PDR 71-5980

GENERAL ELECTRIC

GENERAL ELECTRIC COMPANY, P.O. BOX 460, PLEASANTON, CALIFORNIA 94566

NUCLEAR ENERGY

ENGINEERING

DIVISION

October 8, 1979

Mr. Charles E. MacDonald, Chief
Transportation Branch
Officer of Nuclear Material Safety and Safeguards
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Ref: Certificate of Compliance No. 5980

Dear Mr. MacDonald:

The General Electric Co., Vallecitos Nuclear Center (VNC), has for several years made shipments of radioactive materials in the G.E. Model 600 shipping container. Over this period a number of changes have been made in the drawings for this container. Most of them have been minor, either editorial in nature (e.g. changes in drawing titles) or reflect the "as built" characteristics of the container system. None of the changes have negative safety significance. Accordingly, VNC is submitting copies of the updated versions of the drawings listed in Certificate of Compliance 5980. In addition, as Attachment A to this letter there is a listing of each revision to these drawings with explanations, where appropriate, demonstrating their lack of negative safety significance.

Therefore, VNC requests that Section 5.(a)(3) of the Certificate be amended to read:

5.(a)(3) Drawings

The packaging is constructed in accordance with the following General Electric Co. Drawings Nos: 212E247 Rev. 5; 106D3898 Rev. 3; 144F650 Rev. 1; 693C293 Rev. 3; 161F470 Rev. 2; 106D3892 Rev. 3; 129D4865; 129D4684; and 195F162.

Please note that one drawing, 211A7528, which describes the cask name plate has been deleted and three new drawings have been added.

As VNC has discontinued the use of water for the shielding of neutron sources in favor of a borated polyethylene shield, the second sentence, Section 5.(b)(2)(ii) should be amended in part to read:

1312 262

7911120240

1283

"..... from the surface of a package without internal shielding."

VNC also requests that Section 5.(b)(1)(i) be amended in part to read:

"..... closure pretested for leak tightness. Also, byproduct material and irradiated special nuclear material in special form."

Enclosed is a check in the amount of $2,800.00 for the amendment fee.

Sincerely,

G. E. Cunningham
Sr. Licensing Engineer

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enclosures

ATTACHMENT A

REVISIONS TO THE G. E. MODEL 600 DRAWINGS

ATTACHMENT A

REVISIONS TO THE G.E. MODEL 600 DRAWINGS

I. DRAWING NO. 212E247 Rev. 3

Rev. 4: This revision shows the addition of the redundant lifting lugs and contains the details for the fabrication of the redundant lifting lugs. The cask with redundant lifting lugs is used at reactor facilities where compliance with Regulatory Guide 1.104 is required. A copy of the structural analysis qualifying this addition is enclosed as Attachment B.

Rev. 5: The title of this drawing was changed to "Model 600 Shipping Cask" to make the Model 600 consistent with other cask identification. The next assembly drawing reference was updated to the present configuration drawing 106D3898, and a new closure seal drawing reference was added to document seal developments.

The tolerance was increased at the four lifting lug holes (P28) and a washer added to reflect the as-built assembly.

The seal wire was removed from the cask since the security sealing function has been transferred to the jacket.

The bolts were changed to ASTM A-193 Grade B6 to meet the requirements of proposed Regulatory Guide 1.104 for handling casks at reactor sites. The pipe plug description was generalized to allow usage of fusible socket head plugs as required by the current certificate.

A seal weld option was added to the lid eye, and a reference to Basket 117B1034 was removed since it is outdated. An option to install threaded plugs through Parts 5, 6, and 12 was added to allow future thread repair.

II. DRAWING NO. 106D3898 Rev. 1

Rev. 2: This revision added an illustration of the modification to the fireshield cask assembly base showing installation of four equally spaced I-beams perpendicular to the existing beams to raise the cask for easier forklift handling.

Rev. 3: This last revision was made to update the current 600 package. It changed the title to reflect the current identification as "Model 600 Transport Container" and also deleted the parts associated with the two horizontal shear bolts (P4, P5, and P6). This change makes the drawing consistent with G.E. submittal of January 13, 1969 (Amendment 3, Docket 71-5980). The two horizontal shear bolts were changed to eight vertical attachment bolts as the results of discussions with Commission personnel in 1969 to improve the attachment of the jacket to the base. However, the drawing revisions eliminating the horizontal bolts were never submitted.

