

July 18, 2002

U. S. Nuclear Regulatory Commission
11555 Rockville Pike
Rockville, MD 20852-2738

Attn: Document Control Desk

Subject: Submittal of Supplemental Information for the NAC-STC Certificate of Compliance No. 9235 Amendment Application to Incorporate Directly Loaded AFA-2G and AFA-3G Fuel as Approved Contents

Docket No. 71-9235

References: 1. Acknowledgment of Request for Amendment of Certificate of Compliance No. 9235 for the Model No. NAC-STC Package, U.S. Nuclear Regulatory Commission (NRC), May 31, 2002
2. Request for Amendment of the NAC-STC Certificate of Compliance (No. 9235) to Incorporate Directly Loaded AFA-2G and AFA-3G Fuel as Approved Contents for Transport in the NAC-STC, NAC International, December 6, 2001

Reference 1 included two items related to the Reference 2 amendment application for the NAC-STC Certificate of Compliance (No. 9235) for which NAC responses were requested to support the NRC technical review of the amendment application. This submittal provides the NAC responses to those two items.

Item 1 requested more detailed descriptions of the drawing changes and a justification of how the changes affect the ability of the package to meet the requirements of 10 CFR 71. The drawing changes in Attachment 1 are:

- Administrative/editorial changes, including making the drawing(s) agree with the SAR text
- Support documentation for alternate configurations (i.e., allowing use of polymer o-rings for use in transportation)
- Updated information (e.g., BISCO now supplied by Rogers Corp.) for clarity
- Fabrication enhancements that improve cask and component construction and fabrication to ease fabricability (based on NAC's recent and continuing fabrication activities)

Attachment 1 describes the revisions made to the packaging drawings and provides the detailed bases for those changes. The attachment also includes a separate listing of the drawings and specific justifications for the associated changes. As discussed in the Reference 2 amendment application, the majority of the revisions made to the 423 series of drawings are associated with an alternate o-ring design, i.e., polymer O-rings. For fuel loaded for transport without interim storage ("transport only"), closure and port cover configurations utilize EPDM/Viton o-rings as an alternate



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to the previously licensed metal o-ring configurations. The containment analysis, described in Chapter 4 of the amendment application, documents the adequacy of the alternate o-ring design to meet the 10 CFR 71 requirements. Revisions made to the 455 series drawings serve to bring the NAC-STC SAR up to date with the NAC-MPC storage drawings as of the date of the Reference 2 amendment application. They have previously been submitted and approved with the Part 72 FSAR and have no effect on the suitability of the NAC-STC cask for transport. Drawings 455-887 and 455-888, which relate to the Greater than Class C (GTCC) basket assembly and transportable storage canister, are not included in the Part 72 FSAR.

Item 2 requested that NAC revise the package drawings to delete the phrase, "NAC International shall approve alternate materials or procedures prior to fabrication." NAC will delete this phrase from delta notes 2, 12, and 23 during the next revision of drawing 423-802. The revised drawing will be submitted to the NRC with the responses to the pending request for additional information on the amendment application. The NAC drawings do explicitly show the important features of the package for the base design, as well as for any alternate designs.

If you have any questions, please contact me on my direct line at 678-328-1321.

Sincerely,

A handwritten signature in cursive script, appearing to read 'Tom Thompson'.

Thomas C. Thompson
Director, Licensing
Engineering & Design Services

Attachment

cc: Janice Dunn Lee (NRC International Programs Office Director)
Kevin Burke (NRC International Programs Office)

ATTACHMENT 1

Drawing	Description of Change	Bases
423-800, Rev 8 – Cask Assembly NAC-STC Cask	<ol style="list-style-type: none"> 1. Update Graphics to shown thicker outer ring on the top weldment as shown from drawing 423-872. 2. Update Drawing Borders. 3. Add item 24 to BOM. Qty. Assy 98: 1, Name: Inner Lid; Drawing No., 423-803-98. 4. Add item 25 to BOM. Qty. Assy 98: 1, Name: Outer Lid; Drawing No., 423-805-98. 5. Delete Qty. Assy 98 Item 2 and Item 3 in BOM. 6. Sheet 1; Update Assembly title: 99 For Alternate Directly Loaded Transport; and: 98 For Storage/Transport. 	<ol style="list-style-type: none"> 1-2. Administrative updates. 3-6. Alternate transport assembly configurations that use polymer o-rings are added.
423-802, Rev 12 – Cask Body – NAC-STC Cask	<ol style="list-style-type: none"> 1. BOM, Item # 9, Gamma Shielding: WAS “CHEM. LEAD” IS “CHEM COPPER LEAD” 2. BOM – item 16, Insulation: Change FIBERFRAX 550J,970J, 880J to SILICONE FOAM and change UNIFRAX CORP. SEE NOTE 5 to ROGERS CORP. 3. Change Note 5 to read: Fireblock Protective Coating (BISCO FPC) 1/8”. 4. Incorporate PT requirements for outer shell welds. 5. Delta Note 2 – Revise to: “The trunnion base shall have Inconel 82 or 182 applied (by GMAW or SAW) or ASME SFA-5.14 or SFA-5.11 applied (by GTAW or SMAW) prior to the H-1150 heat treatment. A minimum of ¼” thickness of weld material shall remain after final machining. Welding procedure qualification to be in accordance with ASME Section IX, QW-283.” 6. Delta Note 23 – Revise to: “Weld preparation surfaces and surfaces within ½” of the weld area shall have Inconel 82 or 182 applied (by GMAW or SAW) or ASME SFA-5.14 or SFA-5.11 applied (by GTAW or SMAW) prior to the H-1150 heat treatment. A minimum of ¼” thickness weld material shall remain after final machining. Welding procedure qualification to be in accordance with ASME Section IX, QW-283. 7. Revise Note 12 to read: Number and position of girth welds optional. 8. Update Drawing Borders. 9. Add Delta Note 28 to read: Install items 26, 27, 28 & 32 screw thread inserts, per manufacturers instructions. 10. Update Items 13 and 25, Description: from Bisco Prod. To Rogers Corporation. 11. Change Item 16, Description: from Bisco Prod. to Unifrax Corp. and material to Fiberfrax 550J, 970J, 880J. 	<ol style="list-style-type: none"> 1. Change necessary to agree with SAR text. 2-3. Correct call-out for BISCO product now distributed by Rogers Corp. 4. Correct PT requirements for outer shell. 5-7. Clarify welding requirements. 8. Update borders to current NAC format. 9. Clarify assembly instructions. 10-11. Update for materials, consistent with SAR text. 12. Correct PT/weld callout to agree with SAR. 13. Enhanced fabrication; i.e., fewer welds to prepare, inspections and less shaping than welded plates. SA-182 FXM-19 (forging) material physical properties (Sy, Su, Sm, etc.) are effectively the same as those of SA-240 XM-19 (plate). 14-15. Enhanced fabrication; i.e., no girth welding required for forging. SA-182 F 304 (forging) material physical properties (Sy, Su, Sm, etc.) are effectively the same as those of ASTM Type 304 (plate).

