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September 18, 2001

James Lieberman, Esq.
Office of General Counsel
U.S. Nuclear Regulatory Commission
11555 Rockville Pike
Rockville, MD 20852-2738

Re: **Suggested Modifications to Draft ISCORS POTW Guidance Document**

Dear Jim:

This letter is in follow-up to the public meeting you and other members of the Nuclear Regulatory Commission staff conducted with representatives of UniTech Services Group, Inc. (UniTech) on August 2, 2001. We very much appreciate the opportunity the NRC staff provided for UniTech to present its concerns regarding local and non-Agreement State regulation of Atomic Energy Act (AEA) materials.

As discussed during that meeting, the Sewage Sludge Subcommittee of the Interagency Steering Committee on Radiation Standards (ISCORS) has for some time been developing a document entitled "Guidance on Radioactive Materials in Sewage Sludge and Ash at Publicly Owned Treatment Works." The latest publicly available version of the document is a June 2000 "Revised Draft." The purpose of the guidance is to inform Publicly Owned Treatment Works (POTW) operators of the potential for radioactive materials to concentrate in sewage sludge and incinerator ash and to provide advice on what actions should be taken if a POTW operator believes such materials are a concern. The current draft of the Guidance discusses, among other things, the respective roles and responsibilities of various federal, state and local government agencies in regulating radioactive materials in POTW sewage sludge and incinerator ash.

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UniTech has actively followed the work of the ISCORS Sewage Sludge Subcommittee and attempted to participate constructively in the development of the guidance document despite the work often occurring "behind closed-doors." UniTech submitted comments on the initial draft of the guidance, and also commented on the Revised Draft. For your convenience, copies of UniTech's comments are enclosed.

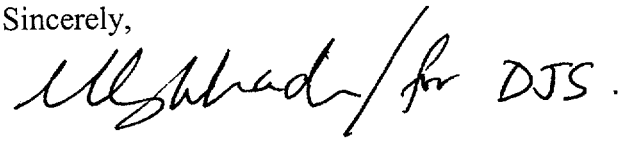
As you can see from the comments, UniTech is concerned that any guidance issued by ISCORS define very clearly the scope of authority of the NRC and NRC Agreement States to regulate AEA materials and the lack of authority of non-Agreement States and local governments to regulate such materials, either for the purpose of radiological protection or with the effect of regulating the health and safety aspects of AEA materials.

The UniTech letter of October 12, 2000 discusses a number of statements in the latest draft of the POTW Guidance that, either through omission or misstatement, are misleading regarding the limits of the authority of POTW operators. The attached table identifies the principal statements in the POTW Guidance that should be modified to correct these omissions or misstatements, proposed new language for substitution, and the rationale for the proposed changes.

Additionally, in the near future, UniTech will be contacting you concerning steps it may take to assist in clarifying the broader misperceptions that state and local governments have regarding the regulation of AEA materials other than sewage sludge and ash.

Please call me if you have any questions about the suggestions in the letter.

Sincerely,



Donald J. Silverman

Encl.:

Proposed Changes to "Guidance on Radioactive Materials in Sewage Sludge and Ash at Publicly Owned Treatment Works," Revised Draft, June 2000

Page	Statement	Proposed Change	Rationale
5	"In response, Oak Ridge developed a site-specific, risk-based methodology for establishing radionuclide limits for its sewage sludge."	Delete this sentence.	This statement cites with apparent approval an action by a local government that, to the extent it covers AEA materials, exceeds its legal authority since this field is preempted by the AEA.
23	"The NRC and Agreement States regulate the possession, use, and disposal of certain radioactive materials, and also develop and implement guidance and requirements governing licensed activities, inspection and enforcement activities to ensure compliance with the requirements."	Replace with: "The NRC and Agreement States have exclusive legal authority to regulate activities involving source, byproduct and special nuclear materials for purposes of protection against radiation hazards. This includes source byproduct and special nuclear materials in sewage sludge and ash. They regulate the possession, use and disposal of these AEA materials, and also develop and implement guidance and requirements governing licensed activities, inspection and enforcement activities to ensure compliance with the requirements."	The report should clearly state that regulatory authority over AEA materials is exclusively delegated to the NRC and Agreement States, and that this Authority extends to such materials in sewage sludge and ash.

Page	Statement	Proposed Change	Rationale
27	"These standards must be adequate to protect public health and the environment from reasonably anticipated adverse effects."	Insert at the end of this sentence: "and may include radiological pollutants other than AEA materials. The CWA does not provide authority to regulate AEA materials."	As determined by the Supreme Court in Train v. Colorado Public Interest Group, under the CWA "pollutant" does not include AEA materials. The guidance should make clear that AEA materials are not regulated under the CWA.
27.	"This authority, in combination with the Agency's authority under AEA to establish generally applicable environmental standards for the protection of the general environment from radioactive material and to establish NESHAPs for hazardous air pollutants (including radionuclides) under part 112 of the CAA for facilities which emit radionuclides to the ambient air, would appear to provide adequate authority to establish numerical limits for any radionuclides in sewage sludge/ash for most end use and disposal practices if deemed necessary to protect public health and the environment."	Delete this discussion.	The referenced language is incorrect and misleading and could cause POTWs to believe they are authorized to regulate AEA materials. As explained in detail in the UniTech letter of 10/12/2000, AEA materials are excluded from the definition of "pollutant" under the CWA. Moreover, EPA has not established limits for AEA materials under the CAA, nor has it established numerical limits for radionuclides in sewage sludge/ash.
27	"While the definition of "pollutant" in the NPDES Regulations (40 CFR 122.2) specifically exempts radioactive materials that are regulated under the AEA as amended (42 U.S.C. 2011 et seq.), the Pretreatment Regulations (40 CFR Part 403) do not separately define "pollutant," but do	Replace with: "The Pretreatment Regulations (40 CFR Part 403) prohibit "interference," which includes a Discharge which "inhibits or disrupts the POTW, its Treatment processes or operations, or its sludge processes, use or disposal" [40 CFR 403.3(i)]. A	As written, the draft guidance suggests that EPA may have authority to regulate AEA material indirectly as a water "pollutant", and that POTWs are therefor authorized to regulate such materials. As the 10/12/2000 UniTech letter explains, this is not correct. The referenced EPA regulations were adopted under the

