Nuclear Operating Company
South Texas Project Electric Generating Station P.O. Box 289 Wadsworth, Texas 77483

Withhold Enclosure 2 from Public Disclosure in Accordance with 10 CFR 2.390

March 11, 2022
NOC-AE-22003877
10 CFR 72.7
10 CFR 2.390
STI: 35295378
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ATTN: Document Control Desk
Director, Division of Fuel Management
Office of Nuclear Material Safety and Safeguards
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

South Texas Project
Units 1 and 2
Docket Nos. 50-498; 50-499; 72-1041
Independent Spent Fuel Storage Installation
Request for Exemption from Certificate of Compliance (CoC)
Inspection Requirement for One Multipurpose Canister

References:

1. Letter from John M. Goshen to Holtec International, "Issuance of Certificate of Compliance No. 1032, Amendment No. 2 for the HI-STORM Flood/Wind Multipurpose Canister Storage System (CAC No. L25005)," dated October 25, 2016 (ML16280A008)

2. Letter from Holtec International to NRC, "Final Safety Analysis Report on the HI-STORM FW MPC Storage System," dated June 20, 2017 (ML17179A444)

Pursuant to 10 CFR 72.7, "Specific Exemptions," STP Nuclear Operating Company (STPNOC) requests an exemption from the requirements of 10 CFR 72.154(b), 10 CFR 72.212(a)(2), 10 CFR 72.212(b)(3), 10 CFR 72.212(b)(5)(i), and a portion of 10 CFR 72.212(b)(11). The regulations require, in part, compliance to the terms and conditions of the Holtec International Certificate of Compliance (CoC) 72-1032 (Reference 1). Specifically, an exemption is requested from the requirements of Appendix B, Section 3.3, "Codes and Standards," of CoC 72-1032 for one Multipurpose Canister (MPC) in use at the South Texas Project Electric Generating Station (STPEGS). In accordance with Section 3.3 the HI-STORM FW MPC-37 must meet the 2007 Edition ASME Code. The Code requires that 100 percent of the weld seam joining the baseplate to the shell of the canister be inspected by radiography test.

During a review of manufacturing documents, Holtec identified a 1-inch portion of the shell-to-baseplate weld on MPC-37 Serial Number 248 was not properly digitally radiographed after a weld repair. The MPC had already been loaded with spent fuel assemblies and was in the process of being prepared for long-term storage on the Independent Spent Fuel Storage Installation pad when STPNOC was notified of this inspection issue. The affected MPC is currently in a safe, analyzed condition in the Unit 1 Fuel Handling Building Cask Decontamination Area.

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Supporting information and analyses for this exemption request are provided in Enclosures 1 and 2. STPNOC requests Enclosure 2 be withheld from public disclosure in accordance with 10 CFR 2.390(a)(4) because it contains proprietary business information. The associated affidavit is included as Enclosure 3.

There are no commitments in this letter.

If you have any questions, please contact Zachary Dibbern at 361-972-4336 or me at 361-972-7806.

C. H. Georgeson
Digitally signed by C. H. Georgeson
Date: 2022.03.11 16:47:53 -06'00'

C. H. Georgeson
General Manager, Engineering

Enclosures:
1. Request for Exemption from Certificate of Compliance (CoC) Inspection Requirement for One Multipurpose Canister
2. Response to Request for Technical Information (RRTI) **[Proprietary]**
3. Affidavit Pursuant to 10 CFR 2.390 for "Response to Request for Technical Information (RRTI)"

cc:
Regional Administrator, Region IV
U.S. Nuclear Regulatory Commission
1600 E. Lamar Boulevard
Arlington, TX 76011-4511

Yen-Ju Chen
Office of Nuclear Material Safety and Safeguards

Donald Habib
Office of Nuclear Material Safety and Safeguards

# Enclosure 1
## Exemption Request for Storage of a Multipurpose Canister Without Fully Meeting Certificate of Compliance Requirements

**Request for Exemption from Certificate of Compliance (CoC)
Inspection Requirement for One Multipurpose Canister**

## 1) Introduction and Background

The Holtec International, Inc., (Holtec) HI-STORM FW dry cask storage (DCS) system is designed to hold and store spent fuel assemblies for independent spent fuel storage installation (ISFSI) deployment. The system is listed in 10 CFR 72.214 as Certificate of Compliance (CoC) Number (No.) 1032. This system is planned for use by STP Nuclear Operating Company (STPNOC) at the South Texas Project Electric Generating Station (STPEGS), in accordance with 10 CFR 72.210, "General license issued."