Drawing	Description of Change	Bases
	<ol style="list-style-type: none"> 12. Sh. 2, zone B-5, Outer shell longitudinal weld; Remove Delta Note #6 and Add "PT" 13. Change Item 6 (inner shell ring): Add Bill of Material " or SA-182 FXM-19". 14. Change Item 8 (inner shell): Add to Bill of Materials " or SA-182 F 304". 15. Change Item 20 (shear ring): Add to Bill of Materials " or SA-182 F 304". 	
<p>423-803, Rev 3 – Lid Assembly – Inner, NAC-STC Cask</p>	<ol style="list-style-type: none"> 1. Change BOM items 15 and 16 Material: WAS: EPDM/FKM IS: EPDM/VITON 2. Change Delta Note 13: WAS: (EPDM/FKM) IS: (EPDM/VITON) 3. Update Drawing Borders. 4. Add item 15 to BOM. Qty. Assy 99: 1, Name: O-Ring; Matl: EPDM/FKM; Spec.: COML; 5. Description: .275 Dia. E740-75/V0747-75. 6. Add item 16 to BOM. Qty. Assy 99: 1, Name: O-Ring; Matl: EPDM/FKM; Spec.: COML; 7. Description: .275 Dia. E740-75/V0747-75. 8. Add item 17 to BOM. Qty. Assy 99: 1, Name: Inner Lid; Drawing No., 424-804-99. 9. Add item 18 to BOM. Qty. Assy 99: 2, Name: port Coverplate Assy; Drawing No., 424-806-99. 10. Delete Qty. Assy 99 Item 1 and Item 2 in BOM. 11. Sheet 1; Add Assembly title: 99 for Alternate Directly Loaded Transport; and: 98 For Storage. 12. Add Sheet 2 and move Sections B-B & D-D to show Assy 98 (Storage w/metallic seals) and create sections B-B & D-D, to show machine grooves for Assy 99 (Transport w/polymer seals). 13. Change delta note 13 to read: "...drawing #423-804, sheet 3" (was ...sheet 2) 14. For Assy-99, add: "For Transport use only", 1.5-inch tall letters with delta 12 beside the graphics. 15. Add delta note: "Reference diameter listed. Actual diameter shall fit groove shown in section E-E, Drawing #423-804, sheet 3. Either material (EPDM or FKM) may be used. 	<ol style="list-style-type: none"> 1-2. To maintain reference text continuity between drawing, SAR and engineering testing reports. 3. Administrative. 4-15. Changed to incorporate storage and transport assembly configurations that use metal or polymer o-rings.
<p>423-804, Rev 3 – Details – Inner Lid, NAC-STC Cask</p>	<ol style="list-style-type: none"> 1. Update Drawing Borders. 2. Add item 9 to BOM. Qty. Assy 99: 1, Name: Inner Lid; Mat'l: 304 St.Stl.; Spec.: ASME SA336; Description: Forging. 3. Add Delta note 1 to read: Item 8 and counterbore required for storage lid, item 1, only. Omitted for transport lid, item 9. 4. Delete Qty. Assy 99 Items 1 & 8 in BOM. 5. Sheet 1; Update Assembly title: 99 For Alternate Directly Loaded Transport; and: 98 For Storage/Transport. 6. Move Section E-E to sheet 3 to show Assy 98 (Storage w/metallic seals) and create new section E-E to show machine grooves for Assy 99 (Transport w/polymer seals). 	<ol style="list-style-type: none"> 1. Administrative. 2-6. Changed to incorporate storage and transport assembly configurations that use metal or polymer o-rings.

Drawing	Description of Change	Bases
423-805, Rev3 – Lid Assembly, Outer, NAC-STC Cask	<ol style="list-style-type: none"> 1. Update Drawing Borders. 2. Add item 3 to BOM. Qty. Assy 99: 1, Name: O-Ring; Mat'l: EPDM/FKM; Spec.: COML; Description.: .275 Dia. E740-75/V0747-75. 3. Add item 7 to BOM. Qty. Assy 99: 1, Name: Outer Lid; Mat'l: St. Stl.; Spec.: SA705, Type 630; Description.: Forging. 4. Delete Qty. Assy 99 Item 1 and Item 2 in BOM. 5. Sheet 1; Update Assembly title: 99 For Alternate Directly Loaded Transport; and add: Assembly 98 For Storage/Transport. 6. Add Sheet 2 and move Detail C-C to show Assy 98 (Storage/Transport w/metallic seals) and create Detail C-C, to show machine grooves for Assy 99 (Transport w/polymer seals). 7. Add item 8 to BOM. Qty. Assy 99: 1, Name: Nameplate; Mat'l: St. Stl.; Drawing No.: 423-812-5. 8. Add delta note: "Reference diameter listed. Actual diameter to shall fit groove shown in detail C-C. Either material (EPDM or FKM) may be used for item 3." 9. Change BOM item 3 Material: WAS: EPDM/FKM IS: EPDM/VITON 10. Change Delta Note 7: WAS: (EPDM/FKM) IS: (EPDM/VITON) 	<ol style="list-style-type: none"> 1. Administrative. 2-8. Changed to incorporate storage and transport assembly configurations that use metal or polymer o-rings. 9-10. To maintain reference text continuity between drawing, SAR and engineering testing reports.
423-806, Rev 3 – Port Coverplate Assy, Inner Lid, NAC-STC Cask	<ol style="list-style-type: none"> 1. Update Drawing Borders. 2. Add item 7 to BOM. Qty. Assy 99: 1, Name: Port Coverplate; Mat'l: 304 St. Stl.; Spec.: ASME SA240.; Description.: 1 Plate. 3. Add item 8 to BOM. Qty. Assy 99: 1, Name: O-Ring; Mat'l: EPDM/FKM; Spec.: COML; Description.: Parker #2-238 E740-75/V0747-75. 4. Add item 9 to BOM. Qty. Assy 99: 1, Name: O-Ring; Mat'l: EPDM/FKM; Spec.: COML; Description.: Parker #2-244 E740-75/V0747-75. 5. Delete Qty. Assy 99 Item 1, 4 and 5 in BOM. 6. Add Qty. Assy 98, Items 1, 3, 4, 5, 6: 1, and Item 2: 4 7. Update Assembly titles: 99 For Transport; and: 98 For Storage. 8. Change Detail J-J to show Assy 98 (Storage/Transport w/metallic seals) and create Detail J-J, to show machine grooves for Assy 99 (Alternate Directly Loaded Transport w/polymer seals). 9. Add "Bolt Removed For Clarity" Zone D3, and remove bolt graphics where hole dimensions are shown. 10. Add delta note 4 to read: "Steel stamp/engrave (0.03 deep) letters, fill with black weather resistant paint." Add graphics across the face of Assy-99 only "For Transport Use Only" ¼" Tall letters. 	<ol style="list-style-type: none"> 1. Administrative. 2-8,10,11. Changed to incorporate storage and transport assembly configurations that use metal or polymer o-rings. 9. Added for clarity. 12-13. To maintain reference text continuity between drawing, SAR and engineering testing reports.

