COMMENT SUMMARY AND RESPONSE DOCUMENT

HWIR MIXED WASTE-RELATED COMMENTS

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I. Contingent Management Approach for Mixed Waste

Commenter Name: General Public Utilities (GPU)
Commenter Type: Utility Co./Assoc.
Commenter Number: WHWP-00239.001

Comment: GPU is particularly supportive of the expanded use of contingent management exclusions in the RCRA program and this option is especially appropriate for commercial mixed radioactive/hazardous waste ("mixed waste").

Of all the low-risk hazardous waste currently subject to RCRA Subtitle C regulation, a contingent management exclusion may be most appropriate – and most necessary – for commercial mixed waste. GPU urges EPA to establish a contingent management exclusion for mixed waste conditioned on the wastes being managed in accordance with applicable NRC (or NRC Agreement State) controls. Two issues merit particular attention in this regard: The imposition of two regulatory programs by two different government agencies on the same waste produces immense regulatory burdens and has unnecessarily created a mixed waste disposal crisis. The nuclear utility industry currently has no disposal options for mixed waste. The absence of options is not because of a lack of technology, but from the absence of regulatory direction. The proposed rule opens the door for potential resolution of this problem. The EPA and this rule need only establish baseline criteria (e.g., 10-4) and acceptable boundaries (e.g. immobilization, HIC, burial) for exclusion of mixed waste from RCRA control.

Commenter Name: GPU Nuclear Corporation
Commenter Type: Utility Co./Assoc.
Commenter Number: WHWP-00208.002

Comment: GPUN supports establishment of a contingent management exclusion for mixed waste conditioned on the wastes being managed in accordance with applicable NRC (or NRC Agreement State) controls.

Commenter Name: CMA, UIC Mgmt. Task Group
Commenter Type: Industry Association
Commenter Number: WHWP-00078.001

Comment: We applaud EPA's efforts to take a broad approach to the use of exit levels and the Agency's attempts to base exit levels upon the method of disposal, as well as the concentration of hazardous constituents present at the point of disposal. Time constraints were imposed by the court-ordered deadline for this proposal, and yet EPA has begun exploring whether it would be possible to create additional exemptions to allow more flexible management of additional wastes now classified as hazardous without compromising protection of human health and the environment. These options are premised on the theory that a waste's risk is dependent on its chemical composition, and the manner in which it is managed. The method of disposal can greatly affect the quantity of a chemical constituents that ultimately reaches a human or environmental receptor. EPA now believes it may be appropriate to find that, where mismanagement is not likely or has been adequately addressed by other programs, the Agency need not classify a waste as hazardous. Additionally, there may be ways to recognize situations where the limitations on likely "mismanagement" are specific to a State, a type of waste, or a facility-

specific condition. As proposed, the contingent exit levels would differ according to the degree of management/disposal restrictions imposed as a condition of exit. The possible options would include progressively more restrictive requirements, allowing progressively higher exit levels as disposal options are further restricted. The Department of Energy (DOE) has also expressed interest in EPA's contingent management approaches to managing waste that is mixed radiologic and RCRA hazardous waste. The Agency is considering an option which would allow mixed waste that meets conditional exit levels for chemical toxicity (estimated at 10-4 cancer risk and HQ 1), to exit Subtitle C if managed in disposal facilities regulated by the Atomic Energy Agency. We support EPA's pursuit of these options and encourage EPA to use the flexibility available to the Agency to reduce regulatory burdens, while continuing to ensure protection of human health and the environment.

Commenter Name: Duquesne Light
Commenter Type: Utility Co./Assoc.
Commenter Number: WHWP-00143.001

Comment: Duquesne Light is in agreement with EPA's proposal to develop "conditional exemptions" from hazardous waste regulations. This concept considers real-world risks and the protection afforded by other regulatory programs in determining whether a particular waste warrants Subtitle C regulation. For example, a contingent management exclusion for mixed wastes conditioned on the wastes being managed in accordance with applicable Nuclear Regulatory Commission (NRC) controls would provide cost-effective management without compromising the protection of human health and the environment.

Commenter Name: Hazardous Waste Action Coalit.
Commenter Type: Waste Mgmt Assoc
Commenter Number: WHWP-00119.001

Comment: HWAC is very supportive of EPA's consideration of the disposal of radioactive mixed waste in DOE-regulated facilities or commercial facilities regulated by the Nuclear Regulatory Commission (see 66400). HWAC supports the proposal to allow mixed waste meeting contingent management exit levels to exit Subtitle C if managed in AEA disposal facilities.

Commenter Name: Bristol-Myers Squibb Company
Commenter Type: Industry (specific)
Commenter Number: WHWP-00202.001

Comment: However, "mixed" wastes currently are subject to dual regulation as radioactive waste and as hazardous waste, and very few disposal facilities have permits under both regulatory programs. Facilities generating mixed wastes now are either required to pay extremely high disposal costs for offsite disposal, if any disposal alternative is available, or compelled to store or treat the wastes themselves. BMS urges the Agency to grant a "contingent management" exemption for any wastes subject to regulation as radioactive wastes provided the wastes are handled in full compliance with the NRC regulations. Unlike the low concentration exemptions in proposed Section 261.37, a "contingent management" exemption for radioactive waste should not require testing for "exit levels." The comprehensive scope of NRC's regulation of waste management, rather than constituent levels, provides the most appropriate basis for the exemption. 1/ NRC delegates its authority to implement the regulation of low-level radioactive

material to agreement states. In the remainder of the comments, references to "NRC" will include both the NRC itself and agreement states.

Hazardous wastes that are also subject to regulation as radioactive waste present perhaps the strongest basis for a "contingent management" exemption.

Commenter Name: Lockheed Martin
Commenter Type: Consultants
Commenter Number: WHWP-00024.001

Comment: The proposed rule addresses concerns and suggestions for the management of mixed waste.

Commenter Name: Nuclear Energy Institute
Commenter Type: Utility Co./Assoc.
Commenter Number: WHWP-00246-001

Comment: NEI recommends the exemption be applied in the current rulemaking to recognize NRC low-level radioactive waste management regulations as an effective, safe method for managing commercial mixed waste.

It is not necessary that the NRC requirements be identical to those under RCRA. Such a situation could occur only for a waste already being managed under RCRA. This flies in the face of the concept of recognizing contingent management programs for the purpose of granting conditional exemptions from requirement for waste management under RCRA. NEI does not even believe a line by line review and comparison are necessary for determining the adequacy of this contingent management program for mixed waste.

Lastly, because of insufficient treatment/disposal capacity generators are forced to store mixed waste onsite beyond RCRA dictated time limits in violation of land ban waste restrictions with only the protection of an EPA policy recommending enforcement discretion. Even with the enforcement discretion policy in place, companies acting in good faith are potentially subject to state actions and citizen suits under RCRA for failure to comply with land ban storage requirements. This double jeopardy is an untenable regulatory situation that begs for swift action.

Commenter Name: Arizona Public Service Co.
Commenter Type: Utility Co./Assoc.
Commenter Number: WHWP-00158.001

Comment: While these general concerns about establishing appropriate risk-based exit levels under HWIR are important to APS, the balance of our comments will be devoted to a single concern: the continuing problems caused by dual regulation of mixed waste (i.e., wastes that are both radioactive and hazardous). EPA has included in the HWIR proposal a possible "contingent exemption" for mixed wastes generated at U.S. Department of Energy (DOE) facilities. Although APS is not familiar enough with DOE mixed waste management concerns to directly respond to this proposal, we urge EPA in the strongest of terms to enact a contingent exemption for commercially generated mixed wastes that are

subject to Nuclear Regulatory Commission (NRC) regulations. As we will describe in detail below, such wastes are being safely managed under the NRC's jurisdiction, and the additional regulatory requirements imposed by RCRA have not created any perceptible environmental benefit. In fact, to the contrary, dual regulation of mixed waste has caused gridlock, forcing generators of small quantities of these wastes into the complex and expensive RCRA permitting process due to a lack of off-site treatment and disposal facilities with the necessary permits and licenses required to manage mixed waste. For these reasons, we believe that a contingent exemption for NRC-regulated mixed wastes is appropriate, and, in fact, long overdue.

The conditional exemption for NRC-regulated mixed wastes should be categorical, rather than based on waste-specific constituent concentrations. EPA's preamble discussion of a potential conditional exemption for DOE-generated mixed wastes indicates that it believes mixed wastes should qualify for exclusion under HWIR in the same manner that non-radioactive hazardous wastes would qualify. In addition, the preamble discusses a number of potential categorical exemptions requested by DOE. While APS takes no position on the exemptions requested by DOE, 1/ we believe the only workable solution to the problems created by dual regulation of commercially generated mixed waste is a complete, categorical exemption from RCRA (including LDR requirements) for any such wastes managed as required by NRC regulations. Only a categorical exemption would prevent the problems described above and allow safe, efficient and effective management of mixed wastes under a single regulatory scheme. Anything less would continue to subject mixed waste generators to needlessly duplicative regulation and force unnecessary expenditures 2/ that produce no perceptible benefits.

EPA has sufficient existing statutory authority to enact a conditional exemption for mixed wastes subject to NRC regulations. In its preamble discussion of conditional exemption options, EPA presents arguments to support its position that it has existing statutory authority to make conditional exemptions based on specific waste management circumstances. See discussion at 60 Fed. Reg. 66,395-396. APS agrees with these arguments and shares EPA's belief that the Agency has authority to exempt wastes from RCRA Subtitle C requirements both when the constituents in the wastes present low risks (as the HWIR proposal is intended to do), and when the wastes, regardless of constituent concentrations, are assured of environmentally protective management under alternative regulatory systems. APS also agrees with EPA that "it may no longer be accurate or necessary to assume that worst-case mismanagement [of a waste] will occur." Id. In the case of mixed wastes managed as required under NRC regulations, appropriate, environmentally protective management is virtually assured, and a conditional exemption from RCRA is both warranted and legally permissible.

Furthermore, in addition to the general arguments presented by EPA in its preamble discussion, APS believes the Agency has additional authority to provide a conditional exemption for mixed waste. Specifically, Section 1006(a) of RCRA indicates that RCRA shall not be construed to apply to substances subject to the Atomic Energy Act "except to the extent that such application (or regulation) is not inconsistent with the requirements of [the Atomic Energy Act]." APS is aware that EPA and the NRC have, in the past, assessed particular regulatory requirements of RCRA Subtitle C for consistency with specific Atomic Energy Act (AEA) requirements. However, we believe such narrowly focused assessments miss the point that dual regulation of mixed waste has caused a broad, programmatic breakdown in the intended application of both RCRA and the AEA. The redundant application of these two acts has resulted in a situation where generators, who would otherwise have sent their wastes off-site for treatment and disposal, are instead forced to engage in extended storage. Wastes, whether radioactive or hazardous, should be treated and disposed of in an efficient and timely manner to ensure against future releases or unnecessary exposure to the hazards associated with these materials. Because

dual regulation has prevented timely management of mixed waste, a conditional exemption from RCRA is appropriate to avoid interference with the intended goals of the AEA.

We note only that while commercially generated mixed wastes are subject to the NRC regulatory requirements discussed above, DOE wastes are subject to separate regulatory requirements that may or may not provide the same level of protection. For this reason, APS believes that conditional exemptions for commercially generated mixed wastes should be evaluated separately from any exemptions requested by DOE.

Commenter Name: Industrial Environmental Assoc
Commenter Type: Industry Association
Commenter Number: WHWP-00166.001

Comment: Mixed waste which is subject to Nuclear Regulatory Commission (NRC) (or an NRC agreement state) controls should be excluded from hazardous waste regulations. The rationale for the proposed exclusion is the risks posed by the chemical components of commercial mixed wastes are adequately addressed by NRC regulations. [Subjecting] these wastes to RCRA regulation merely adds costs, confusions, and difficulties in packaging and disposal, without enhancing environmental protection. Vitrification, microecapsilation, etc are techniques designed to stop migration of constituents from treated waste. Whether those constituents are radioactive or hazardous is not pertinent. If the waste is being disposed of in an NRC-regulated or Agreement State - regulated waste disposal facility, the same argument holds true; the waste is packaged and disposed of in a manner that precludes migration to the surrounding environment. As long as that condition is satisfied (by whatever technology) and the disposal facility is regulated by either the EPA and/or NRC, mixed waste should be categorically excluded from RCRA.

Commenter Name: Kaiser-Hill Company
Commenter Type: Consultants
Commenter Number: WHWP-00029.001

Comment: The EPA should allow for the disposal of radioactive mixed waste in facilities regulated by the United States Department of Energy (DOE) or the Nuclear Regulatory Commission.

Commenter Name: JetSeal, Inc
Commenter Type: Industry (specific)
Commenter Number: WHWP-00020.001

Comment: Rather than Option 4 [of the proposed Contingent Management Options], which puts the burden upon the State and EPA, let the generators and disposers of mixed waste be responsible for making the necessary demonstration. Radioactive waste disposal units are required to demonstrate compliance with radioactive criteria via a performance assessment process. The existing performance assessments could either be adapted to address the hazardous constituents or the site and unit specific data used in the performance assessment could be readily input into EPA's model to establish the "exit levels". Again, this type of approach would allow waste management and risk to converge, rather than continue to be separated by the chasm of conservatism.

Commenter Name: Westinghouse Electric Corp.
Commenter Type: Industry (specific)
Commenter Number: WHWP-00177.001

Comment: EPA requests comment on allowing mixed waste meeting conditional exit levels for chemical toxicity estimated at 10-4 cancer risk and HQ 1 to exit Subtitle C if managed in AEA disposal facilities. Westinghouse encourages the EPA to allow this approach. The AEA guidelines for disposal of mixed wastes have been established to provide adequate protection of human health and the environment. Under such guidelines, and in conjunction with an appropriate state waste management program, DOE mixed wastes should be permitted to exit RCRA regulation as listed waste when the conditional exit levels described above are met. Westinghouse supports EPA's proposal to adapt contingent management option four (described at 60 FR 66398) to DOE's special circumstances.

Commenter Name: U.S. Nuclear Reg Commission
Commenter Type: Federal Government
Commenter Number: WHWP-00178.002

Comment: In developing the contingent management approach, the Environmental Protection Agency (EPA) should use the provisions, performance objectives, and technical requirements in 10 CFR Part 61 in the evaluation of radioactive waste disposal facilities standards. Because most low-level radioactive waste disposal facilities that will be used by commercial mixed waste generators will be developed using the requirements in 10 part 61, or compatible State regulations, this will provide realistic standards upon which to base the evaluation.

In commenting on these proposed rules NRC staff urged EPA to: 1) Establish concentrations of hazardous constituents, based on health and environmental risks, below which a listed waste would not be considered hazardous; and 2) Develop a contingent management approach for the disposal of mixed wastes where the conditional exemption from the Resource Conservation and Recovery ACT (RCRA) would be based on compliance with the regulations to control the radiological hazards. This approach would be acceptable as long as case-specific demonstrations were made showing that the protection offered by a licensed radioactive waste disposal facility was adequate to protect the public health and safety from all significant hazards posed by the waste.

The proposed rule also discusses several additional concepts that may provide relief to mixed waste generators, such as establishing site-specific exit levels for mixed waste, or exit levels based on the type of facility in which the waste will ultimately be disposed. NRC staff supports any approach that provides flexibility to mixed waste generators, as long as it is fully protective of the public health and safety, and we look forward to reviewing the details of the mixed waste management system in the supplemental rulemaking.

Commenter Name: Detroit Edison Company
Commenter Type: Utility Co./Assoc.
Commenter Number: WHWP-00112.001

Comment: Contingent management is particularly appropriate for commercial mixed wastes which are currently subject to dual regulation by RCRA and the Nuclear Regulatory Commission.

Commenter Name: State of Pennsylvania, DEP
Commenter Type: State Government
Commenter Number: WHWP-00167.001

Comment: EPA requests comment on contingent management of radiologic and RCRA hazardous waste (mixed waste) at facilities that meet applicable standards under the Atomic Energy Act. 60 FR 66400-01. Pennsylvania fully supports DOE's proposal as outlined in the proposed rule. We believe it would be environmentally protective and appropriate to allow treatment residues of mixed waste derived from mixture-rule wastes to be disposed of at a LLRW that is sited, constructed and operated in compliance solely with the Atomic Energy Act, the regulations of the Nuclear Regulatory Commission and corresponding NRC-agreement state radiologic rules. An exit rule for contingent management of treated mixture-rule mixed waste at an NRC-regulated or NRC-agreement state regulated LLRW facility is important to the development of a state LLRW facility program. We find that no technical benefit would be gained from dual regulation of LDR treated mixed waste under both the radiologic and hazardous waste sets of laws.

However, Pennsylvania believes that an NRC-regulated commercial LLRW disposal facility will provide suitable and appropriate environmental protection when the treated wastes pose risks that do not exceed 1 E-4 and HQ 1 (modeled at an uncontrolled site). Treatment of mixture-rule mixed waste should be conducted at a Subtitle C TSD or by the generator in compliance with 40 CFR Parts 260-270. Management of mixed waste should be governed by Subtitle C until successful LDR treatment is accomplished and appropriately documented.

Commenter Name: Southern CA Edison Company
Commenter Type: Utility Co./Assoc.
Commenter Number: WHWP-00198.001

Comment: Contingent exemption that takes into consideration management practices is also readily justifiable but should be expanded to address commercial mixed waste generated and managed under the NRC or NRC-agreement states. EPA should add at 261.36, an exemption for all (listed and characteristic) mixed waste managed under NRC or agreement-State programs.

Commenter Name: WMX Technologies, Inc.
Commenter Type: Waste Mgmt Co.
Commenter Number: WHWP-00200.001

Comment: The Agency indicates in 261.37(d) that listed wastes that exit using the requirements in 261.37(b) that are disposed in a landfill or monofill, need not be disposed in a landfill subject to regulation as a hazardous waste management unit. WMX supports this approach, but believes that the Agency should further clarify this in the final rule preamble discussion. WMX believes that this discussion should clearly indicate that due to the complex nature of mixed wastes and the relatively small number of disposal options available to mixed waste generators, that a mixed waste exiting under the proposed HWIR exit criteria should also be eligible for placement in disposal units (landfills) licensed by the NRC or an agreement state.

Commenter Name: Util Solid Waste Activ Group
Commenter Type: Utility Co./Assoc.
Commenter Number: WHWP-00089.001

Comment: Of all forms of waste, a contingent management approach is most appropriate -- and most necessary -- for mixed waste managed under NRC (or NRC Agreement State) controls. USWAG therefore urges EPA to conditionally exempt such wastes from regulation under RCRA Subtitle C.

EPA is legally required to consider the adequacy of other regulatory programs in making hazardous waste determinations. The definition of hazardous waste in RCRA requires EPA to consider the hazards posed by a waste when mismanaged. See RCRA Section 1004(5). EPA has reasonably interpreted this provision to mean that the Agency should consider likely mismanagement scenarios. See, e.g., 40 C.F.R. Section 261.11(a)(3)(vii). Under EPA's own regulations, the Agency is to consider other governmental programs in determining the plausible types of improper management to which a waste could be subjected. Id. As explained above, the Agency's reliance on other regulatory programs as the basis for not regulating a waste as hazardous has been expressly upheld by the federal courts. See, e.g., Natural Resources Defense Council v. U.S. EPA, 25 F.3d 1063, 1071 (D.C. Cir. 1994) (affirming EPA's decision not to list used oil as hazardous based on finding that existing network of federal regulations "could control any plausible scenario of used oil mismanagement"). Therefore, EPA clearly has the legal authority to issue a conditional exclusion for mixed waste managed under the NRC's regulatory requirements based on a finding that the existing network of NRC regulations "could control any plausible scenario" of mixed waste mismanagement. Id. at 1071.

The commenter also believes that dual regulation forces mixed waste generators to spend millions of dollars to comply with unnecessary regulatory burdens. There is no debate that the existing system imposing two federal regulatory programs on the management of the same waste stream is duplicative and results in the needless expenditure of resources by the regulated community and federal and state regulatory regime. NRC licensees are spending millions of additional dollars on largely administrative requirements for managing mixed waste under the existing dual regulatory regime than would otherwise be required if this waste were only subject to NRC requirements (as was the case prior to 1986). This money is being spent solely to respond to EPA's technical interpretation that RCRA applies to the hazardous component of mixed waste, and not on any finding that such dual regulation is necessary to protect human health and the environment.