For the 2022 STPNOC spent fuel loading campaign, STPNOC is loading and storing HI-STORM FW spent fuel casks using Amendment 2 to Holtec CoC No. 1032 (Reference 1). In CoC No. 1032, the NRC approved the use of the Holtec Multipurpose Canister (MPC) 37 to store spent fuel assemblies. Appendix B to the CoC, "Codes and Standards," describes the ASME Code requirements for the MPC.

During a review of manufacturing documents, Holtec identified a 1-inch section of a weld on MPC-37 Serial Number 248 (hereafter referred to as MPC 248) at STPEGS was not properly digitally radiographed following a weld repair. This condition is not in conformance with the ASME Code requirements described in the CoC.

As part of the normal manufacturing process, Holtec performed a typical weld repair of the MPC shell-to-baseplate weld after the initial digital radiography test (RT) examination showed a small area which contained lack of fusion. The initial weld was executed using qualified sub-arc weld procedures. The indication was excavated to remove the defect and a successful liquid penetrant test (PT) examination of the entire excavated area was performed. The dimensions of the excavated area are approximately 9 inches in length by 0.5 inches in width and 0.5 inches in depth. Detailed profile dimensions of the repaired area are not available, but Holtec procedures require a 3-to-1 taper for such excavations. The weld repair was performed using qualified tig weld procedures and successfully passed a final PT exam. After the PT exam was completed, the unit was reinspected using the same digital RT process, but only 8 inches of the 9-inch length was examined. The missing 1-inch section is located at the end of one side of the excavated area. Following completion of the weld repair, MPC 248 successfully passed a helium leakage test during factory acceptance testing as well as a hydrostatic test performed at STPEGS during loading operations.

## 2) Request for Exemption

In accordance with 10 CFR 72.7, "Specific exemptions," STPNOC is requesting an exemption from the following requirements which would enable STPNOC to continue to store MPC 248 in its current condition:

- 10 CFR 72.154(b), which states “The licensee, applicant for a license, certificate holder, and applicant for a CoC shall have available documentary evidence that material and equipment conform to the procurement specifications prior to installation or use of the material and equipment.”
- 10 CFR 72.12(a)(2), which states “[t]his general license is limited to storage of spent fuel casks approved under the provisions of this part.”

- 10 CFR 72.212(b)(3), which states the general licensee must "[e]nsure that each cask used by the general licensee conforms to the terms, conditions, and specifications of a CoC or an amended CoC listed in § 72.214."
- 10 CFR 72.212(b)(5)(i), which states “[t]he cask, once loaded with spent fuel or once the changes authorized by an amended CoC have been applied, will conform to the terms, conditions, and specifications of a CoC or an amended CoC listed in §72.214”.
- The portion of 10 CFR 72.212(b)(11) which states that "The licensee shall comply with the terms, conditions, and specifications of the CoC..."

The MPC 248 does not fully meet the following CoC requirements:

- Section 6 of the CoC which states, “Features or characteristics for the site or systems must be in accordance with Appendix B to this certificate.”
- Appendix B, Section 3.3 of the CoC which states that the ASME Code, 2007 Edition is the governing code for the HI-STORM FW MPCs, with certain approved alternatives.

**3) Basis for Approval of Exemption Request**

STPNOC concludes that the proposed exemption will not endanger life or property or the common defense and security and is otherwise in the public interest. STPNOC further proposes that granting the proposed exemption provides protection to public health and safety and the environment.

STPNOC evaluated loading and storing MPC 248 with a reduced weld strength (Reference 3, Section 1.5). Reference 3 is proprietary and is provided in Enclosure 2. This evaluation concluded that the proposed loading configuration does not impact the criticality control, shielding, structural, confinement, or thermal design functions of the loaded MPC 248.

**4) Safety Analysis**

Dry storage places the fuel in an inherently safe, passive system. The Holtec HI-STORM FW DCS system (i.e., a loaded MPC stored within a HI-STORM overpack) provides criticality control, shielding, heat removal, and confinement functions, independent of any other facility structures or components. The structural design of the cask system also maintains the integrity of the fuel during storage.

The MPC design and certification is based on compliance with ASME Code Section III, with certain approved alternatives. Alternative code compliance is not applicable to this condition. Portions of ASME Section III (NB-5000) require that weld repairs be inspected to the same criteria as the initial welds. The MPC shell-to-baseplate welds are inspected via digital radiography test (RT), in accordance with Section III, Subsection NB.

