



INTERIM STORAGE PARTNERS

June 11, 2020
E-56905

Director, Division of Fuel Management
Office of Nuclear Material Safety and Safeguards
U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
One White Flint North
11555 Rockville Pike
Rockville, MD 20852


Subject: Revised Response for RAI NP-15-13-S, Docket 72-1050 CAC/EPID
001028/L-2017-NEW-0002

- Reference:
1. Letter from John-Chau Nguyen (NRC) to Jeffery D. Isakson, "Interim Storage Partners LLC's License Application to Construct and Operate the Waste Control Specialists Consolidated Interim Storage Facility, Andrews County, Texas, Docket 72-1050 – Request for Clarification of Responses Related to Materials Review," dated February 3, 2020
 2. Letter from Jeffery D. Isakson to Document Control Desk (NRC), "Submission of ISP Responses for RAIs and Associated Document Markups from First Request for Additional Information, Parts 2, 3, and 4, Docket 72-1050 CAC/EPID 001028/L-2017-NEW-0002," dated May 18, 2020

Interim Storage Partners LLC (ISP) hereby submits a revised response, in its entirety, of the Request for Additional Information (RAI) NP-15-13-S from the Request for Clarification of Responses Related to Materials Review issued February 3, 2020 (Reference 1) to support the continued review of the WCS CISF License Application. The previous response contained an inconsistency related to the pressure boundary for the Greater-than-Class-C (GTCC) dry shielded canister (DSC) identified in Table NP-15-13-2. This inconsistency is resolved in the revised response. Enclosures 2 and 3 to this letter are the revised proprietary and public versions of the response to the RAI, respectively. Enclosure 1 includes the affidavit pursuant to 10 CFR 2.390 for TN Americas. There are no safety analysis report (SAR) changed pages associated with the RAI response.

Should you have any questions regarding this submission, please contact Mr. Jack Boshoven, of my staff, by telephone at (410) 910-6955, or by email at jack.boshoven@orano.group.

Sincerely,

 Digitally signed
by ISAKSON
Jeffery

Jeffery D. Isakson
Chief Executive Officer/President
Interim Storage Partners LLC

cc: John-Chau Nguyen, Senior Project Manager, U.S. NRC
Jack Boshoven, ISP LLC
Elicia Sanchez, ISP LLC

Enclosures:

1. Affidavit Pursuant to 10 CFR 2.390 – TN Americas
2. RAI Response (Proprietary Version)
3. RAI Response (Public Version)

Enclosure 1 to E-56905

Affidavit Pursuant to 10 CFR 2.390

**AFFIDAVIT PURSUANT
TO 10 CFR 2.390**

TN Americas LLC)
State of Maryland) SS.
County of Howard)

I, Prakash Narayanan, depose and say that I am the Chief Technical Officer of TN Americas LLC, duly authorized to execute this affidavit, and have reviewed or caused to have reviewed the information which is identified as proprietary and referenced in the paragraph immediately below. I am submitting this affidavit in conformance with the provisions of 10 CFR 2.390 of the Commission's regulations for withholding this information.

The information for which proprietary treatment is sought is contained in Enclosures 2 and 4 and is listed below:

- Enclosure 2 of E-56905, RAI NP-15-13-S Response

This document has been appropriately designated as proprietary.

I have personal knowledge of the criteria and procedures utilized by TN Americas LLC in designating information as a trade secret, privileged or as confidential commercial or financial information.

Pursuant to the provisions of paragraph (b) (4) of Section 2.390 of the Commission's regulations, the following is furnished for consideration by the Commission in determining whether the information sought to be withheld from public disclosure, included in the above referenced document, should be withheld.

- 1) The information sought to be withheld from public disclosure involves operating experience with spent fuel storage systems and details of spent fuel storage system associated with the fuel storage technology, which are owned and have been held in confidence by TN Americas LLC.
- 2) The information is of a type customarily held in confidence by TN Americas LLC, and not customarily disclosed to the public. TN Americas LLC has a rational basis for determining the types of information customarily held in confidence by it.
- 3) Public disclosure of the information is likely to cause substantial harm to the competitive position of TN Americas LLC, because the information consists of operating experience with NUHOMS® and details of NUHOMS® storage systems, the application of which provide a competitive economic advantage.. The availability of such information to competitors would enable them to modify their product to better compete with TN Americas LLC, take marketing or other actions to improve their product's position or impair the position of TN Americas LLC's product, and avoid developing similar data and planning in support of their processes, methods or apparatus.