From USWAG's perspective, EPA's request for comments on contingent management options for mixed waste may be the most important aspect of the HWIR proposal (60 FR 66400). Both EPA and the U.S. Nuclear Regulatory Commission ("NRC") appear to recognize that dual regulation of commercial mixed waste under RCRA and Atomic Energy Act ("AEA") has unnecessarily imposed millions of dollars worth of compliance costs on the regulated community, unnecessarily created a mixed waste disposal crisis, and failed to result in any corresponding gains in protection for human health, safety or the environment. Indeed, the indefinite storage of mixed waste on generator's sites caused by the mixed waste treatment and disposal capacity shortfall is, in the eyes of the regulators, less protective of human health and the environment than proper disposal under NRC controls. See NRC Letter to EPA RCRA Information Center (June 7, 1995) (hereinafter "NRC Letter") (Attachment A). [Note: See hardcopy of Comment WHWP-00087 to review Attachment A]. Therefore, of the entire spectrum of low-risk hazardous waste currently subject to Subtitle C regulation, contingent management is arguably most appropriate -- and most necessary -- for commercial mixed waste managed under NRC controls. Accordingly, USWAG urges EPA to promulgate a contingent management exclusion for mixed waste conditioned on managing the waste in accordance with all applicable NRC (or NRC Agreement State) regulations. 1 /Background On Development Of Dual NRC/EPA Regulation Of Commercial Mixed Waste Mixed waste is waste that is both radioactive and hazardous. Such waste has been regulated since the earliest days by the NRC (and its predecessor, the Atomic Energy Commission), which has the responsibility for regulating byproduct, source and special nuclear material. See Atomic Energy Act ("AEA") of 1954, as amended. Congress specifically excluded byproduct, source and special nuclear material from the definition of solid waste when enacting RCRA in 1976. 2 /EPA first asserted jurisdiction over the hazardous component of mixed waste roughly a decade later. In 1986, EPA published a notice requiring states with authorized hazardous waste programs to apply for supplemental authority to regulate the hazardous component of mixed waste. 51 Fed. Reg. 24,504 (July 3, 1986). This decision was based solely on EPA's technical interpretation of the "byproduct, source and special nuclear material" exclusion under RCRA and was not compelled by any finding that the NRC controls were not protective of human health or the environment. A Joint EPA/NRC Guidance in 1987 sets forth what is still the current regulatory scheme: the NRC has authority over the radioactive component of mixed waste, whereas EPA has authority to regulate the hazardous component of the waste. See Joint Guidance on the Definition of Commercial Low-Level Radioactive and Hazardous Waste, EPA Policy Directive 9432.00-2 (March 1987). As a result, mixed waste generators are subject to two regulatory masters: they must manage the radioactive component of the waste in compliance with applicable NRC requirements, while at the same time manage the chemical component of the same waste under applicable RCRA Subtitle C requirements. 1/ To be clear, USWAG urges EPA to develop contingent management options for commercial mixed waste managed under NRC controls separately from issues surrounding mixed waste generated at Department of Energy ("DOE") facilities.

It is therefore appropriate for EPA to address requirements of such Acts." 3/ Currently, only four facilities in the country are authorized to treat mixed waste and only one facility is licensed to dispose of select categories of mixed waste. The commenter noted that the Agency had compared the EPA's regulatory requirements to the NRC's rules and concluded that there is little or no incremental safety benefit gained by subjecting commercial mixed waste to RCRA's Subtitle C requirements on top of existing NRC controls. Rather, studies confirm that the dual regulation of mixed waste has taken an otherwise environmentally sound and workable regulatory program and turned it into a regulatory morass that has compromised the management system for mixed waste.

Lastly, the commenter believed that dual regulation has unnecessarily created a disposal crisis.

Prior to 1986, mixed waste was safely managed by NRC regulated facilities as part of the larger universe of low-level radioactive waste. With EPA's sudden decision to subject the chemical component of NRC-regulated radioactive waste to RCRA regulation, treatment and disposal facilities were automatically required to obtain both RCRA permits and NRC licenses to manage this material (51 Fed. Reg. 24504 (July 3, 1986)). Obtaining dual RCRA permits and NRC licenses has proven to be an administrative, legal and technical quagmire, causing few facilities to attempt this process and creating a corresponding treatment and disposal capacity shortfall.3/ As a result, mixed waste generators often have no option but to store their wastes for extended periods of time until qualified RCRA/NRC treatment and disposal capacity becomes available. These are the very same wastes that prior to dual regulation were being safely disposed of (as opposed to stored indefinitely) in NRC regulated facilities. In addition to the undesirability of indefinite storage of mixed waste, the disposal crisis has created a serious and unfair compliance dilemma for the regulated community. RCRA's land disposal restriction ("LDR") regulations only allow hazardous waste generators to store waste for up to one year prior to disposal if such storage is necessary to facilitate the treatment or disposal of the waste. The lack of adequate treatment or disposal capacity, however, is not a defense to the LDR storage prohibition under the RCRA Section 3004(j). Therefore, mixed waste generators (with or without a storage permit) may be in violation of the LDR storage prohibition the day the waste is generated. Although EPA has issued an enforcement discretion policy for such violations (which expires in April 1996 unless extended), NRC licensees are still subject to the threat of State enforcement actions or citizen suits.

In sum, dual regulation of mixed waste is a prime example of duplicative and burdensome federal over-regulation. The EPA/NRC regulatory scheme imposes millions of dollars of unnecessary costs on the regulated community without a corresponding benefit to human health and the environment. The requirement that treatment and disposal facilities be licensed by both EPA and the NRC has resulted in a disposal crisis, forcing many mixed waste generators to store their wastes indefinitely, until qualified RCRA/NRC treatment and disposal capacity becomes available. EPA has an important opportunity to resolve this decade-long quandary by including as part of the HWIR rule a contingent management option for commercial mixed waste managed under NRC (or NRC Agreement State) controls.

Commenter Name: CORAR
Commenter Type: Trade Association
Commenter Number: WHWP-00116.001

Comment: CORAR agrees with the Department of Energy (DOE), and also Nuclear Regulatory Commission (NRC), recommendations that mixed wastes subject to treatment and disposal under the provisions of the Atomic Energy Act should be exempt from Resource Conservation and Recovery Act (RCRA) provisions. The lack of EPA approved treatments and disposal facilities for many types of mixed waste causes generators to store their waste at thousands of sites throughout the country. CORAR believes that for most commonly occurring mixed waste forms it would be safer to remove them off site and dispose them to meet the requirements of the Atomic Energy Act (AEA).

"[EPA intends] to publish a supplemental proposal on HWIR mixed waste exit criteria after initial comments have been received." CORAR encourages publication of this proposal to provide confirmation of the adequacy of AEA provisions. However, we urge that removal of mixed waste from RCRA requirements should not be delayed by the intention to publish exit criteria because it is unsafe to prolong storage of mixed waste. Industry Association reason to simplify the regulations by removing mixed waste from RCRA requirements and managing mixed waste under AEA requirements only.

According to 60 FR] 66400, column 2, paragraph 4, "EPA expects that the general approach in today's proposed regulation would be applicable to mixed wastes as well as listed-only hazardous wastes." While CORAR agrees with this statement, we are concerned about the time it would take for the EPA to apply these considerations to mixed waste. The current situation where the EPA require[s] mixed waste to be stored at thousands of facilities across the country needs immediate resolution. The public cannot wait for the EPA to develop appropriate exit levels. Instead the EPA should immediately remove mixed waste from RCRA requirements and allow generators to mitigate this potential hazard by responsible treatment and disposal in compliance with AEA provisions. To further delay the proper treatment and disposal of mixed waste increases the probability of an accident at a temporary storage facility. Such an accident could seriously impact EPA's credibility with the public.

Commenter Name: Department of Energy (DOE)
Commenter Type: Federal Government
Commenter Number: WHWP-00072.001

DOE is responsible for the largest universe of mixed waste in the United States, approximately 940,000 cubic meters (current inventory plus projected generation to the year 2070) according to information being developed for the 1996 Baseline Environmental Management Report (BEMR). 1/ Most of DOE's mixed waste will be treated to EPA treatment standards and managed in accordance with the Site Treatment Plans and compliance orders under the Federal Facility Compliance Act (FFCA), unless it is already in compliance with the Land Disposal Restriction (LDR) program. Treatment of mixed wastes, like hazardous wastes, involves a process or a series of processes which result in the destruction of the hazardous constituents and/or the reduction of availability of the hazardous constituents to the environment. From a risk perspective, managing certain treated mixed wastes in Resource Conservation and Recovery Act (RCRA) storage and disposal units (specifically those mixed wastes that contain listed hazardous wastes, or that are mixed with or "derived from" listed hazardous wastes, and pose low risks from the hazardous component) may not provide additional protection to human health and the environment beyond that afforded by managing these wastes in storage and disposal units subject to Atomic Energy Act (AEA) control. Similarly, "as generated" low-risk listed mixed wastes (i.e., mixed wastes containing very low or undetectable concentrations of hazardous constituents and which meet EPA treatment standards) that are managed in AEA storage and disposal units may not realize any significant additional protection of human health and the environment through the application of RCRA requirements. To be fiscally responsible, DOE believes it should pursue alternatives to the current compliance regime for mixed wastes that pose low risks from the hazardous component, without compromising protection of human health and the environment. DOE believes that a contingent management approach which sets alternative exit levels for such low-risk mixed wastes should be examined.

IX Request for Comment on Options for Conditional Exemptions p. 66395, cols. 1 & 2 – This section of the preamble outlines several options for establishing higher exit level tied to meeting certain management requirements. The Agency states that the options presented "are premised on the theory that a waste's risk is due not only to its chemical composition, but also the manner in which it is managed, which can greatly affect the amount of chemical constituents that ultimately reach a human or environmental receptor." DOE thoroughly agrees with EPA's assertion that the risks (to human health and the environment) associated with a particular waste are due not only to the chemical constituents contained in the waste, but also the manner in which the waste is managed. As such, DOE supports the Agency's efforts to develop conditional exemptions from RCRA Subtitle C regulation which are based

upon the reduction in risks provided by additional waste management controls. DOE believes that the conditional exemption concept may have particular relevance to radioactive mixed wastes, in that such an approach could potentially result in more efficient management of these wastes. Certain requirements placed on mixed wastes by RCRA (for the hazardous component) and the AEA (for the radioactive component) can often be redundant, and only serve to increase the cost of compliance without any real benefit in terms of protection to human or environmental receptors. For a number of reasons, the Agency's efforts to establish conditional exemption options appear timely. From a technical standpoint, both EPA and waste generators are now equipped with better tools for predicting the affect that different waste management scenarios will have on human health and the environment. A key to any risk-based regulatory approach obviously lies in utilizing established and accepted risk assessment methodology. The field of risk assessment has undergone significant advances and appears to be more readily accepted in recent years, as evidenced by the fact that risk assessments are being utilized nationwide to help make a variety of environmental decisions. These advances will also support EPA's desire to shift the regulation of waste from a generic perspective to one that recognizes that all wastes are handled differently and the manner in which they are handled impacts the overall risk that the waste poses. The economics of waste management also supports the move towards this more risk-based form of waste management regulation. DOE, as is the case with any entity responsible for managing environmental protection issues, has finite resources. More flexible, cost-effective waste management regulations would allow for re-allocation of resources to address environmental issues which truly pose unacceptable risks to human health and the environment.

DOE requests that EPA pursue the development of regulations that establish conditions which, if met, would qualify mixed wastes for exemption from RCRA Subtitle C regulation (i.e., a contingent management approach for mixed waste). The HWIR proposal requests comment on several contingent management approaches to disposal of hazardous wastes [60 FR 66344, 66395-66401]. Under such approaches, wastes that would be considered hazardous if managed in an uncontrolled manner, could be considered non-hazardous if managed in a sufficiently controlled manner.

EPA says that it intends to publish a supplemental proposal on HWIR mixed waste exit criteria after initial comments have been received. DOE requests that a supplemental notice on HWIR mixed waste exit criteria focus on the Department's primary proposals in response to the proposed HWIR. That is, DOE suggests that EPA utilize a supplemental proposal to further describe the Department's positions that: (1) disposal of immobilized mixed waste debris in a low-level radioactive waste disposal facility is protective of human health and the environment, and (2) vitrification produces a waste form suitable for exemption from the RCRA Subtitle C regulations based on the inherent destruction and immobilization capabilities of the technology. Furthermore, DOE suggests that EPA utilize the supplemental proposal to also address sampling and analysis requirements that are appropriate for mixed waste under HWIR. [DOE] would like to explore options for contingent management of mixed waste (i.e., the option proposed by EPA, as well as other options), and to work with EPA and the States to develop such an option. However, DOE believes that efforts to evaluate and develop a contingent management option for low-risk mixed wastes should be considered and pursued on a separate schedule from the DOE proposals discussed in the above paragraph.

DOE supports allowing mixed wastes which contain listed hazardous wastes (or are "mixed with" or "derived from" listed hazardous wastes) and meet exit levels and other HWIR requirements to exit RCRA, as would be allowed for other listed hazardous wastes under the HWIR final rule (as indicated by EPA in the preamble; 60 FR 66400, col. 2). However, as stated earlier, the Department would like to explore this option and others, and work with the EPA and the States to develop a viable contingent

management option for low-risk mixed wastes (on a separate schedule from the two DOE proposals which support conditional exclusions for immobilized mixed waste debris and vitrified mixed wastes from RCRA). DOE plans to pursue meetings and further communications for discussing such an option with EPA and the States in the upcoming months. DOE has initiated a dialogue with EPA and the States (primarily through the National Governors' Association (NGA)) in regards to the potential application of the HWIR to DOE mixed wastes. It is DOE's intent and desire to further discussions with these regulatory agencies and to foster continued cooperation in the context of defining acceptable exclusions from RCRA Subtitle C regulation for low-risk mixed wastes (in particular, to address the proposals and issues raised above in General Comments 1 through 5).

Commenter Name: Envirocare of Utah, Inc.
Commenter Type: Waste Mgmt Co.
Commenter Number: WH2P-00011

Comment: Should EPA conditionally exempt low level radioactive hazardous mixed waste from the mixture and derived-from rules, provided the mixed waste is handled in accordance with the requirements of a new Part 266, Subpart N, which is being simultaneously proposed today? (Section IV.B). Envirocare has commented on the proposed rules for Subpart N that were promulgated in a separate proposed rule on November 19, 1999. Our comments on that proposed rule are attached and incorporated as a response to this issue by reference.

Commenter Name: State of Alabama, DEM
Commenter Type: State Government
Commenter Number: WHWP-00066.001

We will reserve further comment relative to mixed waste pending our review of the supplemental proposal on HWIR Mixed Waste Exit Criteria which EPA has indicated will be published at a later date.

Commenter Name: Env. Council of the States
Commenter Type: State Government
Commenter Number: WHWP-00213.001

Comment: The preamble language and DOE's proposals remain conceptual and sketchy. The three proposals do not present a clear and detailed set of regulatory options on which to comment. For example, while DOE's debris and vitrification proposals are briefly described in the preamble in a section labeled "contingent management of mixed waste," it appears that these proposals are unrelated to the contingent management concept described in the main body of the proposed HWIR rule, and the exact nature of the regulatory change being proposed for immobilized debris and vitrified waste is unclear. In addition, the third proposal (which is related to contingent management) has no supporting documentation whatsoever from DOE. The proposals fail to address the key issue of DOE self-regulation, and they lack specific details about how these proposals would be implemented.

The states have been working with DOE and remain willing and available to work with EPA and DOE to refine the mixed waste proposals so that they address the issues outlined below and provide opportunities for more efficient and less costly mixed waste management. States expect that any such refined, detailed

proposals would then go forward for supplemental notice and comment. Until that happens, however, the states urge EPA to eliminate DOE's recommendations from the HWIR proposal. [The] states also believe that the mixed waste proposals can and should be separated from the overall HWIR rulemaking and its associated schedule.

Commenter Name: State of Idaho, DHW DEQ
Commenter Type: State Government
Commenter Number: WHWP-00228.001

Comment: Idaho strongly objects to EPA's mixed waste proposal to utilize Option Four of the Contingent Management Proposals. Assessment of a State's Subtitle D program for state-based contingent management omits resources a state may have under mixed-waste authorization. Choosing Subtitle D programs to take the lead in mixed waste issues is erroneous. Instead of shifting the burden of this flexibility on programs that are not funded for such efforts, EPA should re-design the current delisting tool that is already available for special situations.

The State of Idaho's comments should draw considerable weight in discussions addressing DOE's mixed waste proposal. Our State bears sixty-seven percent (67%) of the nation's mixed waste debris. Idaho strongly opposes separate and distinct management of mixed waste from the hazardous waste program, especially when it includes self-regulation. Idaho strongly opposes EPA's Contingent Management options for all hazardous wastes. Our opposition stems from the legal basis given in the preamble, and the effect it would have to the core of the RCRA program. Idaho naturally opposes the notion of burdening Subtitle D programs with the added responsibility of mixed waste management under EPA's proposal. Idaho will submit separate HWIR - Waste comments that address aspects other than mixed waste issues.

Commenter Name: State of California, EPA
Commenter Type: State Government
Commenter Number: WHWP-00249.001

Comment: The proposal would allow certain DOE mixed waste to exit from the RCRA regulation. The proposal could have the effect of negating major portions of the Site Treatment Plans and RCRA orders issued pursuant to the Federal Facility Compliance Act. California already has plans in place for all of its facilities. The preamble language is conceptual and sketchy. The proposals do not present a clear and detailed set of regulatory options on which to comment. The mixed waste proposal should be separated from the overall HWIR rulemaking and its associated schedule. The key issue related to DOE self-regulation is not addressed. DOE should engage the states in a full discussion about options for external regulation for any mixed waste that merits less stringent management standards than those under RCRA Subtitle C. The inclusion of the provisions regarding mixed waste in this rulemaking could unnecessarily delay and undermine states' adoption and implementation of the rule. Cal/EPA is willing to continue to work with U.S. EPA and DOE to refine these proposals, which would be included in a supplemental notice.

Commenter Name: State of Colorado, DPHE
Commenter Type: State Government

Commenter Number: WHWP-00231.001

Comment: The proposals for contingent management for mixed wastes raise considerable concern. These 11th hour proposals from DOE came as a significant surprise to state representatives on the NGA Federal Facilities Task Force that have been working closely with DOE since 1992. 1) There has certainly not been sufficient time to adequately evaluate the technical merit of these proposals and they should not be incorporated into any federal rule until the states that are intimately familiar with these wastes have had an opportunity to fully evaluate the proposals.

Commenter Name: State of Vermont, WMD
Commenter Type: State Government
Commenter Number: WHWP-00226.001

Comment: Vermont believes that radioactive/mixed wastes should be removed from HWIR rule.

Commenter Name: State of Wash, Dept of Ecology
Commenter Type: State Government
Commenter Number: WHWP-00250.001

Comment: Washington does not support a conditional exemption approach based on the Atomic Energy Act. Washington reaffirms the comments submitted to the docket by letter dated February 16, 1996. DOE proposals appear separable from EPA's HWIR rulemaking: DOE proposals that EPA allow up to 96% of its mixed waste to exit RCRA differ significantly from the main body of HWIR, and could exempt from regulation a wide range of mixed wastes ranging from minimally contaminated debris to high level radioactive and [extremely] hazardous wastes 2/. Though nearly impossible to evaluate without specific proposals or the benefit of EPA analysis, higher and more complex risks associated with these proposals argue for separation from HWIR rulemaking overall.

Consideration is premature in that proposals made are not well developed: Though EPA has provided extensive analysis/proposals covering the main body of the HWIR federal register (60FR 66344), its discussion of DOE proposals is limited to four paragraphs within the preamble (found at pages 66400 - 66401). No EPA analysis, specific proposals, or proposed modifications to statutory provisions are included for review. We also note that DOE studies produced to date have been distributed piecemeal, do not form a cohesive supportive package, and that inadequate time has been afforded for review. EPA has recognized this by noting (in the instance of DOE immobilized debris and vitrification studies) that it "...has not had adequate time to review and evaluate the DOE data...". In the instance of initial, though sketchy DOE proposals for the contingent management of mixed waste, we believe it was premature for EPA to propose "... adaption of option four ... to DOE's special circumstances...", when in fact: (i) DOE has submitted no specific proposal on contingent management, (ii) it is unclear whether or not DOE's "proposal" is within the confines of the basic scope of EPA's HWIR waste rulemaking (i.e., "... to amend its regulations under the Resource Conservation and Recovery Act (RCRA) by establishing constituent-specific exit levels for low risk solid wastes that are designated as hazardous because they are listed, or have been mixed with, derived from, or contain listed wastes." emphasis added, see preamble introduction), and (iii), EPA itself has not has not had adequate opportunity for review or proposal development. Notwithstanding these basic Ecology concerns regarding the need to provide adequate time for any mixed waste proposal development, analysis, and review; we would like to point out that

Ecology has long struggled with the equitable application of RCRA listed waste requirements at DOE's Hanford site. We are well aware that blind application of these stringent listed waste requirements can lead to costly and highly inefficient programs which may provide no significant environmental or known human health benefit. At the Hanford site, we have seen a number of instances where working with DOE in attempting to achieve a reasoned balance between compliance, environmental and human health protection, and facility needs has been challenging to say the least.