This RT inspection was not performed for an approximately 1-inch section of repaired weld on MPC 248, out of an approximately 653 inches of total MPC welds. This is approximately 0.15% of the MPC welds that were fully inspected. MPC 248 continues to meet all its design basis requirements and safety functions. The weld repair was performed in accordance with all Holtec quality procedures. The condition for which this exemption is requested is only related to the post repair inspection.

**Structural**

The circular weld seam joining the baseplate to the shell in MPC 248 has a less than 100% provable joint efficiency due to human performance error when the repaired weld mass was not properly digitally radiographed. In structural terms, this condition amounts to a potential reduction in the joint efficiency of the shell-to-baseplate weld (classified as a Category C corner weld in the ASME Code, Subsection NB). The potential impact of this condition must be quantified to ensure that the safety margins remain positive. Although the weld is expected to meet all strength requirements, the structural analysis performed (Reference 3, Section 1.4) assumes a 20% weld strength reduction factor for conservatism.

In the HI-STORM FW FSAR (Reference 2), the governing load combinations for the MPC shell-to-baseplate weld pertain to the off-normal and short-term normal conditions under the combined action of the internal pressure and the differential thermal expansion resulting from the temperature contour in the shell and the baseplate (Cases 4 and 5 in Reference 3). The safety factors for these cases (and all other analyzed cases) remain above 1.0 as demonstrated in Section 1.5 of Reference 3.

ASME Section III, NB does not discuss joint efficiencies since the expectation is that all welds are volumetrically examined. Therefore, to determine an appropriately conservative weld strength reduction, the criteria from Section VIII, Division 1 were used. Section VIII, Division 1 is for non-nuclear steam generators, but the underlying design stress values in Section VIII, Division 1 are comparable to Section III, NB. For the MPC construction material (i.e., Alloy X), whose properties are listed in Table 3.3.1 of FSAR (Reference 2), the design stress values are identical since the material yield strength ($S_y$) is much lower than the corresponding tensile strength ($S_u$) at temperature. Therefore, the design stress value is controlled by two-thirds of $S_y$ (versus $S_u/3.5$ or $S_u/3$) under Section VIII, Division 1 and Section III, NB.

Per Table UW-12 of Section VIII, Division 1, Category C butt joints (which are more critical than Category C corner joints) have a weld efficiency of 0.85 when subject to spot radiography. Spot radiography, as specified in UW-52 of Section VIII, Division 1, requires a minimum of one 6-inch spot to be RT examined for every 50-foot increment of the weld. By comparison, more than 99% of the MPC shell-to-baseplate weld has been examined by RT, far exceeding the requirement for spot radiography per Section VIII, Div. 1. Therefore, the 0.85 value for joint efficiency is considered conservative for evaluation of MPC 248. However, for additional conservatism, the joint efficiency is taken as 0.80, which is the NRC endorsed value for lid-to-shell closure welds associated with austenitic steel canisters, when subject to PT inspection only (i.e., no volumetric examination), per ISG-15 (Reference 4).

The re-analysis shows that the factors of safety remain above 1.0, demonstrating that MPC 248 can be accepted in as-is state (Reference 3, Section 1.4). Several conservatisms from the existing FSAR design basis analysis, such as using bounding pressures, temperatures, and temperature contours are maintained in the re-analysis.

**Confinement**

As shown by the structural analysis, the MPC confinement boundary maintains safety factors above 1.0, so the system maintains its confinement integrity under all normal, off-normal, and accident conditions.

**Criticality**

The above structural evaluation shows that there is no change to the confinement of the system or to the basket within the MPC, and therefore, no change to the criticality safety.

**Shielding**

There is no change to the storage overpack or transfer cask, which provide the shielding for the fuel, and the same fuel is stored within MPC 248 in the same locations. Therefore, there is no change to the shielding safety of the system.

**Thermal**

MPC 248 maintains its confinement integrity and helium environment, so there is no change to the thermal performance of the system.

**Conclusion**

The reanalysis documented in Reference 3 shows that all safety functions are maintained for MPC 248.

**5) Environmental Consideration**

STPNOC evaluated the environmental impacts of the proposed exemption request and concluded granting the exemption request will not have an adverse impact to the environment.

The STPEGS ISFSI is a radiologically controlled area within the STPEGS Protected Area. The area considered for potential environmental impact as a result of this exemption request is the area in and surrounding the ISFSI.

