Request for Additional Information (non-proprietary)

By letter dated February 15, 2018, as supplemented on June 14, 2018, and August 30, 2018, TN Americas LLC (TN) submitted to the U.S. Nuclear Regulatory Commission (NRC) an application for Certificate of Compliance No. 1042, Amendment No. 1 to the NUHOMS® EOS System, pursuant to the requirements of Part 72 of Title 10 of the *Code of Federal Regulations* (10 CFR 72).

This request for additional information (RAI) identifies additional information needed by the NRC staff in connection with its review of this amendment application. Each RAI below describes information needed by the staff to complete its review of the subject application.

Structural RAIs:

RAI 3-1. Provide the structural evaluation and/or analysis for the Type 5 basket in Appendix 3.9.2, "EOS-37PTH AND EOS-89BTH BASKET STRUCTURAL ANALYSIS."

The applicant has proposed to add a new basket type (Type 5), which is comparable in geometry to existing Type 1, 2 and 3 baskets, but with a low conductivity poison and the low emissivity option of the Type 4 basket, with the ability to be stored in either the EOS-HSM or the new NUHOMS MATRIX design. The applicant, however, did not provide a structural evaluation and/or analysis for the proposed Type 5 basket.

This information is needed so that the NRC staff may determine compliance with the regulations in 10 CFR 72.236(b), (g) and (l).

RAI 3-2. Discuss whether the HSM-MX will overturn and slide as a result of the design basis earthquake. Provide justification for the conclusions provided in the discussion.

The applicant provided the results of the structural analysis for the HSM-MX subjected to the seismic load in Table A3.9.7-5 "Static analysis, Overturning and Sliding of the HSM-MX" in Amendment 1. From the table, the NRC staff found that the calculated factors of safety (FSs) for the HSM-MX with the concrete density of 160 pcf, with respect to the overturning and sliding, are 0.70 and 0.44, respectively. From Table 3-3 "Load Combinations for Steel and Reinforced Concrete Non-Confinement Structures" in NUREG-1536, Rev. 1, it states, "C*apacity/demand ≥1.00 for structure to be satisfied for both overturning and sliding*," where a capacity/demand is defined as a factor of safety (FS).

This information is needed so that the NRC staff may determine compliance with the regulations in 10 CFR 72.236(l).

Thermal RAIs:

RAI 4-1. Provide justification for removing the following from Technical Specification 3.1.3:
a. The maximum heat load for each DSC model in LCO 3.1.3 and,
b. "[…] after the completion of LCO 3.1.2 actions or […]," in SR 3.1.3.

Technical Specification 3.1.3 describes the time limit for completion of DSC transfer. In the technical specifications for NUHOMS EOS Amd. 0 (ADAMS Accession No. ML16242A022) the maximum heat load for each DSC model was provided. In addition, in the technical specifications for NUHOMS EOS Amd. 0, the surveillance requirement 3.1.3, to verify that the time limit for completion of DSC transfer is met, was initiated after the completion of LCO 3.1.2 actions for the DSC helium backfill pressure. Justification should be provided for removing these parameters from Technical Specification 3.1.3.

This information is needed to determine compliance with 10 CFR 72.236(f).

RAI 4-2 (Proprietary) – see enclosure 2

RAI 4-3 (Proprietary) – see enclosure 2

RAI 4-4 (Proprietary) – see enclosure 2

RAI 4-5 (Proprietary) – see enclosure 2

RAI 4-6 (Proprietary) – see enclosure 2

Editorial RAI: Page 4.9.6-19 of the application states, "Time limits for transfer operations of the EOS-37PTH DSC with HLZCs 7, 8, and 9 are listed in Table 4.9.6-7." Table 4.9.6-7 should be Table 4.9.6-11.

<u>Shielding RAIs:</u>

RAI 6-1. Verify the accuracy of the fuel assembly design data presented in Tables 2-2 and 2-4 of Revision 1 of the SAR and revise all the safety analyses as necessary.

Tables 2-2 and 2-4 of Revision 1 of the SAR for the NUHOMS EOS system provides the design parameters of the spent fuel assemblies to be stored in the NUHOMS EOS dry cask storage system. However, the staff notes that there may be some errors in these data. For example, the cladding inner diameter (0.364") of the WE14x14 FA is smaller than the pellet diameter (0.368"). The same is true for the WE17x17 (ENRESA ASCO) FA design, which has pellet diameter of 0.322" and clad inner diameter of 0.315". Also, the staff notes that the number of guide tubes (control guide tubes + instrument tube) for some of the fuel assembly designs, e.g., the WE17x17/BW, 17x17 Mark C fuel, and the Fort Calhoun CE14x14, and CE 15x15 Palisades, seems to be incorrect; the sum of the number of fuel rods and guide tubes do not add up to the total size of the lattices. All or part of the safety analyses may be based on incorrect data for the requested amendments which include shorted cooling time and failed fuel.

