

5/3/16

NAME OF PERSON(S) CONTACTED OR IN CONTACT WITH YOU Phil Noss, et al.		DATE OF CONTACT	TYPE OF CONVERSATION <input type="checkbox"/> E-MAIL <input checked="" type="checkbox"/> TELEPHONE <input type="checkbox"/> INCOMING <input type="checkbox"/> OUTGOING
E-MAIL ADDRESS phil.noss@areva.com		TELEPHONE NUMBER 253-552-13	
ORGANIZATION AREVA FEDERAL SERVICES	DOCKET NUMBER(S) 71-9341		
LICENSE NUMBER(S) N/A	CONTROL NUMBER(S) N/A		

SUBJECT

4/7/2016, 3:30 PM - CONFERENCE CALL TO DISCUSS APPROACH TO RESPOND TO SECOND RAI REGARDING MODEL NUMBER BRR (TAC NO. L25031)

SUMMARY

Attendees:

AREVA Federal Services LLC (The applicant)
Richard Smith, Project Manager
Phil Noss, Licensing Manager
Rick Migliore, Criticality and Shielding Analyst

Idaho National Laboratory
Douglas Morrell, Idaho National Laboratory
Project Manager, Research Reactor Infrastructure Program

NRC

Zhian Li, Ph.D., Senior Criticality Safety Reviewer
Eliezer Goldfeiz, Ph.D., Health Physicist
Norma Garcia Santos, Project Manager

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ACTION REQUIRED (IF ANY)

The applicant would decide if an additional phone call is needed.

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NAME OF PERSON DOCUMENTING CONVERSATION

Norma Garcia Santos, Zhian Li, Eliezer Goldfeiz

SIGNATURE

SIGNATURE Norma García Santos

CONVERSATION RECORD (continued)

SUMMARY: (Continued from page 1)

On April 7, 2016, LNL, and AREVA Federal Services LLC participated held a phone call with the NRC staff (thereafter, the staff) to clarify questions related to the second request for additional information (RAI) related to the revision of the certificate of compliance of Model No. BRR transportation packaging. The discussion followed the discussion points provided by the applicant related to the second RAIs (i.e., RAI Nos. Sh-5-12, Sh-5-22, Cr-6-12, Cr-6-22, Cr-6-32, and OP-7-1). During the discussion, the applicant expressed concern about the apparent discrepancy between the questions in the RAI letter and the information discussed in the phone call as part of the clarification process, since its understanding of the RAIs was different from the reasons mentioned during this phone call. The staff noted that the purpose of this phone call was to clarify the questions that the applicant may had on the RAIs and to provide some feedback to help the applicant to gain a better understanding of the rationale of the second round of the RAIs.

The applicant noted that it did not understand the question concerning the movement of the loose fuel plates in the basket. The applicant mentioned that it thought that the staff's concern was whether the fuel would completely come out of the basket. The staff stated that the concern was the impact on the fuel due to potential movement during transportation. The staff noted that the design changes in response to the first round of RAIs were the major reasons for the second round of RAIs. Design changes included a complete revision of the loose basket design and addition of dunnage and spacers as components to prevent loose fuel plates from moving during transport.

The following items include a brief summary of this discussion.

RAI Sh-5-12

The staff pointed out that the purpose of RAI Sh-5-1 was to obtain the following information:

- For item a), the staff needs a clear explanation as well as associated assumption for changes the Currie (Ci) amount from 5,890 Ci to 6,500. The applicant changed plutonium quantity in its response to the staff's RAI without an explanation. The applicant explained that the change was due to the change of power of the reactor using the PULSTAR fuel. The applicant also referred to Table 1.2-5 of the application, which includes square fuel, but the staff pointed out that the table should clearer in terms of the information that the applicant was trying to convey. The staff noted that the RAI response as well as the application need to provide the assumption and related rationale for this change. The applicant agreed to include additional information related to the change of the Ci amount and also to revise information in the application (e.g., Table 1.2-5) to clearly distinguish between square fuel plates and square fuel assemblies.

- For item b), the staff needs the assumptions for generating the source terms used in the shielding evaluation such as:

- o Modeling assumptions
- o Source distribution profiles
- o The burn up profile of the fuel
- o The peak gamma and neutron source(s) and associated dose rates
- o Benchmarking information of the TRITON code for source term analyses for the PULSTAR, aluminum plate fuel, etc.
- o Depletion calculations considering the package's source terms and fuel burn up.

The staff also pointed out to the applicant that the proposed answer to code benchmarking question was inadequate. The information provided was about code benchmarking for power reactor fuel source term calculations and is not relevant to the current application.

RAI Sh-5-2

The applicant mentioned that all boxes to accommodate the loose fuel plates had the same dimensions. The applicant also noted that there was not a need for putting a lid on the box, since the clearance from the top of the fuel to the package shield plug was about 1-inch or less (depending on the type of fuel). The staff asked the applicant if it had analyzed the impact of fuel deformation during normal or hypothetical accident conditions of transport. The applicant pointed out that Chapter 2 of the application includes section demonstrating that the fuel would not deform. The staff noted that the information that the staff needs is related to the dose profile and the ability of the fuel to maintain a safe geometry, in terms of criticality safety, during transport. The staff noted that the purpose of this phone call was to clarify the questions and proposed approach for answering the second RAI to have a better understanding of the rationale of both parties.

CONVERSATION RECORD (continued)

ACTION REQUIRED (Continued from page 1)

Cr-6-1, 6-2, 6-3; and OP-7-1

The applicant mentioned that reducing the number of plates transported in the Model No. BRR was less reactive, in terms of critical safety and that dunnage was only credited in the criticality safety analysis for the University of Florida fuel (i.e., a dunnage thickness of approximately 0.8-inch). The staff pointed out that on page 6.6-1, last paragraph, of the application includes a text discussing that the system is under-moderated. The staff's concern was an under-moderated system. Therefore, the applicant needs to address the loading and unloading processes during which the number of plates will change and analyzing the potential for a criticality accident to occur.

The applicant also noted that the geometries of the dunnage and spacers used during transport of loose fuel plates were not necessary in the application because these components were not related to safety and were not credited in the safety analyses for the Model No. BRR. The staff pointed out that the dunnage and spacers were important to criticality safety based on the revised application. The staff also pointed out that the dunnage and spacers are part of the packaging to prevent the very thin loose plates from moving during transportation to meet the requirements of 10 CFR 71.55(d)(2). The staff pointed out that it needs a drawing of the dunnage, not a diagram, with the dimensions of the dunnage to be used on different loading configurations of the loose plates. The applicant agreed to provide drawings for the dunnage and spacers to be used when transporting loose fuel plates.

Regarding the question whether the MCNP calculations have appropriately converged, the applicant noted that the code version used for the Model No. BRR application did not have the option for checking Shannon Entropy, which is a tool of the MCNP code for verifying convergence of the calculation related to criticality safety. The applicant mentioned that it needs this amendment by late summer for transporting the new type of TRIGA fuel and it would need to redo the analysis, which it did not want to redo. The staff mentioned that one option might be to increase the number of particles used in the simulation; which could be done by increasing the number of generations in the model the applicant is using for the loose plate cases.