Further the deponent sayeth not.

A. Prakash

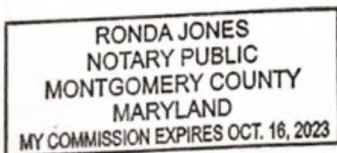
Prakash Narayanan
Chief Technical Officer, TN Americas LLC

Subscribed and sworn before me this 9th day of June, 2020.

Ronda Jones

Notary Public

My Commission Expires 10/16/2023



Enclosure 2

**Submission of Revised Response for RAI NP-15-13-S, Docket 72-1050
CAC/EPID001028/L-2017-NEW-0002**

Withheld Pursuant to 10 CFR 2.390

SAR Chapter 15, "Materials Evaluation"**RAI NP-15-13-S**

Provide the following:

1. The location of the referenced tables in the RAI response: The response to RAI NP-15-13 refers to (1) SAR Table 15.3-1 comparing the FO, FC and FF DSCs to the DSC subcomponents evaluated in the 1004 renewal, (2) SAR Table 15.3-2 comparing the GTCC DSCs to the DSC subcomponents evaluated in the 1004 renewal, (3) SAR Table 15.3-3 comparing the 24PT1 DSC to the to the DSC subcomponents evaluated in the 1004 renewal and, (4) SAR Table 15.3-4 comparing the AHSM to the HSM subcomponents evaluated in the 1004 renewal. SAR tables corresponding to Tables RAI 15.13-1 through RAI 15.13-4 were not included with the SAR change pages provided with the RAI response.
2. The applicability of the CoC No. 1004 AMPs to the 24PT1 DSC and the AHSM in the response to RAI NP-15-13: In their RAI response, the applicant stated:

SAR Section B.13 has been added to Appendix B to require the AMPs in Appendix C, Section C.13, to be applied to the Standardized Advanced NUHOMS[®] System (i.e., the 24PT1 DSC and the AHSM). SAR Tables 15.3-3 and 15.3-4 review the subcomponents of the 24PT1 DSCs and AHSM, compare them to corresponding DSC and HSM subcomponents evaluated in the Renewed CoC 1004, and conclude that no AMA is required or that the AMPs in CoC 1004 are applicable. Therefore, the AMPs in Appendix C (SAR Section C.13) are applicable to the SSCs of the MP187 system proposed for storage at the WCS CISF.

It appears that the underlined statement should refer to the Standardized Advanced NUHOMS[®] System and the 24PT1 DSC. The preceding paragraph in the RAI 15-13 response addresses the FO, FC, and FF DSCs of the MP187 system.

3. The CoC No. 1004 renewal time limited aging analyses (TLAAs), if any, which will be used to manage aging effects in the period of extended operation: Table RAI 15.13-1 through RAI 15.13-4 include a column titled CoC No. 1004 Aging Management Activity. The entries in this table only refer to aging management programs (AMPs). No TLAAs are listed in these tables. Several TLAAs in the CoC No. 1004 renewal that were incorporated into Rev. 17 of the CoC No. 1004 FSAR Section 12.2 would appear to be applicable including:
 - Fatigue Evaluation of the Dry Shielded Canisters
 - Horizontal Storage Module Concrete and Dry Shielded Canister Steel Support Structure Thermal Fatigue, Corrosion, and Temperature Effects Evaluation
 - Dry Shielded Canister Poison Plates Boron Depletion Evaluation
 - Evaluation of Neutron Fluence and Gamma Radiation on Storage System Structural Materials
 - Confinement Evaluation of 24P and 52B Non-Leaktight DSCs
 - Thermal Performance of Horizontal Storage Modules for the Period of Extended Operation