The staff needs this information to determine if the NUHOMS EOS spent fuel dry cask storage system design meets the regulatory requirement of 10 CFR 72.124(a), 72.124(b), and 72.236(d).

RAI 6-2. Provide a definition and specification for the "reloaded assemblies" with respect to the requested new contents.

In Section 2.2 of Amendment 1 Revision 2 of the SAR for the NUHOMS EOS system, the applicant states: "*The NUHOMS® EOS System is designed to accommodate pressurized water reactor (PWR) (14x14, 15x15, 16x16 and 17x17 array designs) and boiling water reactor (BWR) (7x7, 8x8, 9x9 and 10x10 array designs) fuel types and <u>reload assemblies</u> that are available for storage."* However, the applicant provides no definition for the term "reload assemblies."

The staff needs this information to determine if the NUHOMS EOS spent fuel dry cask storage system design meets the regulatory requirement of 10 CFR 72.234(a) and 72.236(a).

RAI 6-3. Revise the first paragraph from Section 6 Amendment 1 Revision 0 of the SAR to clearly state that the allowable content includes damaged fuel and failed fuel in rod storage basket (RSB).

In the first sentence in Section 6 Amendment 1 Revision 0 of the SAR for the NUHOMS EOS system, the applicant states: "*The EOS system is designed to store **intact** pressurized water reactor (PWR) and boiling water reactor (BWR) fuel assemblies (FAs) within the EOS-37PTH dry shielded canister (DSC) and EOS-89BTH DSC, respectively. The transfer casks (TCs) EOS-TC108 and EOS-TC125/135 are used to transfer the EOS-DSC to the EOS horizontal storage module (EOS-HSM). Normal and off-normal condition, near-field dose rates are presented in this chapter for the EOS-TC and EOS-HSM.*" This is inconsistent with the additional content requested in the amendment application. The Shielding Evaluation Chapter should clearly reflect the proposed new contents.

The staff needs this information to determine if the NUHOMS EOS spent fuel dry cask storage system design meets the regulatory requirement of 10 CFR 72.236(a) and 72.236(d).

RAI 6-4. Provide drawings with dimensions and allowable manufacturing tolerances in all drawings for the new (Type 4/5) basket designs.

The amendment incorporates two new basket designs (Type 4 and Type 5) to allow for storage of damaged and failed fuel compartments. The applicant provided drawings for the new basket types, however, these drawings do not include dimensions for the basket cells that are designated to hold damaged or failed fuel cans with end caps. Also, none of the drawings includes allowable manufacturing tolerances. Because the dimensions and associated tolerances are critical parameters for shielding analyses, the applicant needs to revise the drawings to include these data.

The staff needs this information to determine if the NUHOMS EOS spent fuel dry cask storage system design meets the regulatory requirement of 10 CFR 72.236(d).

RAI 6-5. Revise the drawings to include dimensions and manufacturing tolerances for the NUHOMS® MATRIX design.

The applicant provided drawings for the NUHOMS® MATRIX design. However, these drawings do not include the width of the vent covers and there is no information on the manufacturing tolerances for any of the components. In particular, the dimensions and allowable manufacturing tolerances of the vent covers are important to shielding analyses.

The staff needs this information to determine if the NUHOMS EOS spent fuel dry cask storage system design meets the regulatory requirement of 10 CFR 72.236(d).

RAI 6-6. Provide the definition for the term "reasonably bounding" used in the shielding analyses for the new content.

In Section 6 of Amendment 1 Revision 0 of the SAR for the NUHOMS EOS system, the applicant states: "*The methodology, source terms, and dose rates presented in this chapter are developed to be <u>reasonably bounding</u> for general licensee implementation of the EOS System.*"

This statement appears to indicate that the shielding analyses do not envelope all of the proposed contents.

The staff needs this information to determine if the NUHOMS EOS spent fuel dry cask storage system design meets the regulatory requirement of 10 CFR 72.236(d).

RAI 6-7. To be issued separately.

