce B. Dacey".

Bruce B. Dacey, MS, MPH
Health Physicist

BBD:tr