- Evaluation of Additional Cladding Oxidation and Additional Hydride Formation Assuming Breach of Dry Shielded Canister Confinement Boundary
 - Evaluation of Cladding Gross Rupture during Period of Extended Operation
4. Revisions to any TLAAs approved in the CoC No. 1004 renewal and incorporated into CoC No. 1004 UFSAR Revision 17 that do not consider the proposed actions and loadings associated with the transportation of the existing DSCs currently in service at other specifically licensed and generally licensed ISFSIs: The movement of DSC to the proposed ISP/WCS CISF facility should consider additional parameters associated with the transfer and transportation operations as necessary. For example, it appears that the Fatigue Evaluation of the Dry Shielded Canisters included in Section 12.2 of the CoC No. 1004 UFSAR Revision 17 does not address loading cycles associated with the movement of DSC to the proposed ISP/WCS CISF facility including: (1) DSC loading during removal from the existing HSM, (2) DSC loading and temperature cycles during transportation package leak testing prior to transportation, (3) loads during transportation, (4) temperature during transportation, (5) DSC loading and temperature cycles during transportation package testing upon receipt at the ISP/WCS CISF facility, and (6) DSC loading during placement into the HSM at the ISP/WCS CISF facility.
 5. Additional information on the assessment of ITS components in Tables RAI 15.13-1 through RAI 15.13-4 where the comparison component for the CoC No. 1004 system was NITS: Entries in the columns of Table RAI 15.13-1 (page 38 of 93 of the RAI response) for the Stop Plate (2nd row) and the Bottom Shield Plug (6th row) are considered ITS for the FO, FC and FF DSCs currently located at the Rancho Seco ISFSI but are NITS for the CoC No. 1004 system. The assessment of the ITS components should consider the ITS function, the range of possible aging mechanisms and the operating environment. The applicant should also review Tables 15.13-2 thru 15.13-4 for similar entries.
 6. Additional information on the NITS components for the FO, FC, FF in Table RAI 15.13-1, the GTCC DSC in Table RAI 15.13-2, the 24PT1 Component of Table RAI 15.13-3 and the AHSM components in Table RAI 15-13-4: Specifically, provide additional information on the screening assessment and the determination on whether these components might be screened in under category 2 in accordance with the guidance in NUREG-1927 Revision 1 Section 2.4.2.
 7. Revised material information for the GTCC DSC and the DSCs from the CoC No. 1004 in Table RAI 15.13-2: The information provided in this Table RAI 15.13-2 appears to contain many errors on the materials used for the DSC components. For example, the Outer Bottom Cover Plate in Table RAI 15.13-2 is listed as SA-240 Type 304 for the GTCC Material and A240 Type 304 for the CoC No. 1004 Material. These appear to be reversed. The DSCs approved for spent fuel storage under the CoC No. 1004 system used SA-240 Type 304. The GTCC canisters used A240 Type 304.
 8. Aging management reviews for the FO, FC, FF, GTCC and 24PT1 DSCs and the AHSM: Tables RAI 15.13-1, through RAI 15.13-4 provide a crosswalk to justify the application of the approved CoC No. 1004 AMPs to the FO, FC, FF, GTCC and 24PT1 DSCs and the AHSM. While Tables RAI 15.13-1 through RAI 15.13-4 identify the safety classification of the subcomponent parts, the safety function(s) of the subcomponent parts are not identified. The CoC No. 1004 renewal (along with other CoC and specific license renewals) have included an aging management review with the safety functions of the ITS SSCs identified.

The staff has used the information in the aging management review to evaluate the adequacy of the proposed aging management activity. The information provided in previous renewals has been consistent with the guidance in NUREG-1927 Revision 1 Section 3.2. Without information on the safety functions of the ITS SSCs, the staff cannot determine whether the proposed aging management activities are sufficient to maintain the safety function of the ITS SSCs throughout the period of extended operation.

9. The use of surrogate inspections identified in SAR Sections C.13.3.1 and C.13.4.1: The revised SAR pages in Appendix C state the following:

Interim Storage Partners (ISP) may use inspections results from other general or specific licensee inspections if it can be demonstrated that the other licensee inspections are bounding. Parameters to be considered in making a bounding determination include: similar or more benign environmental conditions, similar storage system design components, similar stored fuel parameters, heat load, and operational history.