Drawing	Description of Change	Bases
	<ol style="list-style-type: none"> 11. Add Delta note: "Either material (EPDM or FKM) may be used. And add callout to Items 8 and 9. 12. Change BOM items 8 and 9 Material: WAS: EPDM/FKM IS: EPDM/VITON 13. Change Delta Note 5: WAS: (EPDM/FKM) IS: (EPDM/VITON) 	
423-812, Rev 2 – Nameplates, NAC-STC Cask	<ol style="list-style-type: none"> 1. Update Drawing Borders. 2. Add Delta note 8 to read: "99 For Directly Loaded Transport Only, 98 For Storage/Transport". Also add delta callout and replace 99 in the drawing number stamped on item 2 detail. 3. Change Item 1 Body Nameplate dimension: WAS: 4.5; IS: 5.0. 4. Change Item 1 Body Nameplate engraved line: WAS: USA/9235/B(U)F; IS: USA/9235/B(U)F-85. 	<ol style="list-style-type: none"> 1. Administrative. 2. To differentiate the outer lid that may be used for transport only from that which may be used for storage. The elastomer o-ring design will be licensed for transport only and is identified accordingly. 3-4. To add designation for 10 CFR 71 cask certification.
423-872, Rev 5 – Top Weldment, Fuel Basket, PWR, 26	<ol style="list-style-type: none"> 1. Item 2, Section A-A; Change ID from 69.1 to 67.4 2. Item 2, Section A-A, Change reference thickness from (.87) to (1.75). 3. Item 2, Plane View, add notch at 8 places to maintain full opening at each fuel tube. 4. Update Drawing Border. 5. Add note 2 to read: "Center items 3 & 4 on web approximately as shown." And omit dimension 1.4, (covered by note 2.). 6. Add Delta Note 3: Item 2 (Ring) shall be cut/ground in area of fuel opening such that a full opening and entry bevel are maintained. 7. BOM, Item 2, Description IS) 1 ¾ Plate WAS) Plate. Also Items 1, 3 & 4 Description IS) 1 Plate WAS) Plate. 8. Change Next Assembly number reference in the drawing border: WAS: 423-070; IS: 423-870. 	<ol style="list-style-type: none"> 1-2. Change is necessary to provide adequate shielding. 3. To configure properly to accept fuel tubes. 4. Administrative. 5-7. Added for fabrication enhancement. 8. To add proper reference number for clarity.
423-875, Rev 3 – Captivated BORAL, NAC-STC Cask	<ol style="list-style-type: none"> 1. Update Drawing Borders. 2. Change drawing title to read, "Tube, NAC-STC CASK" 3. Add optional tube to flange weld joint detail, per UMS, MPC & CY Fuel Tube drawings. 4. Add optional Cladding detail to show 'clipped corners', per UMS, MPC & CY Fuel Tube drawings. 5. Add optional Boral detail, per UMS, MPC & CY Fuel Tube drawings 	<ol style="list-style-type: none"> 1. Administrative. 2-5. General changes made to enhance fabrication and improve component performance during use.
423-900, Rev 4 – Package Assembly, Transportation, NAC-STC Cask	<ol style="list-style-type: none"> 1. BOM Item 2 "Upper Limiter Assy.", Drawing No. was: 423-809-99 is: 423-209 2. BOM Item 3 "Lower Limiter Assy.", Drawing No. was: 423-810-99 is: 423-210 	1-2. Administrative changes.
455-801, Rev 2 – Assembly, Transport Cask, NAC-MPC	<ol style="list-style-type: none"> 1. Remove proprietary note from title block of Sheet 2. 	1. Editorial correction.
455-870, Rev 4 – Canister Shell, MPC-Yankee	<ol style="list-style-type: none"> 1. In Zone C7, dimension is: 23.3 was: 23.1. 2. Add 15°±5° X .8 chamfer to the opening of the canister. 3. Add tolerance to overall length + .0/- .3. 	1-5 Enhanced fabricability.

