

PUBLIC RADIATION SAFETY CORNERSTONE DRAFT REVISED SDP GUIDANCE

DRAFT for comment

What would and would not be a finding in the Radioactive Material Control portion of the SDP?

A contaminated item (i.e., tool, equipment, clothes, etc., but not a person) that gets out of a radiation controlled area (RCA), as long as there is a final radiation survey point (portal monitor at the guard house) that the item has to go through prior to being "free to go anywhere", is still considered to be under the control of the licensee. This type of situation would typically not be a finding because the final radiation portal has an opportunity to detect the item and prevent its free release. The licensee should be given credit for the final radiation survey. However, if the item could get out of the protected area without a radiation survey (no portal monitor or carried out in a box on a truck) or the portal is not sensitive to the item, then the item is available to enter the unrestricted area and any member of the public can be exposed to it. This would be a finding and count as an occurrence.

However, because a contaminated item got out of the RCA probably represents a non-compliance with a plant procedure, there can be two potential outcomes. For low levels of contamination, it can be a minor issue and resolved through the licensee's corrective action program. For high levels of contamination that may represent a potential risk to non-occupationally classified plant workers (i.e., member of the public), the issue should be assessed as more than minor and evaluated by the SDP.

In summary, if the licensee caught the contaminated item in their owner controlled area and there was a final radiation survey point that could detect it, and there was low risk to non-occupationally classified plant workers, then it should not be a finding. But, if there is no final radiation survey point or the radiation portal monitor was not sensitive to the contaminated item, or there was risk to non-occupationally classified plant workers, then it is a finding that should be run through the SDP, and counted as an occurrence.

To determine the number of occurrences, it is not simply the number of items that were found. The number of occurrences needs to be related to the "root cause" for the loss of control over the items. For example, a technician performing inadequate radiation surveys in which 20 contaminated items were released to the unrestricted area during one work shift; this should be counted as one occurrence with multiple examples. However, if there are a number of different root causes or one that was repetitive over time (i.e., different work shifts) that allowed multiple contaminated items to be released, then the number of occurrences should be based on the number of separate occurrences.

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1. **IMC 0609, Appendix D, "Public Radiation Safety Determination Process."**

Radiation Limits Flow Chart: Some absolute value screening criteria should be added to the questions. The use of multipliers without any absolute values can lead to some inappropriate outcomes, such as a lab sample shipment involving a low actual hazard coming out as a RED FINDING. For example, while the contact radiation level on a package of radioactive material, shipped exclusive use in a closed transport vehicle, or with the use of a personnel barrier, can have radiation levels as high as 1000 mR/hr, a limited quantity shipment cannot exceed 0.5 mR/hr. Since the SDP uses only multipliers of limits to determine color, we can see the situation where a lab sample is sent by a reactor Limited Quantity, where the error is made and the contact dose rates are not less than 0.5 mR/hr, but rather are 5.5 mR/hr. Using the SDP we have a YES for Finding in Transportation or Part 61; a YES in Radiation Limit Exceeded; a YES in External Radiation Levels; a YES in >5x Limit; and a YES in >10x Limit, resulting in a RED FINDING. Solution: Add some absolute value screening criteria, so that low level shipments (like limited quantity) cannot be greater than a GREEN or WHITE finding or define the specific types of shipments which the flow chart is appropriate.

Radiation Limits Flow Chart: The SDP does not appear to put package breaches on an equal "risk footing" with other types of contamination events. How does one arrive at a RED FINDING on surface contamination levels exceeded (with unrestricted area contamination), but under package breach, if it involves a Type A package, it cannot exceed a GREEN FINDING. What difference does it make in SAFETY SIGNIFICANCE, if the radioactive material that contaminates an unrestricted area came from the surface of some shipping cask that was dipped in someone's SFP and is now weeping, versus a liner of spent filter media shipped in an improperly prepared Type A package that spills out all over the countryside? How is one a RED and one only a GREEN? Is there a difference in the "quality" of material that is causing the contamination, and would anyone notice? Solution: The surface contamination portion of this SDP needs to more closely conform to the package breach portion, with SAFETY SIGNIFICANCE factored in to the equation.

Radiation Safety
Breakout Sessions

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I. Introduction

II. Session 1 - Update on Recent Changes

- A. Public Radiation Safety Cornerstone
- B. Occupational Radiation Safety Cornerstone

III. Session 2 - ALARA Performance Assessment

A. Background and Review.

- Goals and Objectives.
- ROP Framework.
- Assumptions in current ALARA assessment basis.

B. Facilitated Discussion.

- NRC identified issues and proposed resolutions.
- Industry identified issues and proposals.
- Stakeholder input.

C. Summary and Conclusions.

Objectives of the sessions:

7. To provide an update of, and solicit stakeholder input on, recent changes, and proposed changes, in the Public and Occupational Radiation Safety Cornerstones.
8. To clearly articulate the current basis for assessing licensee performance in the ALARA portion of Occupational Radiation Safety, and to build a consensus on the proposed revisions (or develop alternatives) to resolve noted limitations of the SDP in this area. Alternatively, identify a proposed course of action in which "alignment" can be reached.