The staff notes that Sections C.13.3.4 and C.13.4.4 state the following:

A minimum of one DSC from each originating ISFSI, is selected for inspection. The DSC(s) selected for inspection is based on the following considerations/criteria which provide the basis for selection of a bounding DSC(s): (1) Time in service, (2) Initial heat load, (3) DSC Fabrication and Design Considerations and (4) HSM array configuration relative to climatological and geographical features.

Sections C.13.3.4 and C.13.4.4 do not address the potential use of surrogate inspections.

NUREG-1927, Revision 1, notes that the use of surrogate inspections may be acceptable only when substantial operating experience provides a basis for their use. Table B-1 notes that an approach of using surrogates would need to be justified on a case-by-case basis by an applicant, considering canister examination results for the susceptibility rankings.

In addition, in the Response to December 21, 2016, Nuclear Energy Institute Submittal: NEI 14-03, "Format, Content and Implementation Guidance for Dry Cask Storage Operations-Based Aging Management," Revision 2 (ML18325A207) the NRC clarified the additional information necessary for the use of surrogates for AMP inspections:

The NRC has not approved the use of surrogates for AMPs to date. There is not yet substantial operating experience for canister examinations for the various susceptibility rankings to understand how the susceptibility assessments may be applied, and surrogates used, across the Independent Spent Fuel Storage Installation fleet. There is not yet a technical basis for the use of surrogate inspections for canisters until the Code Case is developed and operating experience exists for canister examination results for the various susceptibility rankings. For other structures, systems, and components (SSCs) within the scope of renewal, there are limited AMP inspection results and no industry guidance for determining which SSCs may be appropriate for the use of surrogate inspections. Both a guidance document that considers the effects of environmental and operational parameters on aging effects and operational experience gained from conducting AMP inspections are necessary for identifying potential surrogates for SSCs other than storage canisters.

This information is needed to determine compliance with 10 CFR 72.42(a) and 72.120(a).

Revised Response to RAI NP-15-13-S:

1. Tables NP-15-13-1 through NP-15-13-4 summarize the results of the aging management reviews (AMRs) performed for the various subcomponents and provides an explanation why the certificate of compliance (CoC) No. 1004 AMPs are applicable to the FO, FC, FF, Greater than Class C (GTCC), and 24PT1 dry shielded canisters (DSCs) and the advanced horizontal storage module (AHSM). A review of the renewed CoC 1004 UFSAR and the renewal submittals for CoC No. 1029 (NP-15-13-S Item 2) determined that these renewal submittals did not include detailed aging management review (AMR) results tables. To be consistent with previous renewal submittals, ISP did not intend to include Tables NP-15-13-1 through NP-15-13-4 in the safety analysis report (SAR). However, ISP has revised Sections A.13, B.13, C.13, and D.13 to clearly reference the submittals that document the AMRs performed for each structure, system, and component (SSC).
2. The initial response to RAI NP-15-13 erroneously referenced the MP187 System when the rest of the paragraph was discussing the Standardized Advanced NUHOMS[®] System. The sentence has been corrected to reference the Standardized Advanced NUHOMS[®] System proposed for storage at the WCS CISF.
3. Tables NP-15-13-1 through NP-15-13-4 have been revised to identify when an aging effect is being managed via a TLAA for the FO, FC, FF, and 24PT1 DSCs. These TLAAs were identified in the AMRs for the MP187 System and Standardized Advanced NUHOMS[®] System in References [1] and [2]. In addition, subsections have been added to Chapters A.13 and B.13 listing the TLAAs identified during the AMR of these systems. A statement has also been added to Chapters C.13 and D.13 stating the TLAAs in the CoC No. 1004 renewal application [3] are applicable to the 61BT and 61BTH canisters, respectively.

Please note that stainless steel pressure boundary components have two aging mechanisms that are evaluated, Stress Corrosion Cracking (SCC) and thermal fatigue. SCC is managed via an AMP and thermal fatigue is managed via a TLAA.