Drawing	Description of Change	Bases
	<ol style="list-style-type: none"> 4. Add tolerance +/-5° in 3 places on Sheet 1. 5. Note 1, delete "45°". 	
<p>455-871, Rev 6 – Details, Canister, MPC-Yankee</p>	<ol style="list-style-type: none"> 1. Add component tracking numbers with the following new delta note: 2. Steel Stamp ½' high the following sequence located approx. as shown. "MPC-TSC-XXX-YYY" where XXX is indicated on the purchase order for a particular project code and the YYY is a sequential series of numbers starting with 001. Calculated Empty Canister Weight = ZZ,ZZZ LBS." Where ZZ,ZZZ is indicated on the purchase order. Directly below this number is an open area for each customer to add any required identification they choose. 3. Change B.O.M. Item 6 description callout IS) SNAP-TITE #SVHN16-16EM WAS) SNAP-TITE #VHN16EM 4. Inside diameter of Item 2 IS) 68.4 WAS) 68.0. 5. Add 1" diameter tooling holes to center of both the structural and shield lids. 6. Modify structural lid weld prep per sketch. 7. Modify Item 8, key, to have only one pair of 45°±5° X .3 chamfers on one short side. 8. Add 30°±5° X .5 lead in chamfers on both sides of the key opening in detail F-F. 9. Change angle tolerances, Sheet 1 & 2, 14 places ARE) X°±5° WERE) X°. 10. Add note allowing multiple piece construction for item 1. Specify splice welds. 11. Revise note 5 to allow engraving as well as steel stamping. The first sentence of Note 5 shall read as follows: 5. Steel stamp / engrave ½" high the following sequence located approximately as shown. 12. Revise specification for Item 7, Port Cover, WAS "ASME SA479", IS "ASME SA479/SA240", and change description, WAS "6 Dia Bar", IS "6 Dia Bar / Plate". 13. Revise BOM Item 4 as follows: Quantity: 1 Name: Metal Boss Seal Material: St. Stl. Spec: Coml Description: Furon #10061-16-1-0 14. Add BOM Balloon for Item 4 next to BOM Balloon for Item 6 in Section C-C on page 2. 15. Item 5, Sheet 2, Zone F3, change depth of thread from 2.50 to 2.25. 16. For lid support ring, delete the 0.38" bevel and show the lid support ring as a square bar. 17. In Zone C-5, delete Detail B-B. 18. 19. In Zone C/D-5/6, delete the dashed circle and the words "See Detail B-B". 20. In Zone C-7, add delta note 7 next to delta note 6. 	<ol style="list-style-type: none"> 1-2. Administrative. 3-10 Enhanced fabricability. 10. Clarify for fabrication. 11. Alternate material specification added for fabrication considerations. Material specifications for both product forms, square bar (A479) and plate (A240), are identical. 12-13 Metal boss seal inadvertently omitted from drawing. 14. Revised for consistency with the SAR text based on the minimum required length of engagement of 1.69 inches. 15-19 Only the effective throat of the weld for the lid support ring to canister shell is specified. The weld prep for the lid support ring shall be determined by the fabricator based upon the weld process used. 20-21. Based on a structural evaluation, the size of the shield lid weld has been reduced to minimize shell distortion during field closure operations. 22. The reduced size of the Delta symbol allows the Delta to be engraved without infringing on the weld bevel. The note allows the use of a 1" Delta since the shield lids for YAEC canisters #1 and #3 have already been fabricated with 1" Deltas. 23-25. The diameter of the structural lid and the backing ring have been reduced to facilitate lid fit-up during field closure operations. 26. Alternate material specification added to enhance fabrication. Material specifications for both product forms, square bar (A479) and plate (A240), have identical requirements for tensile and yield strength.

Drawing	Description of Change	Bases
	<ol style="list-style-type: none"> 21. Add delta Note 7 to read "Weld preparation shall be determined by the fabricator based upon the weld process used. See Drawing 455-872 for effective throat size of weld." 22. On Sheet 2, Detail G-G, reduce the size of the weld prep IS) 45° x .5 Minimum, WAS) 45° x 1.00 23. Revise graphics in the side views for the Shield Lid (Sheet 2, Zone D/6-8) and Shield Lid Assembly (Sheet 2, Zone C-E/3), in the section view in Section E-E (Sheet 2, Zone A/8), and in the plan views for the Shield Lid (Sheet 2, Zone D-F/6-8) and Shield Lid Assembly (Sheet 2, Zone C-E/4-6) to reflect a 0.5" weld prep bevel. 24. Revise Delta Note 2 to read "Engrave Delta 0.75-1.0 per side x .03 deep, not to infringe on the weld bevel, and fill with weather resistant black paint". 25. On Sheet 1, Zone E/4, revise the diameter of the Backing Ring (Item 2), IS) 68.0, WAS) 68.4 26. On Sheet 2, Zone D/2, revise the diameter of the Structural Lid (Item 5), IS) 68.7 WAS) 69.0 27. On Sheet 2, revise Detail D-D to reflect the reduced diameter of the structural lid, the reduced diameter of the backing ring groove and the reduced diameter of the material below the backing ring groove in accordance with the attached sketch (1 sheet). 28. Revise sheet 1, specification for item 1, lid support ring, WAS) "ASTM A479", IS) "ASTM A479/A240" and change description WAS) "½ X ½ SQ. Bar", IS) "½ X ½ SQ. Bar/Plate." 	
<p>455-872, Rev 9 – Assembly, Transportable Storage Canister (TSC), MPC-Yankee</p>	<ol style="list-style-type: none"> 1. Revise the lid support ring weld. 2. On Sheet 1, Zone F/5, reduce the size of the shield lid-to-shell bevel weld, IS) (1/2), WAS) (1). 3. On Sheet 2, Zone B-C/4-5, revise the graphics in the section view to reflect the reduced size of the shield lid-to-shell bevel weld. 4. On Sheet 1, Zone F/5-6, add a symbol for Delta Note 10 in the tail of the bevel weld symbol for the shield lid-to-shell weld. 5. On Sheet 1, add Delta Note 10 to read: "The weld depth shall be determined by field measurement if the weld bevel is greater than 1/2". 6. Editorial Change - BOM items 10 & 11: Replace "Plug" with "Insert". 7. Add delta Note 11 as follows: "At the option of the user, Stainless Steel (ASTM/ASME A/SA240, Type 304/304L) Shims of appropriate thickness may be used in the welding of the Shield Lid Assembly (Item 5) to the Shell Weldment (Item 1)." 	<ol style="list-style-type: none"> 1. The 5/16" groove weld with 1/8" fillet weld causes unacceptable distortion of the lid support ring. The structural analysis (EC455-2504 Rev. 4) demonstrates that only a 1/8" groove weld is required. 2-3. The size of the shield lid-to-shell weld has been reduced to minimize distortion during field closure operations, based on the fact that sufficient margin of safety exists to allow the reduction in weld size to ½". 4-5. This note has been added to allow the use of the shield lids that have been fabricated with 1" weld prep bevels in accordance with previous revisions of this drawing. 6. Correct terminology 7-8. Shims facilitate installation and welding of the shield lid in the MPC canister.

