NATIONAL COUNCIL ON RADIATION PROTECTION AND MEASUREMENTS

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AGENDA

Meeting of Program Area Committee 2
Operational Radiation Safety
Thursday July 13, 2017; 1:00 PM
Raleigh Convention Center, Room 204
Raleigh, NC

1:00 PM	Welcome and opening remarks	Pryor
1:15	Discussion of Council Review comments on SC 2-7, Radiation Safety of Sealed Radioactive Sources	All
3:00	Break	
3:15	CC 1 PAC 2 input/comments (due 7/21 to KHP)	All
3:45	Summary of assignments	Pryor
4:00	Adjourn	All

Attendees: John Frazier, Eric Goldin, Barbara Hamrick, Mike Littleton, Dave Myers, Kathy Pryor, Debra Scroggs, Kathy Shingleton, Glenn Sturchio,
Not Attending: Ed Bailey, John Poston, Chris Donahue, Josh Walkowicz, Jim Willison, Jim Yusko

Discussion topics/Issues:

1. Resolution of Council review comments – progress
   - All of the contingent comments have been resolved.
   - Disapproval comments have been resolved; added some additional text regarding the NRC toolkit on SSDs.
   - There are still a large number of noncontingent comments to address. Many are editorial; some are a little more substantive.
2. General Comments: The report has evolved from a set of specific recommendations into a handbook or resource document that presents relevant information for owners/users of sealed sources. The Committee agreed that the report was a useful document in this form.

3. Executive Summary: This has been rewritten; turned into an Introduction plus a Summary of Recommendations at the end of the report. The introduction is written at a high level, but needs to reflect the focus of the report as a resource document.

4. Table 2.2 – All of the Ci values have been rounded to 2 significant digits. The footnote on the Ci values has also been revised to state how the Ci values are to be used.

5. Addition of Category 3 sources to NSTS: We removed this recommendation. The Committee discussed whether or not we should keep the historical discussion on this topic and agreed that it provided valuable background information and context regarding the current requirement to track Categories 1 and 2 sources in NSTS.

6. Recommendation to adopt IAEA values for exempt quantities: The Committee discussed the recommendation to adopt the IAEA exempt quantity values. We had not performed an analysis to determine how the IAEA exempt values compared to the DOE nonaccountable source values or the NRC exempt quantities. A cursory check indicated that the IAEA exempt quantities are lower than both the DOE's nonaccountable source activities and NRC's exempt quantities. The basis for our recommendation was simply consistency with international standards. The draft report currently states:

   "The NCRP recommends adopting the IAEA-defined exempt values to provide consistent classification and regulatory control; The IAEA-defined exempt values are consistent with the NRCP-defined negligible individual dose of 10 μSv per year, as discussed in NCRP Report No. 116. (NCRP 1993); The NCRP recommends that the exempt quantities established by the IAEA be adopted."

   The IAEA BSS – General Safety Requirements Part 3 states that the exempt quantities are based on practices that would not exceed 10 μSv per year. However, the quantities are based on different end-points, according to that NRC SECY memo. From SECY-04-0217, DISTRIBUTION OF EXEMPT MATERIAL - DATABASE, DOSE LIMITS/CRITERIA, AND SECURITY ISSUES RELATED TO RISK-INFORMING 10 CFR PARTS 30, 31, AND 32, 11/18/04:

   "*The Commission suggested the staff might compare the current exempt-quantity thresholds listed in 10 CFR 30.71, Schedule B (Schedule B), with the 'D' values used to determine the thresholds for security considerations of certain radionuclides, and provide a discussion of the pros and cons for replacing the Schedule B values with a small fraction of the 'D' values. Staff believes, however, that such an approach would not serve the underlying basis for exemption, namely that the exempt activity poses only a negligible cancer risk should a member of the public be exposed to gamma radiation emitted by the source or should the activity become airborne. The 'D' values, on the other hand, are based on a different health end-point, namely death from one of the acute radiation syndromes. Using a specified fraction of the 'D' values as a basis for determining exempt quantities would not necessarily provide the intended level of protection against the risk of cancer from exempt sources or, conversely, may be excessively conservative in the case of some radionuclides.*"

   The Committee discussed several issues with this recommendation, including that there was a gap between 'exempt' and 'Cat 5.' Also, we have not done an analysis to see how the IAEA

categories line up with the NRC and DOE values. It was agreed that there is some benefit to having a compendium of information on all three systems (NRC, DOE, and IAEA) without recommending one over the other. The Committee decided to leave the exempt values on Table 2.2 for information only, but remove the recommendation to adopt them.