II. DRAWING NO. 106D3898 Rev. 1 (continued)

Rev. 3: (continued)

Part 7, the internal wire seal was deleted and relocated to the horizontal hold-down hole.

A reference was added to indicate the requirement for a separate transport box for the two redundant ears and eight installation bolts.

Parts 12, 13, and 14 were removed since their function is being replaced by the tie-down yoke, P15. The existing 12-ton shackles are shown in P16. Two extraneous indications, "6 lead", were removed from assembly G1. The additional jacket lifting ears were included to increase handling versatility. The nameplate drawing number was changed.

III. DRAWING NO. 144F650

Rev. 1: The title was updated to relfect the current liner designation as Model 600. A reference to the top assembly drawing, 106D3898, was added. The old Bureau of Explosives permit number (1298) was removed along with the reference to avoid confusion with NRC certification. The weight of the liner was corrected and broken down into lid and body weight.

IV. DRAWING NO. 693C293 Rev. 2

Rev. 3: This revision changed the drawing title and the "first made for" reference from "100 Series" to "Model 100 Cask". The reference to Drawing 212E236 was deleted.

V. DRAWING NO. 161F470 Rev. 1

Rev. 2: This revision changed the title to the current nomenclature "Model 600". Detail F was modified to allow the jacket lifting ears to be used by our present fork truck. Parts 35 and 36 were deleted since the new hold-down yoke replaces their function. Specific painting details were referred to specification. Parts 12, 13, and 15 were made 6" wide to correct an inconsistency in the drawing. Part 5 was made optional since horizontal hold-down bolts have been eliminated. Weld detail F was expanded to include Part 37 and an additional Part 15. An option was added to fabricate Parts 8, 24, 9, 25, 18, 19 and 27 from angle as well as welded plate to ease fabrication. Tolerances on the jacket ears (Part 14) were increased to accommodate replacement shackle dimensions.

VI. DRAWING NO. 106D3892 Rev. 1

Rev. 2: This revision added four I-beams (Part 13) and 16 spacer blocks (Part 14) to elevate the base for improved forklift handling. The position of the fork block plate (part 12) was shifted by 9/16" and the length reduced from 41-1/2" to 40-3/8". This dimensional change increased the fork clearance by 9/16" on each side.

Rev. 3: This revision changed the drawing to reflect the "Model 600" designation. Options were shown for the four tabs, Part 5, which hold the energy absorption plate, Part 2, to allow the installation by flat head bolts or tack welding and for a rotation of 45°. These tabs are not an active part of energy absorption system and only provide retention of the plate when the cask is removed. Part 5 has been made optional. Optional threaded holes were allowed in Part 2 to provide attachment points for removal of the part for decontamination, inspection, and/or repairs. Specific painting details were referred to specification. The size designation on the energy absorbing angles, Parts 6, 7, and 8, was changed to allow the installation of 1-1/2" x 1-1/2" x 1/8" or 1-1/4" x 1-1/4" x 1/8" angle steel as options to the existing size. Crush tests indicate insignificant difference in energy absorption capability between these two sizes of steel angle. The 1/16" dimension was eliminated from the corner break on Part 11 to allow a larger break as required.

VII. DRAWING NO. 129D4865

This drawing details an improved closure seal.

VIII. DRAWING NO. 129D4684

This drawing describes a new tie-down yoke. The yoke was added to the package assembly as a multifunctional improvement to the tie down system. It covers the jacket lifting ears in transit preventing their use as tie down devices. It also serves as an improved upper tie down fixture.

IX. DRAWING NO. 195F162

This is the fabrication drawing for a neutron source shield. The shield is designed to eliminate the necessity of shipping neutron sources with water shielding. Dose rate measurements demonstrated that the shield is as effective as the water for reducing radiation levels.

