



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
476 ALLENDALE ROAD
KING OF PRUSSIA, PENNSYLVANIA 19406

15 NOV 1988

Docket No. 030-20934

License No. 37-23341-01

MEMORANDUM FOR: Hugh L. Thompson, Director
Office of Nuclear Material Safety and Safeguards
William C. Parler, General Counsel

FROM: William T. Russell, Regional Administrator, Region I

SUBJECT: REGULATION OF RADIOACTIVE MATERIAL SUBSEQUENT TO DISCHARGE
FROM A LICENSED FACILITY

There have been several instances in Region I in which radioactive material discharged to a sanitary sewer system from a licensed facility in compliance with regulatory requirements has subsequently, through reconcentration or other mechanism, accumulated in licensable quantities downstream from the licensee discharge point. Typically, the reconcentration or accumulation point is under the control of an unlicensed person, such as a city or township. Examples include the reconcentration of radionuclides in municipal sewage sludge or incinerator ash, and the subsequent accumulation of licensable quantities of radionuclides in landfills or on farms used for land application as a method of sludge disposal. We know that you are aware of these situations, but believe that current circumstances require the development of at least interim formal guidance.

A case of current interest to us is a licensed nuclear laundry in Royersford, Pennsylvania, Interstate Nuclear Services Corporation (INS), which has been discharging wash water to the local sanitary sewer system for several years. Our reviews of the licensed program, including analysis of samples of the INS discharge, indicate that the licensee has always met the sewer discharge limits in Part 20. However, the process used by the Borough of Royersford Waste Water Treatment Facility (WWTF) has resulted in reconcentration of particulates contained in the INS discharge, and contamination of the sewer sludge and subsequent accumulation of licensable quantities of radionuclides. It had been the practice of the sewer treatment facility to dispose of sludge by spreading it on local agricultural land, a practice heretofore approved by the Commonwealth of Pennsylvania Department of Environmental Resources (DER). When we first identified the presence of the radioactive contamination in this sludge in 1985, we informed NMSS, the Commonwealth, the licensee and Royersford officials and initiated a study (by Oak Ridge Associated Universities, ORAU) to assess the radiological consequences, but did not take any action to stop the practice. Since that time, ORAU has completed reports on the first two years of its study. Both reports conclude that only small radiation doses (about four millirem per year or less) result from the agricultural land application of the sludge. Accordingly, we concluded that the land application did not present a health or safety problem and saw no reason to intervene in the continued disposal of the sludge in this manner. NMSS was consulted and agreed with this conclusion.

In March of this year, the Commonwealth of Pennsylvania directed the Royersford WWTF to cease the land application due to the excessive concentration of non-radioactive copper in the sludge. (The copper apparently comes from the copper piping used in residential and commercial buildings served by the treatment facility). Since its sludge retention tanks must be emptied periodically to permit continued operation, the WWTF staff arranged for a local landfill to accept the sludge, and the Commonwealth DER granted approval to the landfill to accept the sludge. Again, all parties were aware of the small quantity of radioactivity in the sludge.

Subsequently, however, the Commonwealth expressed concern about the burial of radioactively contaminated sludge and rescinded the landfill's permit for burial of the Royersford sludge on August 5, 1988. On August 22, 1988, the Commonwealth wrote to Region I, requesting that NRC confirm that "disposal of the sludge by land application or by landfill... is authorized, supported and approved by NRC." On August 31, with NMSS concurrence, we advised the Commonwealth that the NRC "does not plan to exercise regulatory authority at this time" with regard to the possession and subsequent disposal of the Royersford sludge, and "does not object to the continued agricultural application of this material." On October 25, Region I informed the Commonwealth that, "(i)f The Commonwealth concludes that doses from landfill application are less than, or comparable to, disposal by land application, NRC would not object to landfill burial." We also noted that the disposal of the sludge in a landfill does raise a number of policy and legal questions. These are described below. Copies of the correspondence referred to above are enclosed with this memorandum.

Accordingly, resolution of the following policy and legal issues is requested.

1. When a licensee discharges licensed radioactive materials from its facility and the discharges are in accordance with regulatory requirements with respect to concentration, solubility and dispersability, at what point has this material entered the environment and no longer should be considered to be the responsibility of the licensee?
2. If, subsequent to a licensee discharging licensed material at, or below, regulatory limits in Part 20, licensable quantities of radioactive material accumulate downstream of the discharge point of a licensed facility in a sewage treatment facility, etc., does the NRC have any regulatory authority regarding this material? Does the NRC have an obligation to exercise regulatory authority over the accumulated, licensable quantities of radioactive material, notwithstanding the fact that the staff has determined that there is no health and safety concern?
3. If the NRC does have regulatory authority over accumulated, licensable quantities of radioactive material, should the NRC license the person who possesses the material or compel the already licensed source of the material to take control of the radioactive material? For example, should the Borough of Royersford be required to be licensed?

4. When a licensee releases, via a sewer disposal, radioactive material that meets the regulatory requirements for such disposal to its own private sewage treatment facility and then, subsequently, this material is released to the environment in liquid and/or gaseous discharges or sludge from the sewage treatment plant, should the NRC regulate these releases from the sewage treatment plant? Are the licensee's discharges controlled by 10 CFR 20.303, 10 CFR 20.106, or both?

In addition to the enclosures cited above, we have also enclosed a copy of an internal memorandum that provides the details of the contaminated sludge at the Royersford sewage treatment facility.

Please contact Mr. Stewart Ebnetter, Director of the Region I Division of Radiation Safety and Safeguards, if additional information is needed to respond to this request.


William T. Russell
Regional Administrator

Enclosures:
As stated

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