7. Leak Testing of Category 5 sources – (pg 76, Section 7.1) The Committee discussed the current recommendation to leak test all sealed sources (Category 1 through 5). The NRC, DOE and IAEA all use different requirements for activities for leak testing; all are sufficiently protective in our opinion, based on qualitative judgement as opposed to a documented technical basis. The Committee agreed to remove the recommendation and just state that sources above a certain activity level should be leak tested periodically. The applicable regulatory authorities establish the activity level.

8. Terminology – The draft report currently contains a number of terms regarding the lifetime of the sealed source. At least one commenter suggested we use consistent terminology and define the term for this concept. The report currently refers to the maximum working lifetime, maximum operating cycles, and recommended working lifetime. The IAEA Safety Guide RS-G-1.10 provides a definition and discussion of recommended working lifetime of a sealed source:

   "*Some manufacturers also specify a recommended working life for sources, which is the period of time over which the source is expected to maintain its integrity. In specifying the recommended working life, account is taken of the nature of the radioactive material, its half-life and the encapsulation of the source. A source that has exceeded its recommended working life should be inspected by the manufacturer or other appropriate body to ensure that the integrity of the source has been maintained. The regulatory body may permit sources that have exceeded their recommended working lives to continue in service subject to confirmation of continuing integrity.*"

   The Committee agreed that we would use this definition and incorporate this into the draft, replacing the other terms used.

9. Sealed source definition – The Committee discussed adding "foreseeable mishaps" to the definition of a sealed radioactive source. It was felt that this was too "open ended," and would cause confusion. The statement that the sealed source must "prevent the dispersal of the radioactive material under the conditions of use and wear for which it was designed" was adequate as written. The paragraph below the definition also needed to have the text added that addressed one commenter's contingent comments.

10. Fragile Sources: The current draft has replaced the "fragile" source terminology with the term "low penetrating power," and Section 5.1.1 has been rewritten to discuss the safe use of low penetrating power sources. The Committee agreed that glass ampules would be added to this section as one of the examples.

11. General license question: A number of comments received discuss the difference in licensing between the source and the device. (e.g., the device is generally licensed but the source inside the device is specifically licensed). Barbara agreed to review the draft report as currently written and ensure that the language regarding licensing is correct. More information regarding the requirement to register certain generally licensed devices (e.g., footnote or short paragraph) is also needed.

12. Transportation issues: One commenter asked if the report would recommend that DOT adopt the IAEA categorization scheme. The Committee agreed that this was beyond the scope of the report. Kathy Shingleton volunteered to provide some information on IATA references to add to Section 6 and Appendix B.
13. Introductory paragraphs: These are needed for Sections 4, 5 and 7. Mike Littleton volunteered to draft these.

Path Forward:

Kathy Pryor will finish incorporating the remaining comments, most of which are editorial in nature, while the actions listed below are being completed. Kathy Shingleton and Barbara Hamrick will each review the entire report after the comments/actions have been incorporated. The goal is to have the final draft ready to send in for final editing/publication by the end of September 2017.

Summary of Actions:

1. Barbara Hamrick will review the draft report as currently written and ensure that the language regarding general and specific licensing is correct. **Completed: July 21, 2017**.
2. Kathy Shingleton will provide some information on IATA references to add to Section 6 and Appendix B. **Completed: July 14, 2017**.
3. Mike Littleton will draft introductory paragraphs for Sections 4, 5 and 7. **Due: July 31, 2017.**
4. Glenn Sturchio will provide the update to Section 5.3 on Medical Facilities. **Due: July 31, 2017**.