Page	Statement	Proposed Change	Rationale
	prohibit "interference," which includes a discharge which "inhibits or disrupts the POTW, its treatment processes or operations, or its sludge processes, use or disposal" [40 CFR 403.3(i)]. The sewage sludge standards (40 CFR Part 503) separately define "pollutant" without reference to the AEA, and as discussed above could use EPA's authority under AEA to establish generally applicable environmental standards for the protection of the general environment from radioactive material in sewage sludge/ash."	Discharge is defined to mean "the introduction of pollutants into a POTW from any non-domestic source regulated under section 307(b), (c) or (d) of the [CWA]. (Emphasis added). Since AEA materials are excluded from the definition of "pollutants" under the CWA, the prohibition against discharge of pollutants which cause interference does not apply to AEA materials, but may apply to other radioactive materials that may be defined as pollutants."	authority of the CWA, and could not have expanded the definition of pollutant beyond the CWA definition. The guidance should be revised to avoid leading POTWs to regulate in an area preempted by the AEA. It is important to correct this error because other publications make similar misstatements.
28	"In addition to the role of state agencies as NRC Agreement States, states have been active regarding the issue of potential radioactive contamination at POTWs."	Replace with: "In addition to the role of state agencies as NRC Agreement States, states have been active regarding the issue of potential radioactive contamination at POTWs that does not involve AEA materials."	The reference to radioactive materials would be misunderstood if it is not explicitly limited to non-AEA materials.

Page	Statement	Proposed Change	Rationale
29	"In general, POTWs have the same authority concerning radioactive material as they do for any other material in influents to the POTW."	Replace with: "In general, POTWs have the same authority concerning radioactive material, other than AEA material, as they do for any other material in influents to the POTW." Delete "However" in the following sentence.	Without this qualification, the statement would be wrong.
29	"(Pacific Gas & Electric Co. v. State Energy Conservation Comm., 461 U.S. 190, 193)."	Add the following references, after Pacific Gas & Electric: "English v. General Electric, 496 U.S. 72 (1990); see also Gade v. Nat'l Solid Wastes Mgt. Assn. 505 U.S. 88 (1992)."	The reference to the relevant caselaw should be updated with the more recent, principal Supreme Court cases on point.
29	"Therefore, if the basis for the state or local government action is something other than the protection of workers and the public from the health and safety hazards of regulated materials, it may be that the action is not preempted."	Delete this sentence.	This sentence is an incomplete statement of the law and not needed in light of the sentence that follows.
29	"Thus, if a POTW has sound reasons other than radiation protection to impose certain pretreatment requirements or certain prohibitions on receipt of such waste, it may be possible to do so."	Replace with: "Thus, if a POTW has sound reasons to impose certain pretreatment requirements or certain prohibitions on receipt of such waste, it may be possible to do so if the purpose is not radiological protection and the requirements/prohibitions do not have the effect of regulating the health and safety aspects of AEA materials."	Without qualification, the statement is not correct.

Page	Statement	Proposed Change	Rationale
29	"However, as this is an unsettled area of the law with little case law upon which to rely, it is difficult to predict whether unusual cost by the POTW could be a sufficient reason that would avoid a successful preemption challenge."	Delete this sentence.	The sentence is unnecessary and incorrectly states that the law is "unsettled." There is clear Supreme Court precedent on the key preemption principals, the scope of the CWA, and the regulation of AEA materials. Furthermore, "unusual cost" would clearly not avoid preemption if it resulted in a state or local requirement that conflicted with, or intruded into the field of, AEA regulation.
33	"Further information on identifying and dealing with new industrial sources, radioactive contaminants, and individual facilities is provided in a guidance document developed by the National Biosolids Partnership (NBP 1999)."	Delete this sentence, as well as other references to the National Biosolids Partnership guidance document.	By citing this reference, ISCORS would appear to be endorsing it, and it should not do so The referenced document, at pages 19-20, incorrectly states that the CWA provides authority for POTWs to establish limits on the discharge of AEA materials into the POTW.
43	"Impose appropriate additional local controls on the discharger, such as local discharge limits and regular reporting of discharges."	Insert after this sentence: "The POTW may lack the authority to impose controls on the discharger, but could request them as voluntary measures by the discharger or consult with the regulator."	The sentence implies that the POTW could impose discharge limits. The POTW would not have authority to regulate discharge of AEA materials. The proposed qualification is similar to the one on the second item of the same list (page 42).
F-1	EXAMPLES OF POTWS THAT HAVE RADIONUCLIDE MATERIALS PROGRAMS	Delete this appendix and the references to it in the report.	The appendix provides examples where local governments have imposed limits on discharge of AEA materials despite the fact that this area is preempted by federal law. The guidance should not hold these instances as examples for other POTWs.

INTERSTATE NUCLEAR SERVICES
A SUBSIDIARY OF UNIFIRST CORPORATION

December 1, 1997

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Re: Draft Guidance for POTWs on Radioactive Materials in Sewage Sludge/Ash, dated May 1997

The following comments are being submitted on behalf of Interstate Nuclear Services (INS) in response to the draft "Guidance for POTWs on Radioactive Materials in Sewage Sludge/Ash" referenced above. INS is licensed in several NRC regions and in a number of Agreement States under the laundry classification of radioactive materials licensees. INS reduces the amount of radioactive waste generated in the US, by providing a service which allows for re-use of protective clothing at nuclear enterprises nationwide. As discussed below, INS has several significant concerns with the proposed POTW Guidance which we believe warrant careful consideration before the guidance is revised and issued.

I. Background

The subject of radioactivity in sewage sludge and ash at Publicly Owned Treatment Works (POTWs) has been under consideration by the NRC and EPA for a number of years. Both agencies have conducted various analyses of the issue,[1] and have found that some reconcentration of radioactivity from both man-made and natural sources has occurred in POTW sludge and ash. However, they have not identified any imminent threat to public health and safety or the environment caused by such reconcentration, and have provided no basis at this time to further regulate or restrict the release of radionuclides into POTWs.

[1] For example, the EPA issued a report in April 1986 entitled "Radioactivity of Municipal Sludge." The NRC has issued two reports - NUREG/CR-5814 "Evaluation of Exposure Pathways to Man from Disposal of Radioactive Materials Into Sanitary Sewer Systems" (May, 1992) and NUREG/CR - 6289 "Reconcentration of Radioactive Material Released to Sanitary Sewers in Accordance with 10 CFR Part 20" (December, 1994).

WA03/96390.1

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In 1991, the NRC amended its sewer discharge rules as part of the overall revision to 10 CFR Part 20. Permissible concentrations of radionuclides that may be released to sanitary sewer systems were modified based on an individual dose of 500 mrem/year and in accordance with more recent international radiation protection guidance. Releases also were restricted to materials that are readily soluble or readily dispersible biological material. In adopting these changes, the NRC stated that previous, higher concentration limits were "no longer desirable."[2] These regulatory changes were intended to further reduce the possibility that reconcentration of licensed radioactive material could create a potential health, safety or environmental problem, even though no such problems had been identified.