Commenter Name: Military Production Network
Commenter Type: Other
Commenter Number: WHWP-00189.001

For the aforementioned reasons, we request that EPA withdraw the mixed waste portion of HWIR. If DOE feels that changes are needed in mixed waste management, then a dialogue should be initiated between stakeholders, the states, EPA, and DOE.

Commenter Name: State of Maryland, DEQ
Commenter Type: State Government
Commenter Number: WHWP-00109.001

Comment: We oppose the proposal to allow mixed waste generated by the Department of Energy to exit Subtitle C regulation if it meets a conditional risk level of 10-4 and is managed in an Atomic Energy Act (AEA) disposal facility.

Commenter Name: Molten Metal Technology, Inc.
Commenter Type: Waste Mgmt Co.
Commenter Number: WHWP-00120.001

Comment: Regardless of whether the contingent management option for mixed waste is based on nationally applicable exemption levels or ones calculated on a site specific basis, such an approach would suffer many of the same flaws that we discuss herein for the other contingent management options in the proposed rule. First, as explained elsewhere in these comments, EPA would be acting contrary to the established national waste management hierarchy if it were to establish contingent management disposal options without providing preferred contingent management recycling and waste minimization options. EPA and DOE should provide concrete incentives for generators to reduce the volume and hazardousness of their wastes through methods that minimize waste generation and that involve environmentally sound recycling. By contrast, establishing contingent management for certain disposal methods (such as placement in an AEA facility) largely removes incentives for generators to engage in waste minimization and recycling, as EPA has explicitly acknowledged. 3 /Second, MMT finds it difficult to reconcile the contingent management disposal option with the intensive efforts by DOE and EPA over the last few years to promote the development and commercialization of innovative technologies to manage mixed wastes. This multi-million dollar endeavor is now beginning to produce positive results, as technologies such as CEP demonstrate extremely safe and effective management of mixed wastes. Contingent management disposal options, however, will very likely discourage continued investments in these advanced waste minimization technologies just as they are proving their worth, as DOE and other mixed waste generators are authorized to use less protective disposal methods.

As it further considers the unique technical, regulatory and policy issues presented by mixed wastes, EPA should conduct its own independent assessment of the issues, remaining mindful of the national waste management hierarchy which favors environmentally sound recycling over treatment and disposal. The Department of Energy (DOE) has requested that EPA consider establishing three new Subtitle C exit mechanisms for wastes that are mixed radiologic and hazardous wastes. 1/ The first exit would be a modified version of EPA's proposed contingent management option four, while the second and third exits would be categorical exclusions from RCRA for certain immobilized or vitrified mixed wastes. EPA indicates that it has not yet adequately reviewed DOE's data, and it therefore intends to publish a supplemental proposal on mixed waste exit criteria after receiving initial comments. 2 /As an initial matter, MMT agrees with EPA that it would be appropriate to publish a supplemental proposal on mixed waste issues; indeed, we believe such action is necessary. Although DOE has submitted a significant amount of data and other information on these issues to the HWIR docket, EPA's discussion of DOE's submission presents few specifics on how mixed waste exit criteria would be structured or implemented. Without further elaboration by EPA, the public clearly would not have a meaningful opportunity to study and comment on these issues. 1/ See 60 Fed. Reg. 66400 (Dec. 21, 1995). 2/ Id. at 66401.

Commenter Name: State of Kentucky, NREP
Commenter Type: State Government
Commenter Number: WHWP-00206.001

Comment: Although DOE has expressed interest in the contingent management approaches to managing mixed waste, DOE did not submit a specific proposal. The Cabinet believes that in order to consider any contingent management program for DOE's mixed waste, it must contain sufficient details of the proposal and how these proposal will be implemented. 2. Since DOE did not submit a specific contingent management proposal, the contingent management program developed in the overall HWIR may apply to DOE's mixed waste. However, we strongly believe that such application should not be automatic to DOE's mixed waste. Individual states should be able to decide the extent of oversight that will be necessary before any DOE mixed waste is allowed to exit RCRA Subtitle C and FFCAct requirements for a given site within that state.

Response: We appreciate hearing from these commenters, the majority of whom agreed with our premise that a waste's risk is dependent on both chemical composition and the manner in which it is managed. We also agree with the commenters that believed that a contingent management approach for mixed waste was especially appropriate because the mixed waste would still be subject to regulation by the NRC or NRC Agreement States. We note, however, that since the time of this proposed rulemaking, the DOE has withdrawn its proposals and, as a result of this action, we have been working with both the states, DOE, and others to study the management of LLMW in greater detail. We considered input from numerous sources, including the DOE and the States, along with other information we developed and we recently proposed a storage, treatment, transportation, and disposal exemption as part of the LLMW rule to exclude LLMW that are stored/treated and/or disposed of at sites that are licensed by the NRC or NRC Agreement States (see 64 FR 63464; November 19, 1999). Based on site treatment plans resulting from the Federal Facility Compliance Act of 1992, DOE and States have reached agreement on compliance orders regarding management of mixed wastes at DOE facilities. We do not intend to affect or disrupt these compliance orders. Therefore, we are not extending the storage and treatment conditional exemption to DOE. However, DOE is eligible for the transport and disposal portion of the exemption if their waste meets the conditions of the exemption (including treatment to the LDR treatment standards

and containerization) and is disposed of at a LLRWDF licensed by the NRC or an NRC Agreement State. Therefore, the commenters' concern that neither sufficient detail on the various proposals nor time to review the proposals (and supporting data) were provided are moot.

In regard to the commenters that opposed the concept of contingent management for mixed wastes because Subtitle D programs should be burdened with managing mixed waste, exemptions could affect existing state agreements with DOE, or that the prospect of an exemption would not promote waste minimization or pollution prevention we disagree for the following reasons. First, exempt mixed waste would still need to be managed according to the applicable NRC or NRC Agreement State provisions and thus, would not be managed in a Subtitle D facility. Second, the status of current agreements or commitments made under the FFCA would not be affected when the LLMW became exempt under the contingent management approach. Specifically the LLMW would be exempt from the regulatory definition of a hazardous waste but not the statutory definition of a hazardous waste, so EPA could take enforcement action in the event of imminent threat to human health or the environment. In addition, the ability to handle the LLMW outside of the RCRA Subtitle C system will facilitate the effective management of these wastes and allow sites to dispose of LLMW. Lastly, the availability of an exemption should not affect the attractiveness of pollution prevention or waste minimization because it is always more cost effective not to generate the waste in the first place rather than to allocate resources necessary to store, treat, transport, and dispose of the waste after it is generated.

I.A AEA Addresses Chemically Hazardous Constituents

Commenter Name: Util Solid Waste Activ Group
Commenter Type: Utility Co./Assoc.
Commenter Number: WHWP-00089.001

Comment: One commenter stated that the NRC regulations are more than adequate to address the risks posed by the hazardous component of commercial mixed waste. The commenter noted that EPA requested comment on whether the Atomic Energy Act ("AEA") requirements, the statutory authority for both the NRC and DOE regulatory programs, "provide adequate protection of human health and the environment from chemically-hazardous constituents" contained in mixed waste (60 FR 66400). As discussed below, the risk posed by commercial mixed waste that is managed, treated and disposed of under NRC regulations is no greater than the risk posed when the wastes are subject to dual regulation. Indeed, the NRC has made clear that the management of mixed waste under NRC controls is safer than the indefinite continuation of storage of mixed waste caused by the lack of mixed waste treatment and disposal alternatives. The adequacy of the NRC's regulatory framework to address the chemical (as opposed to radiological) component of mixed waste should no longer be in doubt.

RCRA controls on NRC regulated mixed waste provide little or no additional protection for human health and the environment. NRC regulations for the management of radioactive materials require NRC licensees to use, store, transport and dispose of radioactive material -- including mixed waste – in a manner that is protective of the public health and safety and the environment. This is the same standard of protection required under RCRA. Indeed, NRC staff has made clear to EPA that the potential for mismanagement of radioactive mixed waste regulated by the NRC is less likely than for non-radioactive hazardous waste regulated solely under RCRA (see NRC Letter, Attachment A). Several independent studies have confirmed that NRC controls are as protective, if not more stringent, than RCRA controls in safeguarding the public and the environment during the management of mixed waste. In this era of limited resources and the resulting emphasis on cost-effective regulation, it makes little sense to expend

substantial resources in complying with the RCRA program for mixed wastes -- on top of pre-existing NRC controls -- without any corresponding increase in protection to human health and the environment.

In July 1988, the Envirosphere Company of Lyndhurst, New Jersey, conducted a study comparing EPA's requirements for hazardous waste tank systems (40 C.F.R. Part 265, Subpart J) with the NRC counterpart rules. 1/ (Attachment C). [Note: See hardcopy of Comment WHWP-00089 to review Attachment C.] Commissioned by USWAG and the Utility Nuclear Waste Management Group, the study focused on EPA's tank standards because of "the complexity and prescriptive nature of that portion of the EPA regulations." Envirosphere Study at 2. The study concluded that "there is little or no incremental safety benefit to be derived from applying the Subpart J standards to nuclear power plant radwaste tank systems, and that applicable NRC provisions, overall, provide an equivalent level of protection of human health and the environment." Id. at 88. This finding was based on several factors. First, Envirosphere noted that, in contrast to RCRA Subtitle C's prescriptive regulatory approach, the NRC's rules typically focus on system performance. To meaningfully compare NRC regulations to EPA's requirements, therefore, it was necessary to go beyond the language of the NRC's performance-based regulations and consider the standards set forth in the NRC's regulatory guides and industry codes. Envirosphere observed that these rules incorporate a large body of regulatory guidance documents and industry codes and standards that establish a far greater level of prescription than the regulations themselves. Id. at 3. In particular, Envirosphere found that the NRC provisions governing the design and inspection of existing tank systems without secondary containment were comparable or more stringent than EPA's requirements. Id. at 18. In addition, the thick steel-reinforced concrete buildings in which nuclear power plant radwaste systems are housed provide the requisite secondary containment. Id. at 41. Virtually all of the specific requirements for secondary containment systems, which is one of the central elements of the EPA tank standards, are therefore provided by the NRC's regulatory program. Id. at 45. Envirosphere also determined that NRC regulations provide the equivalent level of protection as EPA's general operating requirements and EPA's operations inspection requirements. Id. at 61. Based on this analysis, the Envirosphere Study concluded: [T]he comparison of EPA's Subpart J regulations to NRC's counterparts strongly suggests that there is a large degree of regulatory 'overlap', and that application of a large percentage of the EPA provisions to mixed waste storage and treatment tank systems at nuclear power plants would provide no incremental safety benefit or would result in unnecessary exposures to radioactive materials. While the scope of the study was limited to EPA's Subpart J tank system requirements, it is, in our opinion, reasonable to believe that similar conclusions could be made with respect to other aspects of EPA's hazardous waste regulations. Id. at 6 (emphasis added).

Roughly two years after the Envirosphere Study, the Nuclear Management and Resources Council ("NUMARC", now part of the Nuclear Energy Institute, "NEI") commissioned Rogers & Associates Engineering Corporation to prepare an evaluation of mixed low-level radioactive waste regulations and management (hereinafter "the NUMARC Study"). 2/ (Attachment D). [Note: See hardcopy of Comment WHWP-00089 to review Attachment D.] The NUMARC Study confirms that subjecting commercial mixed waste to RCRA Subtitle C's requirements does not improve -- and may even compromise -- protection of human health, safety and the environment. Three aspects of the NUMARC Study deserve special attention. First, the study contains a comprehensive comparison of the EPA and NRC regulations applicable to mixed waste, including a series of tables delineating the precise activities performed during the generation, management and storage/disposal of mixed waste and the corresponding NRC and EPA regulatory provisions. The associated analysis makes clear that, aside from various administrative matters, the EPA requirements are essentially duplicative of the existing NRC rules. Id. at 3-1, et seq. Second, the NUMARC Study evaluates the effects of satisfying the hazardous waste disposal regulations on occupational radiation doses. The application of RCRA to commercial mixed waste could potentially

produce incremental occupational exposure increases during waste sampling and analysis, stored waste inspections, and waste disposal. Specifically, the NUMARC Study determined that "[t]he smallest estimated total incremental dose attributable to satisfying hazardous waste regulations at a reference nuclear power plant is about 3 person-rem/yr, while the largest is over ten times greater. These totals are dominated by the dose incurred through weekly direct visual inspection of waste in storage." Id. at 6-26. Finally, the environmental effects of compliance with RCRA for mixed waste were also analyzed. While not focusing directly on the hazardous component of the mixed waste, NUMARC used complex computer modeling to evaluate five environmental transport and dose pathways (i.e., ground water transport to a well, facility overflow, on-site food production, gamma exposure and on-site dust inhalation). Id. at 7-3. The modeling indicated that the RCRA-permitted waste disposal facilities containing mixed waste were environmentally inferior to NRC-licensed mixed waste disposal facilities. Consequently, the Study concluded that "the effect of imposing 40 CFR 264 requirements on the disposal of mixed waste may be to increase the projected individual doses from what they would have been, had the waste been disposed as low-level radioactive waste, without regard to its hazardous content." Id. at 7-26. 3 /ICF Study In 1993, the EPA Office of Solid Waste commissioned ICF Incorporated to determine the equivalence of NRC regulations and guidance in relation to RCRA's requirements for mixed waste storage. 4/ (Attachment E). [Note: See hardcopy of Comment WHWP-00089 to review Attachment E.] Issued in draft form on June 7, 1993, the EPA Study adopted a functional approach by examining whether "NRC licensees could meet RCRA general 'protectiveness' objectives without additional regulation." Id. at 1.

While making a number of specific recommendations, the ICF Study documented numerous areas where the NRC and EPA requirements are fully comparable and notes that, in those areas where the current rules are not entirely equivalent, the deficiency can generally be remedied simply by enforcement of existing NRC regulatory guidance documents and the additional of minor administrative requirements. For nuclear reactor licensees, the ICF Study found that the NRC procedures are fully comparable to the RCRA objective of preventing unauthorized access to hazardous waste, maintaining financial preparedness in case of sudden or non-sudden occurrences, minimizing the need for continued maintenance after facility closure while providing financial assurance for all needed closure and post-closure activities, and providing adequate opportunities for public participation. The ICF Study highlighted the pre-existing NRC policy on storage of low-level waste at reactor sites, SECY-81-383, and the pre-existing NRC Regulatory Guidance 1.143, entitled "Design Guidance for Radioactive Waste Management Systems, Structures, and Components Installed In Light Water Cooled Nuclear Power Plant." The study noted that compliance with these documents would ensure that the NRC regulatory framework was comparable to RCRA's objectives of minimizing the generation and disposal of hazardous waste, ensuring proper waste management procedures taking into account the chemical and physical nature of waste, verifying that solid waste management units are appropriate for managing hazardous waste, and minimizing, detecting, and remedying any release of hazardous waste from solid waste management units during the facility's active life. The study also noted that various administrative procedural changes would satisfy concerns about minimizing emergency situations and reducing hazardous waste releases from solid waste management units during and after facility closure. 5/

In sum, the ICF Study indicates that, while there are certain issues that the NRC regulations do not directly address, these concerns can be easily resolved through enforcement of existing NRC regulatory documents and the addition of certain procedural requirements. EPRI, USWAG and the Nuclear Energy Institute ("NEI") commissioned the firm of Rogers and Associates to review the NRC requirements for the management, disposal, and incineration of low level radioactive waste to determine whether these requirements would provide adequate protection of human health and the environment from the

hazardous component of mixed waste. The study was not completed in time to include with these comments. However, we expect it to be finished in about a month and will submit it to the Agency as a supplement to these comments as soon as it is complete. The preliminary results from the study indicate that the NRC controls are sufficient to prevent any mismanagement of mixed waste. Specifically, both programs have the same goal, i.e., to ensure the safe management of toxic waste material and to isolate these materials from the environment. Although the two programs utilize different approaches to meet that goal (i.e., EPA relies on prescriptive regulations laying out detailed specifications for landfills and incinerators while the NRC relies on stringent performance standards implemented through site-specific licensing conditions), both programs are equally capable of protecting human health and the environment from any risks posed by commercial mixed waste. Thus, USWAG believes that this study, when finalized, will provide further support for the exclusion of NRC-regulated mixed waste from the RCRA hazardous waste regulations.

In light of these studies and a decade of experience under the dual regulation of mixed waste, the NRC submitted a detailed letter to EPA in 1995 urging the Agency to pursue the elimination of dual regulation by exempting from regulation under RCRA any mixed waste being managed in accordance with the applicable NRC or NRC Agreement State requirements for radioactive waste that meet the intent of the RCRA requirements for the hazardous component of the waste. See NRC Letter (Attachment A). The NRC Letter explains that, in all major areas of concern, the NRC's regulatory requirements were equivalent or more stringent than the EPA counterparts. In particular, the NRC observed that for commercial mixed waste subject to NRC controls: The RCRA permit requirements are not justified from a health and safety standpoint in light of the NRC's comprehensive licensing and inspection program, which addresses the prevention, detection and response to uncontrolled releases of stored waste and, therefore, meets the intent of the RCRA requirements; compliance with all of the management requirements for hazardous wastes are not necessary for mixed wastes because NRC regulations are designed to ensure that licensees use, store, transport, and dispose of their radioactive material in a manner that is protective of the public health and safety and the environment; and Compliance with the NRC's requirements for the radiological component of mixed waste (including detailed inventory and disposal records that are reviewed during routine inspections) makes it "unlikely" that radioactive mixed waste will be disposed in a manner that is not protective of the public health and safety. Rather, the NRC suggests that the potential for mismanagement of radioactive mixed waste is less likely than for non-radioactive hazardous waste. See NRC Letter at 2-3.

In conclusion, the NRC questioned the wisdom of the continued dual regulation of mixed waste under RCRA and the AEA and urged EPA to streamline mixed waste regulation by deferring to NRC controls (in lieu of RCRA) because such controls provide ample protection to human health and the environment for the entire waste stream. Taken together, all of the various studies confirm that, from the standpoint of human health, safety or the environment, there are no material gaps in the NRC's regulatory framework. In other words, NRC regulations provide an equivalent level of protection for human health and the environment as the current system of dual EPA/NRC regulation. Therefore, USWAG urges EPA to promulgate a contingent management exclusion for commercial mixed waste conditioned on managing the waste in accordance with all applicable NRC (or NRC Agreement State) regulations.

EPA also requested comment on several options for contingent management of mixed waste proposed by DOE. 60 Fed. Reg. at 66400. As explained above, USWAG supports contingent management for commercial mixed waste subject to NRC controls because these regulations are equivalent, or perhaps more stringent, than the requirements of RCRA Subtitle C. 6/ In the event, however, that EPA adopts DOE's suggested contingent management options, USWAG urges EPA to ensure that the contingent

management approach encompasses both DOE and commercial mixed waste. Specifically, a contingent management exclusion for commercial mixed waste that has been immobilized or vitrified is appropriate for the reasons cited in the DOE background documents. 7 /1/ See "Comparative Assessment of the Environmental Protection Agency's Regulations For Hazardous Waste Tank Systems (40 CFR 265, Subpart J) And Comparable Nuclear Regulatory Commission Requirements," Envirosphere Company, July 1988 (hereinafter "Envirosphere Study"). 2/ See NUMARC, "The Management of Mixed Low-Level Radioactive Waste in the Nuclear Power Industry," January 1990 (hereinafter, "The NUMARC Study"). 3/ The NUMARC Study indicates that compliance with RCRA's disposal requirements would increase occupational exposure and reduce radiological protection for human health and safety.

