



# ASSOCIATION OF METROPOLITAN SEWERAGE AGENCIES

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- Bergen County Utilities Authority, NJ
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- Madison Metropolitan Sewerage District, WI
- Milwaukee Metropolitan Sewerage District, WI

May 26, 1994

Mr. Samuel J. Chilk  
The Secretary of the Commission  
Attention: Docketing and Service Branch  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555

'94 JUN -7 P5:17

DOCKET NUMBER  
PROPOSED RULE **PR 20**  
(59 FR 9146)

RE: Advance Notice of Proposed Rulemaking -  
Disposal of Radioactive Material By  
Release Into Sanitary Sewer Systems

Dear Secretary Chilk:

Attached for your consideration are comments from the Association of Metropolitan Sewerage Agencies (AMSA) on the Nuclear Regulatory Commission's (NRC's) February 25, 1994 advance notice of proposed rulemaking on *Disposal of Radioactive Material by Release Into Sanitary Sewer Systems*. We appreciate the opportunity to provide comments on NRC's advance notice. AMSA believes strongly that early input is crucial to crafting an effective and realistic rulemaking.

AMSA represents some 150 of the nation's largest wastewater treatment agencies which serve nearly 100 million users, and collectively treat and reclaim over 14 billion gallons of wastewater each day. AMSA members are involved in water pollution control and every facet of environmental improvement and protection.

AMSA applauds the Commission for recognizing the concerns within the wastewater treatment community over the uncontrolled releases of radionuclides into certain sewer systems. This potential problem could jeopardize the ability of publicly owned treatment works (POTWs) to fulfill their environmental objectives while exposing treatment plant workers to unmeasured hazards. For those facilities experiencing radioactive material contamination, the current regulatory framework established for the control of radionuclides is inadequate to ensure protection of treatment plant workers and environmental quality. At the same time, although initial NRC studies reveal that contamination is occurring at POTWs in select cases, the Commission acknowledges that it does not have enough information to assess the extent of this problem at other facilities around the country.

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Secretary Chilk

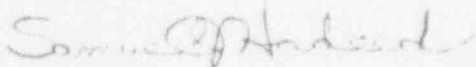
May 26, 1994

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AMSA recognizes that the cases of documented radionuclides contamination problems may be isolated instances, and that it would be inappropriate to develop a national standards based on the experiences of potentially only several POTWs. It is therefore crucial that the Commission identify those facilities which are experiencing radioactive materials contamination or which are found subsequently to be contaminated by radionuclides. For those POTWs with documented contamination problems, the Commission needs to move forward immediately with a definitive plan of action. AMSA recommends that NRC commit to a timeframe for the development of guidance to assist POTWs in calculating site-specific limits for the problem dischargers. AMSA urges NRC to work cooperatively with the Environmental Protection Agency (EPA) in the development of the local limits guidance, as that agency is statutorily responsible for protecting the nation's waters and POTW workers. Additionally, AMSA recommends establishing a task force, which will work in concert with EPA and NRC, to be responsible for studying the issue of sanitary disposal of radioactive materials to better understand the nature and extent of the radioactive contamination problem. This task force should be made up of a multi-disciplinary group of NRC, EPA, POTW, and industrial interests.

AMSA hopes that its comments are constructive and will assist NRC in moving aggressively forward on the issues outlined in the Federal Register notice. For your convenience, we have organized our comments according to the Commission's specific requests in the advance notice [pages 9147-9148]. We have also included an additional section, following the general comments section, which addresses several "POTW-Specific Issues" that are of particular interest to AMSA. Please contact me at (202) 833-4655 if you have any questions or comments concerning this letter or other related issues.

Sincerely,



Samuel J. Hadeed

Director, Technical Services & Regulatory Affairs

Attachment

**ASSOCIATION OF METROPOLITAN SEWERAGE AGENCIES  
COMMENTS ON NRC ADVANCE NOTICE OF PROPOSED RULEMAKING  
"DISPOSAL OF RADIOACTIVE MATERIAL BY RELEASE INTO SANITARY SEWER SYSTEMS"**

**GENERAL COMMENTS**

The advance notice highlights several documented instances where publicly owned treatment works (POTWs) have detected radioactive materials in their sewer system resulting from discharges licensed by the Nuclear Regulatory Commission (NRC). As the Commission is authorized by statute under 10 CFR Part 20 to regulate the release of radioactive material by licensees into sewer systems, the above referenced case studies point to inadequacies within NRC's existing regulatory program. Where radioactive materials have been detected, it is apparent that NRC's regulatory framework is jeopardizing the POTW's required purpose to protect worker health and safety, as well as environmental quality. The inability to prevent this type of contamination may result in exorbitant clean-up costs unfairly borne by the public. AMSA urges that the Commission assume a greater role in preventing any further contamination of POTW facilities by radionuclides.