In 1994, the U.S. General Accounting Office issued a report entitled "Action Needed to Control Radioactive Contamination at Sewage Treatment Plants"[3] That report was prepared in response to radioactive contamination detected at the Northeast Ohio Regional Sewer District's (NEORSD) Southerly Sewage Treatment Plant. The GAO Report noted that "at least nine cases" of radioactive contamination had been reported at sewage treatment plants over the previous ten years, but cited the NRC's belief that "no imminent health risk exists for the treatment plant workers and the general public . . ." The GAO Report recommended that the NRC:

- determine the extent to which radioactive contamination of sewage sludge, ash, and related by-products is occurring;
- directly notify the treatment plants that receive discharges from NRC's and the agreement states' licensees of the potential for radioactive contamination because of radioactive materials' concentrating and of the possibility that they may need to test or monitor their sludge for radioactive content; and
- establish acceptable limits for radioactivity in sludge, ash, and related by-products that should not be exceeded in order to ensure the health and safety of treatment workers and public.

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2 56 Fed. Reg. 23360, 23381 (May 21, 1991)

3 GAO/RCED-94-133 (May 1994).

The NRC is now moving to carry out the GAO's recommendations. In response to the first recommendation (that the NRC determine the extent to which radioactive contamination of sewage byproducts is occurring), a program of surveying and sampling some 300 POTWs is now being planned. That program will be designed to obtain national estimates of the levels of radioactive materials in POTW sludge and ash and to support potential future rulemaking decisions by the NRC and EPA.[4]

The draft POTW Guidance is apparently intended to respond to the GAO's second recommendation (that the NRC directly notify the POTWs). It will provide information for the POTWs on the potential for radioactive contamination and the possibility that they may need to test or monitor their sludge for radioactive content. As discussed in Section II.B below, we do not believe that such a testing recommendation from the NRC is appropriate or necessary.

The NRC's proposed approach for responding to the GAO's third recommendation (that the NRC establish acceptable limits) is apparently to include in the proposed draft POTW Guidance recommended concentration standards for radionuclides in sewage sludge and ash. We strongly disagree with this aspect of the draft Guidance. It is not consistent with the GAO recommendation that the NRC establish acceptable radiological limits for sludge, ash and related byproducts in order to ensure the health and safety of treatment plant workers and the public. Furthermore, issuance of such guidance to POTWs is not supported by the current record, is inconsistent with the respective legal responsibilities of the NRC and local governments, and is likely to result in inconsistent application of standards that would impose unwarranted burdens on the affected industries and the POTWs. We do not believe that additional radionuclide release or concentration restrictions are necessary. If such restrictions are to be established, this should be done through a formal federal rulemaking process and not through informal recommendations to local authorities who lack the requisite legal jurisdiction.

II. Specific Comments

Much of the proposed POTW Guidance provides a general discussion of the basic regulatory regime covering radioactive materials, the sources and types of radioactivity that may be found in sewage sludge and ash, and the differences between man-made radioactive materials, background radiation and naturally-occurring radioactive materials. We have no significant comments on these aspects of the document.

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[4] 62 Fed. Reg. 771 (January 6, 1997).

However, the draft POTW Guidance contains other material which we believe should not be included and we strongly urge its removal from the document. In particular, the draft Guidance contains a proposed table which when complete, will apparently identify "dose levels" attributable to certain established concentrations of specific radionuclides in sewage sludge and ash. As we understand the purpose of the proposed table, it will ultimately identify the concentrations of specific radionuclides in sewage sludge and ash that will produce a particular dose based upon conservative dose modeling calculations. These concentrations will then be used by the POTWs to evaluate the results of their sampling and analysis efforts. According to the draft Guidance:

> If measured levels of radioactivity exceed the levels suggested [in the table . . .], it may be appropriate or necessary to limit certain sludge/ash use or disposal practices, further restrict radioactive material discharges by specific licensees, or alter operations at the treatment works.

The NRC has specifically asked for comments on both the "need for this table and the appropriate dose level for the calculations." Sections A, B, and C below contain comments sought by the NRC concerning the proposed table.

A. Development of Such Concentrations is Premature Pending the Outcome of Planned Survey and Sampling Initiatives

The proposed table of concentrations will, for the first time, effectively establish regulatory standards for concentrations of radionuclides in sewage sludge and ash. At present no such standards exist, nor has there been any finding that such standards are necessary to protect the public health and safety.

The current NRC regulation (10 CFR § 20.2003) relies on restrictions on discharges as the means of controlling radionuclide concentrations in sludge and ash. As discussed above, NRC and EPA studies and operational history to date have identified no health, safety or environmental basis for further restrictions on radioactivity in sewage sludge or ash.[5] In Congressional testimony in 1994, former NRC Chairman Ivan Selin spoke directly to the issue. In discussing the NRC's inspection of 19 licensees and sampling of water and sludge samples at 15 sewage treatment plants, the Chairman stated:

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[5] The draft Guidance mentions "elevated levels" of radiation at the NEORSD facility but does not discuss the actual concentrations of radionuclides which were detected or the resulting levels of exposure of workers or the public.

> . . . none of the inspections revealed reconcentration problems or violations of our regulations. . . . The samples of sludge showed either no radioactivity present, or radioactive materials present at concentrations that were well within the levels that NRC staff would find acceptable. These results confirmed our initial assessment that this was not a widespread problem because the licensees that were selected for these special inspections were ones that could have a strong potential to reconcentrate, but the inspections did not reveal such a problem.[6]

Furthermore, in commenting on the health implications of radionuclide reconcentration, Chairman Selin stated:

> Radiation levels [at the sewer treatment plants surveyed] did not pose a significant risk to public health and safety . . . [and] concentrations of radioactive materials found in sludge and ash . . . were below levels that would cause concern for public health and safety.

Since the inspections and surveys discussed above, and subsequent to the incident at NEORSD described in the GAO report, the NRC has tightened its restrictions on allowable discharges and the NRC and EPA are about to embark upon a new survey and sampling program at POTWs throughout the United States to "help determine the adequacy" of the present and newly-implemented NRC regulations.[7] It is premature to develop regulatory guidance that in effect will set threshold standards or action levels for radioactivity concentrations in sewage sludge before the results of the planned nationwide survey and sampling show any demonstrated need for such standards.