Drawing	Description of Change	Bases
	<ol style="list-style-type: none"> 8. Zone F6: Add delta Note 11 to weld symbol tail of the ½ inch fillet weld between items 1 and 5. 9. On Sheet 1, Zone C-5, revise the dimension for the gap between the bottom of the lid support ring (Item 4) and the top of the support ring of the top weldment of the fuel basket assembly (Item 2) IS) .25 MIN GAP WAS) .5 MIN GAP. 10. Sheet 1, add new note 12 to read: If the lid support ring is modified to meet the dimension from the top of the shell to the lid support ring then the following details must be met. The flat surface on the top of the lid support ring shall extend a minimum of 0.35 from the inside surface of the canister shell and the average inside diameter of the shield lid support ring, at the top bearing surface, shall be 0.17 less than the average diameter of the shield lid at the base of the bottom chamfer. The gap between the canister shell and lid support ring on the bottom side of the lid support ring shall be less than 0.04. Also add Delta note 12 callout lid support ring weld callout, Zone F4. 11. Revise weld callout Sheet 1, Zone: E-5, IS) 3/16, WAS) 1/4. 12. Revise weld callout Sheet 1, Zone: D-5: Remove backing symbol. 13. Revise delta note 11 to read, "At the option of the user, Stainless Steel (ASTM/ASME A/SA240, Type 304/304L) Shims of appropriate thickness may be used in the welding of the Shield Lid Assembly (Item 5), and the Structural Lid (Item 6), to the Shell Weldment (Item 1)." Also add delta note 11 call out to Structural Lid weld symbol in Zone C-6. 14. Revise name of Item 8 to be: "Spacer Ring" 	<ol style="list-style-type: none"> 9. The gap between the lid support ring and the top of the support ring of the top weldment of the fuel basket is being reduced to ensure that the lid support ring is installed 7.96" +0/-0.06" below the top of the TSC shell. to ensure that the minimum throat thickness is achieved for the weld between the structural lid and the TSC shell. The 0.25" minimum gap provides adequate clearance to accommodate the differential thermal expansion between the Fuel Basket Assembly and the TSC. 10. Calculation was modified to evaluate the lid support ring weld bending and determined that the bending was acceptable as long as the requirements listed above are met. 11. To remove possible interference for the Structural lid fit up. 12. Revise weld symbol to remove any confusion that there is no ASME backing ring in place. 13. Shims facilitate installation and welding of the structural lid into the TSC assembly. 14. Change name to prevent confusion of the part with an ASME code backing ring.
455-873, Rev 3 – Assembly, Drain Tube, Canister, MPC-Yankee	<ol style="list-style-type: none"> 1. Item 2 BOM Spec IS) ASTM A249/A213 WAS) ASTM A249 2. Item 1 BOM Description IS) #SVHN16-16EM WAS) #VHN16EM 	<ol style="list-style-type: none"> 1. Alternate material specification added to enhance fabrication considerations. Material specifications for both product forms have identical requirements. 2. Corrected part number for stainless fitting.
455-881, Rev 6 – PWR Fuel Tube, MPC-Yankee	<ol style="list-style-type: none"> 1. On Sheet 2, Zone C-F/8, show a cut-out on the two top corners of the cladding as an option. The size of the cut-outs is 45° +/- 5° x .8 2. On Sheet 2, Zone C-F/5, show a cut-out on the two bottom corners of the cladding as an option. The size of the cut-outs is 45° +/- 5° x .5 3. On Sheet 1 revise the graphics for the Tube Assembly and on Sheet 2 revise the graphics for Section D-D to show the optional clipping of the cladding corners. 	<ol style="list-style-type: none"> 1-3. The option to clip the corners of the cladding is being added to allow an egress path for potential water intrusion between the cladding and tubing. 4-7. Clipping the corners of the cladding is being added to allow an egress path for water from the cladding cavity (i.e., between the cladding and the tubing). 8-9. To remove customer specific TSC serial numbers from drawing.

Drawing	Description of Change	Bases
	<ol style="list-style-type: none"> 4. On Sheet 2, in Zone C/8, provide a dashed circle around the corner of the cladding referencing Detail G-G. Add Detail G-G as shown on the attached sheet (Sheet 1). 5. On Sheet 1, for Assembly 99, Tube Assembly, revise graphics to show clipped corner for the cladding consistent with Detail G-G, except as noted in #3 below. 6. On Sheet 1, in Zone E/5, provide a dashed circle around the corner of the cladding referencing Detail H-H. Add Detail H-H as shown on attached sheet (Sheet 2). 7. On Sheet 1, Detail A-A (Alternate Fabrication), delete the "all-around" circle in the weld symbol and revise the note in the tail of the weld symbol to read "Typ 4 sides". 8. Add Delta note: "45° cuts at the corners of the cladding may be made per detail G-G, Prior to welding to tubing (Item 1), or per detail H-H, after welding to tubing. 9. Revise details G-G and H-H. 	
<p>455-887, Rev 4 – Basket Assembly, 24 GTCC Container, MPC-Yankee</p>	<ol style="list-style-type: none"> 1. Remove proprietary note from title block of sheet 2. 2. Revise dimensions to indicate which fuel tubes are welded together. 3. Add note 5 to read: "Required locations of weld between fuel tubes. Fuel tubes may be welded in additional locations at fabricator's discretion to facilitate fabrication." 4. Revise the location of the notch in the top support disk shown on Sheet 2 Zone B-6 to be consistent with the location of this notch shown in the plan view for Assembly 99 on Sheet 1. 5. Revise the weld symbol for the Item 8, Drain Sleeve, on Sheet 2, Zone F-1 <ul style="list-style-type: none"> • Delete 1/8" size • Revise note in the tail to read, "Seal Weld, Typical Each End" 6. Revise Note 4 by adding the underlined text as follows: All welds PT final pass unless otherwise noted. Examine per ASME Section V, Article 6. Acceptance per ASME Section III, Article NG-5350. 7. Revise Note 3 by adding the underlined text as follows: When necessary, center the tube array within the support wall weldment using 6" wide shim stock as required. Weld tube array to shim stock using a 1/16 V-groove or 1/16 bevel groove weld. Weld to support wall weldment using weld shown. 8. On Sheet 2, in Section A-A, revise the size of the 3/8 double fillet welds IS) 1/8 WAS) 3/8 9. On Sheet 2, in Detail C-C, revise the size of the 3/8 bevel and 3/8 fillet welds IS) 1/8 WAS) 3/8 10. On Sheet 1, in Zone C/3, revise the size of the ¼ fillet weld IS) 1/8 WAS) ¼ 11. On Sheet 1, in Zone E/3, revise the size of the ¼ double fillet weld IS) 1/8 WAS) 1/4 	<ol style="list-style-type: none"> 1. Editorial correction. 2-3. Specific weld locations identified to facilitate fabrication. 4. Correct error. Notch in top support disk for key is shown incorrectly on Sheet 2 Zone B-6. 5. Seal welding is specified since a structural weld is not required and 1/8" fillet is too large for the 0.035" wall tube. Note revised to allow other nondestructive examinations of welds when warranted. 7. Alternate weld prep is specified to facilitate fabrication. 8-9. Revising the weld size from 3/8" to 1/8" reduces the distortion that may occur during welding. 10-11. Revising the weld size from 1/4" to 1/8" reduces the distortion that may occur during welding. 12. GTCC tubes are analyzed in accordance with ASME Section III Subsection NF. Subsection NF only requires visual examination of the subject welds. 13. The concentricity tolerance has been relaxed to facilitate fabrication. The minimum canister is 69.15 when considering the diametric tolerance of ±.12 and the 5/8 plate thickness tolerance of +.06. The maximum disk diameter is