RAI 6-8. Provide justification for why the average rather than the peak side surface dose rate was used as a means to identify the bounding loading patterns.

On Page 6-9 of Amendment 1 Revision 2 of the SAR for the NUHOMS EOS system, the applicant states: "*The bounding HLZCs are used for dose rate analysis*." On the same page, the applicant further states: "*Based on MCNP scoping calculations, HLZC 4 bounds HLZC 1, and HLZC 4 and HLZC 5 result in similar peak dose rates for the EOS-TC125/135 and EOS-HSM. However, HLZC 4 results in larger average dose rates on the EOS-TC125/135 side surface compared to HLZC 5 because HLZC 4 has the largest heat load in the peripheral zone. Therefore, HLZC 4 is used in <u>design basis PWR calculations</u> for the EOS-TC125/135 and EOS-HSM. Source terms for HLZC 4 are derived for 1.0 kW/FA in Zone 1 and 1.625 kW/FA in Zones 2 and 3 for a total DSC heat load of 52.0 kW. This bounds the maximum DSC heat load of 50.0 kW*." The staff reviewed the heat load zone configurations HLZCs 4 and 5 and notes: (1) the fuel assemblies in HLZC 5, zone 3 are much hotter (3.4 kW) than those in zone 3 of HLZC 4, (2) the fuel assemblies in HLZC 5, zone 3 are not shielded by any fuel assemblies, and (3) HLZC 5 has an asymmetric loading pattern in terms of heat load. Therefore, HLZC 5 may have much higher dose rate at the some spots at the side where fuel with 2.4 kW decay heat is allowed. Also, the staff could not determine if the average dose rate can correctly identify the bounding loading pattern for dose rate calculations because of the asymmetric loading of HLZC 5. The SAR does not provide information on how the peak dose rate was calculated.

The staff needs this information to determine if the NUHOMS EOS spent fuel dry cask storage system design meets the regulatory requirement of 10 CFR 72.236(d).

RAI 6-9. Demonstrate that it is appropriate to treat the entire axial fuel region of the fuel assembly as one segment in determining the source terms for high burnup and low cooling time fuel.

Tables 6-14, 6-15, 6-16, 6-16a, 6-16b, 6-16c, 6-17, 6-18, and 6-19 of Amendment 1 Revision 1 of the SAR provide the source terms for various axial radiation source distributions. From the data shown in these tables, it appears that the sources for the fuel region in a fuel assembly are averaged over the entire region. It is not clear whether this approximation can correctly represent the source distributions in the shielding models because it is well understood that the gamma source from spent fuel is linearly proportional to the fuel burnup and the neutron source is proportional to fourth power of the fuel burnup based on NUREG/CG-6700. As such, it is expected that the neutron and gamma sources in the high burnup part of the fuel region will peak and produce peak dose rate at the side of the dry canister or the transfer casks. Using the sources averaged over the fuel region in the shielding models may not capture the high radiation/dose rate spot(s).

The staff needs this information to determine if the NUHOMS EOS spent fuel dry cask storage system design meets the regulatory requirement of 10 CFR 72.236(d).

RAI 6-10. Provide information on how the ORIGEN-ARP data libraries were collapsed from ENDF/B-VII 238-group cross section library or correct the statement and clearly state how the ORIGEN/ARP data are generated.

In Section 6.2.3 of Revision 1 of the SAR for the NUHOMS EOS system, the applicant states "*Prior to using ORIGEN-ARP, detailed two-dimensional models of the design basis PWR and BWR FAs are developed in TRITON using the FA design data in Chapter 2. TRITON is used to generate ORIGEN-ARP data libraries as a function of burnup and enrichment. These libraries are collapsed from the ENDF/B-VII 238-group cross section library and are used by ORIGEN-ARP to compute the source terms*." However, the staff cannot find the ENDF/B-VII-238 cross section library from the National Nuclear Data Center. The staff's understanding is that the ORIGEN-ARP data libraries are just lookup tables generated by TRITON or SAS2H (in the earlier versions). The ORIGEN/ARP data library contains spent fuel related data and is not the cross section collapsed from ENDF/B-VII 238-group cross section library as stated in the SAR. Also, the staff's understanding is that the ORIGEN/ARP data library is assembly type and cooling time dependent.

The staff needs this information to determine if the NUHOMS EOS spent fuel dry cask storage system design meets the regulatory requirement of 10 CFR 72.236(d).