B. Concentration Standards and Recommendations for Action are Inappropriate for Inclusion in a Guidance Document for Local Governments

Inclusion of such a table and accompanying recommendations for action in a guidance document intended for use by local governments is not consistent with the respective legal responsibilities of the NRC and local government and would be a bad policy. Under applicable

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[6] Testimony of Ivan Selin, Chairman before the Senate Committee on Governmental Affairs and Government Operations Subcommittee on Environment, Energy and Natural Resources (June 21, 1994), p.2.

[7] Draft NRC Sewage Sludge Questionnaire, General Instruction.

principles of federal preemption, the NRC possesses exclusive jurisdiction over the radiological hazards of source material, special nuclear material and byproduct material[8]. The NRC may relinquish some of this responsibility to State governments in accordance with Section 274 of the Atomic Energy Act and its Agreement State Program, but it has no authority to delegate its responsibilities to local governments. Despite the NRC's clear and exclusive authority over radiological hazards, the proposed guidance document is intended for use by local governments and encourages such governments to take action if they detect certain concentrations of radionuclides in sewage sludge or ash.

It is readily apparent that the proposed table of radionuclide concentrations is to be used by POTWs to attempt to restrict radiological discharges, either directly or indirectly. Even if the NRC's intent is not to encourage such use, the POTW Guidance would have the effect of encouraging POTWs to impose such restrictions. There can be no doubt that the ostensible motivation for such restrictions would be radiological health and safety considerations[9] and that such considerations are not within the legal authority of local governments. Thus, the effect of the guidance would be to improperly shift responsibility for radiological protection from the NRC to local governments.

There already is reason to believe that at least some local governments would be inclined to impose such restrictions. In fact, several local governments already have done so. So far as we are aware, none of those ordinances has yet been reviewed in court on the basis of federal preemption. The absence of such a review, however, does not mitigate the highly suspect nature of such ordinances.

For example, the City of Santa Fe, New Mexico has adopted a pretreatment ordinance that prohibits discharge of radioactive materials with half-lives greater than 100 days and limits weekly concentrations of other radioactive discharges to 1/50th of applicable NRC Table III monthly limits. Indeed these limits are more restrictive than EPA National Primary Drinking Water Regulations for radioactivity (40 CFR Part 141)[10]. At least one of the stated purposes of

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8 Pacific Gas and Electric Co. v. State Energy Resources Conservation and Development Comm'n.

9 Indeed if it were not, then we would question the appropriateness of the NRC issuing such guidance.

10 City of Santa Fe, New Mexico, Ordinance No. 1997-3, Section 61

the Ordinance is "to protect public health and the environment. . . ." The ordinance attempts to regulate in areas which are the exclusive domain of the NRC.

In addition, there are other efforts currently underway to encourage the local imposition of health and safety based limits on radiological discharges to POTWS. In particular, attached to these comments as Exhibit 1 are slides from a presentation at a recent meeting of the Association of Metropolitan Sewerage Agencies entitled "Local Limits Presentation." That presentation states that "Federal and State regulations for sewer discharges [are] not adequate." It appears to propose a "risk based" (i.e., health and safety-based) approach for setting radionuclide discharge and contamination limits, proposing a "target dose" of 4 mrem/year based upon Safe Drinking Water Act standards. This is precisely the type of initiative that is, in our view, illegal and improper under applicable principles of federal preemption. Moreover, it suggests a dose-based standard of 4 mrem/year -- which has been severely criticized by the NRC in the context of the NRC's recent regulations on residual contamination criteria.

To date, the NRC's position on such ordinances has been that, under federal preemption principles, some local restrictions are permissible if based on non-radiological health and safety rationales. We believe the NRC should do much more to discourage these types of regulations, and certainly should not encourage them. NRC should be advising local governments that from a health and safety perspective, such local regulations are unnecessary.
NRC should underscore the adequacy of its regulations unless and until it concludes that those regulations should be changed. It should remind local governments that it is the NRC's responsibility to assure its licensees protect public health and safety. It should discourage unnecessary and ill-advised local regulatory efforts that only jeopardize legitimate industrial uses of radioactive material.

Rather than work towards uniform, national standards developed by the expert federal regulatory agencies (if such standards are ultimately determined to be necessary), the NRC has specifically included in the draft Guidance examples of local regulatory efforts to restrict radionuclide discharges. Page 4 of the draft discusses these examples generally and Appendix F discusses the Albuquerque and St. Louis initiatives in particular. If these references are intended to suggest ways in which local governments may restrict radionuclide discharges for purposes of radiation protection, they directly conflict with the NRC's exclusive legal authority. If they are intended to serve some other purpose, they have no place in an NRC guidance document. In either case, all such references should be stricken from the document.

The NRC has recently paid careful attention to the roles and responsibilities of Agreement State agencies. Those agencies have been given specific authority under the Atomic Energy Act to regulate certain source, special nuclear and byproduct materials. Under the NRC's revised procedures for setting compatibility categories and determining the health and safety significance of its regulations, it has determined that the concentration limits for sewer discharges under 10 CFR § 20.2003(a)(2) and (3) are within new compatibility category "A". That category is defined as follows:

> Basic radiation protection standard[s] . . . that the State should adopt with essentially identical language.

Office of State Programs Internal Procedure B.7 (Revision 1), attached to SECY-97-054 (March 3, 1997), was approved by the Commission on June 30, 1997 and transmitted to all Agreement States by letter dated August 6, 1997. From this procedure, it is clear that the NRC has determined as a matter of policy that there should be a high degree of uniformity between NRC and Agreement State sewer discharge concentration limits. Yet, an NRC effort to advise POTWs that they may adopt requirements to address the "potential problem of concentration of radioactive material . . ." would run counter to that policy. On the one hand, the NRC is insisting upon uniformity at the State level, and on the other it is, in effect, encouraging entities with no authority over radiological health and safety issues to set local limits that are likely to be highly non-uniform.

In addition, such non-uniformity will be further fostered by the fact that a substantial number of NRC and Agreement State licensees have broad authority to handle radioactive materials at temporary job sites anywhere in the US. Even if a local government were to impose restrictions on regular dischargers, such restrictions would not likely affect licensees who are legitimately conducting temporary operations and discharging to the POTW. Again, if additional restrictions are necessary, they should be established by the federal government.

Finally the draft POTW Guidance also contains the following statement:

> "[T]he POTW manager or operator may want to set up a program whereby any licensed discharger routinely notifies the POTW of the type, level and timing of discharges to the system."

Again, we question the rationale for this recommendation. It would encourage POTWs to restrict discharges based upon radiological health and safety considerations, and should not be included in an NRC guidance document to POTWs.