Such regulatory provisions are in sharp conflict with the NRC's as low as reasonably possible ("ALARA") policy. Under RCRA Section 1006(a), "[n]othing in [RCRA] shall be construed to apply to ...any activity or substance which is subject to ...the Atomic Energy Act of 1954 [AEA"] except to the extent that such application (or regulation) is not inconsistent with the requirements of such Acts." Since compliance with the RCRA regulatory provisions is inconsistent with the NRC's ALARA principle, the RCRA's regulatory requirements must yield. As such, RCRA Section 1006(a) provides additional legal support for EPA's authority to exempt commercial mixed waste regulated by the NRC from RCRA. 4/ See U.S. Environmental Protection Agency, Office of Solid Waste, "Comparison of NRC and RCRA Requirements for Potential Mixed Waste Storers," prepared by ICF Incorporated, draft dated June 7, 1993 (hereinafter "EPA Study"). 5/ Even if EPA provides a conditional exemption for commercial mixed waste managed under NRC controls, mixed waste generators are still likely to be subject to Section 112(r) of the Clean Air Act, which provides specific rules governing chemical accident prevention. 6/ As noted previously, USWAG takes no position on the appropriateness of contingent management for DOE mixed waste. 7/ See DOE Technical Package On The Disposal of Immobilized Mixed Waste Debris In Low-Level Waste Facilities And Related Documents, submitted to EPA by letter of July 21, 1995; and DOE Supplemental Technical Package On Immobilization And Vitrification Of Mixed Waste, submitted to EPA by letter of October 20, 1995.

Commenter Name: General Public Utilities (GPU)
Commenter Type: Utility Co./Assoc.
Commenter Number: WHWP-00239.001

Comment: The risks posed by the chemical components of commercial mixed wastes are adequately addressed by NRC regulations. Indeed, the NRC has concluded that the potential for mismanagement of radioactive mixed waste regulated solely under NRC controls is less likely than for non-radioactive hazardous waste regulated under RCRA. Waste immobilization should be an acceptable method to exclude all mixed waste from RCRA regulation and should be integrated with the risk based process discussed above.

Commenter Name: GPU Nuclear Corporation
Commenter Type: Utility Co./Assoc.
Commenter Number: WHWP-00208.001

Comment: The categorical exclusion proposed by the DOE for waste regulated under the Atomic Energy Act (AEA) would ease the disposal requirements for the utility industry without decreasing the margin of safety to the general public. Disposal criteria for radiological waste far exceed design criteria for RCRA

permitted facilities. NRC regulations governing the management of radiological waste will adequately protect human health and the environment for mixed wastes.

Commenter Name: Arizona Public Service Co.
Commenter Type: Utility Co./Assoc.
Commenter Number: WHWP-00158.001

Comment: The NRC has created a comprehensive system of regulation that requires persons who receive, use, manage, store, treat or dispose of radioactive materials to obtain an NRC-issued license. The licensing process is designed to ensure that only qualified persons are allowed access to radioactive materials, and that those persons will manage the materials in a manner that protects against exposure to radiation. See generally, 10 C.F.R. Part 20. Under this regulatory system, licensees are required to develop detailed radiation protection programs to protect against radiation exposure to workers and the public. At a minimum, such programs must ensure that strict regulatory limits are satisfied and, in addition, they must have as their operating principle the goal of keeping exposures to radiation "as low as reasonably achievable." See, e.g., 10 C.F.R. Section 20.1101(b). The NRC's radiation protection requirements, as well as many other aspects of its regulatory program, apply to the management of radioactive wastes by NRC licensees. Because mixed wastes, by definition, are radioactive wastes, they are subject to all applicable requirements imposed by the NRC. APS, as both a radioactive materials licensee and a generator of hazardous wastes, has become very familiar with both the RCRA and NRC regulatory programs. We have compared those programs, and have found that, although the details may differ, the overall objectives and requirements of the two programs provide equivalent protection of human health and the environment. Attachment A to these comments is a side-by-side comparison of the two programs. [Note: See hardcopy of Comment WHWP-00158.A to review this comparison.] As this comparison shows, the NRC regulatory system includes waste management requirements that are equivalent to RCRA requirements in the following significant areas: (1) waste identification and management; (2) transportation; (3) emergency preparedness; (4) release response; (5) treatment standards; (6) disposal standards; (7) closure standards; (8) post-closure care and monitoring; (9) facility security; (10) financial assurance; and (11) public participation. Taken as a whole, these NRC requirements provide more than adequate protection of human health and the environment from any threats associated with mixed waste. While most of the NRC's requirements do not directly address non-radiological hazards, they nevertheless have the effect of protecting against any such hazards as a result of the tight controls imposed to ensure protection against radiological hazards. Because a mixed waste is a single, essentially indivisible (at least in the absence of a RCRA treatment permit) material that is both radioactive and hazardous, one set of regulatory requirements will ensure protection against both types of hazard. For this reason, applying a second layer of redundant regulatory requirements has not provided any additional environmental protection.

Commenter Name: JetSeal, Inc
Commenter Type: Industry (specific)
Commenter Number: WHWP-00020.001

Comment: [Jetseal has] thoroughly reviewed the data submitted by DOE and agree with their position that the controls necessitated by the radioactive hazards would also provide adequate protection of human health and the environment from the chemically- hazardous constituents. The subject studies clearly demonstrated this for low-level radioactive mixed waste.

Commenter Name: Nuclear Energy Institute
Commenter Type: Utility Co./Assoc.
Commenter Number: WHWP-00246-001

Comment: NEI recommends the exemption be applied in the current rulemaking to recognize NRC low-level radioactive waste management regulations as an effective, safe method for managing commercial mixed waste. Commercial mixed waste can be effectively and safely managed and disposed of under the Nuclear Regulatory Commission's (NRC's) existing extensive regulatory program in place for radioactive low-level waste. It is difficult to envision a more ideal and appropriate contingent management program. Over the past ten years, since EPA declared the hazardous component of radioactive waste subject to RCRA regulations, both EPA and NRC have invested significant resources studying the NRC and EPA waste management programs in an effort to address the subtle differences in approach that pose somewhat conflicting regulatory requirements when the waste must be managed and disposed of under a dual regulatory programs, i.e., RCRA and the NRC's regulatory programs for radioactive wastes developed pursuant to their authority under the Atomic Energy Act (AEA). This exercise has provided EPA with insight, knowledge and confidence regarding NRC's regulatory program. NEI believes NRC's regulatory program is rigorous and adequate to provide protection of public health and safety and the environment from mixed waste. In fact, NRC wrote to EPA June 7, 1995 (see attached letter) stating in part: "Because mixed waste contains a radioactive component that is subject to the AEA, mismanagement of the waste, such as disposal in a facility that has not obtained the necessary NRC or Agreement State licenses, is unlikely. NRC regulations require that licensees maintain detailed inventory and disposal records for radioactive material at their facilities and these records are reviewed by NRC during routine facility inspections. Compliance with NRC's requirements for the radioactive component of mixed waste makes the likelihood that radioactive mixed waste will be disposed of in a manner that is not protective of the public health and safety unlikely." [Note: See hardcopy of Comment WHWP-00246 to review the "attached" letter.] NEI believes a finding by EPA that NRC's regulatory program is adequate and provides equivalent protection to management of these same wastes under RCRA is straightforward.

Commenter Name: Hazardous Waste Action Coalit.
Commenter Type: Waste Mgmt Assoc
Commenter Number: WHWP-00119.001

Comment: Disposal facilities designed to safely manage radioactive waste will also provide added protection to the environment for the levels of chemical constituents contained in mixed waste that meet the contingent management exit levels.

Comment: Commenter Name: Kaiser-Hill Company
Commenter Type: Consultants
Commenter Number: WHWP-00029.001

Comment: Disposal facilities designed to safely manage radioactive waste will also provide added protection to the environment for the chemical constituents contained in mixed waste due to factors such as siting and design requirements for the safe management of radioactive waste.

Commenter Name: Council of Radionuclides ...
Commenter Type: Industry Association
Commenter Number: WHWP-00116.001

Comment: According to 60 FR] 66400, column 2, paragraph 4, "DOE believes that AEA requirements would also provide adequate protection of human health and the environment from chemically-hazardous constituents." As previously communicated to the NRC and EPA, CORAR agrees with this DOE opinion. Even obsolete low level waste disposal sites, now closed, were found to provide adequate protection of the public. In these sites where untreated mixed wastes were disposed for decades, only trace quantities of radioactive materials were found outside the site boundary. These obsolete sites were effective in protecting the public. Modern LLRW disposal sites and proposed sites provide an even greater protection factor sufficient for properly processed LLRW and mixed waste currently available for disposal. [According to 60 FR] 66400, column 2, paragraph 4.

However, CORAR believes that all mixed waste should be excluded from RCRA and managed according to AEA requirements because these requirements are already sufficient and the waste can be more effectively regulated if there is just one regulator.

Commenter Name: Department of Energy (DOE)
Commenter Type: Federal Government
Commenter Number: WHWP-00072.001

Comment: As indicated in the preamble, DOE believes that certain management provisions required by the AEA to control releases of and exposure to radioactive hazards associated with mixed wastes, also provide protection from releases of and exposures to chemically hazardous constituents in these wastes.

Commenter Name: Industrial Environmental Assoc
Commenter Type: Industry Association
Commenter Number: WHWP-00166.001

Comment: Mixed waste which is subject to Nuclear Regulatory Commission (NRC) (or an NRC agreement state) controls should be excluded from hazardous waste regulations. The rationale for the proposed exclusion is the risks posed by the chemical components of commercial mixed wastes are adequately addressed by NRC regulations. [Subjecting] these wastes to RCRA regulation merely adds costs, confusions, and difficulties in packaging and disposal, without enhancing environmental protection.

Commenter Name: Bristol-Myers Squibb Company
Commenter Type: Industry (specific)
Commenter Number: WHWP-00202.001

Comment: Radioactive waste is already subject to stringent regulation by the Nuclear Regulatory Commission (NRC) and agreement States 1/. BMS agrees with the Department of Energy that the regulation of radioactive wastes "provide[s] adequate protection of human health and the environment" and that the NRC requirements fully "address releases of chemically hazardous constituents" and radioactive constituents. 60 Fed. Reg. at 66,400.

Commenter Name: U.S. Nuclear Reg Commission
Commenter Type: Federal Government
Commenter Number: WHWP-00178.001

Comment: NRC staff also encourages EPA's timely completion of its evaluation of the AEA requirements for the disposal of radioactive waste and look forward to reviewing the results of this evaluation in the near future.

Commenter Name: Molten Metal Technology, Inc.
Commenter Type: Waste Mgmt Co.
Commenter Number: WHWP-00120.001

Comment: DOE suggests that higher "exit levels are warranted for mixed wastes disposed of in AEA-regulated facilities because these facilities are more protective than RCRA Subtitle D facilities. DOE also states that AEA facilities provide protection of human health and the environment comparable to that provided by Subtitle C disposal facilities. The studies relied upon by DOE are incomplete, however, because they ignored all exposure pathways except human ingestion of contaminated groundwater, an approach EPA acknowledges may be under-protective. 4/ Indeed, one of the principal reasons EPA withdrew the May 20, 1992 HWIR I proposal was to recalculate exemption levels based upon "a comprehensive approach to evaluating the movement of many different waste constituents ...through different routes of exposure or pathways. 5/ At a minimum, EPA must conduct an independent evaluation of the comparative protectiveness of AEA regulated facilities versus Subtitle D facilities.

Commenter Name: State of Alabama, DEM
Commenter Type: State Government
Commenter Number: WHWP-00066.001

Comment: We do not agree with DOE's assessment of AEA facilities relative to their ability to "address" releases of chemically hazardous constituents.

Commenter Name: State of Kentucky, NREP
Commenter Type: State Government
Commenter Number: WHWP-00206.001

Comment: DOE proposes to utilize the existing Low level Waste (LLW) AEA landfills for the waste that will exit the RCRA Subtitle C requirements. Since the exit levels do not consider regional or site-specific factors that might affect constituent fate and transport, the Cabinet believes the AEA landfills may not be adequately protective of the human health and the environment for all regions of the country.

Commenter Name: Env. Council of the States
Commenter Type: State Government
Commenter Number: WHWP-00213.001

Comment: It has not been demonstrated that meeting AEA requirements would be adequately protective of human health and the environment in cases where hazardous constituents would be disposed in low-level waste facilities. Previous performance assessments have assumed that any hazardous constituents would be treated to full land disposal restriction standards, a condition that would apparently not be met in all cases under DOE's proposals.

Commenter Name: State of Idaho, DHW DEQ
Commenter Type: State Government
Commenter Number: WHWP-00228.001

Comment: Idaho is not convinced by DOE's argument that AEA regulations provide adequate coverage. It is unclear whether all non-AEA disposal facilities conform with AEA criteria. Additionally, mixed waste management prior to disposal could go unregulated.

Response: We appreciate hearing from these commenters and agree with those commenters that believed that NRC licensed disposal facilities are protective of human health and the environment. We note, however, that since the time of this proposed rulemaking, the DOE has withdrawn its proposals. Therefore, the commenters' concerns that DOE's studies were incomplete, that the exit levels were neither regional nor site-specific, and DOE's proposals did not incorporate treatment to applicable LDR treatment standards prior to disposal are moot. In addition, since this action we have been working with both the states, DOE, and others to study the management of LLMW in greater detail. We considered input from numerous sources, including the DOE and the States, along with other information we developed and we recently proposed a storage, treatment, transportation, and disposal conditional exemption as part of the LLMW rule to exempt LLMW that is stored/treated and/or disposed of at

facilities that are licensed by the NRC or NRC Agreement States (see 64 FR 63464; November 19, 1999). Based on site treatment plans resulting from the Federal Facility Compliance Act of 1992, DOE and States have reached agreement on compliance orders regarding management of mixed wastes at DOE facilities. We do not intend to affect or disrupt these compliance orders. Therefore, as proposed, we are not extending the storage and treatment conditional exemption to DOE. However, DOE may be eligible for the transport and disposal portion of the exemption if their waste meets the conditions of the exemption (including treatment to the LDR treatment standards and containerization) and is disposed of at a LLRWDF licensed by the NRC or an NRC Agreement State.

In regard to the commenters that believed that AEA facilities are not capable of controlling the risks posed by chemically hazardous constituents, that non-AEA facilities do not necessarily conform with the AEA criteria, or that mixed waste management prior to disposal could go unregulated, we disagree for the following reasons. First, as mentioned above, we have conducted studies and analyses since DOE withdrew its proposals to determine the protectiveness of the NRC's regulatory framework for managing LLW (see 64 FR 63497; Section VII. Supporting Documents). We determined that LLMW would be stored, treated, and disposed of in a manner that affords comparable protection to human health and the environment to that afforded by EPA's RCRA Subtitle C system. (See "Comparison of the EPA's RCRA Requirements and the NRC's Licensing Requirements for the Treatment (In Tanks & Containers) and Storage of Low-Level Mixed Wastes at Nuclear Facilities," Final Draft Document, September 30, 1999, and Technical Evaluation for the Disposal of Mixed Waste at Low-Level Radioactive Waste Disposal Facilities, Technical Background Document, RTI, 1999). That is, the design requirements and operating practices employed by generators of LLW are comparable to that required under RCRA. For example, the NRC requires facilities to consider the chemical properties (including ignitability, reactivity, explosivity, etc.) of its LLW in both the design of, and the writing of standard operating procedures for the facility and associated waste handling systems, storage containers, and storage areas to prevent accidental ignition, reaction of ignitable wastes, releases, explosions, and fume generation resulting from improper mixing procedures or from the inherent instability of some LLW. We note that the intent of the NRC and EPA RCRA programs are comparable in that both require the anticipation, recognition, and prevention of accidental ignition, reaction of ignitable wastes, releases, explosions, and fume generation resulting from improper mixing procedures or from the inherent instability of some wastes.

Second, although we do not completely understand the relevance of the commenter's statement that non-AEA facilities do not necessarily conform with the AEA criteria, we note that as part of the eligibility requirements of the upcoming LLMW rule, LLMW must be managed by a generator/facility that has a NRC or NRC Agreement State license and be disposed of in a LLRWDF licensed by NRC or an NRC Agreement State. Third, nothing in the proposed HWIR Rule or the proposed LLMW rule removed the generator/facility's responsibility to manage the waste as a low-level waste (i.e., the LLMW would become exempt from the RCRA Subtitle C management requirements but not the NRC or NRC Agreement State provisions for managing low-level waste).

Lastly, in regard to the one commenter that was concerned that wastes would not have to be treated to full land disposal restriction standards, we note that one of the key conditions of the transportation and disposal section of the proposed LLMW rule is that the LLMW must meet the applicable LDR treatment standards in order to claim the exemption.

I.B Conditional Exit Levels

Commenter Name: Department of Energy (DOE)
Commenter Type: Federal Government
Commenter Number: WHWP-00072.002

Comment: EPA specifically requests comment on allowing mixed wastes meeting conditional exit levels for chemical toxicity estimated at 10-4 cancer risk and hazard quotient (HQ) of 1 (modeled at an uncontrolled site), to exit Subtitle C hazardous waste regulation if such mixed wastes are managed in disposal facilities meeting disposal requirements imposed pursuant to the Atomic Energy Act (AEA). DOE has been considering possible contingent management approaches (including the options for conditional exemptions outlined by EPA in the preamble) for mixed waste, taking into account that: (1) there are certain management provisions required by the AEA to control releases of and exposure to radioactive hazards associated with mixed wastes which also provide protection from releases of and exposure to hazardous constituents in such wastes; and (2) site-specific conditions (e.g., geology, hydrology, meteorology, climate, land use) at some DOE facilities provide protection to human health and the environment beyond that which EPA assumed in developing generic exit levels for the HWIR proposal. DOE has only given preliminary consideration to the mechanisms by which such options would be implemented, and to corresponding issues or concerns. As explained in General Comment 1 (for clarification purposes), DOE has not previously forwarded information to EPA or the States to support the proposal presented by the Agency in the preamble (60 FR 66400, col. 3) -- i.e., establishing conditional exit levels for mixed wastes at a chemical toxicity estimated at 10-4 cancer risk and HQ of 1 (modeled at an uncontrolled site).

EPA selected non-Subtitle C waste management units to use in the risk assessment. This selection attempted to reflect both the influence of the type of unit on pathways and those that might be commonly associated with the management of exited hazardous wastes in non-Subtitle C waste management units. DOE believes that while the selection of the non-Subtitle C waste management units for the risk assessment used to derive exit levels may be appropriate for most hazardous wastes that may exit under this HWIR proposal, they are not appropriate scenarios for much of DOE's mixed wastes. Most of the Department's mixed wastes will be treated, prior to disposal in a DOE or a commercial facility, in accordance with the Site Treatment Plans and compliance orders developed under the Federal Facility Compliance Act of 1992 (FFCA). In addition, DOE mixed wastes will be disposed in DOE or commercial radioactive waste disposal facilities that are managed in accordance with the requirements put forth under the Atomic Energy Act (which focus on the proper management of radioactive materials). Based on the method by which DOE wastes are and will be treated and disposed, DOE believes that, in general, the groundwater exposure pathway -- as opposed to the non-groundwater pathways -- will have the most relevance to DOE mixed wastes. Furthermore (considering the differences in design and operation of waste management units that handle radioactive wastes), DOE suggests that mixed wastes managed in DOE radioactive waste management facilities that comply with Order DOE 5820.2A, or in commercial NRC-licensed radioactive waste management facilities, be subject to different criteria for exemption from RCRA Subtitle C than non-radioactive hazardous wastes being managed in non-Subtitle C waste management units.

Furthermore, the Department believes that certain site-specific conditions (e.g., geology, hydrology, meteorology, climate, land use) at some DOE facilities provide protection to human health and the environment beyond that which was assumed in developing the generic exit levels for the HWIR

proposal. With these factors in mind, the Department urges EPA (in collaboration with the States) to pursue the development of conditional exemption options that specifically apply to mixed wastes and account for the manner in which these wastes are managed. Along this line, DOE generally supports the proposal to establish an adaptation of option four for the Department's mixed waste. That is, DOE generally supports the Agency's proposal to allow mixed waste meeting conditional exit levels for chemical toxicity estimated at 10-4 cancer risk and HQ of 1 (modeled at an uncontrolled site), to exit Subtitle C if managed in AEA disposal facilities.

Commenter Name: Molten Metal Technology, Inc.
Commenter Type: Waste Mgmt Co.
Commenter Number: WHWP-00120.001

Regarding the contingent management option, there appear to be inconsistencies between EPA's preamble discussion and the approach suggested by DOE. DOE submitted proposed regulatory language that would establish less stringent exit levels for mixed waste disposed of in facilities regulated under the Atomic Energy Act (AEA). Significantly, these exit levels would be nationally applicable, and codified in a new Appendix A to 40 CFR Part 261. 1/ By contrast, EPA implies that exit levels would be established on a case-by-case basis using a target risk level not to exceed 10-4 for carcinogens and an HQ of 1 for noncarcinogens. 2/ EPA further states that this approach would be "adapted" from contingent management option four (which calls for "qualitative review" of state programs to ensure risk levels are not exceeded), but provides no specifics as to how this adaptation would occur.