RAI 6-11. (Proprietary) – see enclosure 2

RAI 6-12. Justify that the method used to develop source terms of the intact fuel is appropriate for developing source terms of failed fuel.

On Page 6-9 of Amendment 1 Revision 2 of the SAR, the applicant states: "*The methodology for developing damaged/failed fuel source terms is the same as used for developing intact fuel source terms.*" However, it is not clear why the method used for developing source terms for intact fuel can be used to develop source terms for intact fuel. While the failed fuel might be irradiated at the same irradiation conditions as intact fuel in the reactor, it has lost its geometry after failure and so do the source terms. The geometry change of the source terms will make the source distributions in the cask very different from that of the intact fuel. As such, it is not clear why the method used for determining the source terms for intact fuel, specifically the geometric form, can be used for developing source terms of failed fuel.

The staff needs this information to determine if the NUHOMS EOS dry cask storage system design meets the regulatory requirement of 10 CFR 72.236(d).

RAI 6-13. (Proprietary) – see enclosure 2

RAI 6-14. (Proprietary) – see enclosure 2

RAI 6-15. (Proprietary) – see enclosure 2

RAI 6-16. Explain in detail how an HLZC (heat load zone configuration) is determined to be bounding for the EOS-TC (EOS Transfer Cask) dose rate.

On Page 6-9 of Amendment 1 Revision 2 of the SAR for the NUHOMS EOS system, the applicant states: "*The bounding HLZCs are used for dose rate analysis. Dose rates are generally larger for higher heat loads, and radial dose rates are dominated by fuel in the* *peripheral regions. For BWR fuel, it is determined by <u>inspection</u> that HLZC 1 is bounding for the EOS-TC125/135 and HLZC 2 is bounding for the EOS-TC108. For PWR fuel, it is also determined by <u>inspection</u> that HLZC 2 is bounding for the EOS-TC108*." The SAR provides no specific information on how the "inspection" is done.

The staff needs this information to determine if the NUHOMS EOS spent fuel dry cask storage system design meets the regulatory requirement of 10 CFR 72.236(d).

RAI 6-17. (Proprietary) – see enclosure 2

RAI 6-18. (Proprietary) – see enclosure 2

<u>Criticality RAIs:</u>

RAI 7-1. Clarify Table 4 of the proposed Technical Specifications (TS) to clearly state which basket types are used for damaged/failed fuel.

Table 4 of the TS shows fuel loading parameters for damaged/failed fuel for all basket types. This is contradictory with the statements in the SAR and analyses in the SAR that state that damaged/failed fuel is only allowed for Basket Type 4. The applicant needs to provide justification to support the proposed TS Table 4 or clarify and revise the proposed TS if necessary to clearly state the basket types where damaged/failed fuel is allowed consistent with the SAR.

This information is needed in conjunction with 10 CFR 72.236(a).

RAI 7-2. Confirm that the cross sections used with the KENO V.a code for evaluating criticality safety are the 44-group ENDF/B-V.

The changed pages of the SAR do not state which cross sections were used with the KENO V.a code when performing damaged/failed fuel and fuel debris analyses. The staff requests that the applicant confirm the cross sections used are the same as that used for performing the benchmarking evaluation, 44-group ENDF/B-V.

The staff needs to review the references so that it may determine compliance with the criticality safety regulations in 10 CFR 72.124 and 72.236(c).

RAI 7-3. (Proprietary) – see enclosure 2

RAI 7-4. (Proprietary) – see enclosure 2

RAI 7-5. Provide justification for changing the action to "remove all fuel assemblies from DSC" to "24 hours" when LCO 3.2.1 on soluble boron concentration cannot be met.

The minimum soluble boron concentration is used to ensure the EOS-37PTH is subcritical when loading within the spent fuel pool. LCO 3.2.1 of the proposed Amendment 1 Revision 2 Technical Specifications provides actions for the licensee to take when the minimum soluble boron concentration cannot be met. One of these actions is to remove all fuel assemblies from the DSC. The current LCO states that this must be done immediately. The applicant has proposed to change this to 24 hours. The staff requests that the applicant justify the amount of time it has selected to complete this action.

The staff needs to review the references so that it may determine compliance with the criticality safety regulations in 10 CFR 72.124 and 72.236(c).

Materials RAIs

RAI 8-1. Provide additional information that defines the functional characteristics that determines whether control components that are not listed in the updated final safety analysis report (UFSAR) Section 2.2.1 are authorized for storage in the EOS-37PTH DSC.