Furthermore, this recommendation appears to be directly contrary to statements made by former Chairman Selin in his 1994 Congressional testimony:

> Because the known contamination levels were quite low at facilities which serve licensees representing the highest risk of reconcentration, and therefore the contamination levels at unidentified facilities would very likely be less than those already identified, we believe that notification of all sewer treatment plants to check for contamination was unnecessary and would not have served a useful purpose in protecting public health and safety.

C. Setting Concentration Standards for Sludge and Ash Fundamentally Departs from Existing Regulations and Requires Formal Rulemaking

The proposed Guidance would suggest that compliance with existing NRC and Agreement State regulations (10 CFR § 20.2003) is not adequate to protect the public health and safe and that some party -- either the NRC, the EPA or the POTW itself -- should take action t further restrict radiological discharges into POTWs or to modify operations at the POTW. The development of specific concentration standards, coupled with either the explicit or implicit suggestion that action be taken if such concentrations are exceeded, would be a fundamental departure from the existing regulatory requirements, and therefore inappropriate for inclusion in an informal guidance document. Such a dramatic change in regulatory standards should only be undertaken as part of a formal rulemaking. Formal rulemaking would require the performance of a regulatory analysis, and other adminstrative reviews intended to ensure the rule is reasonable, fair, cost effective, and representative of good government. Again, however, INS asserts that currently there is neither the basis for changing current regulations, nor for establishing informal standards through publication of a guidance document.

III. Conclusion

The 1994 GAO report did not recommend that the NRC encourage local radiological control limits, but instead suggested that the NRC itself "establish acceptable limits . . . ." It is not at all clear that new limits are required. Nor is it clear why the NRC would develop guidance for POTWs that purports to suggest local imposition of such restrictions. Furthermore, if dose or risk thresholds are to be set by the NRC for concentrations of radionuclides in sewage sludge or ash that are based on radiological health and safety considerations, then such thresholds should be set by formal, federal rulemaking, rather than through an informal guidance document for entities that have no legal authority over such releases and risks. The modification of the

existing regulatory approach to protection of POTWs is a complex undertaking that should not be relegated to an informal guidance document.

Thus, we believe that the inclusion of the dose/risk conversion table in the draft POTW Guidance and the related suggestions that POTWs take action if such levels are exceeded are inappropriate as a matter of policy and law. We strongly urge the NRC to reconsider the need for the draft Guidance and, at a minimum, remove the table and related language discussed above from the proposed Guidance. In addition, the NRC should adopt a more proactive public response to local regulatory efforts that jeopardize the legitimate use of radioactive materials without a commensurate safety benefit.

Sincerely,

Michael R. Fuller
Manager, Health Physics and Engineering
INS Corp.

Attachments: Exhibit: Local limits presentations, AMSA Meeting, Norfolk, VA, November, 1997, 10 pages.

Unitech Services Group
A SUBSIDIARY OF UNIFIRST CORPORATION

10/12/00

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Re: **Unitech Services Group Comments on Guidance on Radioactive Materials in Sewage Sludge and Ash at Publicly Owned Treatment Works, Revised Draft, June 2000**

Dear Messrs. Schmidt and Bastian:

The following comments in response to the revised draft (June 2000) "Guidance on Radioactive Materials in Sewage Sludge and Ash at Publicly Owned Treatment Works" (Guidance) are being submitted by Unitech Services Group, Inc., (Unitech) formerly known as Interstate Nuclear Services (INS). INS submitted comments on the earlier version of the Guidance in December, 1997. We remain vitally interested in both the development of the Guidance itself, and the overall activities of the Interagency Steering Committee on Radiation Standards (ISCORS) Sewage Sludge Subcommittee. Unitech is licensed in several NRC regions and in a number of Agreement States under the laundry classification of radioactive materials

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licenses. Unitech reduces the amount of radioactive waste generated in the U.S. by providing a service which allows for re-use of protective clothing at nuclear enterprises nationwide.

The current draft Guidance contains some improvements over the original draft. In particular, the bulk of the document encourages POTWs to seek advice from the relevant federal or state nuclear regulatory agencies if they have a concern about radioactive material at their facilities - - rather than engaging in inappropriate and illegal local regulatory actions. Additional changes need to be made to carry out this theme consistently throughout the document. In addition, a number of aspects of the Guidance still require important modifications. Our primary comments are provided below. We are also providing an Attachment with additional comments on the document.

A. The Concept of "Elevated Levels" of Radioactive Material

The draft Guidance frequently refers to "elevated levels" of radioactive material and defines the term as:

> Measured or detected levels of radioactive material that would, in the opinion of the ISCORS member agencies, alert the POTW that some appropriate actions may be warranted.

Draft Guidance at p. 2. While ISCORS acknowledges that the term has "not been quantified," according to the Guidance, it "could be further refined to include quantified ranges of radioactive material concentrations" based on ISCORS survey and dose modeling efforts. Id.

Unitech is very concerned about the use (and potential misuse) of such vague terms as "elevated levels" of radioactivity divorced from specific, quantitative federal regulatory standards. The NRC, for example, has issued specific quantitative dose limits for members of the public, requirements for posting of radiation areas, and standards for release of sites and

license termination. These standards are generally based on determinations of dose derived from licensee-specific dose assessments.

In contrast, the draft Guidance refers to "measured or detected levels of radioactive material" (not dose) that could warrant action by POTWs, and that could be refined based on the generic, nationwide dose modeling effort being sponsored by ISCORS. In our view, the federal government should not recommend that any action be taken by a POTW unless and until there is reasonable evidence that an applicable federal regulatory limit is being approached, based on an assessment of site-specific factors. Extrapolation of the nationwide survey data and dose modeling results to a specific case is not appropriate. By necessity, the nationwide ISCORS modeling effort will introduce conservatisms and will not permit consideration of site-specific parameters that can play a major role in developing reasonably accurate dose estimates.

B. EPA Authority Under the Clean Water Act

The discussion regarding the EPA's regulatory role in section 4.3 of the Guidance requires clarification and correction in several important respects. First, section 4.3.1 (which discusses EPA's role in regulating facilities that may discharge to POTWs) mentions National Pollution Discharge Elimination System (NPDES) requirements under the Clean Water Act (CWA). Although the limits of EPA's authority under the CWA and the NPDES regulations are discussed in section 4.3.2 (which addresses EPA's role in regulating the POTW themselves), section 4.3.1 should be modified to state that EPA has no authority under the CWA (or the NPDES regulations) to regulate discharges of source material, byproduct material, or special nuclear material.[1] This would clarify the discussion and make it consistent with the later discussion in section 4.3.2.

