Date: Sept. 11, 2020

To: Radiation Safety Committee (RSC), P. Ingrassia, G. Goode, C. Cutler, S. Harling, P. Sullivan (BSHO), P. J. Sullivan (RCD) and D. Kim

From: K. Yip

Subject: Review of the updated USI, SAD and ASE of MIRP


The meeting started soon after 1:30 pm. Lee Hammons started by showing several Pre-Start items requested by the Accelerator Readiness Review (ARR) and one Post-Start item (2) of ARR. Then, the meeting was spent on going through the modified document pages of USI (Unreviewed Safety Issue) Evaluation, SAD (Safety Assessment Document) and ASE (Accelerator Safety Envelope) for the MIRP (Medical Isotope Research and Production) Program.

i. I pointed out that the two occurrences of the inhalation dose conversion factor of \(5.7 \times 10^8\) Rem/Ci in the first two pages of the USI should be changed to \(2.0 \times 10^9\) Rem/Ci as the latter is the correct number from ICRP-72 and it is also mentioned in the SAD (Chapters 3 and 5).

ii. A. Drees asked more than one time and it was made clear again and again that we need to ask DOE for permission to change the ASE (as it is now written) if we want to change or add new targets in MIRP. Lee also mentioned more than one time that we hope to have an easier process in the future, but we do not have one now. The important goal here is to try to get MIRP back into operation as soon as possible.

iii. For Ray Fliller’s question, Lee replied clearly that limits on irradiated foil activity are in addition to the list of targets stated in the ASE. The new limitation on foils is that the total activities cannot exceed 200 mCi, which we need to keep track of now. After my question, it was explained that if the foil activity decreases to zero (for example) after some time of radiological decays, we can reclaim the entire 200 mCi for new foils to be used.

iv. I pointed out that on ~p.27 of the SAD, “gGroup” (P&TG) should be “Group”.

v. George Goode pointed out that on ~p.71 of the SAD, just above the list of targets, “production target” should be just “target”.

vi. S. Harling and I pointed out that in Table 4.5 of the SAD, on the row of Windows dose...
rates, starting from the column of As (7th column) to the last column, the dose rate numbers are identical to the upper row dose rates of Shield Walls for each target, which is obviously some mistakes of copy and paste from Cathy Cutler’s shielding document and needs correction.

vii. Peter Ingrassia observed that the maximum dose at the BNL boundary during a Maximum Credible Incident at MIRP can be hundreds of mRem. Lee and I tried to explain that these numbers (and procedures in the analysis and estimation) are comparable to those of the Isotope Production Facility of Los Alamos National Laboratory and we are hopeful that DOE will accept it.

viii. I noticed that on ~p.101 of the SAD, there was an error of mentioning 200 µA in the last line of the list (about two Th targets) and it should be 320 µA (as in all other places of the documents).

ix. George pointed out that the number of targets mentioned on ~p.109 of the SAD above the two lists of targets, “eight” and 12 targets are no longer correct as these numbers have been increased.

x. Peter suggested that we should not mentioned Section 3 in Section 1.5 of the ASE as Section 3 is “None” (empty). We should just mention “Sections 2 and 4” in Section 1.5.

xi. For this Section 1.5 of the ASE, Pat Sullivan spent some time educating us that variance from the credited controls is not a reportable occurrence. It was agreed to delete “and a reportable occurrence” in Section 1.5.

xii. Ray explained his worries that there might be a possibility that people could interpret that we are only allowed to do targets or foil, but not both. Though not everybody agrees with this interpretation, it was agreed that in the ASE, we move 2.13 to 2.1.1 and 2.1.4 to 2.1.2, so that it is clear that foils are in addition to targets.

xiii. Near the end of the meeting, we returned to Section 1.3 of the ASE and George proposed adding the sentence that he and Lee have discussed with Thomas Roser: “Proposed new list of target materials must be bounded by the safety analysis of the SAD and be approved by BHSO.” This was followed by a long discussion. Pat indicated that our effort to try to create an easier path of modifying the list of targets might make it more difficult for DOE to approve. And it seems that we have to ask DOE for approval to change any target in the list written in the ASE under any circumstances. At the end, we agreed to delete Section 1.3 completely and add the words “or changes to the ASE itself” before “shall be approved by DOE” in the last part of the (old) Section 1.4 of the ASE.

xiv. At the end of the meeting, we all agreed that RSC approves the modified USI Evaluation Form, SAD and ASE as presented today, pending on Lee making the changes that have been discussed during the meeting --- most of which have been mentioned above 1.

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1 Lee Hammons published the updated documents on Sept. 12, 2020 and I have verified the changes mentioned above.
xv. The meeting was adjourned at around 3:45 pm.

Copy to:

T. Roser
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