Commenter Name: Council of Radionuclides ...
Commenter Type: Industry Association
Commenter Number: WHWP-00116.003

Comment: "The Agency [EPA] requests comment on allowing mixed waste meeting conditional exit levels for chemical toxicity estimated at 10-4 cancer risk and HQ 1 (modeled at an uncontrolled site), to exit Subtitle C if managed in AEA disposal facilities." Again, while we encourage EPA to make or review studies that demonstrate the protection afforded by AEA disposal facilities, we urge that these studies should not cause the EPA to delay removing mixed waste from RCRA requirements. A concern here is that EPA risk assessment methodology conflicts with radiological assessments that have been made by the NRC and other agencies. CORAR perceives that resolving these differences in approach will take too long to provide a timely solution to mixed waste disposal. It appears likely that exit levels for much higher chemical toxicity than estimated at 10-4 cancer risk and HQ 1 could exit Subtitle C when managed in a AEA disposal facility. However, these technical determinations are complex and time consuming and can only serve for long term confirmation and planning. Meanwhile it is imperative to treat and dispose the mixed waste that is currently in storage because it is less safe to store. While we recognize that the proposed rule could be developed to provide exit levels specific to mixed waste this will only be viable if the EPA can complete the necessary studies in a timely manner. To delay treatment and disposal of mixed waste, while these studies are pursued, is not in the public interest, because it is not safe. CORAR therefore recommends that the EPA immediately remove mixed waste from RCRA requirements to enable generators to proceed with appropriate treatment and disposal and to improve protection of the public.

Commenter Name: U.S. Nuclear Reg Commission
Commenter Type: Federal Government
Commenter Number: WHWP-00178.001

Comment: EPA should establish national risk goals for contingent management systems, but allow States to set the exit levels based on these goals. This would ensure a consistent level of protection of the public from the disposed mixed waste, but allow local, site-specific factors to be included in establishing a conditional exemption. States wishing to assume the responsibility for setting these exit levels, and administer a contingent management system, should be prepared to demonstrate to EPA that they possess the technical expertise to manage the system safely. In addition, EPA should use site-specific environmental factors to develop the hazardous constituent exit levels and facility acceptance criteria for mixed waste disposal facilities. Because of the wide variation in the types of environments in which a radioactive waste disposal facility, and thus potential mixed waste disposal facilities, may be located, it seems reasonable to assume that one exit level may not be equally protective at different facilities. EPA should coordinate the establishment of conditional exemptions for mixed waste disposal facilities with the regulatory authority for radioactive material (either the Nuclear Regulatory Commission or the appropriate State authority) in the State where the mixed waste disposal facility will be located. This will ensure that the conditions, models, and assumptions used in developing the conditional exemptions would be consistent or compatible with those that were used in siting, designing, operating and closing the radioactive waste disposal facility.

Commenter Name: Southern CA Edison Company
Commenter Type: Utility Co./Assoc.
Commenter Number: WHWP-00198.001

Comment: Mixed waste should not be subject to RCRA, regardless of the chemical toxicity risk, if it is being managed at an NRC regulated facility.

Commenter Name: General Public Utilities (GPU)
Commenter Type: Utility Co./Assoc.
Commenter Number: WHWP-00239.001

Comment: Specifically, GPU addresses the Agency's request for comments on allowing mixed waste with nonradiological toxicity of 10^{-4} cancer risk to exit the RCRA Subtitle C regulations. The proposed rule does not, however, clearly indicate if the cost and administrative burdens listed for nonradiological waste also apply to this exclusion for mixed waste. If all 376 constituents must be analyzed and each waste must go through public comment for exclusion, this proposed rule will provide little or no relief for our companies. With respect to mixed waste, the proposed rule is unclear on the applicability of the 10^{-4} cancer risk analysis. To be of value, the cancer risk estimate must consider the final disposal form, the burial container, and the burial design. A solidified waste packaged in accordance with NRC regulations will likely meet or exceed all risk-based standards proposed by the EPA. If, however, the chemical concentration of the waste as generated must comply with the 10^{-4} cancer risk exit level before processing and packaging, the proposed rule is far too restrictive. The final rule can assure

protection of human health and the environment by soliciting procedures from the DOE and/or the nuclear utility industry to evaluate various disposal practices against the 10 -4 risk-based exit level.

Commenter Name: GPU Nuclear Corporation
Commenter Type: Utility Co./Assoc.
Commenter Number: WHWP-00208.001

Comment: The proposed rule requests comments on allowing mixed waste with nonradiological toxicity of 10-4 cancer risk to exit the RCRA Subtitle C regulations. The proposed rule does not, however, clearly indicate if the cost and administrative burdens listed for nonradiological waste also apply to this exclusion for mixed waste. If all 376 constituents must be analyzed and each waste must go through public comment for exclusion, this proposed rule will provide little or no relief for the nuclear utility industry. As currently contained in 40 CFR 262, this final rule should establish exit standards that place the burden of proof and compliance on the generator. Generator standards should require proper documentation and recordkeeping but no excessive analytical or public comment burdens. The proposed rule also is unclear on when to apply the 10-4 analysis. To be of value, the cancer risk estimate must consider the final disposal form, the burial container and the burial design. A solidified waste packaged in accordance with NRC regulations will likely meet or exceed all risk-based standards proposed by the EPA. If, however, the chemical concentration must exist in the waste at the 10-4 exit level before processing and packaging, the proposed rule is far too restrictive. The final rule can assure protection of human health and the environment by soliciting procedures to rate various disposal practices against the 10-4 risk-based exit level. The DOE and/or the nuclear utility industry will develop a rating system, if given the chance.

Commenter Name: JetSeal, Inc
Commenter Type: Industry (specific)
Commenter Number: WHWP-00020.001

Comment: Radioactive waste disposal units are required to demonstrate compliance with radioactive criteria via a performance assessment process. The existing performance assessments could either be adapted to address the hazardous constituents or the site and unit specific data used in the performance assessment could be readily input into EPA's model to establish the "exit levels".

Commenter Name: State of Idaho, DHW DEQ
Commenter Type: State Government
Commenter Number: WHWP-00228.001

Comment: The State of Idaho takes exception to the sketchiness of DOE's proposal and the limited preamble language hastily fastened to the HWIR Waste rule. Mixed waste exit criteria should remain exactly the same as other hazardous wastes. Both mixed waste and solid waste, that meet the risk-based 10 -6 cancer risk and a HQ of 1, should exit Subtitle C regulation.

Commenter Name: State of Kentucky, NREP

Commenter Type: State Government
Commenter Number: WHWP-00206.001

Comment: Exit levels should take into consideration all pertinent regional and site-specific factors. These factors should include facility size, local rainfall and hydrogeology at the site. Probably the most effective way to incorporate all the regional and site specific factors to determine the exit levels is to convert the current EPA multi pathway analysis into a computer software that the states will be able to use. This approach will not only be the best way to account for the local conditions, it will provide maximum flexibility to states in determining the exit levels.

Response: We appreciate hearing from these commenters and note that their concerns are moot because the DOE withdrew its proposals. We also note that the management of LLMW, which is outside the scope of the HWIR rule being finalized today is being addressed in a separate rulemaking that does not rely on exit levels (see 64 FR 63464; November 19, 1999).

I.C DOE Studies

Commenter Name: Department of Energy (DOE)
Commenter Type: Federal Government
Commenter Number: WHWP-00072.002

Comment: In July 1995, DOE provided supporting technical data and formally requested that EPA consider (in the context of the then pending HWIR proposal) excluding immobilized mixed waste debris from RCRA Subtitle C regulation when such debris were disposed of in DOE radioactive waste management facilities that comply with Order DOE 5820.2A. 1/ A second submittal was provided to EPA in October 1995 which included supplemental information regarding immobilized mixed waste debris and technical data demonstrating that vitrification produces a waste form suitable for exclusion from the RCRA Subtitle C regulations. 2/ More details about these communications and the proposals they contained are presented in General Comments 2 and 3, respectively. As part of the Department's efforts to inform interested parties about the DOE proposals (and the associated supporting documentation), DOE provided briefings to the DOE/National Association of Attorneys General (NAAG) Workgroup on October 12, 1995 [Note: EPA representatives also participated in this conference] and the NGA/FFCAct group on October 20, 1995, in regards to the immobilized mixed waste debris and vitrification proposals. This was followed by a technical briefing of NGA contractors and representatives of EPA and the Nuclear Regulatory Commission (NRC) on December 14-15, 1995. 3/ More recently (specifically March 14, 1996), NGA, States, and DOE held a conference call to discuss the key elements of the Departments' HWIR proposals (i.e., immobilized mixed waste debris and vitrified mixed waste) and potential implementation options, to discuss State concerns and comments on the technical merit of these proposals, and to identify and discuss next steps. DOE hopes to continue the dialogue with EPA, States and the NRC that began with the communications and meetings described above. As indicated in the preceding general comments, it is the Department's hope to work closely with EPA, States, and the NRC to define implementing mechanisms that will provide sufficient EPA/State oversight and enforcement authority relative to the conditional exclusions for immobilized mixed waste debris and vitrified mixed wastes (as discussed in General Comments 2 and 3). Furthermore, as mentioned in General Comments 1 and 5 above, DOE would also like to work with EPA, the States and the NRC (under a separate schedule) to develop an appropriate contingent management option for low-risk mixed waste.

However, DOE wants to clarify that it has not forwarded to EPA or the States information to support a proposal of establishing exit levels for mixed wastes at a chemical toxicity estimated at 10-4 cancer risk and Hazard Quotient (HQ) of 1 (modeled at an uncontrolled site) as proposed by EPA in 60 FR 66400, December 21, 1995.

Commenter Name: CORAR
Commenter Type: Trade Association
Commenter Number: WHWP-00116.001

Comment: "The Agency [EPA] will also undertake a review of [DOE] data to better understand the additional increment of protection provided by AEA low-level waste site performance standards." CORAR encourages EPA to conduct this review expeditiously. Since we expect that such data will confirm what we already know - that modern LLRW sites provide more than adequate protection of the public from low-level mixed waste. However, we urge that the EPA should not cause the review of this data to delay exempting mixed waste from RCRA provisions.

Commenter Name: Molten Metal Technology, Inc.
Commenter Type: Waste Mgmt Co.
Commenter Number: WHWP-00120.001

Comment: EPA must subject DOE's risk assessment to independent analysis and peer review before weighing the merits of contingent management exit levels for mixed wastes. EPA cannot assume that DOE's risk assessment for mixed waste disposal in AEA facilities is technically sound or comprehensive, particularly in light of the alleged deficiencies of EPA's far more comprehensive multipathway risk assessment for Subtitle D facilities.

Commenter Name: Env. Council of the States
Commenter Type: State Government
Commenter Number: WHWP-00213.001

Comment: DOE's estimates of the potential cost savings that could result from its proposals have only recently been received by the states, and there has not been sufficient time to fully evaluate them. On initial analysis, they appear to be based on assumptions that result in inflated estimates and they remain inadequately documented to date.

Commenter Name: State of Wash, Dept of Ecology
Commenter Type: State Government
Commenter Number: WHWP-00025.001

Comment: Initial comparative cost data provided by DOE appear highly inflated: DOE cost savings estimates have only recently been received, and there has not been sufficient time to fully evaluate them. On initial analysis, they appear highly questionable and inadequately documented. For example, DOE has implied that under contingent management, disposal as mixed waste would cost $15,600 more per

cubic meter than disposal as low level waste. Cost savings data for immobilized (mixed waste) debris and vitrified waste appear similarly unsupported.

Response: We appreciate hearing from these commenters and note that their concerns are moot because the DOE has withdrawn its proposals. We also note that the management of LLMW, which is outside the scope of the HWIR rule being finalized today is being addressed in a separate rulemaking (see 64 FR 63464; November 19, 1999).

I.D Alternative Testing Protocols

Commenter Name: Department of Energy (DOE)
Commenter Type: Federal Government
Commenter Number: WHWP-00072.002

Comment: DOE requests that EPA consider adding regulatory provisions which define a separate testing program for evaluating whether radioactive mixed wastes qualify for the generic exemption from RCRA Subtitle C regulation proposed by the HWIR for listed wastes, or meet any conditional exemption criteria that may be established by the final HWIR. Under the proposed HWIR, testing would be required for two purposes: (1) to receive an exemption from RCRA Subtitle C for listed hazardous wastes, and (2) to retain the exemption. To receive an exemption, a total constituent concentration analysis (i.e., a "total" analysis of all Appendix X of 40 CFR Part 261 constituents) is proposed, except for "those constituents that the facility can document should not be present in the waste" (as discussed in section VIII.A of the preamble). To retain an exemption, EPA proposes periodic testing for constituents expected in the waste. The proposed frequency of this testing is based on waste volume for a minimum of three years, followed by annual testing thereafter. EPA also proposes that for nonwastewaters a TCLP or a screening analysis1/ be performed to demonstrate that leachate concentrations will not be above nonwastewater leach exit levels.

EPA did not propose specific testing requirements for mixed wastes. However, in discussions with DOE in regards to the HWIR proposed rule, EPA has expressed interest in receiving suggestions on how to tailor the HWIR testing requirements to address analytical concerns associated with mixed wastes. DOE has been evaluating some possible alternative testing approaches for mixed wastes, and would like to work with EPA and authorized States on the development of a distinct testing program for demonstrating: (1) that a mixed waste meet the generic exemption levels (established under HWIR for all RCRA listed hazardous wastes); or (2) that a mixed waste meet other exemption criteria that may be established by the final HWIR. DOE believes that the promulgated testing program for mixed wastes should be different from the testing program that EPA proposed because sampling and analysis of these wastes often pose safety and technical challenges, as well as administrative costs, beyond those of typical non-radioactive hazardous waste. For example, many mixed wastes require special handling due to personnel radiation exposure and the potential for radioactive contamination during sampling and analysis. Also, some radionuclides interfere with the detection of hazardous constituents. For example, when a mixed waste sample containing plutonium is volatilized and analyzed as an emission spectra, the plutonium peak obscures peaks that indicate the presence of hazardous metals. This is a common analytical problem for mixed waste containing transuranic elements (atomic number greater than 92). Furthermore, certain heterogenous mixed wastes have matrices that are difficult to sample and analyze at instrument detection limits.2/

Finally, DOE would also like to perform leach rate or total constituent testing on non-radioactive surrogate waste forms that are chemically and physically equivalent to the actual process waste (i.e., in cases where the radiological component renders testing of the treated waste form of the waste impractical). The Department suggests that EPA specifically allow the use of surrogates to demonstrate that certain mixed wastes meet HWIR exit levels. DOE would also like the frequency of the testing of mixed wastes that exit under HWIR to be determined not on volume, but on the hazards associated with testing of the waste and other appropriate factors as deemed appropriate by DOE and the regulators. As stated above, DOE is eager to work with EPA and authorized States to develop testing requirements applicable for demonstrating whether mixed wastes have met HWIR exemption criteria (and to address associated testing issues specific to mixed wastes), and requests that EPA incorporate such requirements into the final HWIR.

1/ In the screening analysis for a solid waste the total concentration of a listed waste constituent is divided by a factor of 20 and compared to the TCLP exit level. If the calculated value is less than the TCLP exit level the constituent is considered exempt and the TCLP need not be performed (discussed in section VIII.A.1.a.iii). 2/ The following DOE comments on prior EPA notices of proposed rulemaking address in more detail the challenges associated with sampling and analyzing certain mixed wastes: DOE Comments, Specific Comment VII.C, item 1, pp. 12-14 (03/15/94); DOE Comments, Specific Comment III.A, item 1, pp. 8-11 (11/15/93); DOE Comments, Specific Comment II.B.1, item 1, pp. 6-7 (03/04/93).

Commenter Name: Bristol-Myers Squibb Company
Commenter Type: Industry (specific)
Commenter Number: WHWP-00202.001

Comment: Unlike the low concentration exemptions in proposed Section 261.37, a "contingent management" exemption for radioactive waste should not require testing for "exit levels." The comprehensive scope of NRC's regulation of waste management, rather than constituent levels, provides the most appropriate basis for the exemption.

Commenter Name: State of Wash, Dept of Ecology
Commenter Type: State Government
Commenter Number: WHWP-00025.001

Comment: We also believe that due to the increased complexities of DOE mixed wastes, simply applying many other aspects of the main body of HWIR would not be appropriate, e.g., the absence of requirements for waste testing or waste form durability.

Commenter Name: Arizona Public Service Co.
Commenter Type: Utility Co./Assoc.
Commenter Number: WHWP-00158.001

Comment: Under HWIR, such expenses would likely include not only the cost of testing to determine hazardous constituent concentrations, but also a continuing need to operate under RCRA storage permit requirements. The regulatory requirements associated with off-site shipment of radioactive materials, combined with the small number of laboratories able to conduct hazardous waste analyses on radioactive samples, makes resolution of waste status determinations nearly impossible to achieve in a 90 day period.

Commenter Name: State of Idaho, DHW DEQ
Commenter Type: State Government
Commenter Number: WHWP-00228.001

Comment: Self-implementing exit levels must be accompanied by stringent sampling and analysis plan requirements, which are not adequately specified in the proposed rule.

Response: We appreciate hearing from these commenters and note that their concerns are moot because the DOE withdrew its proposals. We also note that the management of LLMW, which is outside the scope of the HWIR rule being finalized today is being addressed in a separate rulemaking that does not rely on exit levels (see 64 FR 63464; November 19, 1999). Lastly, we note that we addressed mixed waste sampling and analysis issues jointly with the NRC when we published final guidance on the testing requirements for mixed radioactive and hazardous waste (mixed waste) in the Federal Register on November 20, 1997 (62 FR 62079 - 62094).

I.E Other Issues

Commenter Name: Citz., M. Lewis
Commenter Type: Citizen (indiv.)
Commenter Number: WHWP-00054.001

Comment: There are some really glaring omissions. The wastes may contain low level radioactive wastes. There is no provision that inclusion of low level wastes must be monitored by field meters. Some of these field meters are as cheap as $300.00 and would not be burdensome financially or mechanically. Radioactive wastes placed into the hazardous wastes do not exist as the rule stands.

Response: We appreciate hearing from this commenter. Mixed wastes have been removed from the scope of the HWIR proposal and are now addressed in the LLMW rule that requires LLMW to be managed at a LLRWDF licensed by NRC or an NRC Agreement State. These facilities are both licensed to accept LLRW and are equipped with radiation detection monitors.

Commenter Name: JetSeal, Inc
Commenter Type: Industry (specific)
Commenter Number: WHWP-00020.001

Comment: For high-level mixed waste the demonstration is so simple that a categorical exclusion should be included in the final rule to avoid unnecessary modeling and demonstrations. To support this provision it should be noted that regulations governing high-level waste (10 CFR 60 and 40 CFR 191) include an isolation period of 10,000 years. EPA regulations governing hazardous waste include two different exclusionary mechanisms (no-migration variance and permit-by- rule) where a similar criteria of isolation for 10,000 years is the basis.

Response: We appreciate hearing from this commenter but note that high-level mixed waste is outside the scope of both today's rulemaking and the LLMW rulemaking being finalized separately. There are currently no licensed high-level disposal facilities and this issue is being addressed separately through the study and establishment of a high-level waste repository at Yucca Mountain.

Commenter Name: Department of Energy (DOE)
Commenter Type: Federal Government
Commenter Number: WHWP-00072.001

Comment: Option 1A would also raise several concerns with regard to EPA's proposal to allow mixed waste meeting conditional exit levels to exit Subtitle C if managed in AEA regulated disposal units (i.e., proposed adoption of Option four to DOE's special circumstances; 60 FR 66400, col. 3). DOE sites receiving waste for AEA-regulated disposal may lack RCRA storage capacity or may have RCRA permits that restrict acceptance of off-site hazardous wastes (such permit conditions could be interpreted to preclude acceptance of candidate contingent management exempt wastes). Acquisition of a RCRA permit or modification of an existing permit solely for purposes of managing candidate contingent management wastes pending their disposal would be an unwarranted expense for both DOE and the regulatory authority.