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[1] Train v. Colorado Pub. Int. Research Group, 426 U.S. 1 (1976); Waste Action Project v. Dawn Mining Corp., 137 F. 3d 1426 (9th Cir. 1998); and 40 C.F.R. § 122.2

Section 4.3.2 states that EPA's authority under the CWA "in combination with" its authority to establish generally applicable environmental standards (under the AEA and Reorganization Plan 3) and its authority to establish National Emission Standards for Hazardous Air Pollutants (NESHAPs):

> would appear to provide adequate authority to establish numerical limits for any radionuclides in sewage sludge/ash for most end use and disposal practices if deemed necessary to protect public health and the environment.

Emphasis added. This statement is incorrect. The CWA does not provide any basis for regulating source material, byproduct material, or special nuclear material at the POTWs, or at facilities that discharge to POTWs, because of the exemption of such AEA-regulated materials from the definition of "pollutant" under the CWA.

The Guidance states that while the definition of "pollutant" exempts such AEA-regulated materials, the Pretreatment Regulations (40 CFR Part 403) "prohibit 'interference,' which includes a discharge which 'inhibits or disrupts the POTW, its treatment processes or operations, or its sludge processes, use or disposal . . . .'" However, the language in the Pretreatment Regulations prohibiting "interferences" does not apply to AEA-regulated materials and should not be read to effectively eliminate the exemption of those materials from EPA regulation under the CWA. Section 403.1(a) specifically states that:

> This part . . . establishes responsibilities . . . to implement National Pretreatment Standards to control pollutants which pass through or interfere with treatment processes in Publicly Owned Treatment Works or which may contaminate sewage sludge.

Emphasis added. Similarly, section 403.2 states that one of the objectives of the Pretreatment Regulations is to "prevent the introduction of pollutants into POTWs which will "interfere" with the operation of a POTW . . . ." Emphasis added. As written, the draft Guidance suggests that

the "interference" language in Part 403 allows restrictions to be imposed on discharges of non-"pollutants" - - such as AEA-regulated materials. This ignores the clear language of the regulations that makes it readily apparent that their purpose is, among other things, to control and prevent "interferences" caused by materials defined as "pollutants" under the CWA. The definition of "pollutant" in Part 401, which applies to Part 403 by reference (see 40 CFR § 401.10) does not override the exemption of AEA-regulated materials from EPA regulation under the CWA. Since the CWA provides the statutory authority for Part 403, the CWA definition of "pollutant," as interpreted, applies to Part 403 and the exemption remains in effect. As a result, the language suggesting that the EPA could impose restrictions on AEA-regulated materials under the "interference" provisions of Part 403 should be stricken. This includes not only the discussion of EPA's Clean Water Act authority in section 4.3.2, but also the statement in section 3 that the "presence of radioactive materials is a concern . . . in cases where the ability of a POTW to use or dispose of the sludge or ash is inhibited" and numerous other references to "interferences" throughout the Guidance. The Guidance should be revised to reduce the possibility that it will induce local governments to engage in improper regulatory activities.

Section 4.3.2 also states that EPA's "sewage sludge standards (40 CFR Part 503) separately define 'pollutant' without reference to the AEA . . . ." This too could be read to suggest that Part 503 allows restrictions to be imposed upon AEA-regulated materials. On the contrary, the statutory authority for Part 503 is provided by sections 405(d) and (e) of the CWA, and the regulations cannot be read to give EPA authority to regulate materials it is not authorized to regulate under the CWA itself. This language should be modified accordingly.

Section 4.3.2 concludes by stating that:

> These standards could then trigger action on the part of POTWs . . . to avoid pass through and interference . . . .

Based on the CWA discussion above, it is clear that this statement is incorrect.

C. EPA Authority Under the Clean Air Act

The discussion in section 4.3.1 of the Guidance regarding the Clean Air Act (CAA) should be expanded to state that EPA has not yet imposed limits on radionuclide releases to the air from discharging facilities, except in certain very specific cases set forth in the NESHAPs regulations (*e.g.*, DOE facilities, elemental phosphorus plants).

D. ISCORS Membership and Scope of Activities

Section 4.4 describes the ISCORS role and functions and states that representatives of the "States are observers at meetings." However, the ISCORS website characterizes the POTW representatives as "member agencies," as does the header to the draft Guidance. Another guidance document prepared by the "National Biosolids Partnership," comprised of the Association of Metropolitan Sewage Agencies, the Water Environment Federation, and the EPA states:

> POTWS are represented on the [Sewage Sludge] Subcommittee. Every effort will be made to coordinate the National Biosolids Partnership effort with that of the Subcommittee.[2]

The precise role of the POTW representatives on the Sewage Sludge Subcommittee should be clarified. Section 4.4 states that the:

> member agencies of ISCORS agree there is not yet enough information . . . to develop any conclusive regulatory decisions . . . . The Sewage Sludge Committee . . . activities are being conducted to support consideration of the need for future regulatory actions. Some of the regulatory actions that may be considered include [new NRC or EPA regulations on discharges of sewage sludge/ash.]

Unitech has previously expressed its strong disagreement, as a matter of law and policy, with the exclusion of industry from the Sewage Sludge Subcommittee. It has been pointed out in

response that the Subcommittee is not engaged in rulemaking, and that if and when such rulemaking occurs, it would be fully open to industry and members of the public. However, the statements in the draft Guidance imply that the Subcommittee, through its member agencies, is considering whether the data it collects warrants any "conclusive regulatory decisions" and is contemplating the potential need for regulatory action by either the NRC or EPA.

There must be a "bright line" between the Subcommittee's data gathering and analytical activities, and any decisions on future regulatory action. The Subcommittee's activities should extend no further than collection and confirmation of the survey results and preparation of the dose modeling. Because of the presence of interested parties on the Subcommittee, it should render no opinion and make no recommendations, formally or informally, on the implications of the data and modeling for future regulatory actions, or the need for new or more stringent regulations.

In discussing the activities of the ISCORS Sewage Sludge Subcommittee and the ongoing POTW survey, any explanation of the bias of the sample selection process is noticeably absent. The POTW Guidance document should clearly state that the selection of POTWs is not random and is intentionally biased, and results should not be construed as being representative of radiological conditions present at a typical POTW.