Drawing	Description of Change	Bases
	<ol style="list-style-type: none"> 12. On Sheet 2, in Zone C/3-4, revise the note in the tail of the V-groove weld symbol by adding the underlined text as follows: 2 seams 180° apart, VT only 13. On Sheet 1, in Zone E/6, revise the concentricity tolerance as shown on the attached sheet IS) .15 WAS) .09 14. On Sheet 2, in Zone C/4, change reference dimension to hard dimension IS) $8.32 \pm .02$ WAS) (8.32) 15. On Sheet 2, in Zone C/4, revise reference dimension IS) (.19) WAS) (.25) 16. On Sheet 2, in Zone C/4, revise inside dimension of tube in two locations from hard dimension to reference dimension IS) (7.94) WAS) $7.82 \pm .02$ 17. Add BOM Item 9 as follows: Quantity: AR Name: Shim Material: 304 St. Stl. Spec: ASTM A240/A479 Description: 6 x 6 Plate/Bar, Thickness as required 18. On Sheet 1, Zone C/6, revise dimension for support disk spacing IS) 14.6 WAS) 14.60 19. On Sheet 1, Zone E/2, revise location dimension for bottom pad IS) 19.3 WAS) 19.33 20. On Sheet 1, Zone D-E/3, revise location dimension for bottom pad IS) 19.3 WAS) 19.33 21. On Sheet 1, Zone C/2, revise location dimension for anti-rotational bar IS) 22.3 WAS) 22.29 22. On Sheet 1, Zone C/1, revise location dimension for anti-rotational bar IS) 2.1 WAS) 2.06 23. Revise Section B-B and add Detail E-E as shown on attached sheet. 24. Revise the location of the butt weld in Detail E-E. (Detail E-E was added by DCR 455-887-2B). 25. Sheet 1, Zone E/6: Revise surface profile tolerance: WAS: .06 IS: .15 26. Sheet 1 Item 7: Spec. IS) ASTM A240/A479 WAS) ASTM A240 27. On Sheet 3, Detail C-C, delete the all-around, fillet-weld welding symbol for seal welding the drain sleeve, Item 8, to the bottom support disk, Item 4. 28. On Sheet 1, Zone D/6, add an all-around, fillet-weld welding symbol to indicate welding the top of the drain sleeve, Item 8, to the top support disk, Item 4. The tail of the welding symbol shall read "seal weld top only". 29. On Sheet 1, in the Bill of Materials, for Item 5, Tube, revise the description IS) 3/16 plate WAS) 1/4 plate. 	<p>69.98. Allowing a concentricity tolerance of .15" provides a clearance of .02" between the smallest canister opening and the maximum GTCC disk size, which is acceptable.</p> <p>14-16. In order to accommodate the YAEC GTCC cans which have an outside dimension of 7.76", the GTCC tube wall thickness has been reduced from 1/4" to 3/16" and the outside dimension of the tube maintained so that the inside opening is increased.</p> <p>17. Editorial change made to add shim material already on the drawing to the BOM.</p> <p>18-22. Single decimal dimensions have been specified at the fabricator's request to facilitate fabrication.</p> <p>23. The alternate weld detail has been added at the fabricator's request to allow the items to be welded by electron beam welding. A full penetration weld is maintained.</p> <p>24. Clarification for fabrication purposes.</p> <p>25. The surface profile tolerance is relaxed to facilitate fabrication. Increased tolerance will have no affect on the form, fit or functionality of the GTCC support wall assembly.</p> <p>26. Alternate material specification added for fabrication considerations. Material specifications for both product forms have identical requirements.</p> <p>27-28. The drain sleeve is welded at one end only, similar to the fuel basket assembly design, to prevent concerns resulting from differential thermal expansion.</p> <p>29. Correct the Bill of Materials. The plate thickness was changed to 3/16" when Revision 2 was issued.</p> <p>30. The note has been revised to clarify the requirement for the location of the flare-v groove weld between the tubes.</p> <p>31. The weld has been changed to a square groove weld at the fabricator's request. This is acceptable since full penetration is maintained.</p>

