

Parker, Bryan

From: Lee, Peter
Sent: Wednesday, March 18, 2015 11:40 AM
To: Sullivan, Glenn
Cc: Pelke, Patricia; Parker, Bryan; Forster, Sara
Subject: RE: RAI for response dated February 25, 2015

Mr. Sullivan,

Based on our previous discussions, my question was regarding the licensee's ability to detect a concentration of 6 E-13 uCi/ml during the real time monitoring. However, I am frustrated by the information provided. I think the Figure on page 8 is the post air sampling result from a removed filter. The Figure is the decay curve of the Rn-222 daughters. After 2 hours, most of the Rn-222 daughters will decay away, then the detection sensitivity can reach 9 E-13 uCi/ml as stated in the Figure. My concern is the detection sensitivity for the continuous real-time monitoring, not the post sampling measurements.

Peter

From: Sullivan, Glenn [<mailto:glenn.sullivan@cardinalhealth.com>]
Sent: Monday, March 16, 2015 1:12 PM
To: Lee, Peter
Cc: Pelke, Patricia; Parker, Bryan; Forster, Sara; Claunch, Scott; WRegits@gmail.com; Stacy Sternberg (radcondiva@aol.com); Greenberg, Andrea; Benson, Katherine; Even, Greg; Ellert, Benjamin
Subject: RE: RAI for response dated February 25, 2015

Mr. Lee:

Thank you for your request. I will be working feverously with Lab Impex and our team at the pharmacy to answer your follow-up questions. Nonetheless, if there is anything else you need do not hesitate to contact me.

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From: Lee, Peter [<mailto:Peter.Lee@nrc.gov>]
Sent: Monday, March 16, 2015 12:10 PM
To: Sullivan, Glenn
Cc: Pelke, Patricia; Parker, Bryan; Forster, Sara
Subject: RAI for response dated February 25, 2015

Mr. Sullivan,

Please provide the following information:

1. The data to support the Fig. in page 9, including the example of calculation for derivation of the data (DiffSens).

2. The example of calculation to derive the data in Attachment F and the definition of Base, BaseSens, Diff, DiffSens, Integ, IntegSens. Please explain the "Time" and "Window Time".
3. If Alpha peak-shape-fitting algorithm not being used, what's the window of the Alpha energy, Ra-223 or Bi-211? What's the MDC of the selected window ?
4. What's the correlation between Fig in page 9 and Attachment F?
5. What's the room alarm setting? What's the sampling time to detect the DAC ? Based on the Fig in page 9, it looks like several minutes. Provide the sampling period used in the work area, not the rapid sampling as observed during the site visit.
6. Please clarify in page 8, "The Lab Impex real time effluent monitoring system can detect an effluent concentration of $9E-13$ uCi/ml for Ra-223 regardless of dispensing time " is based on the continuous sampling of two hours, regardless of dispensing time.
7. The calculation of the effective stack height.
8. The maximum ground level concentration location. The dose to the public will be based on the maximum ground level concentration.
9. Comply Code dose assessment reports from the Denver facility, including the air sampling results used to determine the activity release.

Please let me know, if you have any question. Thanks.

Peter Lee

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