UFSAR Section 2.2.1 of the application includes a paragraph that states:

> *Control components not explicitly listed herein, but that meet the definition provided above and have similar functional characteristics as those listed above, are also authorized within the DSC.*

UFSAR Section 2.2.1 provides a detailed description of the specifically listed control components that includes materials of construction. These materials in the specifically listed control components are consistent with the description in NUREG 1536 Revision 1 Section 8.4.8.2 which were found to be satisfactory for the evaluation of galvanic/corrosive reactions. It is not clear from the description in UFSAR Section 2.2.1 if the "functional characteristics' includes consideration of the potential for galvanic or corrosive reactions during dry storage loading operations.

This information is needed to determine compliance with 10 CFR 72.236(a) and (g).

RAI 8-2. **(Proprietary)** – see enclosure 2

RAI 8-3. Clarify the maximum normal and off-normal cladding temperature limits for damaged fuel assemblies. UFSAR Section 4.2 states:

> *For intact fuel assemblies, a maximum fuel cladding temperature limit of 400 °C (752 °F) has been established for normal conditions of storage and for short-term storage operations such as transfer and vacuum drying [4-1]. During off-normal storage and accident conditions, the fuel cladding temperature limit is 570 °C (1058 °F) [4-1].*

Also, UFSAR Section 2.2.1 states*:*

> *The structural analysis for damaged fuel cladding described in Chapter 3 demonstrates that the cladding does not undergo additional degradation under normal and off-normal conditions of storage.*

The staff note that UFSAR Sections, 2.2.1, 3.9.6.7 and 4.2 do not include or reference the maximum cladding temperature for damaged fuel. Because the analysis in the USFAR relies on no additional degradation for damaged fuel under normal and off-normal conditions, the damaged fuel cladding temperature limits are necessary.

This information is needed to determine compliance with 10 CFR 72.236(b), (g) and (h).

RAI 8-4. **(Proprietary) –** see enclosure 2

RAI 8-5. Provide the ASTM Standard number for reference A.8-9 ASTM International, "Standard Specification for High-Strength Low-Alloy Columbium-Vanadium Structural Steel," Latest Edition. It appears from the context of the reference and the title of Table A.8-2 that this should be ASTM A572.

This information is needed to determine compliance with 10 CFR 72.236(b).

RAI 8-6. Provide the following additional information for UFSAR Tables A.8-2, A.8-3 and A.8-4 which apply to ASTM A572 Grade 50, ASTM A992 Grade 50, and ASTM A588 steels respectively:

1. Justify the methodology used to estimate the mechanical properties of these steels at elevated temperatures.
   There are several established methodologies used to estimate the elevated temperature mechanical properties of structural steel. Sief et al., (2016) reviewed elevated temperature properties for structural steels and compared the estimated values from several models to actual data for the elastic modulus, yield strength and tensile strength (NIST Technical Note 1907 Figures 2-3, 2-4 and 2-6 respectively). Sief et al., (2016) showed significant variations in the mechanical properties of structural steels as well as variations in the predicted values of models used to estimate the mechanical properties at elevated temperatures.

   Aziz and Kodur (2016) also showed significant differences between predicted values and actual measured values of yield strength and elastic modulus for ASTM A572 Grade 50 at elevated temperatures.

2. Provide allowable stress values for these materials as a function of temperature, a technical basis for the determination of the allowable stresses and an analysis showing that the actual stresses do not exceed the allowable stresses.
   Tables A.8-2, A.8-3 and A.8-4 for ASTM A572 Grade 50, ASTM A992 Grade 50, and ASTM A588 steels, respectively, contain information on the predicted values of yield and tensile stresses and elastic modulus. Allowable stresses for these materials are not provided and the analyses conducted do not include an assessment of the actual stresses compared to the allowable stresses as a function of temperature.

This information is needed to determine compliance with 10 CFR 72.236(b).

RAI 8-7. Provide allowable stress values for ASTM A829 Gr 4130, AMS 6345 SAE 4130 and other HSLA steels as a function of temperature, a technical basis for the determination of the allowable stresses and an analysis showing that the actual stresses do not exceed the allowable stresses. ASTM A829 Gr 4130 or AMS 6345 SAE 4130 and other HSLA steels are identified in UFSAR Section 10.1.7. UFSAR Table 8-10 contains information on the predicted values of yield and tensile stresses and elastic modulus. Allowable stresses for these materials are not provided and the analyses conducted do not include an assessment of the actual stresses compared to the allowable stresses as a function of temperature.

