

Discussion of Second Set of Questions on 435-B Rev. 5 SAR provided by email on 6/21/19

By email on June 21, 2019, NRC provided to NNSA a set of three questions relating to the 435-B application (SAR Revision 5) for amendment of the CoC. Following is a discussion of these questions.

Before discussing the questions in detail, NNSA would like to note that in our opinion, the requirements of 10 CFR 71.33 are met by the application. The specific requirements of Part 71.33 are listed under two subparagraphs, namely: (a) With respect to the packaging – , and (b) With respect to the contents – . Information regarding materials, weld, and NDE which is required by Part 71.33(a) relates to the packaging. The application clearly identifies all of this information with respect to the packaging. The items for which this information is requested below (e.g., IBL 437, Hopewell Devices, and the Disposal Canisters) are contents of the 435-B. Part 71.33(b) does not require this information for contents.

1. Provide material, weld and NDE specifications for both the IBL 437 Type 1 and Type 2, Figures 2.7-10 through 2.7-13 of the SAR, payload canisters and source baskets including welding details/symbols.

The Model 435-B transport package SAR, Revision 5, does not provide drawings and/or figures with material and weld specification for the IBL 437 Type 1 and 2. Information similar to Figures 1.2-19 through 1.2-21 and Figures 2.7-3 and 2.7-9 of the SAR with added welding/NDE details is required. The application shall include a description of the proposed package components in sufficient detail to identify the package accurately and provide a sufficient basis for evaluation of the package.

This information is needed to determine compliance with 10 CFR 71.33.

Discussion. The IBL 437 is an obsolete irradiation device for which no referenceable drawings exist. Figures 2.7-10 through 2.7-13 were generated from measurements taken from a specimen of the IBL 437 that had been sawn in half. From this exercise, it is possible to identify only the family of materials, i.e., carbon steel, stainless steel, or lead. It is not possible to identify the ASTM specification or grade of the material. The location and type of weld could perhaps be identified by observation, but no information is available to indicate the weld size or symbol, or the NDE applied to the finished weld.

In the opinion of NNSA, such information is not necessary to demonstrate the safety of transporting the devices. Recalling the design basis of the 435-B package, the safety demonstration for each content family or type is based on two evaluations showing that:

- a. The shielding of the payload or device is adequate to meet regulatory dose rates
- b. The retention of the source in the shielded position or within the shielded container is adequately secure to ensure the shielding is effective.

The structural details of the device or payload beyond these two evaluations have not been a part of the safety demonstration from the beginning because the devices or containers are large, structurally robust objects that are not subject to gross failure under moderate impact, and because the devices are supported by dunnage structures (the lodgments or the dunnage within the Inner Container) that distribute the impact loads on the device in a manner that

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will prevent gross deformations or puncture loading. Further information on devices is available to NRC in the registry of devices (SSDR numbers are given in the application).

2. Provide complete material/welding/NDE specifications including welding details/symbols for Figures 2.7-3 and 2.7-9 of the SAR, for canister, transport shield and source baskets.

Material specifications are required for the carbon steel shells and structural parts including the paint. Specifications are also required for the stainless steel (including type) for the internal sleeves, tubes or pipes. Welding/NDE specifications/requirements are required. The application shall include a description of the proposed package components in sufficient detail to identify the package accurately and provide a sufficient basis for evaluation of the package.

This information is needed to determine compliance with 10 CFR 71.33.

Discussion. As discussed in Question 1 above, provision of the welding or NDE details for the Hopewell devices is not necessary to demonstrate the safety of transporting these devices in the 435-B. Provide welding/NDE specifications/requirements for Figures 1.2-19 through 1.2-21, including welding details/symbols.

3. Provide welding/NDE specifications/requirements for Figures 1.2-19 through 1.2-21, including welding details/symbols.

Welding/NDE specifications/requirements are required. The application shall include a description of the proposed package components in sufficient detail to identify the package accurately and provide a sufficient basis for evaluation of the package.

This information is needed to determine compliance with 10 CFR 71.33.

Discussion. This question is adequately addressed in the discussions above.