ATTACHMENT B

SUMMARY OF STRESS ANALYSIS

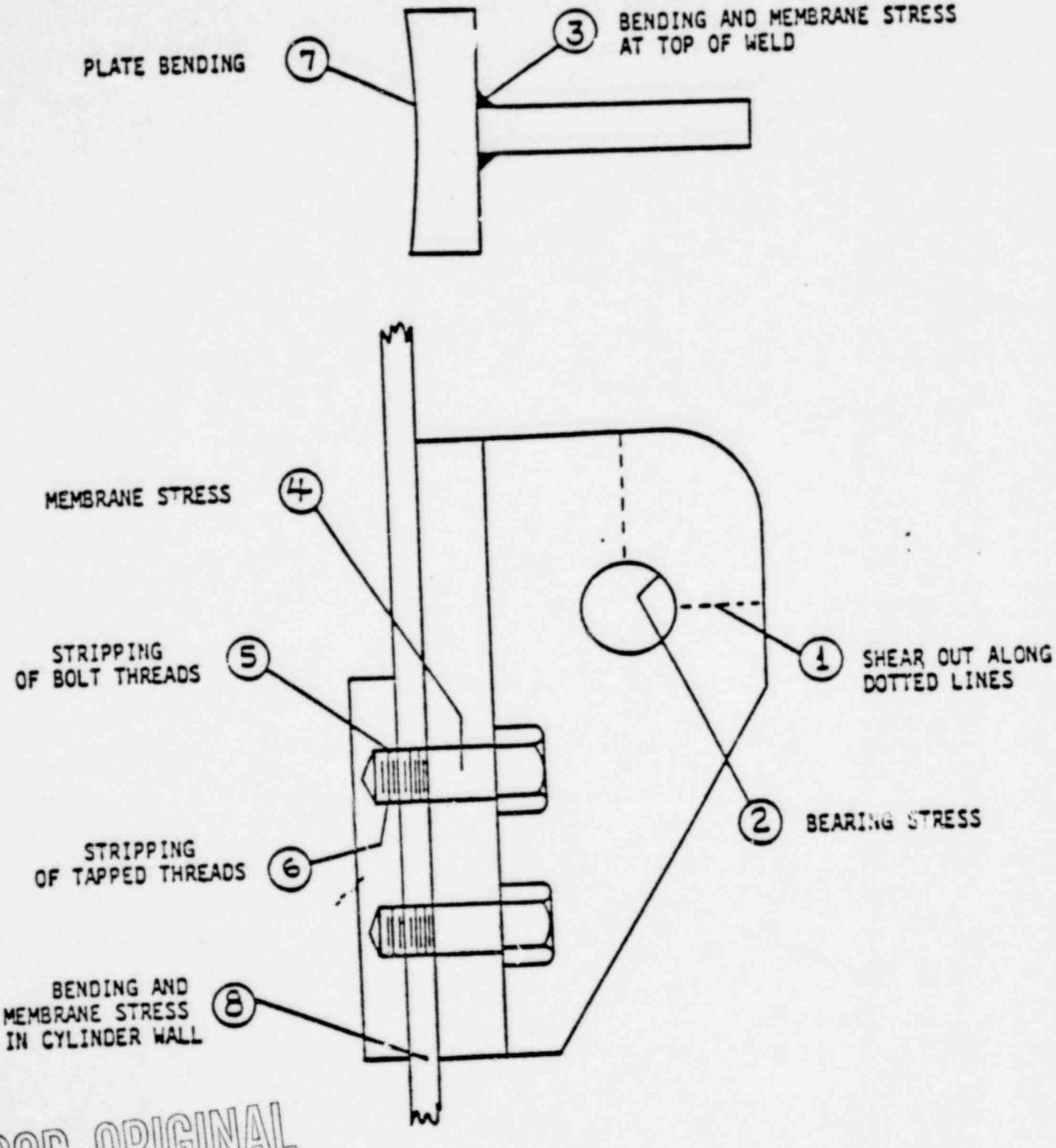
REDUNDANT LIFTING EARS

STRESS SUMMARY TABLE

LOCATION**	ASME CODE STRESS CATEGORY	STRESS LEVEL -KSI	ALLOWABLE STRESS -KSI	MARGIN wrt ALLOWABLE
1	P_m	13.65	22.50	+39%
2	Bearing*	16.62	22.50	+26%
3	P_m+P_b	11.08	22.50	+51%
4	P_m	32.4	63.75	+47%
5	P_m	18.4	63.75	+71%
6	P_m	12.8	22.50	+43%
7	P_m+P_b	6.46	22.50	+71%
8	P_m	9.774	22.50	+57%
8	P_m+Q_b	35.23	60.00	+41%

*Assumed lifting hook diameter is 1.375 inches. If smaller diameter hooks are used the bearing stress allowable will be exceeded.

**Refer to next page for the identification of sturctural locations.



---- STRUCTURAL LOCATIONS CONSIDERED IN THIS ANALYSIS