STPNOC concludes that the proposed exemption meets the criteria for categorical exclusion criteria of 10 CFR 51.22(c)(25) or otherwise does not require an environmental review, because there is:

(i) no significant hazards consideration;

(ii) no significant change in the types or significant increase in the amounts of any effluents that may be releases offsite;

(iii) no significant increase in individual or cumulative public or occupational radiation exposure;

(iv) no significant construction impact;

(v) no significant increase in the potential for or consequences from radiological accidents; and

(vi) the requirements from which an exemption is sought involve (vi)(C) inspection or surveillance requirements.

The interaction of a loaded HI-STORM FW with the environment is through the thermal, shielding, and confinement design functions for the cask system. STPNOC verified the following conclusions for proposed storage of MPC 248:

- The confinement boundary continues to have safety factors above 1.0.
- There is no change to the allowable decay heat limits of the fuel, or its helium environment, therefore, steady state fuel cladding temperatures will remain below the ISG-11, Revision 3 limits.
- There is no change to the shielding evaluation, therefore existing radiological evaluations and conclusions in Chapter 5 of the HI-STORM FW FSAR remain valid.

STPNOC further concluded that there are no gaseous, liquid, or solid effluents (radiological or non-radiological), radiological exposures (worker or member of the public) or land disturbances associated with the proposed exemption. There are no construction impacts, since granting the exemption request will not result in any construction.

The proposed exemption does not involve a significant hazards consideration, in that it does not: (1) involve a significant increase in the probability or consequences of an accident previously evaluated; or (2) create the possibility of a new or different kind of accident from any accident previously evaluated; or (3) involve a significant reduction in a margin of safety.

**Environmental Considerations of Alternative to the Proposed Action**

In addition to the proposed exemption request, STPNOC has considered the environmental impacts of an alternative action. Specifically, STPNOC would need to unload the MPC and reload the fuel into a different MPC. STPNOC has the capability to return the MPC to the spent fuel pool, cut off the lid, remove the fuel assemblies, and reload them into a new MPC. This alternative would result in additional dose accumulation from the additional handling operations required. This alternative would also increase radioactive waste, because MPC 248 would likely not be reutilized. There is no added safety benefit to the alternative action.

**Conclusion**

As a result of the environmental assessment, STPNOC concludes that the proposed action, which will allow STPNOC to continue to use MPC Serial Number 248, is in the public interest in that it avoids unnecessary additional operations and dose incurred that would result from the alternative to the proposed action.

**6) References**

[1] HI-STORM FW Certificate of Compliance (CoC) 72-1032 Amendment 2, November 7, 2016 (ML16280A008)

[2] HI-STORM Final Safety Analysis Report (FSAR), HI-2114830, Revision 5, June 20, 2017 (ML17179A444)

[3] RRTI 3067-07, “Safety Evaluation of Missing RT on MPC Shell-to-Baseplate Weld”, Revision 1.

[4] Interim Staff Guidance – 15, Materials Evaluation, Spent Fuel Project Office, 2001.

# Enclosure 2
Response to Request for Technical Information (RRTI) **[Proprietary]**

# Enclosure 3
## Affidavit Pursuant to 10 CFR 2.390 for "Response to Request for Technical Information (RRTI)"

**AFFIDAVIT PURSUANT TO 10 CFR 2.390**

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I, Kimberly Manzione, being duly sworn, depose and state as follows:

(1) I have reviewed the information described in paragraph (2) which is sought to be withheld, and am authorized to apply for its withholding.

(2) The information sought to be withheld is RRTI-3067-007, which contains Holtec Proprietary information.

(3) In making this application for withholding of proprietary information of which it is the owner, Holtec International relies upon the exemption from disclosure set forth in the Freedom of Information Act ("FOIA"), 5 USC Sec. 552(b)(4) and the Trade Secrets Act, 18 USC Sec. 1905, and NRC regulations 10CFR Part 9.17(a)(4), 2.390(a)(4), and 2.390(b)(1) for "trade secrets and commercial or financial information obtained from a person and privileged or confidential" (Exemption 4). The material for which exemption from disclosure is here sought is all "confidential commercial information", and some portions also qualify under the narrower definition of "trade secret", within the meanings assigned to those terms for purposes of FOIA Exemption 4 in, respectively, Critical Mass Energy Project v. Nuclear Regulatory Commission, 975F2d871 (DC Cir. 1992), and Public Citizen Health Research Group v. FDA, 704F2d1280 (DC Cir. 1983).

