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- 1 -

Distribution:
~~WM File WM-84~~ ✓ wm-85
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LBHigginbotham
PDR

Richard T. Haelsig, President
Nuclear Packaging, Inc.
1010 South 336th Street
Federal Way, WA 98003

Dear Mr. Haelsig:

Enclosed are some preliminary draft comments and questions concerning the NRC Staff's review of your generic topical report on the NUPAC Enviralloy Family of HICs. The draft comments have been transmitted to the Office of State Programs (OSP) to be forwarded to the participating Agreement States for review and comment. We are supplying you with this draft request for information only as a courtesy so that your staff has much time as possible to consider a response. We do not expect or desire a response until the request is transmitted formally, following receipt of comments from the Agreement States (a process that may require at least 45 days).

This request for additional information should be considered as partial or preliminary because the NRC Staff has not had the time (due to other work) to complete the first-round review of the Enviralloy Family report. It may be necessary therefore, to follow-up this set of comments with an additional one as we proceed with our review. However, in the interest of expediting the review and assisting your staff, we consider it advisable to forward this partial request at this time.

If you have any questions, please contact me at (301) 427-4748.

Sincerely,

151

Michael Tokar
Engineering Branch
Division of Waste Management

cc: LBHigginbotham
DNussbaumer, (OSP)
KSchneider, (OSP)

Enclosure:
As stated

WM Record File
WM Project 85
Docket No.
PDR ✓
LPDR
Distribution:
(Return to WM, 623-SS)

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COMMENTS AND QUESTIONS RELATED TO THE TECHNICAL REVIEW OF THE GENERIC TOPICAL REPORT ON THE NUPAC ENVIRALLOY FAMILY OF HICs

1. The Enviralloy Family of HICs will be fabricated of Ferraluim 255 (F255), which is the same alloy proposed for use in the NUPAC FL50 HIC. The NRC Staff is currently reviewing a topical report on the FL50 HIC and has raised several questions concerning the corrosion resistance and metallogy of the F255. Inasmuch as the FL50 review (Docket No. WM-45) is leading the Enviralloy Family review and is expected to be concluded well before the review of the Enviralloy Family of HICs topical report, the corrosion and metullurgical behavior of F255 will not receive separate, or duplicate, treatment as part of the Enviralloy Family review.

2. As indicated in the May 1983 (Rev. 0) Technical Position on Waste Form, high integrity container closures should be designed to allow inspection of the contents without damaging the integrity of the container. The Style B Enviralloy HIC, which is closed by a seal weld, does not appear to be consistent with the inspection recommendation. A rationale or explanation should be presented for how an inspection of the contents of welded Style B HICs can be performed without impairing HIC integrity.

3. The Enviralloy "Family" of HICs is comprised of seven different size containers that have different optional closures and three other containers with gasketed closures, for a total of 24. Drop tests, however, have been conducted only on the FL50 design, on the grounds that "realistic assessments of HIC performance" can be achieved by employing analytic methods to obtain relative responses that are then correlated with the FL50 drop results. "Where predictive accuracy of an analytic procedure was judged to be good ..., testing was determined to be unnecessary" (p. 15-1). In response to NRC Staff questions on the FL50 topical report, NUPAC has stated (see attachment to letter from Charles J. Temus to Michael Tokar) that "the drop analysis was performed to give an approximate idea of what damage would be expected during the drop conditions. The actual qualification of the package is based on the drop testing that was performed" (emphasis added). Actual drop testing should be performed on the most conservative containers within a set of similar designs. Analyses should also be included to demonstrate that those containers drop tested are the most conservative of a design set.

4. According to the discussion in Chapter 3 of the Enviralloy Family report, dewatering internals would be fabricated from either plastics, carbon steel, or stainless steels. If steels are used, the drop tests should be conducted with the dewatering internals in place, to assure that they will have no adverse effect on the HIC's structural capability to meet handling, transportation, or disposal loads.

5. As indicated in the review of the FL50 HIC report, a passive vent design should be incorporated to eliminate the slow build-up of gas within the container that might result from radiolysis of the container contents. This requirement applies to all HICs.

6. The following comments refer to Type A Packaging Requirements:

   - The proposed designs of the NUPAC Enviralloy "family" of HICs do not incorporate a tamperproof feature. A tamperproof feature is required by 10 CFR §71.43(b) and 49 CFR §173.412(b(for use of a Type A package for transport).

   - The requirements of 10 CFR §71.45(a) and 49 CFR §173.411(d) for failure of lifting devices under excessive load was not addressed.

   - It was not shown that the lifting devices of the NUPAC Enviralloy "family" of HICs, which could be used as tie-down devices, are designed to meet the requirements of 10 CFR §71.45(b) or 49 CFR §173.412(1).

   - The initial pressure to be used for normal conditions of transport (10 CFF §71.71) is the maximum normal operating pressure. The MNOP is defined in 10 CFR §71.4 as the pressure in the package after one year with no venting, external cooling, or operational controls. The evaluation should be made for maximum heat and maximum external thermal environment and should consider any gases generated by the contents.