

Laura Cender

To: Laura Cender
Subject: RE: RE: Re: Re: Re: Re: Re: New NRC Accelerator Production License Request - Bunker Hill, IN, Additional Information Request, CN 632717

From: Laura Cender
Sent: Thursday, December 22, 2022 12:27 PM
To: Jon Bolen <jbolen@spectronrx.com>
Cc: Christopher Ritter <critter@spectronrx.com>; John Zehner <jzehner@spectronrx.com>
Subject: RE: RE: Re: Re: Re: Re: Re: New NRC Accelerator Production License Request - Bunker Hill, IN, Additional Information Request, CN 632717

Hello Jon,

Thank you for taking time out of your morning to discuss your pending licensing action, and for clarifying that your process does not result in the incidental activation of radon-222 as previously stated and that radon-222 is only present as a decay product. Please confirm that this is the case in your response.

10 CFR 30.72 Schedule C already accounts for decay products so radon-222 is accounted for in the table by the radium-226 parent. No further information is required relating to the 30.32(i) evaluation or emergency plan.

I do have an additional question though regarding demonstration of compliance with 10 CFR 20.1301 requiring that dose limits to the public be limited to less than 100 mrem/yr or 2 mrem/hr. The submitted COMPLY report meets the requirements of 10 CFR 20.1101(d) which requires demonstration that doses to members of the public be kept ALARA and are unlikely to exceed 10 mrem/yr, but radon-222 and daughters are specifically exempted from this requirement and are also not accounted for in the COMPLY software. The overall limits in 10 CFR 20.1301 does include dose to the public from all effluents though including radon-222 decay products and additional information is required to show that this requirement will be met.

10 CFR 20.1302(b) sets requirements for demonstrating compliance with the annual dose limit in 10 CFR 20.1301 by either

- demonstrating by measurement or calculation that the total effective dose equivalent to the individual likely to receive the highest dose from the licensed operation does not exceed the annual dose limit; **or**
- demonstrating that the annual average concentrations of radioactive material released in gaseous and liquid effluents at the boundary of the unrestricted area do not exceed the values specified in table 2 of appendix B to part 20 and that an individual continuously present in an unrestricted area would not receive doses exceed 2 mrem/hr or 50 mrem in a year.

Please provide a response to either of these two items, the relevant regulations are linked below. You may credit your HEPA and charcoal filters in your analysis.

<https://www.nrc.gov/reading-rm/doc-collections/cfr/part020/part020-1302.html>
<https://www.nrc.gov/reading-rm/doc-collections/cfr/part020/part020-appb.html>
<https://www.nrc.gov/reading-rm/doc-collections/cfr/part020/appb/radon-222.html>

Please reach out to me with any questions.

Thank you,
Laura

From: Jon Bolen <jbolen@spectronrx.com>

Sent: Friday, December 16, 2022 12:38 PM

To: Laura Cender <Laura.Cender@nrc.gov>

Cc: Christopher Ritter <critter@spectronrx.com>; John Zehner <jzehner@spectronrx.com>

Subject: [External_Sender] RE: Re: Re: Re: Re: Re: New NRC Accelerator Production License Request - Bunker Hill, IN, Additional Information Request, CN 632717

Hello Ms. Cender,

Please see attached signed cover letter and response to RFAI dated November 18, 2022.

Best,

Jonathan Bolen

Administrative Radiation Safety Officer & EHS Officer

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