AMSA recognizes that the problem of radionuclides contamination may be isolated to the instances referenced in the advance notice. While it is imperative that NRC protect these facilities with existing radioactive material contamination problems from further difficulties, it would be a mistake to subject POTWs to a national regulatory program based on several specific cases. AMSA strongly recommends that the Commission undertake a study, in conjunction with EPA, to determine the extent of this problem nationally. The Commission needs to determine the specific magnitude (by mass of pollutant and flow rate), character (types of pollutants), and geographic location (by POTW service area) of material discharges to the nation's sewer systems. This study will allow NRC to identify which facilities are discharging specific types of materials and which additional POTWs, if any, are impacted.

The Commission admittedly has not developed a sufficient understanding of the fate, transport, and impact of radioactive materials discharges through the sewer systems. Before NRC can improve upon its current program, the Commission needs to better understand the nature of radioactive releases and the ability of treatment works to handle different types and quantities of radionuclides. AMSA strongly recommends that NRC, in conjunction with the U.S. Environmental Protection Agency (EPA), selected POTWs, and affected industries, initiate a data collection and survey effort to assess the exposure and contamination pathways of radionuclides. A collaborative effort offers

the best chance to understand the nature of the problem from its source. This study will provide a framework to apprise POTWs of the impacts of different types of radionuclides as they are transported throughout the sewer system and different types of wastewater treatment plants.

The Association believes that the POTW local limits development process is the appropriate mechanism for assuring the protection of environmental quality and worker health and safety. However, NRC should develop specific guidance for use by POTWs in calculating and allocating local limits for radioactive material discharges, as POTWs likely have limited experiences with the regulation of radioactive materials. The information from the study should be utilized to develop guidance for the calculation of site-specific limits (i.e., local limits) at impacted sewer systems. If a system has been contaminated, or if the POTW finds necessary to prevent potential future contamination, the POTW would employ the guidance to establish limits for dischargers of radioactive materials of concern.

At a minimum, the guidance should address the following considerations:

- number of facilities discharging radionuclides to the POTW, or contribution of radionuclides from multiple discharges;
- effects of half-lives, solubility, and specific activity of different radionuclides;
- type and mass of different radionuclide pollutants;
- impacts on biosolids handling and disposal methods;
- different routes of exposure, such as ingestion and inhalation, and other worker health and safety considerations; and
- flow rate into the POTW.

The possession of the necessary legal authority to establish local limits for discharges of radionuclides from NRC licensees is of equal importance to the POTW as part of the issuance of appropriate local limits guidance. The Commission needs to recommend that POTWs be authorized to establish local limits for radionuclides where the treatment plant deems it necessary to protect human health and the environment.

## PUBLICLY OWNED TREATMENT WORKS - SPECIFIC COMMENTS

**ISSUE:** *Whether NRC should consider the prevention of biosolids use and disposal interference in establishing site-specific limits*

AMSA members believe that interference with biosolids use and disposal must be a consideration for POTWs in establishing local limits for facilities discharging to the sewer system. While current limits appear to restrict the exposure to radionuclides in liquid waste, case studies in the advance notice show that the current limits on radionuclides disposal are not adequately protecting biosolids from contamination. POTWs that have industries located in their service area, which discharge high levels of radionuclides over a short period of time, may also be inadequately protected. POTWs must use and dispose of biosolids in a safe and legal manner, and the amount of radionuclides discharged to the sewer system must not interfere with this process. If restrictions are ultimately placed on the use or disposal of biosolids due to contamination with radioactive materials, the Commission, in conjunction with EPA, must develop guidance to assist POTW experiencing such problems in establishing site-specific discharge limits that protect beneficial use programs.

**ISSUE:** *How NRC can calculate the maximum load of radionuclides that may be discharged to a particular POTW*

AMSA believes that, given the experience of several POTWs with documented radionuclides contamination, current limitations on radionuclides disposal do not properly reflect the hazards involved in discharging radioactive materials through the sewer system.

The Commission will need data to support the development of local limits guidance for POTWs. NRC acknowledges that it does not have a sufficient understanding of the issues regarding the potential for interference, pass through, and reconcentration of radionuclides in particular wastewater treatment systems. An understanding of these issues is absolutely necessary to crafting appropriate guidance for POTWs to use in developing supportable site-specific limits that are sufficiently protective of the particular facility. AMSA strongly recommends that NRC, in cooperation with EPA, POTWs, and industry, conduct further testing and surveys on the radiation issue to enable the Commission to develop such guidance.