However, DOE believes that there are a number of implementation issues and other considerations that must be addressed before such an option could be promulgated. DOE also believes that the provisions and details of conditional exemption options that would allow mixed waste to exit Subtitle C need to be fully coordinated with EPA and affected States. DOE has been evaluating some possible conditional exemption options for mixed waste internally, and has been considering provisions that might be necessary to implement these options. It is important to note that most of DOE's mixed waste will be treated prior to disposal in accordance with Site Treatment Plans and compliance orders established under the FFCAct, RCRA, and applicable State laws. These commitments must be met prior to, or as a component of any conditional exemption approach that may be established for mixed waste. As stated in the General Comment section (see General Comments 1 and 5), DOE would like to explore potential conditional exemption options for low-risk mixed waste, and work with EPA and the States to develop such an option (on a separate schedule from the two DOE proposals which support conditional exclusions for immobilized mixed waste debris and vitrified mixed wastes from RCRA). As also mentioned in the General Comments, DOE intends to pursue meetings and further communications with EPA and the States in regards to this subject matter. 1/ As indicated in General Comments 1 and 5 (for clarification purposes), DOE has not previously forwarded information to EPA or the States to support the proposal presented by EPA in the preamble (60 FR 66400, col. 3).

Response: We appreciate hearing from this commenter and note that mixed wastes have been removed from the scope of the HWIR proposal. We also note that since the time of this proposed rulemaking, the commenter has withdrawn its proposals and has worked with both the states and EPA to study this issue

in greater detail. We considered input from numerous sources, including the DOE and the States, along with other information we developed and we recently proposed a storage, treatment, transportation, and disposal conditional exemption as part of the LLMW rule to exempt LLMW that are stored/treated and/or disposed of at sites that are licensed by the NRC or NRC Agreement States (see 64 FR 63464; November 19, 1999). Based on site treatment plans resulting from the Federal Facility Compliance Act of 1992, DOE and States have reached agreement on compliance orders regarding management of mixed wastes at DOE facilities. We do not intend to affect or disrupt these compliance orders. Therefore, as proposed, we are not extending the storage and treatment conditional exemption to DOE. However, DOE is eligible for the transport and disposal portion of the exemption if their waste meets the conditions of the exemption (including treatment to the LDR treatment standards and containerization) and is disposed of at a LLRWDF licensed by the NRC or an NRC Agreement State. The commenter's concerns, therefore, are moot.

Commenter Name: Arizona Public Service Co.
Commenter Type: Utility Co./Assoc.
Commenter Number: WHWP-00158.001

Comment: To the extent that EPA has any doubts about its authority to grant a conditional exemption for mixed wastes, it should resolve these doubts by promptly seeking a targeted amendment to RCRA as the Agency suggested last year it would consider doing (See, 60 Fed. Reg. 20,992 (April 28, 1996)). Recently, EPA worked with representatives of regulated industries to enact a targeted change to RCRA to eliminate unnecessary LDR regulation of certain characteristic wastes subject to Clean Water Act treatment requirements (The "Land Disposal Program Flexibility Act of 1995"). As one of the Congressional sponsors of this act indicated, it should "provide a model for moving targeted, common sense legislation that maintains protection of human health and the environment while removing duplicative or overlapping layers of regulation." 142 Cong. Rec. S1281 (February 20, 1996) (remarks of Senator Chafee). In much the same way, a narrow amendment to explicitly exempt from RCRA any mixed waste managed in accordance with NRC requirements would eliminate any doubts about this issue, and would permanently resolve this long-standing problem. In fact, APS urges EPA to consider this option as a more efficient way than HWIR of eliminating "overlapping layers of regulation" while ensuring continued protection of human health and the environment.

Response: We appreciate hearing from this commenter and note that mixed wastes have been removed from the scope of the HWIR proposal. We, however, agree with the commenter's statement that we have the regulatory authority to issue a conditional exemption for LLMW and note that we recently proposed a storage, treatment, transportation, and disposal conditional exemption as part of the LLMW rule to exempt LLMW that is stored/treated and/or disposed of at sites that are licensed by the NRC or NRC Agreement States (see 64 FR 63464; November 19, 1999).

Commenter Name: State of Kentucky, NREP
Commenter Type: State Government
Commenter Number: WHWP-00206.001

Comment: Moreover, the sixty (60) day public comment period is an inadequate timeframe within which to review the information submitted by DOE and the proposed rules contain insufficient detail of how the

proposals would be implemented to conduct the serious review which is necessary for proposals of this magnitude.

Response: We appreciate hearing from this commenter and note that the commenter's concerns are moot because the DOE withdrew its proposals. We also note that the management of LLMW, which is outside the scope of the HWIR rule being finalized today, is being addressed in a separate rulemaking (see 64 FR 63464; November 19, 1999).

Commenter Name: State of Kentucky, NREP
Commenter Type: State Government
Commenter Number: WHWP-00206.001

Comment: Review of a detailed DOE proposal on Contingent Management and/or development of a computer software based exit level will require considerable time. Therefore, this proposal should be excluded from the HWIR process at this time.

Response: We appreciate hearing from this commenter and note that the commenter's concerns are moot because the DOE withdrew its proposals. We also note that the management of LLMW, which is outside the scope of the HWIR rule being finalized today, is being addressed in a separate rulemaking (see 64 FR 63464; November 19, 1999).

Commenter Name: State of Idaho, DHW DEQ
Commenter Type: State Government
Commenter Number: WHWP-00228.001

Comment: A supplemental proposal should not be necessary. Special treatment for federal facilities flies in the face of the Federal Facilities Compliance Act and Site Treatment Plans that have just been completed.

Response: We appreciate hearing from this commenter, but we disagree with the commenter's suggestion that federal facilities were receiving special treatment. Although federal facilities are perhaps the largest generators of LLMW, the dual regulation of LLMW and lack of treatment/disposal capacity also affects the nuclear power industry and material licensees. We note that the commenter's concern is moot because the DOE withdrew its proposals. We also note that the management of LLMW, which is outside the scope of the HWIR rule being finalized today, is being addressed in a separate rulemaking (see 64 FR 63464; November 19, 1999).

Commenter Name: Nuclear Energy Institute
Commenter Type: Utility Co./Assoc.
Commenter Number: WHWP-00246.002

Comment: The small volumes of commercial mixed waste generated has not been sufficient to satisfy market economics for development of treatment and disposal facilities that are of sufficiently capacity or reasonable cost. Mixed waste, which is generated by electric utilities, research/medical organizations and many other entities, has proven to be one of the most problematic and high cost waste streams under the RCRA program. One company was charged $14,000 to process a single 55-gallon drum of mixed waste, another company was quoted a price of $180,000 to process less than three 55-gallon drums of mixed waste. One utility paid $1 million more to manage the waste generated than if redundant EPA regulations did not apply. The cost of mixed waste disposal at facilities currently under development has been estimated to be as high as $15,000 per cubic foot. Nevertheless, to assist EPA in making a finding of equivalent protection, NEI is jointly preparing a detailed analysis of the two programs with USWAG and expects to submit the results of that review to this docket within 30 days. A finding that mixed commercial radioactive wastes can be acceptably managed under NRC's regulatory program, as they were prior to 1986, is long overdue.

Response: We appreciate this commenter's offer to submit additional information and note that this report was received by EPA and was considered as part of the technical basis for the LLMW rule proposed on November 19, 1999 (see 64 FR 63464).

Commenter Name: State of Maine, DEP
Commenter Type: State Government
Commenter Number: WHWP-00247.001

Comment: This proposal circumvents the intent and purpose of the recent Federal Facility Compliance Act (FFCA) of 1992. Mixed waste should be separated from the HWIR rulemaking and associated schedule.

Response: We appreciate hearing from this commenter, but we disagree with the commenter's suggestion that the HWIR proposal circumvented the intent and purpose of the FFCA. We note that the lack of suitable disposal capacity for LLMW actually affects federal facilities' ability to comply with both the FFCA and other state/third party agreements, as the availability of a disposal exemption could facilitate the disposal of LLMW. In addition, we note that the dual regulation of LLMW and lack of treatment/ disposal capacity also affects the nuclear power industry and material licensees. Nonetheless, the commenter's concern is moot because the DOE withdrew its proposals; therefore, the management of LLMW, which is outside the scope of the HWIR rule being finalized today, is being addressed in a separate rulemaking (see 64 FR 63464; November 19, 1999).

II. Categorical Exclusion for Immobilized MW Debris

Commenter Name: Westinghouse Electric Corp.
Commenter Type: Industry (specific)
Commenter Number: WHWP-00177.001

Comment: Westinghouse supports EPA's position that immobilized debris can exit Subtitle C.

Commenter Name: GPU Nuclear Corporation
Commenter Type: Utility Co./Assoc.
Commenter Number: WHWP-00208.002

Comment: Immobilization should be an acceptable method to exclude all mixed waste from RCRA regulation and should be integrated with the risk based [process]. Immobilization performed by a generator on generator owned waste also must be permissible without the need for Part B permits. The nuclear industry can develop the proper methods for EPA approval. These methods, combined with the extensive disposal requirements on radiological wastes, will afford adequate protection of human health and the environment. The nuclear utility industry currently has no disposal options for mixed waste. The absence of options is not from the lack of technology, but from the absence of regulatory direction. The proposed rule opens the door for potential resolution of this problem. The EPA and this rule need only establish baseline criteria (e.g., 10-4) and acceptable boundaries (e.g., immobilization, HIC or burial) for exclusion of mixed waste from RCRA control. The nuclear industry will develop the proper protocols to implement the process.

Commenter Name: Southern CA Edison Company
Commenter Type: Utility Co./Assoc.
Commenter Number: WHWP-00198.001

Comment: Should mixed waste be categorically excluded from RCRA if immobilized? YES. Vitrification, microencapsulation etc., are techniques designed to stop migration of constituents from treated waste. Whether those constituents are radioactive or hazardous is not pertinent. Beyond that, if the waste is being disposed of in an NRC-regulated or Agreement State-regulated waste disposal facility, the same argument holds true: the waste is packaged and disposed of in a manner that precludes migration to the surrounding environment. As long as that condition is satisfied (by whatever technology) and the disposal facility is regulated, mixed waste should be categorically excluded from RCRA.

Commenter Name: Hazardous Waste Action Coalit.
Commenter Type: Waste Mgmt Assoc
Commenter Number: WHWP-00119.001

Comment: HWAC also supports the exclusion of mixed waste debris that is immobilized using macro or microencapsulation with cement, polymer or other equivalent agents.

Commenter Name: Council of Radionuclides ...
Commenter Type: Industry Association
Commenter Number: WHWP-00116.001

Comment: DOE has also urged the Agency [EPA] to consider establishing a categorical exclusion from RCRA requirements for mixed waste debris that is immobilized ... including the use of portland or other cement products, or various polymer products." We agree with this DOE recommendation for AEA managed waste.

Commenter Name: Department of Energy (DOE)
Commenter Type: Federal Government
Commenter Number: WHWP-00072.002

Comment: EPA requests comment on DOE's proposed conditional exclusion from RCRA requirements for mixed waste debris that is immobilized. [The] technical data and information DOE has submitted supports that immobilization of mixed waste debris can be managed safely outside RCRA Subtitle C in a low-level radioactive disposal facility (subject to and complying with AEA disposal requirements). DOE requests that the proposed mixed waste debris management approach be promulgated as part of the final HWIR.

Commenter Name: State of Idaho, DHW DEQ
Commenter Type: State Government
Commenter Number: WHWP-00228.001

Comment: Idaho cannot support a categorical exclusion for mixed waste debris without adequate supporting documentation. Idaho urges EPA to thoroughly inspect DOE's submittal and to be sure that information presented is representative of the entire immobilized mixed debris wastestream, if a categorical exclusion is to be granted. The mixed debris wastestream is highly variable and may not be suitable for categorical exclusions. Mixed waste debris, currently in storage, represents only one tenth of what is projected to be generated.

Response: We appreciate hearing from these commenters, but note that mixed wastes have been removed from the scope of the HWIR proposal. We also note that since the time of this proposed rulemaking, the DOE has withdrawn its proposals and has worked with both the states and EPA to study this issue in greater detail (as suggested by the one opposing commenter). We considered input from numerous sources, including the DOE and the States, along with other information we developed and we recently proposed a storage, treatment, transportation, and disposal exemption as part of the LLMW rule to exempt LLMW that is stored/treated and/or disposed of at sites that are licensed by the NRC or NRC Agreement States (see 64 FR 63464; November 19, 1999).

II.A DOE Studies

Commenter Name: State of Kentucky, NREP
Commenter Type: State Government
Commenter Number: WHWP-00206.001

Comment: The Cabinet has conducted a preliminary review of the TCLP and performance data provided in the "Technical Data Package" for immobilized mixed waste debris and believes that the data presented indicates that this proposal warrants further review. However, we believe that additional specific review of the data as it relates to the waste streams at the Paducah Gaseous Diffusion Plant (PGDP) and details of how the proposal will be implemented are required prior to proceeding with the proposal.

Commenter Name: Westinghouse Electric Corp.
Commenter Type: Industry (specific)
Commenter Number: WHWP-00177.001

Comment: A categorical exclusion for immobilized mixed waste is appropriate and supported by analytical data which indicates that the macro and micro-encapsulated mixed wastes are essentially non-leachable.

Commenter Name: Department of Energy (DOE)
Commenter Type: Federal Government
Commenter Number: WHWP-00072.001

Comment: In addition to supporting the general concept of HWIR and its applicability to mixed wastes, DOE forwarded two technical proposals to EPA in July and October 1995, which demonstrate that managing immobilized low-level mixed waste debris and vitrified mixed wastes after treatment as non-RCRA wastes under AEA requirements is protective of human health and the environment. [DOE] has developed preliminary cost information relative to these proposals. This information demonstrates that managing immobilized mixed waste debris and vitrified mixed wastes in AEA disposal facilities, as opposed to RCRA disposal facilities, will provide significant cost savings and is protective of human health and the environment. These estimates are being refined and will be provided to EPA and the States. As a result of these DOE proposals, limited resources that are currently devoted to managing immobilized mixed debris and vitrified mixed wastes pursuant to RCRA Subtitle C could be diverted to activities that address higher risks to human health and the environment. In addition, low-level mixed debris and low-level vitrified mixed wastes that would potentially be excluded under these proposals could more readily be removed from storage and disposed of as low-level wastes (i.e., rather than mixed wastes) because disposal capacity is currently available for these types of wastes.

Response: We appreciate hearing from these commenters, but note that mixed wastes have been removed from the scope of the HWIR proposal. We also note that since the time of this proposed rulemaking, the DOE has withdrawn its proposals and has worked with both the states and EPA to study this issue in greater detail. We considered input from numerous sources, including the DOE and the States, along with other information we developed and we recently proposed a storage, treatment, transportation, and disposal conditional exemption as part of the LLMW rule to exempt LLMW that is stored/treated and/or

disposed of at sites that are licensed by the NRC or NRC Agreement States (see 64 FR 63464; November 19, 1999).

II.B Testing Requirements for Debris

Commenter Name: Westinghouse Electric Corp.
Commenter Type: Industry (specific)
Commenter Number: WHWP-00177.001

Comment: We believe that EPA needs to be clear on whether an owner/operator is expected to obtain a representative sample of immobilized debris in order to exit. Under the contingency management option for mixed waste, it appears that immobilized mixed waste may exit Subtitle C without obtaining any samples if the waste is disposed of in an AEA disposal facility. This portion of the preamble seems to be broader and applies to nonradioactive forms of immobilized debris managed outside of any contingent management options. For these cases, does EPA expect representative sampling be required for all three types of immobilization technologies in 40 CFR 268.45?

Response: We appreciate hearing from this commenter, but note that mixed wastes have been removed from the scope of the HWIR proposal. The commenter's concern therefore is moot. Lastly, we also note that since the time of this proposed rulemaking, the DOE has withdrawn its proposals and has worked with both the states and EPA to study this issue in greater detail. We considered input from numerous sources, including the DOE and the States, along with other information we developed and we recently proposed a storage, treatment, transportation, and disposal conditional exemption as part of the LLMW rule to exempt LLMW that is stored/treated and/or disposed of at sites that are licensed by the NRC or NRC Agreement States (see 64 FR 63464; November 19, 1999).

II.C Other Issues

Commenter Name: JetSeal, Inc
Commenter Type: Industry (specific)
Commenter Number: WHWP-00020.001

Comment: In DOE's submittal they supported their position that disposal of mixed waste under AEA requirements was just as protective of human health and the environment as disposal under RCRA Subtitle C by providing data on several fronts: 1) the effectiveness of the treatment (immobilization, vitrification, etc.), 2) a comparison of RCRA Subtitle C and AEA type disposal facilities, and 3) the mechanisms of migration for radioactive and hazardous constituents. In the discussion of immobilization of debris, it was pointed out that the current Debris Rule limits acceptable microencapsulating reagents to, "...Portland cement; or lime/pozzolans (e.g., fly ash and cement kiln dust)". DOE recommended that the HWIR amend this portion of the Debris rule to allow the use of other reagents that are more effective than Portland cement for microencapsulation. [Jetseal fully supports] that recommendation and would like to provide additional data. [Jetseal suspects] that the wording in the Debris rule was unintentional. [Jetseal bases] this suspicion on a thorough review of the Technical Support document for the Debris Rule. The subject document contains data that supports the DOE conclusion (and the common knowledge of those in the waste treatment industry) that there are numerous encapsulating agents that are more effective than Portland cement. One such encapsulant not mentioned by DOE is the polybutadiene resin based encapsulant developed by Environmental Protection Polymers, Inc., (EPP). This particular

encapsulant was developed solely for encapsulation of waste. Specific properties were tailored to minimize interactions with contaminants (increases robustness), to enhance the wetting of contaminant particles, to maximize chemical stability of the final waste form, etc. Consequently, waste loadings in excess of 90% have been achieved. [Jetseal has] enclosed two technical articles regarding this encapsulant for your review. If the Debris Rule is not changed in this regard, the EPP encapsulant and others such as Corrobesch, developed and well tested in Germany would see limited application due to the regulatory restriction, when in fact they are far superior to Portland cement as a microencapsulant. [Note: The commenter failed to include the two technical articles mentioned above with their comments. Copies of these articles have been requested and are being forwarded to SAIC.]

Commenter Name: General Public Utilities (GPU)
Commenter Type: Utility Co./Assoc.
Commenter Number: WHWP-00239.001

Comment: Because of current regulations, radiological wastes mixed with RCRA listed wastes are mixed wastes regardless of the treatment process used. Therefore, GPU cannot supply the Agency with the requested data on immobilizing listed waste constituents. However, GPU experience with the stabilization of characteristic mixed waste routinely shows that it removes the RCRA constituent from the leachate during subsequent TCLP tests. The industry has developed techniques and materials to efficiently immobilize TCLP metals, organics and other characteristic constituents.

Response: We appreciate hearing from these commenters and agree that LLMW can be effectively immobilized by generators at their own sites using various reagents beyond portland cement. We note that we recently proposed a storage, treatment, transportation, and disposal conditional exemption as part of the LLMW rule that would allow generators to treat their LLMW at their NRC licensed facilities using immobilization processes authorized under their NRC or NRC Agreement State licenses (see 64 FR 63464; November 19, 1999).

III. Inclusion of Vitrified Wastes

Commenter Name: Department of Energy (DOE)
Commenter Type: Federal Government
Commenter Number: WHWP-00072.001

Comment: DOE requests that EPA adopt regulations excluding vitrified mixed wastes from RCRA Subtitle C regulation, provided that: (1) the waste is treated by a vitrification process subject to performance criteria and regulatory control; (2) the vitrified mixed waste forms will be managed in radioactive waste disposal or storage facilities that conform with controls and conditions put forth pursuant to the AEA; and (3) it has been demonstrated to EPA or the authorized State that pre-defined process control program requirements and product performance characteristics have been met.

Commenter Name: Hazardous Waste Action Coalit.
Commenter Type: Waste Mgmt Assoc
Commenter Number: WHWP-00119.001

Comment: Vitrified mixed waste should also be excluded, since a large amount of data exists which supports the position that immobilization and vitrification technologies sufficiently bind the chemical contaminants.

Commenter Name: Southern CA Edison Company
Commenter Type: Utility Co./Assoc.
Commenter Number: WHWP-00198.001

Comment: Should mixed waste be categorically excluded from RCRA if immobilized? YES. Vitrification, microencapsulation etc., are techniques designed to stop migration of constituents from treated waste. Whether those constituents are radioactive or hazardous is not pertinent. Beyond that, if the waste is being disposed of in an NRC-regulated or Agreement State-regulated waste disposal facility, the same argument holds true: the waste is packaged and disposed of in a manner that precludes migration to the surrounding environment. As long as that condition is satisfied (by whatever technology) and the disposal facility is regulated, mixed waste should be categorically excluded from RCRA.