Drawing	Description of Change	Bases
	<p>30. On Sheet 1, Note 5, revise to read as follows "The ⊗ indicates that a flare-v groove weld must be made between the two adjacent tubes along the overall length of tube. The flare-v groove weld is required to be made along the tube length on one side only of the adjacent tubes. Fuel tubes may be welded in additional locations at fabricator's discretion to facilitate fabrication."</p> <p>31. On Sheet 2, in Zone B/6-7, revise the weld symbol for the tube, Item 5 to show a flush square groove weld instead of a flush V groove weld.</p> <p>32. On Sheet 2, for Item 4, Support Disk, specify a 0.20" radius typical for all corners on the inside surface.</p> <p>33. On Sheet 3, Section B-B (2 locations) specify a 0.20" chamfer typical for all outside corners of the support walls.</p> <p>34. On Sheet 3, in Section B-B and Section B-B (Alternate Fabrication) revise the dimensions as follows:</p> <ul style="list-style-type: none"> • IS) 55.8 ± .15 TYP WAS) 55.85 ± .03 TYP • IS) 38.9 ± .1 TYP WAS) 38.97 ± .03 TYP • IS) 22.1 ± .1 TYP WAS) 22.09 ± .03 TYP • IS) 8.4 ± .1 TYP WAS) 8.44 ± .03 TYP • IS) 8.4 ± .1 TYP WAS) 8.44 ± .03 TYP <p>35. On Sheet 3, in Section C-C revise the following dimension:</p> <ul style="list-style-type: none"> • IS) .3 TYP WAS) .25 TYP <p>36. On Sheet 3, in Detail A-A revise the following dimension:</p> <ul style="list-style-type: none"> • IS) 1.0 WAS) 1.00 <p>37. On Sheet 3, in Detail D-D revise the following dimensions:</p> <ul style="list-style-type: none"> • IS) .5 WAS) .50 • IS) .5 WAS) .53 • IS) 1.1 WAS) 1.06 <p>38. On Sheet 2, for Item 4, Support Disk, revise the dimensions as follows:</p> <ul style="list-style-type: none"> • IS) 55.9 ± .15 TYP WAS) 55.91 ± .03 TYP • IS) 39.0 ± .1 TYP WAS) 39.03 ± .03 TYP • IS) 22.1 ± .1 TYP WAS) 22.15 ± .03 TYP • IS) 8.4 ± .1 TYP WAS) 8.44 ± .03 TYP • IS) 8.4 ± .1 TYP WAS) 8.44 ± .03 TYP • IS) 30.0 WAS) 29.96 • IS) 4.2 WAS) 4.23 	<p>32-33. The specified radii and chamfers are required to facilitate fit-up and assembly of the GTCC basket.</p> <p>34-39. The dimensions are being revised to be consistent with the licensing dimensions provided on other NAC licensing drawings (i.e., single decimal place dimensions).</p>

Drawing	Description of Change	Bases
	39. On Sheet 1, add delta note 6 callout to Bill of Materials for Items 1, 2, and 3, Support Wall. Add delta note 6 to read: "Final material thickness to meet ASTM A480 requirements for 2.5 plate, 2.5 +.2, -.01."	
455-888, Rev 6 – Assembly, Transportable Storage Canister (TSC), 24 GTCC, MPC Yankee	<ol style="list-style-type: none"> 1. Modify the weld note on Detail A-A, to clearly identify the welds on the 2 sides above the support ring and the top of the key. 2. Re-dimension the placement of the shield lid support ring to 8.0 +.0/- .1 3. Structural lid weld, Zone C5 IS) 7/8 WAS) 1. 4. Shield lid support ring weld, Zone F4, change to 5/16 effective throat, add a1/8 fillet on top, remove all around symbol and note "all around, except key slot region" in tail. 5. Add 1/8 butt weld to shield lid support ring weld at "key slot region only." 6. Add Delta Note for structural lid weld indicating that the weld's minimum effective throat is achieved when level with the edge of the canister shell. The lids, due to tolerances, may extend beyond the edge of the canister shell. 7. Delete reference dimension "(2.00)" in Zone C-4 on Sheet 2. 8. On Sheet 1 in Zone F/4-5, delete the 1/8" butt weld for the key slot region. 9. Revise the size of the partial penetration groove weld for the lid support ring (Item 4) to the key (Item 9) in Zone C-D/6 on Sheet 2 IS) (7/16") WAS (3/8") 10. On Sheet 1 in Zone F/4, delete the (5/16) bevel groove and 1/8 fillet welds for the lid support ring-to-shell weld and replace with a (1/8) groove weld. (Note: Weld symbol shall be identical to the weld symbol for TSC as shown on DCR 455-872-8A.) 11. On Sheet 1, Zone F/5, reduce the size of the shield lid-to-shell bevel weld, IS) (1/2), WAS) (1). 12. On Sheet 2, Zone C-D/4-5, revise the graphics in the section view to reflect the reduced size of the shield lid-to-shell bevel weld. 13. On Sheet 1, Zone F/5-6, add a symbol for Delta Note 10 in the tail of the bevel weld symbol for the shield lid-to-shell weld. 14. On Sheet 1, add Delta Note 10 to read: "The weld depth shall be determined by field measurement if the weld bevel is greater than 1/2". 15. Add delta Note 11 as follows: "At the option of the user, Stainless Steel (ASTM/ASME A/SA240, Type 304/304L) Shims of appropriate thickness may be used in the welding of the Shield Lid Assembly (Item 5) to the Shell Weldment (Item 1)." 	<ol style="list-style-type: none"> 1-6. To enhance fabrication. 7. Editorial correction: the reference dimensions on this drawing and 455-872 are being deleted since they are not required for fabrication or analysis. 8-9. The specified butt weld is difficult to make, and the groove weld for the lid support ring to the shell and the groove weld for the support ring to the key provide the penetration that the butt weld is intended to provide. Increasing the size of the groove weld for the lid support ring to the key ensures that sufficient penetration is achieved. 10. The 5/16" groove weld and 1/8" fillet weld cause unacceptable distortion of the lid support ring. The structural analysis (EC455-2504 Rev. 4) demonstrates that only a 1/8" groove weld is required. 11-12. The size of the shield lid-to-shell weld has been reduced to minimize distortion during field closure operations. Analysis demonstrates that sufficient margin of safety exists to allow the reduction in weld size to 1/2". 13-14. This note has been added to allow the use of shield lids that have been fabricated with 1" weld prep bevels in accordance with previous revisions of this drawing. 15-16. Incorporates lessons learned from fit-up tests. Shims facilitate installation and welding of the shield lid in the MPC canister. 17. Corrects terminology. 18. To remove possible interference for the structural lid fit up.. 19. Shims facilitate installation and welding of the structural lid into the TSC assembly. 20-21. Change name to prevent confusion of the part with an ASME code backing ring.

Drawing	Description of Change	Bases
	<ol style="list-style-type: none"> 16. Zone F/5-6: Add delta Note 11 to weld symbol tail of the ½ inch fillet weld between items 1 and 5. 17. Editorial Change - BOM items 10 & 11: Replace “Plugs” with “Insert” 18. Revise Port Cover weld callout Zone E5 IS: (3/16) bevel concave WAS: (1/4) bevel flush. 19. Revise delta note 11 to read, “At the option of the user, Stainless Steel (ASTM/ASME A/SA240, Type 304/304L) Shims of appropriate thickness may be used in the welding of the Shield Lid Assembly (Item 5), and the Structural Lid (Item 6), to the Shell Weldment (Item 1).” Also add delta note 11 call out to Structural Lid weld symbol in Zone C-6. 20. Revise B.O.M, Item 8, Name: IS) Spacer Ring, WAS) Backing Ring. 21. Remove weld backing symbol from weld arrow in zone C-6. 	
455-894, Rev 2 – Heat Transfer Disk, Fuel Basket, MPC-Yankee	<ol style="list-style-type: none"> 1. Change Material Description IS) 6061-T651 WAS) 6061-T6. 	<ol style="list-style-type: none"> 1. Correct material specification callout.