E. Law of Preemption

Section 4.6 of the draft Guidance discusses the role of "local authorities," including the POTWs themselves. This discussion too narrowly describes the state of the law relating to federal preemption of local efforts to regulate AEA-regulated materials. Unitech believes that any local restriction on such materials (either based upon radiation protection considerations or whose actual effect is to regulate or place restrictions on the use of such materials) would be

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[2] "Characterization of Radioactivity Sources at Wastewater Treatment Facilities," May, 1999.

preempted, and that there is ample case law to support that position. See, for example, Barnett Bank of Marion City v. Nelson, 517 U.S. 25 (1996); Gade v. National Solid Wastes Management Ass'n, 505 U.S. 88 (1992); and English v. General Electric Co., 496 U.S. 72 (1990).

Furthermore, we strongly believe, as we stated in our comments on the May 1997 version of the draft Guidance, that:

> NRC [and EPA] should be advising local governments that from a health and safety perspective . . . local regulations are unnecessary. NRC [and EPA] should underscore the adequacy of [their] regulations unless and until [they] conclude [ ] that those regulations should be changed. [They] should remind local governments that it is the NRC's responsibility to assure its licensees protect public health and safety. . . [and] should discourage unnecessary and ill-advised local regulatory efforts that only jeopardize legitimate industrial uses of radioactive material.

Instead, the Guidance includes multiple references to local governmental efforts to regulate radioactive materials. Chapter 4 discusses the role of various "Regulatory Agencies" and includes references to ISCORS itself and "Local Authorities." Certainly ISCORS is not a regulatory agency. More importantly, however, various sections throughout the Guidance describe the local regulatory efforts of: Oak Ridge, Tennessee; Portland, Oregon; Cleveland, Ohio; Albuquerque and Santa Fe, New Mexico; and St. Louis, Missouri. (The actions by Oak Ridge and Portland are erroneously portrayed as examples of "state" involvement in addressing radioactive materials at POTWs. *See* Section 4.5). Unitech believes that these references have no place in the document. They inappropriately imply the consent and concurrence of the ISCORS member agencies. In our view, they exist largely because they have never been legally challenged. To the extent that they address AEA-regulated materials, they are clearly beyond the scope of the local governments' authority. Thus, the statement that "in general, POTWs have the

same authority concerning radioactive material as they do for any other material in influents to the POTW" is incorrect and should be deleted.

F. Actions If "Elevated Levels" Are Found.

In Unitech's original comments on the prior draft Guidance, we took strong issue with various recommendations that local government entities, particularly POTWs, take regulatory action on their own to inspect or restrict radioactive discharges. The revised draft Guidance is generally improved and properly advises POTWs to consult with radiation regulatory authorities (*e.g.*, the NRC or an Agreement State regulatory agency), if they have a concern. This is appropriate advice, and by and large the revised draft properly communicates this advice to the POTWs.

However, there are still a few instances where the Guidance suggests that local entities may exercise radiological regulatory control over AEA-regulated materials. Section 6.3 suggests that POTWs "Require notification of planned or accidental discharges," but goes on to state that POTWs may "wish to request notification" and "may lack authority to require notification." The word "Require" at the beginning of the second bullet on page 42 should be changed to "Request."

Section 6.3 also states that POTWs may "impose appropriate additional local controls on the discharger, such as local discharge limits and regular reporting of discharges." We do not believe that, at least with respect to AEA-regulated materials, there are any such "appropriate" controls that may be imposed. This language should be deleted.

Enclosed as Attachment 1 are additional Unitech comments and questions on the Guidance. If you have any questions about Unitech's comments, please feel free to call me at 413-543-6911, extension 25.

Sincerely,

UniTech Services Group, Inc.

Michael R. Fuller
Manager, Health Physics and Engineering

Attachment 1

Additional Unitech Comments and Questions On POTW Guidance (June 2000)

Provided below are additional Unitech comments on the referenced Guidance.

Page	Section	Comments
Overall	-	After review of the entire Guidance document, we are concerned that those without a sufficient background in radiation safety or health physics may misinterpret certain points made in the document. For example, at the bottom of page 7 in section 2, the Guidance states that "Appendix A is a primer on radioactivity and radioactive materials." Later in the Guidance, in section 5.3 on page 34, it is suggested that POTWs review the Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM) for "useful information on planning and conducting a survey involving potential contamination of surface soils and building surfaces." The Guidance should caveat its recommendations where they touch upon very specialized topics, such as health physics in this example, to convey that such documents do not replace the training and experience of those in the field. The use of certain terminology may be misleading as well. On page F-1 of Appendix F, we recommend that the term "the 'most exposed' individual" be referenced as a hypothetical person subject to a long list of compounded, conservative assumptions. As used on page F-1, the term could be misconstrued as referencing a real individual. We highlight these examples, and others found below, to note that the Guidance may unintentionally contribute to the development, or reinforcement in certain cases, of erroneous perceptions about radiation. Most importantly, we think that the Guidance should make clearer that discharges well within regulatory limits may reconcentrate and the fact that such reconcentrations occur does not, in and of itself, indicate any public health or safety problem.
1	1	Change "Plants" to "Works" on the first line of the first paragraph.
1	1	End the last sentence of the first paragraph after "waste stream" and delete "that is less understood." It is not clear what waste streams are better understood than radioactive materials.
2	1.1	The first sentence of this section implies that all nine cases resulted in "considerable cleanup expense" to the POTW or industrial discharger. This reference should be edited to clarify the voluntary nature and degree, if any, of such cleanup efforts. As evidenced in the "Actions Taken" column of Table 1 on page 3, four of the nine cases cited involved no plant cleanup. Another three cases appear to have involved minimal cleanup expense and activity.

Page	Section	Comments
5	1.2	The last sentence of the third paragraph states that "routine discharges to the sewer led to the expenditure of considerable resources over the past ten years." This vague comment should be amplified by providing an explanation of what were the specific costs, who incurred the expenditures, and why they were necessary.
6	1.2	This section discusses the NEORSD experience and its interactions with the NRC, and states that contamination of a POTW with radioactive material can have "serious financial consequences." The discussion should make clear that the NRC imposed no order and took no action to mandate remediation of the NEORSD property, and that the NEORSD voluntarily undertook the remediation effort.
8	3	Based on NRC assessments to date, we recommend that after the phrase "There have not been many known occurrences of such elevated concentrations since the 1980s," the following Guidance language (taken from paragraph three on page 1) be added: "in fact, there have been no identified cases in which radioactive materials in sewage systems have been a threat to the health and safety of POTW workers or the public."
10	3.1.3	Delete the comma following the word "quantities" in line five of the third paragraph.
11	3.2	This section discusses, in part, radiation in local drinking water supplies. In the first sentence of the first full paragraph, we suggest replacing the phrase "may contain" with "does contain."
14	3.3.1	This section discusses reconcentration of radioactive materials during treatment of wastewater at POTWs. A function of a POTW is the removal of particles from wastewater, which will inherently concentrate radioactive material. Therefore, we recommend that, in the last sentence in the third paragraph, the phrase "or reconcentrated, during the treatment process" be deleted, and that it be replaced with the phrase "above some significant level which must be defined based on case-by-case dose criteria."