This information is needed to determine compliance with 10 CFR 72.236(b).

<u>Operating Procedures RAIs</u>

RAI 9-1. Provide an estimate for the required time to complete each of the steps for loading and unloading as described in the operating procedures.

Chapter 9 of Amendment 1 Revisions of the SAR provides revised operating procedures for loading and unloading the EOS-HSM ISFSI for the new contents (failed fuel, fuel with reduced cooling time, and new loading patterns) and canister designs (i.e., Type 4/5). However, the operating procedures do not include the estimated time for completing each of the operations. The estimated time to complete each operation is necessary for estimating the exposure to the occupational workers and developing plan for implementation of the ALARA principle.

The staff needs this information to determine if the NUHOMS EOS spent fuel dry cask storage system design meets the regulatory requirement of 10 CFR 72.236(d).

RAI 9-2. Provide the following information on the fuel spacers identified in UFSAR Amendment 1 Revision 0 Section 9.1.1 Steps 1.b. and 9.b.:

1. Clarify whether the evaluation for adverse impact of the fuel spacers is related to Part 72 activities or Part 71.

> Section 9.1.1 Step 1.b of Amendment 1 Revision 0 of the NUHOMS EOS System UFSAR, states, in part, "…There are no requirements for fuel spacers under Part 72. Fuel spacers, if used, may be placed below the assembly, above the assembly, or both, and shall be evaluated for any adverse impact." It is unclear whether the adverse impact is in reference to storage or transportation operations.

2. Clarify the use of the term "requirements" in the above mentioned statement in UFSAR Section 9.1.1 Step 1.b and the term "required" in the description provided in UFSAR Section 9.1.1 Step 9.b.

> Section 9.1.1 Step 9.b of Amendment 1 Revision 0 of the UFSAR states, in part, "…verify that the bottom fuel assembly spacers, if required, are present in the fuel cells." It is unclear if the fuel spacers identified on UFSAR pages 9-3 and 9-4 are the same component or if the term "fuel spacers", that may be required, on page 9-4 refers to a different component than the item identified on USFAR page 9-3.

3. Provide drawings with dimensions, allowable manufacturing tolerances, material specifications, quality category and code criteria for the fuel spacers identified in UFSAR Chapter 9 Section 9.1.1.

> The application contains two changes to UFSAR Section 9.1.1 which identify the use of fuel spacers in step 1.b. and step 9.b. Based on the context of the changes in UFSAR Section 9.1.1, it appears that there is more than one type of spacer that may be used in the EOS DSCs. The drawings provided by the applicant do not appear to include specific information on the fuel spacers identified in Section 9.1.1 Steps 1.b. and 9.b.

The staff needs this information to determine if the NUHOMS EOS spent fuel dry cask storage system design meets the regulatory requirement of 10 CFR 72.236(a), (b), (c), (d), (f) and (h).

<u>Radiation Protection RAIs</u>

RAI 11-1. Revise Chapter 11 of the SAR to provide new annual dose assessments for the general public and occupational workers or provide analyses to demonstrate that there are no changes to the expected radiation exposure to the occupational workers and the real individual at beyond the controlled area boundary with the hotter fuel.

Chapter 11 of Revision 0 of the SAR provides dose assessments for occupational workers and general public. However, there is no revision to these assessments in the Amendment 1 revised SAR pages for the requested new contents (failed fuel, reduced cooling time, new basket designs, new loading patterns, etc.).

The staff needs this information to determine if the NUHOMS EOS spent fuel dry cask storage system design meets the regulatory requirement of 10 CFR 72.236(d).

RAI 11-2. Provide a revised dose rate versus distance curve or table for the revised NUHOMS-EOS storage system design or demonstrate that there is no change in the curve with the new contents and ISFSI configuration.

Chapter 11 of Revision 1 of the SAR provides the dose rate as a function of distance from the ISFSI pad to the controlled area of design basis ISFSI. There are no changes made to Chapter 11 in the Amendment 1 revised SAR pages. Because the amendment requests new contents (failed fuel and reduced cooling time) and new basket designs (Type 4/5) the dose rates around the transfer cask and the HSM module may have changed. Therefore, it is expected that the dose rate versus distance curve would change accordingly.

The staff needs this information to determine if the NUHOMS EOS spent fuel dry cask storage system design meets the regulatory requirement of 10 CFR 72.236(d).