Response: We appreciate hearing from these commenters, but note that mixed wastes have been removed from the scope of the HWIR proposal. We also note that since the time of this proposed rulemaking, DOE has withdrawn its proposals and has worked with both the states and EPA to study this issue in greater detail. We considered input from numerous sources, including the DOE and the States, along with other information we developed and we recently proposed a storage, treatment, transportation, and disposal conditional exemption as part of the LLMW rule to exempt LLMW that is stored/treated and/or disposed of at sites that are licensed by the NRC or NRC Agreement States (see 64 FR 63464; November 19, 1999).

III.A DOE Studies

Commenter Name: State of Kentucky, NREP
Commenter Type: State Government
Commenter Number: WHWP-00206.001

Comment: The Cabinet has not had adequate time to review and evaluate the data submitted on vitrified waste. We believe that additional time is necessary to review the data. Further, KNREPC believes that specific review of the data as it relates to the waste streams at the Paducah Gaseous Diffusion Plant and details of how the proposal will be implemented are required prior to proceeding with the proposal. DOE PGDP has submitted a hazardous waste research and development permit to the Cabinet for use of a vitrification process. The information submitted with and developed for this application may provide the agency with information useful in review of DOE's vitrification proposal.

Commenter Name: Department of Energy (DOE)
Commenter Type: Federal Government
Commenter Number: WHWP-00072.001

Comment: DOE developed a technical data package supporting a conditional exclusion applicable to vitrified mixed waste forms for consideration during the HWIR rulemaking process. This technical data package was submitted to EPA on October 20, 1995. 1/ Specifically, the Vitrification Technical Data Package supports a regulatory strategy allowing vitrified mixed waste forms, generated by a regulatorily controlled (e.g., through a permit, regulatory requirements or other environmental compliance mechanisms) vitrification process, to be excluded from RCRA Subtitle C regulations. Such an exclusion is justified by the inherent destruction and immobilization capabilities of the vitrification technology, as described in the technical data package.

The Vitrification Technical Data Package also proposes a compliance testing strategy for vitrified waste forms that differs from the strategy EPA suggests in proposed 40 CFR 261.36(b)(1) [60 FR 66344, 66440]. Testing would primarily be intended to support a process control program that ensures consistent production of a waste form with environmentally acceptable performance characteristics. Additional testing would be performed if the waste feed composition or process was altered, instead of testing periodically, based on waste volumes. The process control program will also include a commitment that vitrified low-level mixed wastes will be disposed of either in DOE LLW disposal facilities that comply with the requirements of Order DOE 5820.2A, "Radioactive Waste Management," or in radioactive waste disposal facilities licensed by the Nuclear Regulatory Commission or an Agreement State; and vitrified high-level mixed wastes will be placed into a Federal radioactive waste repository (licensed by the Nuclear Regulatory Commission pursuant to requirements contained in 10 CFR Part 60).

Vitrification is the process of converting materials into a glass-like substance, typically through a thermal process. Vitrification has four major characteristics which make it an attractive waste treatment option: Vitrification produces a durable waste form which when properly formulated performs exceptionally well in leach tests. Vitrification destroys organic contaminants and stabilizes inorganics and metals by incorporating them into the glass structure:

- The waste glass has the ability to incorporate a wide variety of contaminants and accompanying feed material in its structure, without compromising the quality of the final waste form.
- Vitrification typically results in significant volume reductions of waste material.

Vitrification is a desirable treatment option for wastes containing long-lived radionuclides because the vitrified waste forms will resist degradation for the thousands of years necessary for radioactive decay to lessen radiation hazard to human health and the environment. During this decay period, the metals and inorganics are chemically bonded in the glass matrix. Due to these features, EPA has already specified vitrification under the land disposal restrictions program as the technology by which certain mixed high-level wastes must be treated prior to land disposal [55 FR 22520, 22627 (06/01/90)].

Vitrification is the thermal-chemical process whereby oxides of elemental constituents are incorporated into a solid, continuous, non-crystalline, three-dimensional network or glass structure. Vitrification, which occurs in a liquid mixture at an elevated temperature (nominally 1000oC to 1500oC), chemically bonds the glass elemental constituents together using oxygen to form a solution. At the required operating temperatures, organic components are either destroyed, or volatilized and decompose in the off-gas treatment system and are not incorporated into the glass product. Therefore, DOE proposes to eliminate the HWIR testing requirements for organics. Additional data demonstrating that a properly designed vitrification system is capable of achieving organic Destruction and Removal Efficiencies (DREs) that meet the requirements of 40 CFR Parts 264 and 265, are provided as part of Attachment B. At least one of the glass forming elemental oxides, termed "network formers," must be present in the liquid mixture in sufficient quantity to form the glass matrix as the molten solution cools. The four primary network former oxides include silicon, phosphorous, boron, and germanium. Other elements break the glass-forming bonds and can lower the melt viscosity or produce other changes in the glass physical characteristics. These oxides are "network modifiers" and include the alkali metals and alkaline earth oxides. Most waste glasses are based on the silica network. Therefore, successful vitrification requires most hazardous wastes to be mixed with silica to serve as the network former. The resulting waste glass can range from approximately 30 weight-percent actual waste to much higher measures when the waste itself contains substantial network formers (e.g., contaminated soils and sludges). Like any waste treatment process, vitrification has its limitations. Although most elements can be vitrified to some extent, more volatile elements such as cesium and the halogens can be incorporated only in small concentrations. Some metals, especially chromium and the noble metals, have limited solubility within many glass melts, and high concentrations of network modifiers can have negative effects on glass properties. Most, if not all, of these limitations can be controlled by establishing vitrification process parameters and final glass cooling controls in the Process Control Program.

Vitrification requires a process control protocol for key operating parameters in order to yield a glass product consistently falling within a pre-defined acceptable performance envelope. This process control envelope is defined by performing treatability studies on either the actual radioactive waste or an appropriate surrogate. The treatability studies provide information on the glass formulation process and other operating variables, such as waste loading and viscosity, while ensuring the durability of the final waste form. Once the parameter values which produce a durable glass are determined, they are used to define the Process Control Program. The Process Control Program ensures both a consistent product performance as well as the key composition of liquid, air and secondary waste streams. Testing The Process Control Program requirements include sampling and analysis to support the process acceptability envelope. To ensure the durability of the glass, DOE proposes to monitor the leach rates of several of the most leachable glass components. Two forms of leach tests, the Product Consistency Test (PCT) (ASTM-C1285-94) and TCLP have been proposed. The PCT test was developed to evaluate the performance of high-level waste glass and its durability as it relates to the release of radioactive components. The TCLP would be used to determine leach rates of hazardous components (primarily metals). Testing requirements for organic constituents identified in the vitrified waste stream are eliminated because organic components cannot survive the vitrification process (i.e., molten temperatures

in excess of 1000oC), or are removed in the off-gas system. The technical data submitted to the EPA also proposes an alternative sampling and analysis strategy for certain highly radioactive mixed waste forms. The proposed sampling strategy considers the radiological hazard associated with testing the final waste form. For wastes with low radiation hazard, sampling and analysis is performed on the final product. However, sampling and analysis of highly radioactive wastes may be performed on surrogate vitrified wastes that are chemically equivalent to the actual waste. DOE believes that this alternate testing strategy would provide results comparable to those achieved via the testing program under proposed 40 CFR 261.36 (60 FR 66440-66442, December 21, 1996).

DOE is proposing that mixed waste, treated by vitrification would be excluded from RCRA Subtitle C at the time that treatment is complete. Vitrified mixed low-level waste would exit RCRA Subtitle C after treatment and, would be required to be disposed at a DOE low-level waste disposal facility (in accordance with DOE Orders), or in a radioactive waste disposal facility licensed by the Nuclear Regulatory Commission or an Agreement State. Vitrified high-level waste would exit RCRA Subtitle C after treatment and be disposed at a federally licensed repository. A process control program, for the vitrification facility, would be developed that provides the description of the unit operation variables, the feed stream compositions as they relate to the end product quality and the permitted emission/effluents, and the acceptable performance envelope for unit operation. The process control program and a permit, regulatory requirements or other environmental compliance mechanisms would specify criteria that must be met to assure the characteristics and consistency of the final product result in a vitrified waste which is excluded from the RCRA hazardous waste regulations. The EPA or authorized State would retain control over the vitrification process to assure, through a permit, regulatory requirements or other environmental compliance mechanisms, that the process produces a glass meeting environmentally acceptable performance characteristics. It is only after the production of a vitrified waste that meets these performance characteristics that DOE proposes the waste form be excluded from RCRA Subtitle C control.

Since DOE submitted the Vitrification Technical Data Package in October 1995, EPA and the National Governors' Association have requested additional documentation supporting its conclusions concerning the vitrification process and the characteristics of vitrified mixed wastes. In response to these requests, DOE has compiled two volumes of background information which are enclosed as Attachment A, "Supplemental Information for the Technical Data Package for Vitrified Wastes Forms." Volume 1 of Attachment A contains sections I and II. Section I provides information on the characteristics of vitrified glass, including the thermal destruction of organic materials. Additional information on testing and control of the process is also included. Section II contains information on TCLP testing for RCRA metals and PCT testing for selected elements. Volume 2 of Attachment A is composed of Sections III through VI. Section III provides information on the development and selection of standardized glasses with performance characteristics based on DOE Orders and Federal regulations. Section IV provides information on the range of expected glass waste forms considering the waste stream and the standard glass and the leaching characteristics of those glasses. The set of projected glasses should bound the performance of any glass produced in a mixed waste vitrification production facility. Section V presents information on the chemical composition of the feed material and final product. Section VI contains information on the Process Control Program for the production of the vitrified waste form. Summary In conclusion, DOE requests that EPA adopt regulations which conditionally exclude vitrified mixed wastes from RCRA Subtitle C regulations, provided that: (1) the vitrification facility generating the treated wastes is regulated through a permit, regulatory requirements or other environmental compliance mechanisms, and is subject to an approved Process Control Program; (2) the vitrified low-level mixed waste forms will be disposed of either in DOE LLW disposal facilities that comply with the requirements

of Order DOE 5820.2A (Radioactive Waste Management), or in radioactive waste disposal facilities licensed by the Nuclear Regulatory Commission or an Agreement State; and vitrified high-level mixed wastes will be stored at a DOE high-level waste storage site (operated in compliance with the requirements of Order DOE 5820.2A) pending disposal in a Federal radioactive waste repository; and (3) it has been demonstrated to EPA or the authorized State that pre-defined process control program requirements and product performance characteristics have been met. This proposal provides that waste treated using a superior treatment technology (i.e., vitrification) may be responsibly managed under the Atomic Energy Act (AEA) while reducing overall costs. Full regulatory authority by EPA or a State would be maintained until an acceptable vitrified waste form is produced. With consideration of the Vitrification Technical Data Package (submitted to EPA in October 1995), and the supplemental information related to vitrified waste forms included with these DOE comments, the Department requests that EPA promulgate the proposed conditional exclusion for vitrified mixed waste forms as part of the final HWIR. 1/ Letter to Director of EPA's Office of Solid Waste (October 20, 1995 [forwarding supplemental data regarding immobilized mixed waste debris (Enclosure 1), and a technical data package supporting the position that vitrified waste should be granted an exclusion from RCRA Subtitle C based on waste form stability and performance (Enclosure 2)].

In addition to supporting the general concept of HWIR and its applicability to mixed wastes, DOE forwarded two technical proposals to EPA in July and October 1995, which demonstrate that managing immobilized low-level mixed waste debris and vitrified mixed wastes after treatment as non-RCRA wastes under AEA requirements is protective of human health and the environment. [DOE] has developed preliminary cost information relative to these proposals. This information demonstrates that managing immobilized mixed waste debris and vitrified mixed wastes in AEA disposal facilities, as opposed to RCRA disposal facilities, will provide significant cost savings and is protective of human health and the environment. These estimates are being refined and will be provided to EPA and the States. As a result of these DOE proposals, limited resources that are currently devoted to managing immobilized mixed debris and vitrified mixed wastes pursuant to RCRA Subtitle C could be diverted to activities that address higher risks to human health and the environment. In addition, low-level mixed debris and low-level vitrified mixed wastes that would potentially be excluded under these proposals could more readily be removed from storage and disposed of as low-level wastes (i.e., rather than mixed wastes) because disposal capacity is currently available for these types of wastes.

Response: We appreciate hearing from these commenters, but note that mixed wastes have been removed from the scope of the HWIR proposal. We also note that since the time of this proposed rulemaking, DOE has withdrawn its proposals and has worked with both the states and EPA to study this issue in greater detail. We considered input from numerous sources, including the DOE and the States, along with other information we developed and we recently proposed a storage, treatment, transportation, and disposal conditional exemption as part of the LLMW rule to exempt LLMW that is stored/treated and/or disposed of at facilities that are licensed by the NRC or NRC Agreement States (see 64 FR 63464; November 19, 1999).

IV. State's Ability to Regulate Mixed Waste

Commenter Name: Lockheed Martin
Commenter Type: Consultants
Commenter Number: WHWP-00024.001

Comment: State and regional concerns involving their potential inability to regulate mixed waste is unfounded.

Commenter Name: Department of Energy (DOE)
Commenter Type: Federal Government
Commenter Number: WHWP-00072.001

Comment: DOE is aware, as EPA has recognized in the proposed HWIR (60 FR 66400, col. 3), and from discussions with States that host DOE facilities, that several States are concerned with the potential lack of State oversight of mixed wastes after the wastes meeting specified criteria exit RCRA (under HWIR). Most of the States' concerns center around their ability to adequately regulate mixed wastes exiting HWIR under delegated RCRA programs and under the FFCA. DOE understands these concerns and also recognizes that RCRA authorized States have the option of whether or not to adopt a Federal exclusion or conditional exemption under HWIR into their authorized RCRA program. Thus, DOE believes that any regulatory approach for allowing mixed waste to exit RCRA could only be successful with State involvement. DOE is eager to work with EPA and the States on appropriate implementation mechanisms to ensure the State's role in determining the conditions for a mixed waste exclusion. If DOE fails to meet any of the conditions established for an exclusion, State or EPA enforcement under RCRA could be triggered. Certain implementation mechanisms, such as treatment facility permits, a memorandum of agreement between DOE and the State, or regulatory requirements tied to an exclusion, could be employed to ensure that the conditions of the exclusion are being met. Finally, DOE wants to assure States that it intends to meet its obligations under the FFCA, RCRA and other applicable State laws prior to or as a component of a conditional exclusion for mixed wastes.

Commenter Name: CORAR
Commenter Type: Trade Association
Commenter Number: WHWP-00116.001

Comment: According to 60 FR 66400, column 3, paragraph 4, "...a number of states hosting DOE facilities have expressed concern over the proposal's effect on their states ability to adequately regulate mixed waste under state and federal law as intended by RCRA..." The problem here is that RCRA requirements and the proposed rule are too complex for states to adequately implement. This is another good very good reason to simplify the regulations by removing mixed waste from RCRA requirements and managing mixed waste under AEA requirements only.

Commenter Name: State of Pennsylvania, DEP
Commenter Type: State Government
Commenter Number: WHWP-00167.001

Comment: Pennsylvania understands the proposed HWIR rule, including this aspect of the proposal, to be a modification to a non-HSWA part of RCRA. The HWIR exit rules and any contingent management rules would not be effective in any authorized state unless that state chooses to adopt the new exit rules. Authorized states are not required to modify their programs to adopt these exit rules or contingent management proposals. 60 FR 66411. Pennsylvania recognizes that some states may be reluctant to allow mixed wastes to exit RCRA and corresponding state programs under any circumstances because those states would lose a measure of control over environmental protection in that state. Pennsylvania supports the right of other states to retain full hazardous waste authority over mixed waste. On the other hand, Pennsylvania is engaged in the process of siting a low-level radioactive waste (LLRW) disposal facility for the four states of the Appalachian Compact.

Commenter Name: Env. Council of the States
Commenter Type: State Government
Commenter Number: WHWP-00213.001

Comment: The inclusion of the provision regarding mixed waste in this rulemaking could unnecessarily delay and undermine states' adoption and implementation of the entire HWIR waste exit proposal. In order to retain control over mixed waste, a number of states may hesitate to amend their hazardous waste programs to incorporate the HWIR if it were also to effectively deregulate DOE's mixed waste.

Commenter Name: State of New Mex HRB
Commenter Type: State Government
Commenter Number: WHWP-00046.001

Comment: The State of New Mexico Environmental Department is] specifically concerned that, at DOE's suggestion, most of DOE's "mixed waste" -- mixtures of hazardous and radioactive wastes -- may become unjustifiably exempted from regulation under both federal and state hazardous waste programs. Such wastes often post unique hazards to human health and the environment. DOE's suggestions, if adopted in whole, would have the effect of exempting most of DOE's mixed waste from the Resource Conservation and Recovery Act (RCRA). This would make it much more difficult for New Mexico to regulate this waste and protect our citizens and the environment. In the Federal Facility Compliance Act of 1992 (FFCA), Congress clearly confirmed that states have the authority to regulate these DOE mixed wastes. At the urging of DOE, the proposed rule would essentially eliminate all such regulatory oversight.

Commenter Name: State of Wash, Dept of Ecology
Commenter Type: State Government
Commenter Number: WHWP-00025.001

Comment: In point of fact, we agree with comments made by Donald R Schregardus (Director of the Ohio EPA) to Assistant Administrator Laws on behalf of states harboring DOE facilities that "Such rule-

making appears to circumvent the legislative process normally used to make such significant changes", and that "The inclusion of the provision regarding mixed waste in this rulemaking could unnecessarily delay and undermine states' adoption and implementation of the entire HWIR waste exit proposal. In order to retain control over mixed waste, a number of states may hesitate to amend their hazardous waste programs to incorporate the HWIR if it effectively deregulates mixed waste.

Commenter Name: State of Maryland, DEQ
Commenter Type: State Government
Commenter Number: WHWP-00109.001

Comment: Although Maryland does not have any DOE facilities to whom this provision would apply, we believe that it adversely affects Sates' ability to regulate mixed waste.

Commenter Name: State of Kentucky, NREP
Commenter Type: State Government
Commenter Number: WHWP-00206.001

Comment: The Cabinet is also concerned about the potential large volume of future waste that could exit and move to DOE's self-regulated disposal sites unless states have oversight authority. Overall, the Cabinet does not support the proposals because they could have the effect of eliminating state regulation of DOE mixed wastes.

Commenter Name: Env. Council of the States
Commenter Type: State Government
Commenter Number: WHWP-00213.001

Comment: While DOE has informally indicated to the states its willingness to discuss implementation details, including possible mechanisms to allow some level of state oversight of exited waste, it has not yet put forward any specific proposal to accomplish this. DOE should engage the states in a full discussion about options for external regulation for any mixed waste that merits less-stringent management standards than those under RCRA Subtitle C.

Response: We appreciate hearing from these commenters and note that the DOE withdrew its proposals; therefore, the commenters' concern that states could lose their ability to regulate LLMW is moot. Although this issue is moot, we like to point out that RCRA Authorized States maintain a broad range of inspection, auditing, and information collection authorities to ensure compliance with the exemption conditions under RCRA § 3007, 42 U.S.C. § 6927. RCRA inspectors (whether from EPA Headquarters, EPA Regional Offices, or RCRA Authorized State) have the ability to enter any facility to inspect when they believe that there is a potential for endangerment to human health and the environment at a facility. We would also note that based on site treatment plans resulting from the Federal Facility Compliance Act of 1992, DOE and States have reached agreement on compliance orders regarding management of mixed wastes at DOE facilities. We do not intend to affect or disrupt these compliance orders. Therefore, as proposed, we are not extending the storage and treatment conditional exemption to DOE. However, DOE may participate in the transportation and disposal exemption when waste is transported in

accordance with NRC regulations, and disposed of in landfills licensed by NRC or NRC Agreement States (see 64 FR 63464; November 19, 1999).

V. Applicability to DOE

Commenter Name: State of Kentucky, NREP
Commenter Type: State Government
Commenter Number: WHWP-00206.001

Comment: The Cabinet is supportive of DOE's efforts to explore more cost efficient methods of managing the various types of mixed wastes currently being stored at DOE sites throughout the country and mixed waste that will be generated as part of environmental restoration and decontamination and decommissioning operations in the future. However, the three DOE proposals regarding mixed waste will allow up to 96% of the waste to exit RCRA Subtitle C. The proposals will essentially allow DOE to self-regulate the waste under the Atomic Energy Act (AEA) requirements. If adopted, these three proposals will allow DOE to "by-pass" the Federal Facilities Compliance Act (FFCA) and the recently completed Site Treatment Plans under the FFCA. Furthermore, DOE's proposals which increase DOE's self-regulation are inconsistent with the recommendations of the Advisory Committee on External Regulation of DOE Nuclear Safety. DOE should adopt the recommendations of the Committee, withdraw its proposal in the HWIR and begin discussions with the states on mixed waste management proposals which recognize state regulation and oversight.