The Commission should fund and initiate a phased study to determine the fate of radionuclide discharges to the sanitary sewers and to identify those facilities currently experiencing radionuclide contamination. An appropriate study would include: (1)

POTW hazard identification; (2) exposure assessment; (3) toxicity assessment; and (4) risk characterization. The study should have two concurrent objectives. First, the study should establish a database to determine the specific magnitude (by mass of pollutant and flow rate), character (types of pollutants), and geographic location (by POTW service area) of radioactive material discharges to the nation's sewer systems. This data would allow the Commission to identify which facilities are discharging specific types of radioactive materials and which POTWs are impacted. Second, the study should investigate the impacted POTWs and the fate of the various radionuclides as they enter the plant's influent and residuals management processes, and as they are discharged from the treatment system. The costs of data collection, data reporting, and worker training should be borne by NRC license holders.

Once such a study has been completed, the Commission should proceed with the development of local limits development guidance for use by POTWs. AMSA recommends that the considerations, referenced earlier, be addressed in such guidance.

At the municipal level, POTWs restrict the amount of regulated pollutants discharged to their system through implementation of the pretreatment program and development of local limits for individual industrial user discharges. Local limits define the level of pollutants that, upon being introduced to the treatment plant's influent, will not lead to occurrences of interference or pass through. Developing such local limits is a complex process that requires knowledge of the volume and mass of a given pollutant being discharged to the system and an understanding of the plant's capacity to handle that pollutant. Only with this information can a limit that is protective of the plant be assigned to each discharger. AMSA believes that the same general method should be applied to the disposal of radionuclides in those specific sewer systems with existing contamination problems. AMSA urges NRC to develop generic guidance for use by POTWs in developing local limits for radioactive material discharges, where appropriate, to protect the treatment plant workers and processes.

Additionally, NRC should be aware of two EPA resources that are used to develop and implement local discharge limits. The computer program PRELIM is employed by EPA as a means to calculate local limits for pollutants that enter POTWs. EPA also has a publication that may provide appropriate guidance, entitled *Guidance Manual on the Development and Implementation of Local Limits Under the Pretreatment Program* (EPA, 1987). The Commission should consult with these EPA resources as it develops local limits guidance.

**ISSUE:**        *What provisions NRC might include in its regulations to adequately protect POTWs from radionuclide contamination*

As mentioned previously, the local limits program offers a proven approach towards protecting worker health and safety and preventing biosolids contamination. Currently, however, NRC acknowledges that it does not have enough technical information on the amount of radionuclides discharged to the sewers or on the fate and transport of radioactive material through different types of POTW processes. AMSA recommends that NRC, in cooperation with EPA, be required to conduct a survey of licensee discharges to POTWs.

As a preliminary measure of protection, prior to the development of actual site-specific discharge limits, NRC should provide a means for POTWs experiencing contamination from radionuclides to be informed of all permitted radionuclide discharges within a sewer service area. AMSA endorses the Northeast Ohio Regional Sewer District's (NEORSD's) request for an amendment to NRC's program requiring NRC licensees to provide at least 24 hours advance notice to the appropriate POTW before releasing radioactive material to the sewer system. This notification will give the POTW operation sufficient time to consider the implications for worker health and safety and for biosolids use and disposal of specific discharges. At a minimum, the Commission should also require that licensees submit such notice to the Commission and submit monthly discharge reports to the appropriate NRC regional office as well as to the receiving POTW. These reports should contain a complete record of all discharges for the month, sample results of concentrations, and total quantities discharged for the month and year. Similarly, all permits issued to licensees by NRC should include a requirement for advance notification by the permitted discharger to the POTW.

**FORM OF MATERIAL FOR DISPOSAL - SPECIFIC COMMENTS**

**ISSUE:**        *How the potential regulations should take into account the technologies for processing sewage, including bioprocessing or exchange [page 9147]*

The Commission should be required to take into account the different technologies for processing sewage, including biosolids processing, in conducting the research into the implications of introducing radioactive materials to POTWs and in developing site-specific limits to protect to POTWs from harmful levels of radionuclides. NRC should address each of the different types of basic wastewater treatment technologies. AMSA

suggests that NRC, in consultation with EPA, develop a table listing each type of treatment technology, accompanied with recommendations on the amount of each type of radionuclide that the particular process can handle. This information will assist POTW operators when developing local limits for dischargers of radionuclides.

**ISSUE:** *What are the potential impacts upon licensed users of radioactive materials which discharge to POTWs from further restrictions regarding the forms of materials suitable for disposal* [page 9147]

The Commission has initiated studies to analyze typical wastewater treatment processes, including a determination of how the solubility of materials in treatment plant influent may be changed in a way that affects the potential dose to members of the public. In those instances where contamination at a POTW has been documented, AMSA believes that licensees must recognize that safety of the community overrides the desire for a licensee to use its current disposal option. However, in order for these POTWs to fulfill their requirements under their National Pollutant Discharge Elimination System (NPDES) permit, in relation to safeguarding worker health and safety and providing safe use and disposal options for biosolids, dischargers of radionuclides must conform to the limits or restrictions imposed on them through future pretreatment permits and sewer use ordinance provisions.

