February 20, 2013

Mr. T. E. Sellmer
Manager – Transportation Packaging
Nuclear Waste Partnership, LLC
P.O. Box 2078
Carlsbad, New Mexico 88221

SUBJECT: APPLICATION FOR TRUPACT-II AND HALFPACT TRANSPORTATION PACKAGES –SECOND ROUND REQUEST FOR ADDITIONAL INFORMATION

Dear Mr. Sellmer:

By letter dated December 3, 2012, Nuclear Waste Partnership, LLC (NWP), on behalf of the U.S. Department of Energy, submitted responses to a Request for Additional Information (RAI) which had been issued by staff on November 6, 2012, on NWP's application for a revision to Certificates of Compliance (CoC) Nos. 9218 and 9279 for the TRUPACT-II and HalfPACT packages.

As a result of the staff's review of NWP's responses to the first round RAI, the staff is issuing the enclosed second round RAI. We request you provide this information by April 2, 2012. Inform us at your earliest convenience, but no later than March 26, 2013, if a substantial date change is needed. To assist us in re-scheduling your review, you should include a new proposed submittal date.

If you have any questions regarding this matter, please do not hesitate to contact me at (301) 492-3273.

Sincerely,

/RA/

Huda Akhavannik, Project Manager
Licensing Branch
Division of Spent Fuel Storage and Transportation
Office of Nuclear Material Safety
and Safeguards

Docket Nos.: 71-9218, 71-9279
TAC Nos.: L24643, L24642

Enclosure: Request for Additional Information

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Enclosure: Request for Additional Information

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Request for Additional Information
Nuclear Waste Partnership, LLC
Docket Nos. 71-9218 and 71-9279
Certificate of Compliance Nos. 9218 and 9279
Model Nos. TRUPACT-II and HalfPACT Packages

Thermal

3.1 Confirm that temperatures within the ICV remain below the allowable values during hypothetical accident conditions (HAC) if the optional OCV O-ring seal is not installed.

The TRUPACT-II and HalfPACT safety analysis reports (SARs) indicate that the OCV O-ring seal is optional. The CCO-CAL-0003 calculation provides a thermal analysis with the OCV O-ring seal installed. Likewise, the HAC thermal testing was based on the presence of the OCV O-ring seal. Considering the gap between the OCV upper seal flange and OCV lower seal flange without the presence of the OCV O-ring seal, confirm that the outer package components (ceramic fiber tape, etc.) are sufficient to prevent HAC hot gases from affecting the integrity of the ICV.

This information is needed to determine compliance with 10 CFR 71.73.

3.2 Clarify the "no payload" mass calculation presented in Section 5 of CCO-CAL-0003 and specify the minimum weight of the content, CCO, and CCC container that is shipped in the TRUPACT-II and HalfPACT packages.

The methodology presented in Section 5 of CCO-CAL-0003 is difficult to follow; it assumes a "no payload" mass in an attempt to calculate more realistic temperatures for a package that weighs less than the HAC test package, which had a payload of 7000 lbs.

a) Table 5-2 provides temperatures associated with "no payload" and Table 5-3 provides calculated temperatures with a CCO payload. Specify the assumed CCO/CCC weight associated with the Table 5-3 TRUPACT-II (and Table 5-6 HalfPACT) results (e.g., it was less than 7000 lbs).

b) Specify the minimum weight of the content, CCO, and CCC container that is shipped in the TRUPACT-II and HalfPACT packages. [Note: Page 4.6-1 of CH-TRU Payload Appendices (Rev. 3, December 2012) indicates that the tare weight of the CCO is 230 lbs. Therefore, for example, it appears that the minimum weight (if empty) associated with the CCO payload for TRUPACT-II and HalfPACT would be approximately 3220 lbs (14 CCO * 230 lb tare weight/CCO) and 1610 lbs (7 CCO * 230 lb tare weight/CCO), respectively.]

This information is needed to determine compliance with 10 CFR 71.73.

Shielding

5.1 Provide an additional evaluation adequately analyzing the concentrated source in the most bounding location within the cavity consistent with normal conditions of transport (NCT) in order to identify the most limiting allowable activity.

As part of the previous RAI, staff requested that the applicant provide discussion to address the potential for a highly concentrated source being introduced into a payload/package near or at the container wall during NCT activities. From the applicant's response staff is aware that dose rate measurements are performed to determine the contributions from source material within the package. However, unless the applicant can demonstrate that any concentrated source could not relocate within the cavity under NCT, a bounding source configuration should be used that would produce the highest radiation levels for the surface and at 2 meters away. Moving the source closer to the cavity wall would result in higher surface and 2 meter dose rates.

This information is needed to confirm compliance with 10 CFR 71.47 and 71.87(j).

5.2 Confirm that the ratio used in Section 5.4.4 of the SAR involves dividing the limiting allowable activity by the allowable activity in order to obtain the allowable dose rate.

Section 5.4.4 of the SAR provides details regarding the methodology used to determine the allowable dose rates for NCT and HAC conditions. This section specifies that the dose rates are determined by taking the ratio of the allowable activity and limiting allowable activity for each case. If the ratio is incorrectly taken as presented in the text the surface dose rates would exceed the exclusive use limits presented in 10 CFR 71.47. Please revise the wording in the text to confirm the ratio relationship between allowable and limiting allowable activities in Section 5.4.4.

This information is needed to determine compliance with 10 CFR 71.35.

5.3 Provide adequate justification for the use of interpolation for DCF values for gamma energies from 2.0 MeV to 10 MeV, and justify the use of zirconium as the source material for use in the specified gamma energy range.

In the response to the initial RAI 5.5, the applicant stated that only a subset of cases were analyzed from 0.5 MeV up to 2.0 MeV in order to limit the number of distributed source shielding analyses. This data was then used and applied to gamma energies up to 10 MeV. As part of the responses, the applicant stated, in part, that the results between 1.5 MeV and 2.0 MeV were small and trending toward an asymptotic result as the gamma energy increased. However, the corresponding figures (Figure 5.5-5 and 5.5-6) in the SAR provided no data beyond 2.0 MeV. In addition, it is evident that different materials display different properties depending on energy levels. As such staff identified other materials in a separate reference ("Radiation Shielding" J. Kenneth Shultis and Richard E. Faw) such as carbon and beryllium that exhibited smaller mass interaction coefficients at the 5.0 MeV and 10.0 MeV ranges.

This information is needed to confirm compliance with 10 CFR 71.47 and 10 CFR 71.51.