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FCTC:RHO
71-9159

Nuclear Packaging, Inc.
ATTN: Mr. John D. Simchuk
815 South 28th Street
Tacoma, WA 98409

Gentlemen:

This refers to your application dated June 25, 1982, requesting approval of the Model No. NUPAC Series A packaging.

In connection with our review, we need the information identified in the enclosure to this letter.

Please advise us within thirty (30) days from the date of this letter when this information will be provided. The additional information requested by this letter should be submitted in the form of revised pages. If you have any questions regarding this matter, we would be pleased to meet with you and your staff.

Sincerely,

Original Signed by
CHARLES E. MACDONALD

Charles E. MacDonald, Chief
Transportation Certification Branch
Division of Fuel Cycle and
Material Safety, NMSS

Enclosure: As stated

Distribution: w/encl

- RHOdegaarden
- HWLee
- EPEaston
- CRMarotta
- CEWilliams
- Docket File
- NMSS R/F
- FCTC R/F
- NRC PDR
- IE HQ
- Region V

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PDR ADOCK 07109159
C PDR

OFFICE	FCTC	FCTC	FCTC	FCTC	FCTC	FCTC
SURNAME	RHOdegaarden:alm	HWLee	EPEaston	CRMarotta	CEWilliams	CEMacDonald
DATE	09/01/82	09/01/82	09/02/82	09/01/82	09/01/82	09/02/82

Nuclear Packaging, Inc.
Model Nos. NUPAC Series A Packagings
Docket No. 71-9159

Encl to ltr dtd: SEP 02 1982

DRAWINGS

1. Provide manufacturers specification sheet for the NUPAC ratchet binder. The specification sheet should provide dimensional data and material specification for the various components of the ratchet binder.
2. The model number of NUPAC ratchet binder given on the drawing does not agree with the model number given in the Safety Analysis Report (SAR). The drawing should specify the number of binders required.
3. Clarify the statements both on the drawing and in the SAR relative to the drain line, i.e., drawing calls for 3/4" Sch. 80 pipe and an option to use a 1/2" NPT pipe plug while the SAR calls for a 3/8" NPT pipe plug.
4. Section A-A of Drawing No. X-20-204D does not seem to agree with the description given in Section 1.2.1.3 of the SAR. The SAR indicates there is a primary seal and a redundant seal.
5. Chamfers on the opposing faces of the flange joint shown in Section A-A Drawing No. X-20-204D should be dimensionally limited to assure sufficient contact surface is available.
6. Tabulation on Sheet 1 of Drawing No. X-20-204D should be expanded to include maximum outside diameter of the packaging gaskets.
7. The vertical dimensions of the lug shown in View F-F do not agree with the dimension given on page 2-9 of the SAR.
8. Drawing should specify the dimensional controls (flatness, surface finish, etc.) required on all sealing surfaces and torquing requirements of all closures.
9. Specify weld inspection criteria for all welds.

STRUCTURAL

1. Section 2.4.3.1 Package Lifting Lugs
 - a. The moment induced by the lifting force and the lug offset distance should be included in the analysis of the lug to shell welds.
 - b. Provide justification that a greater effective throat area and a greater allowable stress of welds may be used in the analysis than as specified in AISC Manual of Steel Construction. Note also that weld capacity should be reduced if not fully inspected.

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2. Section 2.4.4 Tie-downs

- a. The offset moment produced by the tie-down force should be included in the analysis of the tie-down welds. The effective throat, the allowable stress, and the weld capacity should be addressed as required in 1b. above.
- b. The analysis of the cask shell only considers local shear and pull-out effects of the tie-down force. The appropriate analysis should also include the bending moments and stresses in the outer shell.

3. It is not clear how the fracture toughness criteria for Category III containers as set forth in NUREG/CR-1815 has been met as claimed. Please specify which one (or more) of the criteria in Table 1, NUREG/CR-1815 will be met by the NUPAC Series A casks.

4. Provide an analysis for the side drop condition for cask impacted directly on the tie-down lug. Show that the deformations of the cask cylinder will not be large enough to compromise the cask seal.

5. Section 2.6.6.3 Corner Drop

- a. Ratchet binder - the analysis should be revised to take into consideration the bending moment produced by the weight of the contents impacted on the lid as well as the additional moment due to impacting on the lid corner which extends beyond the cask cylinder.
- b. Lugs - the analysis has ignored the moment produced by the offset distance; the analysis has been arbitrarily based on ultimate strength of materials without proper justifications that the cask will remain sealed under the circumstances; the analysis has been based on criteria that weld shear capacity exceeds the plate capacity.
- c. The condition of impact on one of the ratchet binders should be considered.
- d. Secondary Lid - the analysis of the secondary lid studs should consider the moment due to payload impacting on the lid.
- e. The extent of damage to the cask drain and the bottom plate to shell welds should be investigated for the bottom corner drop condition.

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CONTAINMENT

1. Please clarify or correct the inconsistency between Sections 1.2.1.7 and 4.1.2 and Detail C note on NUPAC Drawing No. X-20-204D, Sheet 2, Rev. 0 concerning a drain line.
2. Address initial and periodic leak testing of packagings.

THERMAL

1. Derive a maximum heat load for each package design taking into account the definition of low specific activity material (10 CFR §71.4(g)(4)) and the maximum shielding capability of the packaging.
2. Derive the maximum center line temperatures for waste solidified in asphalt and concrete if these solidifying mediums will be used. Evaluate the effects on containment of any pressure rise and hydrogen buildup.

OPERATING PROCEDURES

1. Operating procedures should be revised to take into account proper torquing of package closures, i.e., ratchet binders, studs and nuts, and drain line.
2. Monitoring of radiation and contamination levels should be required to be in accordance with DOT limits.
3. Procedures should be revised to take into account the requirements of 10 CFR §20.205 concerning receipt of packages.

ACCEPTANCE TESTS AND MAINTENANCE PROGRAM

1. Provide acceptance criteria and procedures for inspecting sealing surfaces, alignment of lid(s) (guide pins), and closure devices.
2. Provide leak test criteria and leak test procedures for initial acceptance and periodical testing. In the absence of guide pins to limit the lid(s) orientation, the leak testing should be conducted for each possible orientation of the lid(s).
3. Provide criteria and procedures for performing an initial gamma-ray radiation survey of the packaging shielding capability.
4. Provide your maintenance program.

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