#### **TOTAL QUANTITY OF MATERIAL - SPECIFIC COMMENTS**

**ISSUE:** *How should a total quantity limit for radioactive materials discharges be expressed* [page 9147]

Again, AMSA believes that the most effective approach to address radionuclide contamination is to develop appropriate guidance for POTWs to protect themselves from contamination. If a POTW finds that it is necessary to protect environmental quality and worker health and safety from contamination, it is appropriate for that facility to use a total quantity limit for radionuclides dischargers. AMSA recommends that NRC express this limit as the amount of material discharged per year (mrem/year) or per day (mg/day). AMSA believes that narrative limits may be open to too broad an interpretation to be applied effectively. However, narrative limits are acceptable if they specifically authorize the POTW to develop its own limits whenever appropriate to better safeguard worker health and safety and environmental quality.



**ISSUE:** *What approach could be used to limit the total quantity of each radionuclide [page 9147]*

AMSA recommends that NRC develop specific guidance for use by POTWs in calculating and allocating local limits for radioactive material discharges, as POTWs likely have limited experiences with the regulation of radioactive materials. If a system has been contaminated, or if the POTW deems it necessary to prevent potential future contamination, the POTW would employ the guidance to establish limits for dischargers of radioactive materials of concern. This guidance should address the considerations outlined on page 2 of these comments.

**ISSUE:** *What are the potential impacts on licensee's operations associated with further restrictions on the total quantity of radioactive material which could be released during a year [page 9148]*

AMSA believes that an unavoidable result of further restrictions will be an increase in operational costs to the licensee. If a discharger's release exceeds the allowable quantity of radioactive material, the licensee will need to find alternative methods of disposal which will likely impose a greater cost. Another unavoidable result of further restrictions is an increase in the amount of paperwork for the licensee associated with more monitoring and reporting requirements. This paperwork increase is necessary to serve as proper notice to the POTW of any radioactive materials discharges. In view of the fact that the consequences of sanitary disposal of radioactive materials fall solely on the POTW, the NRC regulations could potentially lead to a low-level waste contamination of a large volume of material, or an entire POTW. By the present system, the public pays for the ultimate cleanup of contaminated sites and the POTW is held to blame. This philosophy must be changed to hold the dischargers more responsible for the pollutants they are introducing, regardless of potential impacts.

**ISSUE:** *Whether the total quantity of radionuclides that may be released to a sanitary sewer by a licensed nuclear facility should take into consideration the capacity and treatment methods used by the wastewater treatment plant that serves the licensee; whether consideration should be given to the fact that many licensed facilities may discharge into the same sewer treatment plant*

AMSA agrees that, in establishing total quantity limits for releases of radioactive materials at those facilities with current contamination problems, consideration should be made of the capacity and treatment methods (including biosolids processing and use) and the number of nuclear facilities discharging to the POTW.

#### **TYPES OF LIMITS - SPECIFIC COMMENTS**

**ISSUE:** *Whether the Commission should continue an approach of limitation based upon an individual being exposed by the ingestion of water from the sewer outfall; Whether the Commission should consider other locations, such as at a treatment facility, in determining the level of protection to be provided [page 9148]*

AMSA believes that appropriate local limits for the prevention against radionuclides contamination should address the following considerations: elimination of harmful exposure at the treatment plant, and immediately downstream from the facility; and safeguarding of the safe use and disposal of biosolids. AMSA notes that limitations should be based on an individual being exposed to radionuclides at the influent of the POTW, thereby achieving the joint result of maximizing worker health and safety protection while also eliminating potential hazards to the POTW's processes. Additionally, the Association believes that since the POTW worker could theoretically be exposed to radiation 365 days per year, the maximum daily allowable discharge from each facility should not exceed 1/365th of the annual human exposure limit.

**Issue:** *Whether limits should be based on a dose limit approach accompanied by total quantity and concentration values in a Regulatory Guide to facilitate compliance with the dose limit [page 9148]*

AMSA supports the use of dose limits as the most reasonable way to regulate the licensee's discharge. However, the Association is concerned with the implication of selecting any level of radiation exposure above background to which POTW workers

(either at the plant or in the collection system) will be exposed without their consent. The provision of a simple, cost-effective disposal method for radioactive materials is not an adequate reason to expose POTW workers to radiation. AMSA believes that the dose limit for POTW workers should not exceed background levels.

Additionally, the publication of a regulatory guide to facilitate compliance would be helpful to give each discharger the same level of information prior to discharge.

#### EXEMPTION OF PATIENT EXCRETA - SPECIFIC COMMENTS

**ISSUE:**        *Whether it is appropriate to continue the exemption for patient excreta*

AMSA believes that the exemption for patient excreta should be continued.