4. New subsections have been added to Chapters A.13, B.13, C.13, and D.13 of the SAR to summarize the TLAAs that were identified in the renewal submittals for the various DSCs and horizontal storage module (HSM) (i.e., References [1], [2], and [3]) to manage selected aging effects. Of these TLAAs, only the fatigue evaluations required revising to account for the proposed actions and loadings associated with the transportation of the existing DSCs currently in service to the WCS CISF. A single evaluation was performed that bounds all the DSCs to be transported to and stored at the WCS CISF. This revised fatigue evaluation is summarized in the new SAR Section C.13.2.

5. Tables NP-15-13-1 through Table NP-15-13-4 have been revised (see below) to include the results of the aging management review (AMR) that had been performed for the subcomponents from the previous renewal submittals. The tables originally listed the results of the AMR for the CoC 1004 subcomponents. Revised Table NP-15-13-1 (for the FO, FC, FF DSCs) and Table NP-15-13-2 (for the GTCC DSC) include AMR results from the Sacramento Municipal Utility District (SMUD) Rancho SECO Independent Spent Fuel Storage Installation (ISFSI) License (SNM 2510) Renewal Application [1] unless specifically noted otherwise. Revised Table NP-15-13-3 (for the 24PT1 DSC) and Table NP-15-13-4 (for the AHSM) included the AMR results from the CoC No. 1029 renewal submittal [2]. These revised tables include the intended functions, operating environments and aging effects that require management for the FO, FC, FF, GTCC, and 24PT1 DSCs and the AHSM ITS subcomponents where the corresponding CoC 1004 subcomponents are classified as NITS. The last column in the tables has also been revised to use the identified aging effects as the basis for determining applicability of the CoC 1004 AMP to the FO, FC, FF, GTCC, and 24PT1 DSCs and the AHSM.
6. Tables NP-15-13-1 through NP-15-13-4 have been revised to include footnotes explaining why the not important-to-safety (NITS) items for FO, FC, FF, GTCC, and 24PT1 DSCs and the AHSM do not screen in under Scoping Criterion #2. These explanations come directly from scoping evaluations performed in References [1] and [2].
7. Tables NP-15-13-1 through NP- 15-13-4 have been revised to correct the materials used for the various subcomponents. Note that the CoC 1004 material for the outer bottom cover plate for the 24PT2S and 24PT2L DSCs in Table NP-15-13-2 was correctly listed as A240 Type 304.
8. Tables NP-15-13-1 through NP-15-13-4 have been revised to include the intended function for each subcomponent. These are the intended functions listed in the respective renewal submittals for the various DSCs and the AHSM (i.e., References [1] and [2], and the listed CoC 1004 DSC and AMR Results Tables from Reference [3]) subcomponents.
9. After reconsidering the level of operating experience needed to provide a basis for the use of a surrogate inspection, and the likelihood that such experience will not be available in the immediate future, ISP has revised the AMPs to remove the option to use the inspection results from other general or specific licensee inspections to manage the DSC aging effects.

References:

1. Letter from Dan Tallman (SMUD) to Wendy A. Reed (NRC), DPG 19-087, "Response to Request for Clarification of Response to Additional Information for the Technical Review of the Application for Renewal of the Rancho Seco Independent Spent Fuel Storage Installation License No. SNM-2510 (CAC/EPID NOS. 001028/L-2018-RNW-0005; 000993/L-2018-LNE-0004)," dated July 12, 2019.
2. Letter from Prakash Narayanan (TN Americas LLC) to NRC Document Control Desk, E-55203, "Response to Request for Supplemental Information for the Technical Review of the Application for Certificate of Compliance No. 1029 (Docket No. 72-1029, CAC/EPID Nos. 001028/L-2019-RNW-0014)," dated December 4, 2019.

3. Letter E-46190 from Jayant Bondre (AREVA Inc.) to Document Control Desk (NRC), C.1329
"Response to Re-Issue of Second Request for Additional Information – AREVA Inc.
Renewal application for Standardized NUHOMS[®] System – CoC 1004 (Docket No. 72-1004,
CAC No. L24964)," September 29, 2016, (ADAMS Accession Number ML16279A367).

Impact:

SAR Chapters A.13, B.13, C.13, and D.13 have been revised as described in the response.

Proprietary Information on Pages 7 to 25
Withheld Pursuant to 10 CFR 2.390.