Page	Section	Comments
15	3.3.2	This section covers possible radiation exposure due to operations at POTWs. In the second paragraph of this section, we suggest a more precise wording of the fourth sentence. After the word "sludge," we recommend changing the phrase to read "and ash dust will reduce the possible inhalation exposure to radioactive materials to near zero."
17	3.3.2	In the first sentence of the second paragraph, we believe it is necessary to eliminate the negative implication of the phrase "Radioactive materials that emit gamma radiation are of concern because. . . ." We recommend changing this sentence to read, "Radioactive materials that emit gamma radiation may be a concern if significantly elevated." In order to further explain this natural occurrence, we propose adding the following to the second paragraph: "As will be discussed in the next section, background gamma radiation dose is a fact of life. A significant portion of the average background dose, of about 360 millirem per year, is from gamma radiation."
20	3.3.3.	The last sentence prior to Table 6 should re reworded to say "A more comprehensive list of naturally occurring radionuclides due to the presence of uranium and thorium may be found in Tables A-1, A-2, and A-3." In addition, H-3 and C-14 should be added to the list. Another comprehensive table of radionuclides and their concentrations found in soil should be added in order to provide the opportunity for comparison between POTW results and soil concentrations.
21	3.3.3	This section states that: "Thus, the calculations were intended to be based on realistic or prudently conservative conditions at POTWs . . . ." Given the context, it appears that the word "not" should be inserted between "were" and "intended."
22	3.4	Based upon the information in Table 7 on page 21, change "0 to 340" to "0 to 360" in second paragraph.
22	4	Delete the word "with" in the first line of the fourth paragraph.
23	4	We recommend the inclusion of some additional detail on the "compatibility" concept focusing in particular on the relevant NRC sewer discharge regulations. We suggest adding the following: "The concept of compatibility may, depending upon the particular regulation, necessitate that an Agreement State adopt NRC requirements essentially verbatim or may give the Agreement State flexibility in developing its regulations. Under current NRC policy, for example, the monthly radioactive material sewer discharge limits should be adopted essentially verbatim and the essential objectives of the annual limits should not create conflicts, duplication or gaps in regulatory protection."

Page	Section	Comments
23	4.1	Following the third sentence in the first paragraph, we recommend adding the following clarifying sentence: However, section 20.1301(a)(1) specifically excludes "dose contributions . . . from the licensee's disposal of radioactive material into sanitary sewerage in accordance with § 20.2003" from inclusion in the 100 mrem/year limit.
23	4.1	In the fifth sentence of the first paragraph, we recommend changing the phrase "quantity of radioactive material" to "concentration of radioactive material," and changing "total annual discharge" to "total annual quantity of discharge" at the end of the sentence.
30	5	As to the steps offered for consideration in this section, perhaps a better suggestion would be that, instead of conducting a survey, one could retrieve a sludge sample and send it for a gamma spectroscopy analysis. Additionally, as to Step 3, a better measure may be positioning a few area TLDs, as opposed to issuing TLDs to personnel.
33	5.2	The Guidance references a document developed by the National Biosolids Partnership (NBP 1999). Do all of the member ISCORS agencies endorse this document? Inclusion of this reference suggests that they do. This should be deleted or clarified.
36	5.3	Same comment as above regarding the reference to NBP 1999.
39	5.4.2	As a matter of technical accuracy, we recommend changing the first sentence on this page to read, "A gamma spectrometer is used to identify and quantify gamma-emitting radionuclide concentrations."
39	5.4.2	Replace the phrase "worked out" with "determined" in line four of the second paragraph.
41	6.3	This section recommends consultations with regulatory agencies on methods to prevent reoccurrence or reduction of radiation levels. It should also include a recommendation for POTWs to consult with the dischargers on a cooperative and voluntary basis to determine if the dischargers may take any steps to address the POTW's concern.
43	6.4	The second paragraph of this section implicitly advises POTWs that dischargers may automatically be responsible for contamination. We believe that this is not the proper conclusion for the Guidance. Rather, we suggest neutral language, such as: "While no cases in the United States have been identified in which radioactive materials in sewage systems have posed a threat to the health and safety of POTW workers or the public, this information has been provided so that you may be aware of the potential of contamination being present. Determining whether there is an actual concern due to the presence of radioactive material may be complex, and it is dependent on a number of factors. Each situation should be examined on a case-by-case basis. The involvement of a professional health physicist, again on a case-by-case basis, would likely be helpful and is recommended."

Page	Section	Comments
A-2	App. A	In the first sentence of the first full paragraph, we recommend changing the first word, "Some," to "Nearly all."
A-5	App. A	In the last sentence of the second full paragraph, following the term "radionuclide," we propose adding the phrase "and established geometry." We believe that the statement is incorrect without the clarification.
F-1	App. F	The term the "most exposed individual" is again used in the third full paragraph. As noted in our first comment on page 1 of this Attachment, we believe this term should not be used without additional information, which would preclude misconstruing this phrase as identifying a real person, rather than a hypothetical person.
F-2	App. F	The statement regarding the St. Louis ordinance indicates that a one curie limit for the aggregate discharge from "all users" has been set. If this characterization of the ordinance is accurate, it should be noted that: (1) the NRC limit is 1 curie per licensee not for the aggregate of all licensees; and (2) the NRC sets separate limits for hydrogen-3 and carbon-14. In our view, the St. Louis ordinance, as characterized in the document, is not compatible.
G-2	App. G	For the definition of "*Naturally Occurring Radionuclides*," we suggest replacing the term "terrestrial matter" with the phrase "the atmosphere."
G-3	App. G	For the definition of "TENORM," we propose substituting the phrase "technologically enhanced" in place of the term "increased."
I-2	App. I	At the top of the page, we propose clarifying the first full sentence with the following language, "Once licensed, byproduct material remains under the control and conditions of the license until such material is properly transferred or disposed of in accordance with the regulations." Without the proposed language added after the term "license," we believe that the statement would be incorrect.
I-2	App. I	In the first sentence of the paragraph at the bottom of the page, we suggest that the term "illegal" be replaced with the term "non-compliant." Use of the term "illegal" signals a willful violation. In the case of unintentional infractions, whatever the cause, use of the term "non-compliant" is more appropriate.