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MEMORANDUM FOR: John B. Martin, Director
Division of Waste Management

FROM: James C. Malero, Chief
High-Level Waste Licensing Management Branch

SUBJECT: MEETING REPORT

Time: Tuesday, October 16, 1979 at 9:30 a.m.- 12:00 p.m.

Place: NRC Offices, Willste Building, Silver Spring, MD

Subject: Utility Waste Management Group (UWVG) comments on a draft of NRC High-Level Waste Management Regulations (10 CFR Part 60).

Attendees:

UWVG

Owen H. Davis, PEG&E
Walton A. Rodger, NSAI
Joseph A. Lieberman, NSAI
A. David Rossin, Comm. Edison
Maurice Axelrad, LNRA&T

NRC

Frank A. Costanzi, SD
C. W. Nilsen, SD
W. R. Ott, SD
E. F. Conti, SD
Fred Forscher, SD
J. Surmeier, WMPI
Lawrence A. White, WMHT
Edward F. Hawkins, WMHL
J. Malero, WMHL
Regis Boyle, WMHL
Michael Kearney, WMPI
J. B. Martin, WM
M. J. Bell, WMFF
RE E. Browning, WMH
D. J. Fehring, WMHT
Seth M. Coplan, WMHT
Edward Regnier, WMHI

Summary of Discussion:

The UWVG opened the meeting by stating that they had serious reservations about the strawman regulations (10 CFR 60). In particular they:

- Questioned the advisability of requiring the characterization of multiple repository sites. Further, they believe that if such a requirement were to be imposed, it should be in the technical rule and not in the procedural portion of the rule. They stated that such a requirement was directing rather than regulating the DOE program.

- Stated that the draft regulation did not properly apply the systems approach in that it considered the waste form and engineered barriers as an independent system as opposed to the geologic barriers, but that the proper application of the systems approach would require that these factors be interrelated and should be optimized together for a single repository system.

Expressed concern that there was no rationale or basis provided for the numerical values presented in the draft regulation and emphasized that a

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rationale should be presented for values even for a so called strawman regulation.

- Expressed concern that the retrievability required in the draft regulation was a requirement for retrievability over a period of 110-130 years. They are concerned that this is essentially a return to the old retrievable surface storage facility (RSSF) concept except for the storage being deep storage instead of surface storage. They noted that the retrievable surface storage facility concept had not been found acceptable, that the current requirement for retrievability for 110-130 years was putting off the decision on disposal for two generations and will most probably not be any more acceptable than the RSSF concept was.
- Expressed concern that the concept of ALARA was not being properly applied in the waste management regulations. That as applied in the current draft regulations, it effectively required looking for the best site and not just an acceptable site.
- Believe the rule should state that the need for a waste disposal facility has been determined, thus, resolving the issue of need during the rulemaking on 10CFR60 regulation instead of resolving that issue in site specific licensing hearings. They believe that similar decisions on Clinch River provide precedent for this being a programmatic decision which should be resolved at an early stage.

This was followed by additional discussion of the following principal issues:

Multiple Sites

NRC Staff:

The procedural portion of the draft rule requires characterization at several sites, but leaves open the issue of whether or not a shaft must be sunk at these sites. The technical portion of rule, which will follow the procedural portion, encourages and may require the sinking of shafts for characterization of a site.

UWMG:

The requirement for complete characterization of several sites is not appropriate at this time. It is appropriate for DOE to sink a shaft to obtain data prior to formal NRC review, but this needs to be done at only one site. Characterization of alternate sites does not require equal data on sites other than the preferred

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alternative. The precedents established in the Seabrook licensing action support this view. The costs of multiple site characterization have been underestimated by the NRC staff. They believe that characterization of multiple sites will cause delays in the implementation of waste management and that in the evaluation of the need for characterization of multiple sites the NEPA balance should include the risks of loss of the nuclear power option. They believe that the characterization of multiple sites is more properly a technical decision than a procedural decision and that this decision should have the benefits of peer review before such a requirement is imposed. Further they believe that exploration of multiple sites is fundamentally a programmatic issue. They point out the possibility that a Presidential decision could direct DOE to submit an application to NRC after exploring either one or some specific number of sites and believe that in such an instance it would be NRC's proper role to review the application so submitted by DOE. They pointed out that it is not the function of NRC to assure that the site selected and the application submitted by DOE will be acceptable, and that the NRC should not prejudge whether or not DOE will err in its site selection procedures.