STC-CHINA DRAWING CHANGE JUSTIFICATIONS

Drawing	Justification for Changes
423-800, Revision 8	Format and picture changes provide administrative consistency. The adequacy of the polymer o-rings is documented in the requested amendment. All 10 CFR 71 requirements are satisfied. These o-rings enhance “transport only” operation of the cask (metal o-rings are required for storage operations).
423-802, Revision 12	Editorial changes provide SAR consistency. The welding requirements are corrected and clarified to ensure that SAR requirements are met. The allowance to use equivalent forms (forging/plate/bar) enhances fabrication of the components. None of these changes affect form, fit or function of the cask components and all 10 CFR 71 requirements are met.
423-803, Revision 3	The drawing text corrections provide consistency with the SAR text and the engineering test reports. The adequacy of the polymer o-rings is documented in this amendment request. All 10 CFR 71 requirements are met. The polymer o-rings provide enhanced operating features for “transport only” use of the NAC-STC.
423-804, Revision 3	The administrative change provides a consistent NAC drawing format. The adequacy of the polymer o-rings is documented in this amendment request. The polymer o-rings provide enhanced operating features for “transport only” applications of the NAC-STC cask. All 10 CFR 71 requirements are met.
423-805, Revision 3	The administrative change provides a consistent NAC drawing format. The adequacy of the polymer o-rings is documented in this amendment request. The polymer o-rings provide enhanced operating features for “transport only” applications of the NAC-STC cask. All 10 CFR 71 requirements are met. The drawing text changes provide consistency with the SAR text and the engineering test reports.
423-806, Revision 3	The administrative change provides a consistent NAC drawing format. The adequacy of the polymer o-rings is documented in this amendment request. The polymer o-rings provide enhanced operating features for “transport only” applications of the NAC-STC cask. All 10 CFR 71 requirements are met. The drawing text changes provide consistency with the SAR text and the engineering test reports.

STC-CHINA DRAWING CHANGE JUSTIFICATIONS

Drawing	Justification for Changes
423-812, Revision 2	The administrative change provides a consistent NAC drawing format. The added delta-note clarifies the outer lid assembly to be used for “transport only” applications of the NAC-STC, i.e., the polymer o-ring configuration. The body nameplate is revised to incorporate the “-85” designation approved by CoC Revision 3. The performance of the cask is not affected and all 10 CFR 71 requirements are met.
423-872, Revision 5	The thickness of the outer ring of the top weldment of the fuel basket is increased from 0.875” to 1.75” to provide adequate shielding at that location in the cask. The change is necessitated by the results of the updated shielding analysis. Eight notches are added in the fuel basket to ensure that the fuel tubes will fit into the basket assembly. The administrative changes provide a consistent NAC drawing format and clarify the proper “next assembly” drawing. The form, fit and function of the basket components are not affected and all 10 CFR 71 requirements are met.
423-875, Revision 3	The administrative change provides a consistent NAC drawing format. The added details for the fuel tubes, BORAL and cladding provide enhanced fabrication techniques, but do not affect the form, fit and function of the basket components. All 10 CFR 71 requirements continue to be met for all loading conditions.
423-900, Revision 4	The administrative changes provide drawing numbers that are consistent with the NAC system for drawing numbering. There is no effect on the performance capabilities of the cask and impact limiters.
455-801, Revision 2	Editorial correction was required to remove the incorrect proprietary information note.

The following drawings are for the canistered fuel components and configurations of the NAC-STC. These drawings are included in this amendment request to update the cask CoC for the latest drawing revisions.

455-870, Revision 4	The miscellaneous minor dimensional changes provide enhanced fabricability, but do not affect the form, fit or function of the canister components and all 10 CFR 71 requirements are met.
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STC-CHINA DRAWING CHANGE JUSTIFICATIONS

Drawing	Justification for Changes
455-871, Revision 6	The described changes are primarily administrative changes to enhance component fabrication and ensure that proper assembly will be achieved. These changes reflect NAC's ongoing fabrication experiences. The revised thread depth for the lifting rings and the revised weld sizes are based on NAC's evaluations and calculations incorporated into the storage FSAR via 72.48 determinations and/or amendment requests. Form, fit and function of the affected components are enhanced and all 10 CFR 71 requirements (and 10 CFR 72) are met.
455-872, Revision 9	The described changes are based on NAC's ongoing fabrication experiences and provide revised component weld dimensions that have been evaluated and incorporated into the drawings by NAC through the 72.48 process in 10 CFR 72. The 72.48 determinations are supported by NAC calculations as applicable. Form, fit and function of the affected components are enhanced and all 10 CFR 71 (and 10 CFR 72) requirements continue to be met for all loading conditions.
455-873, Revision 3	The described changes are administrative changes to enhance component fabrication and ensure that part numbers are correct. All 10 CFR 71 requirements continue to be satisfied.
455-881, Revision 6	The "clipping" of the cladding corners prevents a pressure buildup under the cladding due to the intrusion of water through small weld defects. The "clipped" corners also improve water removal during vacuum drying of the canister. Testing has shown that short-term exposure of BORAL to pool water has no effect on the integrity of the BORAL. All 10 CFR 71 (and Part 72) requirements are satisfied.
455-887, Revision 4	The described changes are administrative changes to enhance component fabrication based on NAC's ongoing fabrication experience. The reduction in weld sizes has been analyzed to ensure structural adequacy. The reduced thickness of the GTCC tube walls has been shown to be structurally adequate. All 10 CFR 71 requirements are met.
455-888, Revision 6	The described changes enhance component fabrication. The revised weld sizes/configurations have been evaluated to ensure structural adequacy. Component fit, form and function are not affected and all 10 CFR 71 requirements are met.

STC-CHINA DRAWING CHANGE JUSTIFICATIONS

Drawing	Justification for Changes
455-894, Revision 2	The material specification is corrected for consistency with the SAR text. 6061-T6 is not available in the required thickness. The material properties for -T6 and -T651 are identical, so all 10 CFR 71 requirements continue to be met.