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PDR 71-6744

July 2, 1980
Refer to: MET-JWM-1606

Mr. Charles MacDonald, Chief
Transportation Branch
Division of Fuel Cycle & Material Safety
USNRC
Washington, D.C. 20555

Subject: Request for Amendment and Renewal of Certificate of Compliance,
Docket No. 71-6744

Dear Mr. MacDonald:

In accordance with 10 CFR 170.31, fee category 11D, enclosed is our check for \$500.00 to cover the amendment and renewal of the subject Certificate of Compliance. Please renew the amended revision of this Certificate for a five-year period to 31 August 1985.

Concerning the amendment, the referenced Certificate defines six (6) packages each consisting of a steel encased lead cask within a Poly Tiger overpack. The amendment is requested to:

1. Update the referenced drawing revision levels for both the overpacks and the shielded casks as delineated on Page 2 of the Certificate, and,
2. Incorporate the addition of two lead casks within overpacks where the new casks (Drawings 109-55D0024 and 109-55D0025) are nearly identical to two of the above packages defined within the permit and by Drawings 32216-1 and 32216-4.

Only two differences exist between the casks covered by the Certificate and the casks to be added.

1. The new casks have four lifting lugs rather than three. The lifting lugs are identical in design and dimensions and since the cask weights are identical, the structural margins would be significantly greater for the new casks.
2. The new casks have secondary lid openings of 29-1/2 inch diameter instead of a 20-1/2 inch diameter. All casks apply six 1/2 inch diameter bolts to hold the secondary lids in place. The lid diameter difference does not either add nor reduce the safety attributes of the package.

All other design attributes are identical, i.e., dimensions, materials, weight, etc. The table of referenced drawings in the Certificate should be changed to the following:

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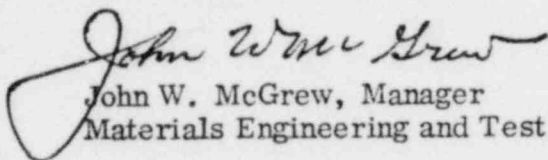
C

16759

<u>Package</u>	<u>Overpack</u>	<u>Shielded Cask</u>
1	32340-1, Rev. D (was Rev. B)	32216-3, Rev. J (was Rev. D)
2	32340-1, Rev. D (was Rev. B)	32216-4, Rev. J (was Rev. D)
3	32340-2, Rev. D (was Rev. B)	32216-1, Rev. J (was Rev. D)
4	32340-2, Rev. D (was Rev. B)	32216-2, Rev. J (was Rev. D)
5	32340-2, Rev. D (was Rev. B)	133, Rev. B
6	32341, Rev. B	32151, Rev. A
7 } Added	32340-1, Rev. D	109-55D0025
8 }	32340-2, Rev. D	109-55D0024

A description of the drawing revisions and the significance of these changes incorporated on Drawings 32340 and 32216 is detailed in the attachment. I am also enclosing copies of all overpack and cask drawings applicable to the required amendment. Please advise if I can be of further assistance.

Sincerely,


John W. McGrew, Manager
Materials Engineering and Test

dw

Enclosures: Check (1)

Attachment (1) (Eight copies)

Drawings (4)(Eight copies each with letter):

Drawing 32216 Rev. J
Drawing 32340 Rev. D
Drawing 109-55D0024
Drawing 109-55D0025

ATTACHMENT

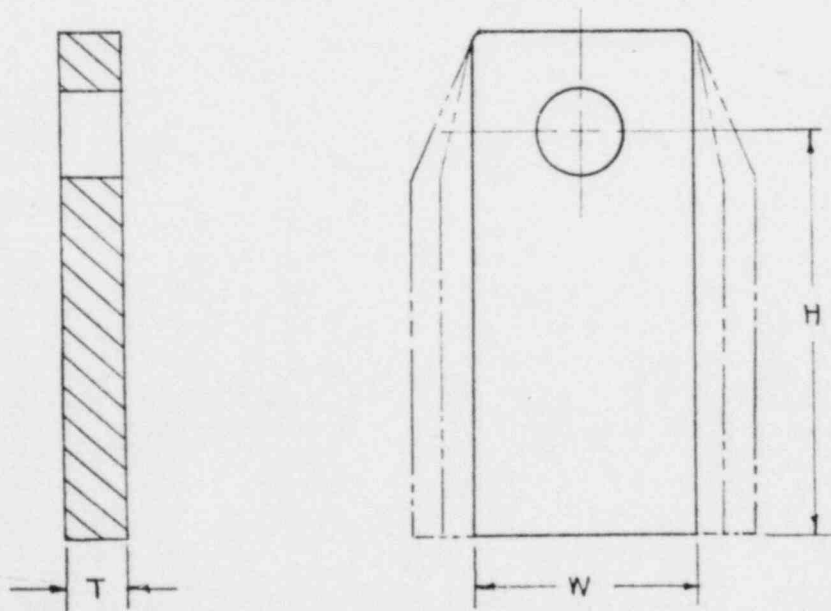
PPI DRAWING 32216, SHIELD - TRANSPORTATION CASK

Lifting Lugs

The primary lifting lug design has been improved to provide greater structural margins than were initially reported. This has been accomplished in three ways.

1. The thickness of the lifting lugs have been increased for both the -1 and -2 casks. Therefore, these two lugs are stronger in tension, bearing and double shear at the lifting eye.
2. The length of all lifting lugs have been increased. This change provides greater weld length. This results in lowering the shear stress in the welds.
3. The width of lifting lug was increased for the -3 and -4 casks.

Specific details of the dimensional changes are delineated below.