NRC Staff:

The staff expressed the strong feeling that the characterization of multiple sites is the best way to proceed in that in the long run it will result in a shorter licensing review schedule and a greater probability that there will be sufficient information to support a licensing decision.

The UWMG stated that they believe NRC's feeling are premature.

Systems Approach

UWMG:

The UWMG believes that NRC is splitting the waste repository evaluation into two systems, engineered barriers and geologic barriers, where in fact the entire repository should be considered and evaluated as a single total system.

NRC Staff:

The NRC responded that the first 1000 years of storage, while the radiotoxicity of the waste is reduced by about five orders of magnitude, is the most important. Therefore we have added the waste form and repository design requirements for the first 1000 years to provide additional protection and have adopted the requirements for a low leach rate after the first 1000 years. We have put specific performance requirements on the components of the system to give the designers something to "shoot for". The meaning of a systems approach is not well defined. Few people if anyone seem to know what is meant by the systems approach, but we have discussed with the authors of that term in the IRG report our current approach and they agreed that our approach complies with what they meant by a systems approach.

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UWMG:

The UWMG pointed out that they believe that the toxicity of the wastes reaches that of the original ore body after 300 years, but were not overly concerned about the practical significance of the difference between the 300 and 1000 years for the initial containment period. The UWMG pointed out that they prefer to distinguish between isolation and containment with containment meaning keeping the wastes within the confines of its place of interment to the degree necessary to prevent significant leakage to biosphere which results in harm to the general public, and isolation meaning emplacing the wastes in a place or manner that humans are not likely to intrude and come into contact with a concentrated waste form. They believe that during the initial time period, when quantities of wastes are still relatively large, containment is important. They agree that for the first 1000 years NRC's approach of requiring containment is correct. After the wastes reach the toxicity levels of a natural ore body, containment is no longer the most important objective, but the high concentration of the wastes creates a continuing need for isolation. That is to say, the most likely harm to result would be from intrusion by man directly into the repository and that in such instance the high localized concentrations of wastes would present a significant hazard. Therefore, they suggest that after the initial period when large quantities have decayed it would be desirable to reduce the local concentrations of the wastes by allowing limited migration from the container and that therefore the NRC's requirement which restricts leach rates after the initial 1000 year time period is in fact counterproductive.

The UWMG observed that there was no apparent connection made between the toxicity of an ore body and doses received by anyone in the public, that without a model of pathways and a calculation of impacts on the biosphere and on the population there would be no basis for the quantitative numbers in the regulation. They inquired if there was any modeling analyses available to justify numbers such as the requirement for 1000 years of containment by the waste form and pointed out that the differences in toxicity between spent fuel and high-level wastes would seem to require different time frames of containment for each.

The UWMG also observed that increased degrees of containment by the waste form could be provided at increasing levels of cost to nearly any degree desired. They expressed the hope that a quantitative requirement, supported by analysis, could be established as opposed to using an ALARA concept.

NRC Staff:

NRC responded that, while no current results of modeling are available, our contractors in Sandia are in the process of such modeling and analytical work. We have based our criterion on providing reasonable assurance of containment.

Consideration will be given to the suggestion that the hazard may be reduced after the initial containment period by reduction of concentrations. The question of what to do or require for the wastes after the initial 1000 years has yet to be resolved.

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Retrievability

UWMG:

The UWMG expressed concern that NRC's retrievability requirements effectively mean that the current generation is not going to dispose of the wastes but will leave the decisions on disposal to future generations. They also suggested that during the long period of retrievability the wastes will be less safe than if stored in a non-retrievable mode.

The UWMG expressed concern with the requirement that adequate storage capacity for all wastes in the repository be provided on the surface near the repository in case retrieval should be necessary.

NRC Staff:

The staff agreed that the requirement for surface storage may well not be appropriate and will reassess the need for it.

The staff stated that its requirements for retrievability may not preclude backfilling of the repository during construction. The NRC has changed the draft requirements so that they no longer require that the wastes be removed as quickly as it was emplaced.

The staff pointed out that the conservative civil designs necessary to assure retrievability also reduce subsidence and this may increase long term safety.

UWMG:

The UWMG responded that they agree stable civil designs are a good objective, but they can be implemented without a concurrent requirement for retrievability. In itself the requirement for retrievability will mean leaving the wastes in a more exposed position for a considerable time period.

The UWMG expressed its appreciation for the opportunity to present its views to the NRC and a desire to continue the discussions at a later date.

James C. Malero, Chief
High-Level Waste Licensing
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