Commenter Name: Department of Energy (DOE)
Commenter Type: Federal Government
Commenter Number: WHWP-00072.001

Comment: In a March 7, 1996 letter from the State of Nevada Office of the Attorney General, co-signed by seventeen other State Attorney Generals, to Carol M. Browner of EPA, it was expressed that the proposed rule "would have the effect of exempting most of DOE's mixed waste" from RCRA. As discussed above, DOE is only currently pursuing exclusions for immobilized mixed debris and vitrified mixed wastes. Immobilized mixed debris that would exit under these proposals is expected to account for approximately 2% of the DOE's mixed waste inventory and vitrified mixed waste is expected to account for approximately 29% (current inventory plus generation to the year 2070). These estimates were obtained from information provided by the sites for the Department's 1996 Baseline environmental Management Report. An estimate relative to how much mixed waste would potentially exit RCRA under a contingent management approach (i.e., under alternative risk-based exit levels) is not included because the specific elements of a mixed waste contingent management option(s) and the associated technical data to support such an approach have not been developed. Therefore, DOE is not able to precisely estimate how much waste would exit under such a proposal.

In the March letter, the States referenced a DOE estimate that approximately 96% of DOE mixed waste would exit RCRA. It appears that the 96% estimate was derived by taking the sum of numbers presented by DOE to the States in October, 1995 (i.e., the sum of 66% for vitrified mixed waste, 4% for immobilized mixed debris and 26% under a contingent management approach).2/ These earlier estimates were very preliminary and not originally intended to be additive. More precise and detailed waste volume estimates for how much immobilized mixed debris and vitrified mixed wastes would be excluded from RCRA regulation if the two DOE proposals are implemented have been developed from

information (provided by DOE sites) included in the 1996 Baseline Environmental Management Report. These updated waste volume estimates will be forwarded to EPA and the States in the near future. In the March 7, 1996 letter, the States mention that they believe DOE's mixed waste proposals conflict with the recommendations concerning the end of DOE self regulation from the December 1995 Final Report of the Advisory Committee on External Regulation of the Department of Energy Nuclear Safety, entitled Improving Regulation of Safety at DOE Nuclear Facilities. DOE believes [that] this could be implemented consistently with recommendations in the Final Report of the Advisory Committee, and provide opportunities for moving forward on certain recommendations. For example, such conditional exclusions could serve to integrate protections found under both the nuclear and environmental statutes, and provide flexibility for appropriate State oversight.

The States also suggest in the letter that DOE's proposals were not "sufficiently supported by available data to form a proper basis for informed decision making." DOE has provided extensive technical data to EPA and the States through the National Governors' Association to support conditional exclusions for immobilized mixed debris and vitrified mixed wastes. The technical data packages are also available to the public in the proposed HWIR rulemaking docket. In addition, briefings on the DOE's immobilized mixed debris and vitrified mixed waste proposals have been provided to EPA and State representatives in various forums. To date, the only outstanding pieces of information requested from DOE by the States is the potential cost savings information associated with the proposals, and updated information on waste volumes that would potentially exit RCRA. It is expected that EPA will publish a supplemental notice to the proposed HWIR (as indicated on 60 FR 66401, col. 1) which will address the DOE proposals in more detail, based on technical data and implementation approaches already submitted to EPA (as well as any subsequent information requested from DOE by EPA and the States).

1/ This total volume includes mixed wastes from operations, environmental restoration, and decontamination and decommissioning activities that is or is expected to be managed by the Department of Energy's Office of Waste Management. 2/ Note that the volumes have decreased for vitrified mixed waste from 66% (the earlier estimate) to 29% (the current estimate) mainly because the revised volume estimate consists of high-level wastes that are known to contain listed hazardous wastes and that are currently planned to be vitrified (and does not include characteristic-only high-level wastes which were contained in the previous estimate).

Commenter Name: ASTSWMO
Commenter Type: State Government
Commenter Number: WHWP-00060.001

Comment: [State] support of Conditional Exemption Options 4 and 6 is based upon the elimination of any exemption for DOE-regulated mixed wastes. The Task Force references a letter submitted to the docket on behalf of the Waste Committee of the Environmental Council of the States (ECOS), in which state commissioners urge EPA to eliminate DOE's recommendations from the HWIR proposal at this time, pending further discussions between states, the Department of Energy, and interested stakeholders. [Note: This comment represents a compilation of the overarching themes and opinions expressed by the majority of 25 responding state waste management program offices that have provided input through ASTSWMO. This comment does not, therefore, attempt to reflect the many detailed and specific comments raised by each individual state. State waste management program offices are referred to herein as "states," unless otherwise noted.]

Commenter Name: Military Production Network
Commenter Type: Other
Commenter Number: WHWP-00189.001

Comment: We write to express our concern over the Department of Energy's (DOE) proposed language to the Hazardous Waste Identification Rule (HWIR) regarding exit criteria for mixed waste. Specifically, we are concerned with the following proposals put forth by DOE: 1) that some mixed waste should exit regulation under the Resource Conservation and Recovery Act (RCRA) Subtitle C because the requirements of the Atomic Energy Act (AEA) are sufficiently protective of the hazardous portion of DOE's mixed waste (for the purpose of comment EPA has proposed that such waste meet exit levels of chemical toxicity of 10-4 cancer risk and HQ1); 2) that immobilized mixed waste debris, including waste immobilized in cement be allowed to exit RCRA regulation; and 3) that vitrified mixed waste be allowed to exit RCRA regulation. DOE has estimated that as much as 96 percent of DOE's mixed waste could exit regulation as a result of these proposals. As groups living and working in the shadow of the nuclear weapons complex we have seen first hand the devastating affect of DOE self-regulation, and we have worked to see that DOE be held accountable for its actions. This necessarily means external regulation of its activities. We have the following concerns regarding DOE's proposals: 1) DOE self-regulation is not acceptable. We have seen the problems associated with DOE self-regulation. The current proposals are completely out of step with the spirit of the recently issued report from the Advisory Committee on External Regulation of DOE Nuclear Safety endorsed by Secretary O'Leary. 2) The current proposals would undercut the benefits of the Federal Facilities Compliance Act which we struggled to enact in 1992 and which DOE has continuously sought to circumvent. Removing the regulatory authority of states over mixed waste at DOE facilities is not acceptable. 3) The proposals from DOE were formulated without input from stakeholders or the states. This flies in the face of DOE's commitment to openness and public involvement.

Commenter Name: Northeast Waste Mgmt Officials
Commenter Type: Waste Mgmt Assoc
Commenter Number: WHWP-00170.001

Comment: NEWMOA states that have DOE facilities strongly oppose the suggestion by DOE to exempt "mixed waste" (mixtures of hazardous and radioactive wastes) under the contingent management provisions of this proposal. These states believe the rule as proposed would unjustifiably exempt the vast majority of DOE mixed waste from regulation under RCRA. In addition, they feel that such an exemption contravenes the spirit of the Federal Facility Compliance Act of 1992 (FFCA) wherein Congress confirmed that the states have the authority to regulate these DOE mixed wastes. These states urge EPA to maintain, not further restrict, state regulation of DOE mixed waste under RCRA, FFCA, and analogous state programs.

Commenter Name: State of Maine, DEP
Commenter Type: State Government
Commenter Number: WHWP-00247.001

Comment: This proposal if accepted would permit up to 96% of DOE's mixed waste to exit RCRA and once again place significant quantities of waste back under DOE's self-regulation. Prior mismanagement of hazardous and radioactive waste has led to extensive contamination requiring costly cleanup efforts

across the nation at DOE sites. This proposal also assumes that current DOE low level waste disposal sites meet AEA requirements and facilities have the capacity to accept these massive amounts of treated waste. This assumption has not been factually demonstrated for all DOE disposal sites. The States are still collectively waiting for accurate supporting financial information from DOE even at this late date. This process would still require independent oversight and verification to have credibility with the public. DOE's proposal is conceptual at best and lack specific details on how these proposals would be implemented.

Commenter Name: State of Alabama, DEM
Commenter Type: State Government
Commenter Number: WHWP-00066.001

Comment: EPA has requested comment on allowing mixtures of radiological and RCRA hazardous waste meeting conditional exit levels for chemical toxicity estimated at 10-4 cancer risk and HQ 1 to exit Subtitle C if managed in AEA disposal facilities. ADEM would be opposed to relinquishing its RCRA authority to the Department of Energy for any mixed waste when contingently managed pursuant to the conditional exemption described above. Furthermore, DOE's track record relative to management of rad waste speaks for itself, and ADEM does not wish to contribute further to difficulties at these facilities by adding chemically toxic waste.

Commenter Name: State of Nevada
Commenter Type: State Government
Commenter Number: WHWP-00052.001

Comment: We are specifically concerned that, at DOE's suggestion, most of DOE's "mixed waste" -- mixtures of hazardous and radioactive wastes -- may become unjustifiably exempted from regulation under federal and even under state hazardous waste programs. Such wastes often pose unique hazards to human health and the environment. DOE's suggestions, taken in toto, would have the effect of exempting most of DOE's mixed waste from [RCRA]. 1/ This would make it much more difficult for states to regulate this waste and protect their citizens and the environment. In the Federal Facility Compliance Act of 1992 (FFCA), Congress clearly confirmed that states have the authority to regulate these DOE mixed wastes. At the behest of DOE, the proposed rule could essentially eliminate all such regulatory oversight. In any event, DOE's suggestions are not sufficiently supported by available data to form a basis for informed decision making. 1/ It is our understanding that, by DOE's own estimates, approximately 96% of the mixed waste would fall outside of regulation under RCRA. This represents: 66% from vitrified waste; 26% from contingent management; and 4% from immobilized mixed waste debris.

Commenter Name: State of Wash, Dept of Ecology
Commenter Type: State Government
Commenter Number: WHWP-00025.001

Comment: DOE's proposals would represent a return to self regulation: Unlike the main body of EPA's HWIR federal register, DOE proposals would not have exited mixed wastes subject to external regulation (either federal or state). DOE has proposed that should mixed wastes be allowed to exit RCRA, they be

subsequently managed only under the provisions of the Atomic Energy Act (AEA), i.e., by DOE itself. This facet of DOE's proposal presents the prospect of returning to the dark ages of self regulation, and is in direct contradiction to: (i) the Federal Facilities Compliance Act (FFCA), (ii) recent recommendations of the Advisory Committee on External Regulation of Department of Energy Nuclear Safety (December, 1995), and (iii) many years of work with DOE, the states, environmental groups, and others. Acceptance of this aspect of DOE's proposals would likely lead to inefficiency, cleanup delays, erosion of public confidence, and environmental abuse. These prospects would be further exacerbated if coupled with HWIR self implementing provisions (including those requiring only notice to the public "...that an exemption claim is being asserted"). Under DOE's proposals, no mechanisms would be in place to prevent/monitor against wastes being "mismanaged" (See HWIR preamble section IX (A), and RCRA section 1004 (5) (B)). DOE proposals are far different than EPA's contingent management option four, under which exited RCRA wastes would continue to be subject to a commensurate level of state regulatory control via its solid waste management program. We note that environmental waste management has proven most effective and efficient if overseen in an integrated fashion along with other inter-related state environmental programs such as those being managed at the Hanford site.

Furthermore, DOE proposals would damage public confidence and tear apart clean up agreements such as the Hanford Federal Facility Agreement and Consent Order (Tri Party Agreement or TPA). At Hanford, the state, EPA, DOE, local governments, worker organizations, environmental groups, and others have worked long and hard to construct a cleanup agreement that is reflective of public values, is fiscally responsible, and which holds the federal government to the same state and federal environmental standards as any public entity. TPA initiatives which have recently been implemented (or are the subject of formal negotiations now in progress) include improvements in our abilities to evaluate risk, prioritize work, and manage all cleanup projects (regardless of regulatory status) in an integrated fashion. Approval of DOE (mixed waste) HWIR proposals would negate many of these agreements, force major renegotiation of TPA requirements, delay cleanup efforts once again, and represent yet another serious blow to public confidence.

Commenter Name: State of New Mex HRB
Commenter Type: State Government
Commenter Number: WHWP-00046.001

Comment: In any event, DOE's suggestions are not sufficiently supported by available data to form a proper basis for informed decision making. Exempting DOE mixed waste from outside regulation is clearly contrary to recommendations contained in the December, 1995 final report of the Advisory Committee on External Regulation of Department of Energy Nuclear Safety. Just two months ago, the Advisory Committee unanimously recommended, and DOE agreed, that DOE should be subject to outside state health, safety and environmental regulation. [The State of New Mexico] strongly [agrees] with this recommendation, given DOE's demonstrated inability to manage its wastes in a manner that fully protects human health and the environment. [The State of New Mexico] strongly [urges EPA] to preserve, not hinder, state regulation of DOE mixed waste under RCRA, the FFCA, and analogous state programs.

Commenter Name: Util Solid Waste Activ Group
Commenter Type: Utility Co./Assoc.
Commenter Number: WHWP-00089.001

Comment: Different factors must be considered when evaluating DOE mixed waste because such waste is not subject to independent regulatory oversight of the NRC. In addition, we understand that several States have concerns regarding DOE mixed waste that are inapplicable to commercial mixed waste managed under NRC or NRC Agreement State controls.

Commenter Name: State of Pennsylvania, DEP
Commenter Type: State Government
Commenter Number: WHWP-00167.001

Comment: Pennsylvania expresses no opinion with regard to DOE-regulated disposal facilities since there are none in this state.

Commenter Name: Env. Council of the States
Commenter Type: State Government
Commenter Number: WHWP-00213.001

Comment: The information available to the states indicates that up to 96 percent of DOE's mixed waste could exit from RCRA under the three proposals outlined in the preamble. This flies in the face of the Federal Facility Compliance Act and the three-year, recently completed process of negotiating mixed waste Site Treatment Plans and RCRA orders between 20 states and 35 DOE sites in accordance with the Act. The DOE proposals could have the effect of negating major portions of these agreements, causing a serious blow to public confidence in the DOE cleanup program. While states strongly support efforts to safely reduce the cost of managing mixed waste, the fundamental flaw of the proposals as currently outlined is that they would once again place significant quantities of mixed waste under DOE self-regulation. The states oppose DOE self-regulation for the following reasons: States (and DOE itself) regard the department's prior record of self-regulation under the Atomic Energy Act (AEA) as inadequate. It is this prior mismanagement of waste that has led to the extensive contamination that now requires costly cleanup efforts across the DOE complex. Even if states believe less-costly management requirements for some treated mixed waste may be justified, it does not follow that such management should be self-regulated by DOE. Self-regulation lacks credibility with the public and is inconsistent with the nation's long-standing approach to regulation of private industry and all other federal facilities. Moreover, it is directly contrary to the spirit of the Federal Facility Compliance Act. The prospect of additional self-regulation by DOE of the exited waste is contrary to the recent recommendations of the Advisory Committee on External Regulation of Department of Energy Nuclear Safety. There appears to be an underlying assumption in the proposals that current DOE low-level waste disposal sites meet AEA requirements. This has not been demonstrated for all DOE sites, and would require independent oversight and verification to have credibility.

Commenter Name: State of Idaho, DHW DEQ
Commenter Type: State Government
Commenter Number: WHWP-00228.001

Comment: Idaho agrees with the Federal Advisory Committee findings, which recommended DOE's nuclear facilities and sites remain externally regulated (60 FR 2244). Idaho maintains a RCRA program

that assures our citizens that hazardous waste management activities are scrutinized, while also working innovatively with DOE to solve mixed waste issues.

Commenter Name: State of Colorado, DPHE
Commenter Type: State Government
Commenter Number: WHWP-00231.001

Comment: In addition to the technical questions regarding the proposals there is very considerable question as to the assumptions regarding the effectiveness of Atomic Energy Act regulation by DOE. The Department of Energy does not have a regulatory program that is equivalent to that of the Nuclear Regulatory Commission or the states. Much of DOE's "regulation" is accomplished through DOE orders which are not promulgated rules subject to public involvement. DOE has been in the process of going through more formal regulatory development and promulgation and the program is improving over time. Also, DOE does not have a good track record of enforcing its own requirements. Self-regulation is fraught with problems at the best of times and there is no reason to believe that it will be better under the stress of tight budgets.

There appears to be an underlying assumption in the proposal that current DOE low level waste disposal sites meet NRC requirements. This has not been demonstrated for all DOE sites and certainly was not demonstrated prior to commencement of disposal activities. Clearly any contingent management proposal must include a demonstration of disposal unit performance approved by an independent party before it could be considered.

Commenter Name: State of California, EPA
Commenter Type: State Government
Commenter Number: WHWP-00249.001

Comment: The proposal would allow certain DOE mixed waste to exit from the RCRA regulation. The proposal could have the effect of negating major portions of the Site Treatment Plans and RCRA orders issued pursuant to the Federal Facility Compliance Act. California already has plans in place for all of its facilities. The preamble language is conceptual and sketchy. The proposals do not present a clear and detailed set of regulatory options on which to comment. The mixed waste proposal should be separated from the overall HWIR rulemaking and its associated schedule. The key issue related to DOE self-regulation is not addressed. DOE should engage the states in a full discussion about options for external regulation for any mixed waste that merits less stringent management standards than those under RCRA Subtitle C. The inclusion of the provisions regarding mixed waste in this rulemaking could unnecessarily delay and undermine states' adoption and implementation of the rule. Cal/EPA is willing

to continue to work with U.S. EPA and DOE to refine these proposals, which would be included in a supplemental notice.

Response: We appreciate hearing from these commenters and note that since the time of this proposed rulemaking, the commenter has withdrawn its proposals and we have removed mixed wastes from the scope of the HWIR proposal. In response to DOE's withdrawal of its petitions, we have worked with both the States and DOE to study this issue in greater detail. We considered input from numerous sources, including the DOE and the States, along with other information we developed and we recently proposed a storage, treatment, transportation, and disposal conditional exemption as part of the LLMW rule to exempt LLMW that is stored/treated and/or disposed of at sites that are licensed by the NRC or NRC Agreement States (see 64 FR 63464; November 19, 1999). Based on site treatment plans resulting from the Federal Facility Compliance Act of 1992, DOE and States have reached agreement on compliance orders regarding management of mixed wastes at DOE facilities. We do not intend to affect or disrupt these compliance orders. Therefore, as proposed, we are not extending the storage and treatment conditional exemption to DOE. However, DOE is eligible for the transport and disposal portion of the exemption if their waste meets the conditions of the exemption (including treatment to the LDR treatment standards and containerization) and is disposed of at a LLRWDF licensed by the NRC or an NRC Agreement State. The commenters' concern that DOE's wastes would no longer be subject to external regulation is therefore moot.

VI. Treatment and/or Storage

Commenter Name: Ohio Department of Health
Commenter Type: State Government
Commenter Number: WH2P-00044

Comment: The portion of the hazardous waste rule that should be changed is to remove the prohibition of the generator from treating or storing their mixed waste. Allowing the generators to safety store and treat their own mixed wastes on site without special permits and/or application/notification would provide generators regulatory relief without bypassing other hazardous waste rules. Allowing the generators to safely store and treat their mixed waste to reduce or eliminate the hazard of the waste helps protect human health and the environment and meets the intent of section 3001 of RCRA.

Commenter Name: GPU Nuclear Corporation
Commenter Type: Utility Co./Assoc.
Commenter Number: WHWP-00208.002

Comment: Immobilization performed by a generator on generator owned waste also must be permissible without the need for Part B permits.

Commenter Name: General Public Utilities (GPU)
Commenter Type: Utility Co./Assoc.
Commenter Number: WHWP-00239.001

Comment: The Agency should clarify that waste immobilization performed by a generator on generator owned waste is permissible as an unpermitted activity without the need for a RCRA permit for waste treatment. The nuclear industry can develop the proper contingent management methods for EPA approval. These methods, combined with the extensive disposal requirements on radiological wastes, will afford adequate protection of human health and the environment.

Response: We appreciate hearing from these commenters and note both that DOE has withdrawn its proposals and we have removed LLMW from the scope of the final HWIR Rule. We, however, agree that LLMW can be effectively treated at NRC licensed facilities by generators using various treatment processes, including immobilization. We note that we recently proposed a storage, treatment, transportation, and disposal conditional exemption as part of the LLMW rule that would allow treatment of LLMW in tanks or containers using treatment processes authorized by an NRC or NRC Agreement State license (see 64 FR 63464; November 19, 1999).