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Contextual Information for the Potential Enhancement of Annual Radiation Protection Program Review Reports

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Abstract

Organizations possessing sources of ionizing radiation are required to develop, document, and implement a “radiation protection program” that is commensurate with the scope and extent of permitted activities and sufficient to ensure compliance with basic radiation safety regulations. The radiation protection program must also be reviewed at least annually, assessing program content and implementation. A convenience sample assessment of web-accessible and voluntarily-submitted radiation protection program annual review reports revealed that while the reports consistently documented compliance with necessary regulatory elements, very few included any critical contextual information describing how important the ability to possess radiation sources was to the central mission of the organization. Information regarding how much radioactive material was currently possessed as compared to license limits was also missing. Summarized here are suggested contextual elements that can be considered for possible inclusion in annual radiation protection program reviews to enhance stakeholder understanding and appreciation of the importance of the ability to possess radiation sources and the importance of maintaining compliance with associated regulatory requirements.

Keywords

Operational topics; radiation protection programs; metrics; radiation safety program performance

Introduction

Federal and state-equivalent radiation safety regulations require organizations possessing sources of ionizing radiation to develop, document, and implement a “radiation protection program” (RPP) that is commensurate with the scope and extent of permitted activities and sufficient to ensure compliance with basic radiation safety regulations (U.S. NRC 1998). The RPP must also be reviewed at least annually, assessing program content and implementation (U.S. NRC 1998).

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The authors declare no conflict of interest.

While the practice of annually reviewing an organizations' RPP is certainly in line with the accepted precepts of continuous quality improvement, a convenience assessment of 26 RPP's suggests that critical contextual information is commonly absent. Lacking this information, an RPP does not seize upon the opportunity to underscore to the readers the importance of the radiation safety program and how it supports the central missions of the organization. This is especially true considering the amount of employee turnover that occurs in the work environment. It may be presumed that the readers of the RPP review report may fully comprehend what the radiation safety program does, but anecdotal evidence suggests this may not be the case.

Methods

Through professional interactions with various safety programs across the U.S. combined with internet web searches, a convenience sample of 26 RRP's was assembled. The assembled reports summarized RPP's that exist to support private or public academic or research programs.

Upon review, each of the reports clearly documented compliance with necessary RPP regulatory elements as described in 10 CFR 20.1101 Subpart B (U.S. NRC 1998). But very important contextual information was consistently absent:

- The size and cost of the radiation safety program (number of staff, overall budget, major contracts and fees)
- The critical nature of the ability to possess sources of radiation to the core missions of the organization
- The number of permits possessed, their associated annual fees, and their expiration dates
- The amounts of material possessed compared to the licensed possession limits
- Achievements and future needs

The absence of this information could be inadvertently negatively impacting the image of the radiation safety program, as the underlying assumption is that readers are knowledgeable about the radiation program and what it does. This may be a risky assumption, particularly given the turnover of staff that occurs in the modern workplace. Reframing the approach of the RPP affords the opportunity to educate readers about the value of the radiation safety program.

Suggested Contextual Information

The radiation safety program at The University of Texas Health Science Center at Houston (UTHealth) is provided expert guidance by the institution's Radiation Safety Committee (RSC), which consists of faculty and staff from across the university. Each year, the radiation safety program presents its annual RPP to the RSC (included as an Appendix). Based on faculty feedback over the years, the radiation safety program has completed several novel projects that have helped articulate certain program aspects (Emery and

McCrary 2003a; Emery and McCrary 2003b; Emery and Gutierrez 2014) that have been included into the RPP along with some very useful contextual elements:

- Section 1: A brief description the radiation safety program and why it exists, and its main drivers
- Section 2: An executive summary of the report, highlighting achievements and future needs
- Section 3: The purpose and scope of the RPP and its annual review
- Section 4: A description of radiation source use at UTHealth
- Section 5: A summary of the size and scope of the radiation dosimetry program and associated ALARA efforts
- Section 6: A summary of the permits possessed by UTHealth and their associated expiration dates
- Section 7: A summary of regulatory inspection activity that occurred during the year
- Section 8: A summary of the radiation safety training activities carried out
- Section 9: A summary of the radioactive waste management program and associated cost savings
- Section 10: Security activities (section withheld)

Collectively, this contextual information has served to better inform the faculty and leadership of the important work that is carried out by the radiation safety program and the critical nature of the ability to possess sources of radiation are to the missions of the organization. Accordingly the program has enjoyed strong upper management support and accolades from the faculty (Emery et al 1996).

Additionally, thought should be given about the ease of reading the information provided in tables and figures. In general, tables should minimize to what is needed for the line borders, and for figure, most of the ink should go towards displaying the information of interest. The reader will likely appreciate smooth flowing text and tables and figures that are easy to ascertain the intended message.

Summary

A successful radiation safety program functions largely in the realm of prevention, so it is critically important to be able to effectively articulate what the program does to upper management so that program support can be maintained. The required annual RPP review represents an opportunity to highlight the program through the inclusion of important contextual information. Including this type of information along with the required information can help frame an overall management perspective that looks at the overall perspective of the radiation use at the institution.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Appendix

Radiation Protection Program Review Calendar Year 2016

References

Emery RJ, Sawyer RL, Sprau DD. Assessing the service provided by an institutional radiation safety survey program. Health Phys. 1996; 70(5):741–743. DOI: 10.1097/00004032-199605000-00018 [PubMed: 8690588]

Emery RJ, McCrary JR. Effectively displaying broad scope sublicensee radioactive material inventory allocations and possession quantities. Health Phys. 2003a; 85(Suppl 1):S39–S41. DOI: 10.1097/00004032-200308001-00012 [PubMed: 12865749]

Emery RJ, McCrary JR. A radiation protection program prospectus based on the collection of 10 years of key performance indicator data. Health Phys. 2003b; 85(Suppl 2):S89–93. DOI: 10.1097/00004032-200311002-00010 [PubMed: 14570261]

Emery RJ, Gutiérrez JM. An updated radiation protection program prospectus based on 20 years of data describing program drivers and activities. Health Phys. 2014; 107(Suppl 2):S153–S157. DOI: 10.1097/HP.0000000000000130 [PubMed: 24949920]

U.S. Nuclear Regulatory Commission. Standards for protection against radiation: Radiation protection programs. Washington, DC: U.S. Government Printing Office; 1998. 10 CFR 20.1101 Subpart B