Date: June 4, 2019

To: RSC and Cathy Cutler

From: K. Yip

Subject: RSC Review of the newly created SAD for MIRP


Brief summary of the presentation and discussion on June 4, 2019

Peter Cirmigliaro gave a presentation of “Medical Isotope Research and Production (MIRP) Safety Assessment Document (SAD) and Accelerator Safety Envelope (ASE) to the Radiation Safety Committee (RSC)”. After that, we went through about 10 of 17 safety analyses (4.7.1 – 4.7.17) before the meeting ended just before 5 pm.

1. When asked, we were told that the standards and definitions used in the documents such as severity of consequence and likelihood of occurrence bins (pages 9 and 10 of Peter’s presentation) are common in the Laboratory and they may have been in the old or present SBMS; e.g., SBMS Graded Approach Risk Assessment Matrix for Processes / Items / Systems.

2. On page 12 of Peter’s presentation, Ed Lessard explained to us that risk reduction is due to all the controls of A, B, C, D that mitigate the moderate risk on page 11 to low risk items (orange to green). A, B and C controls come from regulations or BNL rules. D controls are Credited Controls. High-risk items (red) can be mitigated to moderate risk (orange) using one Credited Control, or low-risk (green) if multiple Credited Controls are used. Multiple Credited Controls greatly reduce the frequency of the event.

3. On page 13 of Peter’s presentation, the radiation categories there are for one-time accidents and therefore are different from the classification system used for routine radiation levels, which is based on the RadCon Manual.

4. On page 17 of Peter’s presentation, it was explained that the radiation monitors (for example) are calibrated annually. Ed’s general intention was to employ enough Credited Controls and Credited Control Supports to mitigate risk to become low risk.

https://www.c-ad.bnl.gov/esfd/RSC/Presentations/2019/2019-6-4 MIRP SAD presentation to RSC.pptx
5. Ray Fliller asked a question whether we regularly have people check on the shielding in our facilities to see whether there are unintentional changes or cracks in the shielding such that the shielding becomes ineffective. The C-AD members replied that C-AD have regular checkoff lists which require the Liaison Physicists, Liaison Engineers and other people responsible to check that the existing shielding is intact (with the right thickness and location). In addition, C-AD uses configuration control to document the characteristics of the shielding so that we know what a specific shielding should be. Nevertheless, Lee Hammons commented that we may consider Ray’s suggestion in the future and use a procedure, which may contain more details about a shield inspection, as opposed to a checkoff list only.

6. Going through the safety analyses, Ed has explained various aspects of the controls taken to mitigate each risk. The question about why the RSC review of targets is taken as a Credited Control in some cases but not in other cases was raised more than once during the meeting. Ed explained that the respective rationale for taking the RSC review of targets as a Credited Control or not for each specific risk, was mainly due to the specific nature of the hazards involved. For instance, to set the amount of radioactive material “in-process” limit for TPL or APF, the RSC review would be a Credited Control to limit the consequence of an accident. On the other hand, since the target Canning Record submitted to the RSC also includes dose estimates for operators at BLIP who work at the Hot Cell, that aspect of the Canning Record is about routine radiation exposure. Furthermore, Ed reminded us that while the RSC review may not be about a Credited Control, some specific radiation hazards must be reviewed since they relate to controls driven by ALARA (e.g., C-AD OPM 9.5 series of procedures), or SBMS (e.g., RadCon Manual) or regulations (e.g., 10CFR835), as shown on page 12 of Peter’s presentation or in Table 4 of Chapter 5 of the SAD in question.

Conclusion

The Radiation Safety Committee approves the radiation safety analysis portions of the Medical Isotope Research and Production (MIRP) Safety Assessment Document (SAD).

Copy to:

T. Roser
C. Hoffman