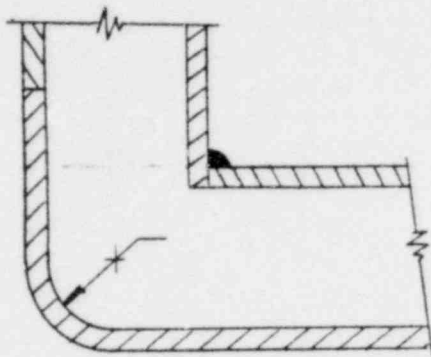
<u>Cask Assembly</u>		<u>-1</u>	<u>-2</u>	<u>-3</u>	<u>-4</u>
Revised Design	T	1.25	1.25	1.25	1.25
	W*	4.0	4.0	6.0	8.0
	H	11.5	12	13	14
Original Design	T	.75	1.0	1.25	1.25
	W	4.0	4.0	4.0	4.0
	H	10.5	11	12	13

In addition to modifying the lifting lugs, the updated design now includes the addition of an annular ring around the periphery of the cask. The ring in each case is adjacent to the upper closure of each cask and is integral with the lifting lugs. This design change eliminates the local loads into the cask outer shell from the lifting loads. Now these loads are effectively spread out resulting in significantly lower shear stresses in the shell. Ring cross sections for the -1, -2, -3 and -4 casks are 2-1/2 x 3/4, 3 x 1, 3-1/2 x 1-1/4 and 4 x 1-1/4, respectively. Drain holes were also incorporated at three locations through the ring.

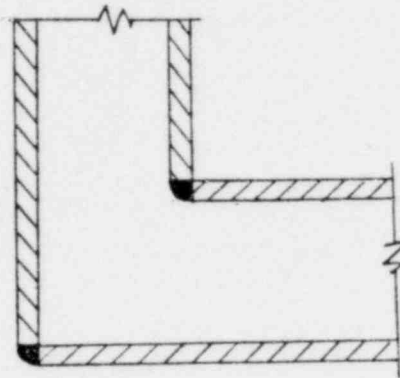
Lower Corner Design

The interface between the cylindrical wall and the lower closure of the casks was initially rounded at the edge as shown in the accompanying sketch. Revision D of Drawing 32216 provided an optional design whereby the edge was squared off. Revision J selected the optional design as the primary design. It is assumed that the reason for the change was based upon eliminating the need for forming of the closure shell. The later design neither adds nor detracts from the capability of the cask to withstand any significant loading environment.

* Lifting lugs for the -3 and -4 casks are rolled such that their curvature matches the outer diameter of the cask.



ORIGINAL DESIGN



REVISED DESIGN

Critical Dimensions

In February of 1973, Revision F noted that some dimensions should be labeled as "critical" with respect to fabrication of the cask. These critical dimensions included the inner diameter of the casks, the inside height of the cask, thickness of cask side wall, thickness of side wall, thickness of bottom, thickness of upper closure and the thickness of the cask lid. A drawing note (Note 9) states that these dimensions must be recorded during final inspection.

Miscellaneous Changes

1. The 3/16" thick x 1-1/2" wide solid neoprene seal "B" dimension bolt circle on the lid was originally bonded to the lid. Revision G directed the seal to be bonded to the cask body rather than the lid.
2. Note 10: "Pressure Test: Halogen Gas Leak Test PPI Spec. LTIO," (was) "Pressure Check Internal Cavity of Cask to 5 Psi."

3. Added Note 6: "Each Upper and Lower Gasket Seating Surface must be Plane within 1/16 inch."
4. Added Note 8: "Lead Fill must not contain substantial voids or defects. Acceptance will be based on the fact that no count rate detected on the cask or lid shall exceed the count rate established over a test sample at least as thick as the minimum design thickness less X% for allowable defect. Minimum design thickness of lead wall equals Y inches."

In the field the following values are given for X and Y per cask:

	-1	-2	-3	-4
X	10%	10%	5%	5%
Y	1-3/8	1-7/8	2-7/8	3-7/8

5. Added Note 2: "Maximum flatness deviation 1/4" for all plane surfaces except as noted. This deviation must not be added to or subtracted from drawing dimensions. It is a separate requirement."
6. Added Note 3: "Maximum deviation from squareness: $\pm 1/4$ T.I.R."
7. Added Note 7: "Fabrication must be such as to assure alignment of all bolt holes. Bolts shall be able to enter and be drawn up tight without bending or difficulty. Index mark both sets of matching surfaces to assure proper orientation."

All of the above additions and minor changes to the notes were made to control the quality of the product.

Dimensional Change

Inside diameter of casks is 48-5/8" (was 48-1/2" minimum).

PPI DRAWING 32340, POLY TIGER - PPI TRANSPORTATION
SHIELDS BECHTEL C4-B CASK

Revision C, incorporated in August 1976, added a 45° x 1/8" chamfer on both sides of the three lifting lugs. The reason for the change is to provide an edge condition over and above simply breaking sharp corners. The structural margin for the lifting lugs is large, therefore this change is insignificant.

Revision D of March 12, 1977, provided the following:

1. Added the reference fabrication drawing numbers in the field of drawing for the -1 and -2 assemblies.
2. Changed note in Detail D to state, "No. 10 rubber plug."
3. Added "(Guide Pins)" to the note in zone 5-D, sheet 1, to clarify note.



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

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1. Please use the following special distribution list for the attached document.

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- Proprietary information - send affidavit only to the NRC PDR
- Other: (specify)

cc: DSB Files

Handwritten signature of Richard Smith in cursive script.

TIDC/DSB Authorized Signature