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(4) Some examples of categories of information which fit into the definition of proprietary information are:

a. Information that discloses a process, method, or apparatus, including supporting data and analyses, where prevention of its use by Holtec's competitors without license from Holtec International constitutes a competitive economic advantage over other companies;

b. Information which, if used by a competitor, would reduce his expenditure of resources or improve his competitive position in the design, manufacture, shipment, installation, assurance of quality, or licensing of a similar product.

c. Information which reveals cost or price information, production, capacities, budget levels, or commercial strategies of Holtec International, its customers, or its suppliers;

d. Information which reveals aspects of past, present, or future Holtec International customer-funded development plans and programs of potential commercial value to Holtec International;

e. Information which discloses patentable subject matter for which it may be desirable to obtain patent protection.

The information sought to be withheld is considered to be proprietary for the reasons set forth in paragraphs 4.a and 4.b above.

(5) The information sought to be withheld is being submitted to the NRC in confidence. The information (including that compiled from many sources) is of a sort customarily held in confidence by Holtec International, and is in fact so held. The information sought to be withheld has, to the best of my knowledge and belief, consistently been held in confidence by Holtec International. No public disclosure has been made, and it is not available in public sources. All disclosures to third parties, including any required transmittals to the NRC, have been made, or must be made, pursuant to regulatory provisions or proprietary agreements which provide for

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maintenance of the information in confidence. Its initial designation as proprietary information, and the subsequent steps taken to prevent its unauthorized disclosure, are as set forth in paragraphs (6) and (7) following.

(6) Initial approval of proprietary treatment of a document is made by the manager of the originating component, the person most likely to be acquainted with the value and sensitivity of the information in relation to industry knowledge. Access to such documents within Holtec International is limited on a "need to know" basis.

(7) The procedure for approval of external release of such a document typically requires review by the staff manager, project manager, principal scientist or other equivalent authority, by the manager of the cognizant marketing function (or his designee), and by the Legal Operation, for technical content, competitive effect, and determination of the accuracy of the proprietary designation. Disclosures outside Holtec International are limited to regulatory bodies, customers, and potential customers, and their agents, suppliers, and licensees, and others with a legitimate need for the information, and then only in accordance with appropriate regulatory provisions or proprietary agreements.

(8) The information classified as proprietary was developed and compiled by Holtec International at a significant cost to Holtec International. This information is classified as proprietary because it contains detailed descriptions of analytical approaches and methodologies not available elsewhere. This information would provide other parties, including competitors, with information from Holtec International's technical database and the results of evaluations performed by Holtec International. A substantial effort has been expended by Holtec International to develop this information. Release of this information would improve a competitor's position because it would enable Holtec's competitor to copy our technology and offer it for sale in competition with our company, causing us financial injury.

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(9) Public disclosure of the information sought to be withheld is likely to cause substantial harm to Holtec International's competitive position and foreclose or reduce the availability of profit-making opportunities. The information is part of Holtec International's comprehensive spent fuel storage technology base, and its commercial value extends beyond the original development cost. The value of the technology base goes beyond the extensive physical database and analytical methodology, and includes development of the expertise to determine and apply the appropriate evaluation process.

The research, development, engineering, and analytical costs comprise a substantial investment of time and money by Holtec International.

The precise value of the expertise to devise an evaluation process and apply the correct analytical methodology is difficult to quantify, but it clearly is substantial.

Holtec International's competitive advantage will be lost if its competitors are able to use the results of the Holtec International experience to normalize or verify their own process or if they are able to claim an equivalent understanding by demonstrating that they can arrive at the same or similar conclusions.

The value of this information to Holtec International would be lost if the information were disclosed to the public. Making such information available to competitors without their having been required to undertake a similar expenditure of resources would unfairly provide competitors with a windfall, and deprive Holtec International of the opportunity to exercise its competitive advantage to seek an adequate return on its large investment in developing these very valuable analytical tools.

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STATE OF NEW JERSEY )
) ss:
COUNTY OF CAMDEN )

Kimberly Manzione, being duly sworn, deposes and says:

That she has read the foregoing affidavit and the matters stated therein are true and correct to the best of her knowledge, information, and belief.

Executed at Camden, New Jersey, this 10th day of March, 2022.

Kimberly Manzione
Licensing Manager
Holtec International

Subscribed and sworn before me this 10th day of March, 2022.

Erika Grandrimo
NOTARY PUBLIC
STATE OF NEW JERSEY
MY COMMISSION EXPIRES JANUARY 17, 2027