NOTE TO: FILE

DOCKET NO.: 71-9355

SUBJECT: 4/9/2014, 3:00PM CONFERENCE CALL TO DISCUSS CLARIFICATION QUESTIONS TO REQUESTS FOR ADDITIONAL INFORMATION FOR THE THERMAL AND STRUCTURAL EVALUATION REGARDING MODEL NUMBER 435-B (TAC NO. L24741)

ATTENDEES:

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DISCUSSION:

On April 9, 2014, NRC, NNSA, LANL, and Areva Federal Services LLC participated on a phone call to discuss clarification questions related to requests for additional information (RAIs) of the thermal and structural evaluation. The clarification questions were related to RAI-18 and RAI-22. The following is a synopsis of the discussion of the staff's clarification questions (Q) and the responses (R) proposed by the applicant (RAIs are depicted in chronological order).

Q1 (RAI-18) Revise the thermal evaluation results for hypothetical accident conditions to include solar insolation in the initial conditions. The staff noted that:

a) the applicant cited that the revised rule brought the U.S. regulations into general accord with the 1985 International Atomic Energy Agency (IAEA)

[1] NRC means U.S. Nuclear Regulatory Commission.
[2] NNSA means National Nuclear Security Administration, Department of Energy.
[3] LANL means Los Alamos National Laboratory.

regulations. However, the 10 CFR 71 regulations are now compatible with the 1996 IAEA regulation for transportation of radioactive materials, TS-R-1. While the 1985 IAEA TS-R-1 regulations were silent regarding solar insolation during the thermal test, the 1996 IAEA regulations were not silent, per TS-R-1 paragraph 728.[4]

R: The applicant pointed out that the NRC should abide to U.S. regulations, since this request was for using a package within the U.S. and IAEA regulations are not always in alignment with U.S. regulations. The staff agreed that its regulatory purview was within 10 CFR Part 71 regulations and added that it was appropriate to reference the 1996 IAEA regulation, since the latter should be in alignment with the current 10 CFR Part 71.

b) Regulatory Guide 7.9, "Standard Format and Content of Part 71 Applications for Approval of Packages for Radioactive Material," Section 3.4.1 (for the initial conditions of the thermal evaluation under hypothetical accident conditions), states "This section should identify initial conditions, and justify that they are most unfavorable, including initial ambient temperature, insolation, internal pressure, decay heat, etc."

R: The applicant mentioned that regulatory guides are guidance and not regulations. The applicant also discussed their understanding of the scenario and that the difference between the analyses with solar insolation versus without insolation may be around 20 degrees, therefore, results should not be much different from the information already submitted.

c) Accidents can happen at any time of day; therefore, it is realistic to include solar insolation in the initial condition for the thermal test under hypothetical accident conditions. Specifically, 10 CFR 71.73(b) is clear that the "…initial internal pressure within the containment system must be the maximum normal operating pressure…" Neglecting solar insolation prior to the fire would result in an initial temperature in the containment system that is inconsistent with that corresponding to the maximum normal operating pressure.

R: The applicant recognized that accidents could happened at any time of the day and thought that it had followed an acceptable approach. The staff asked the applicant to perform an analysis using solar insolation and change the safety analysis report, as appropriate.

Q2 (RAI-22) The quality assurance (QA) important to safety (ITS) categories for the impact limiters and the thermal shield should be changed from Category B to Category A. The staff referenced NUREG/CR-6407, "Classification of Transportation Packaging and Dry Spent Fuel Storage System Components According to Importance to Safety," which provides guidance regarding ITS component categories.

a) The thermal shield prevents excessive heat from the regulatory fire accident from reaching the internal packaging components. Failure of the thermal shield may result in direct failure of containment due to excessive heat.

b) The package impact limiters absorb energy during the impact event to maintain the containment boundary. Failure of the impact limiter may result in direct failure of containment (i.e., structural damage of the containment components).

[4] The NRC staff recognized that its regulatory authority is under 10 CFR Part 71 regulations.

R: The type or degree of failure of components was discussed. NUREG/CR-6407 does not address the type or degree of failure of a package component. The staff pointed out that, currently, NUREG/CR-6407 is the most complete NRC guidance regarding ITS component quality category for packages. The applicant developed the QA categories for the ITS components from Regulatory Guide 7.10, "Establishing Quality Assurance Programs for Packaging Used in Transport of Radioactive Material," which does discuss establishing QA programs. After an extensive discussion, the applicant agreed to consider the staff's rationale and further review the impact limiter and thermal shield QA categories in NUREG/CR-6407 and Table 9.2-2 of the 435-B safety analysis report, for the following five subcomponents:

1. Thermal shield
    i. sheet material
    ii. wire
2. Internal impact limiter (upper and lower):
    i. aluminum plate,
    ii. crush tubes,
    iii. tube inner plates,
    iv. attachment screws, and
    v. tube stabilizer sheet.

The NRC staff requested that the thermal evaluation be revised to include solar insolation as an initial condition to the regulatory fire under the hypothetical accident conditions (i.e., 10 CFR 71.73). The staff would follow up with a second RAI on questions related to RAI-18 and RAI-22.