May 26, 1994

(69)

The Secretary of the Commission
U. S. Nuclear Regulatory Commission
Washington, DC 20555

ATTN: Docketing and Service Branch

400 South Gill Street
State College, PA 16801

Comment on Advanced Notice of Proposed Rulemaking:
Disposal of Radioactive Material by Release into Sanitary Sewer Systems

Dear Sirs:

I have a few quick comments regarding your advanced notice of proposed rulemaking on Disposal of Radioactive Material by Release into Sanitary Sewer Systems. These comments are my own and are not related to my employment.

1. Banning release of radioactive material to sewers would impose a huge financial burden on all biological research facilities. If the 2700 gallons of liquid released last year at my institution had required solidification, I would have had to arrange disposal for 70, 55-gallon drums. At $300 - $600 per cubic foot (which is the anticipated cost for disposal at the Pennsylvania LLRW site), liquid waste disposal would have cost an additional $150,000 to $300,000.

2. Pre-notification of each release of radioactive material to the sewer system would be difficult. During 1993, the Broadscope Licensee with whom I am affiliated, through the Health Physics Office discharged the following materials into the sanitary sewer:

H-3	73. mCi	S-35	0.400 mCi
C-14	0.750	I-125	0.003
P-32	0.260	Other	< 0.010

These discharges occurred almost on a weekly basis. The amount of radioactivity released was similar to releases for the last five years, and I expect this year's disposal activities to be. In addition, the approximately one hundred laboratories on campus regularly pour dish-washing rinse water down the drain. Notification prior to, or even after, such release would be difficult. An annual notification to the sewage treatment plant (STP) listing the radionuclides and amounts released, along with an estimate of the next year's release, should be sufficient for all purposes. This estimate could be as simple as "Last year's releases were . . . Next year's releases will probably be the same, plus or minus 20%". If notifications were required to be sent in January, operators of sewage treatment plants would be able to add up the amount of radioactive material expected to flow through their facilities in the coming year.

3. The Commission should recognize that reconcentration of sewage effluent is possible for some radionuclides in some forms of sewage effluent treatment. Some STPs are using marsh grass as a final purification technique. Reconcentration of biological materials (hydrogen, carbon, iodine, sulfur, iron) is not likely, but the reconcentration of heavy metals (caesium, strontium, americium) might be a problem in this type of effluent treatment.

4. The flat one-curie disposal limit of "other" radionuclides has always bothered me. I keep picturing the following scenario.

> Professor Smith at a Type A Broadscope License purchased 2 curie solution of ^{137}Cs in 1950 to use in an irradiation chamber, but never did. His successor, Professor Jones, now wishes to dispose of this material. No low-level radioactive-waste-disposal facility is in available. His university discharges 1,000,000 gallons of water a day to the local treatment facility. The discharge limit is 10^{-5} uCi/ml {10^{6} x 3785 ml/gallon x 10^{-5} = 37.8 mCi/day}. If he were to set up a drip system, a discharge of 260 mCi per week would not exceed any limits. The caesium could be "dumped" within a month with very little cost or effort. The sewage treatment plant might have a problem.
>
> Remember, this might be Professor Jones's only *achievable* disposal option for the next eight years. (If this is the only possible disposal option, is it then "as low as reasonably achievable"?)

A curie of ^{14}C is very different from a curie of ^{90}Sr or ^{137}Cs, and any revision to the regulations should recognize this fact.

5. Different annual limits for different radionuclides would not pose an undue burden of record-keeping for any modern office.

6. Please avoid "dose limit approaches". A simple limit, even if a different for each radionuclide, is much preferable to spending hours trying to verify assumptions about fish consumption and groundwater flow to municipal water supplies, and then having to keep track of different limits.

Thank you for considering these comments.

Sincerely,

Eric Boeldt, CHP