

Excerpt from Inspection Manual Chapter 0308, Attachment 3, Appendix D
Technical Basis for Public Radiation Safety Significance Determination Process

The Public Radiation Safety cornerstone is made up of four program areas which have a potential to impact the public; Radioactive Material Control, Radioactive Effluent Release, Radioactive Environmental Monitoring, and Transportation/Part 61. The Public Radiation Safety SDP is used to assess the risk associated with findings in these areas. The findings are the result of NRC inspections or are licensee self-identified in accordance with plant corrective action programs. The Public Radiation Safety SDP is designed to assess risk for routine plant operation, it does not assess accident conditions. This SDP is used in conjunction with NRC Inspection Procedure 71122, Public Radiation Safety.

The SDP was developed to assess the risk of licensee non-compliance with regulatory requirements and licensee programs and procedures established to ensure compliance with regulatory requirements. Regulatory requirements, values, and limits were used to define risk thresholds (i.e., Green, White, Yellow, and Red) for this cornerstone.

In addition to the regulatory requirements, this cornerstone contains a "public confidence" factor that is used to define the significance of a finding. It was recognized by the NRC and stakeholders that a licensee's control of its radioactive material is a significant issue for members of the public; even when very low levels of radioactive material are involved. Because of this, the Public Radiation Safety SDP was developed with a "public confidence" factor which provides for a higher level of significance than would be warranted based solely on the risk from exposure to the radioactive material.

1 Radioactive Effluent Release Program

This branch of the SDP focuses on the licensee's radioactive effluent release program. It evaluates the significance of findings related to the release of radioactive gaseous and liquid effluents.

10 CFR Part 20, Standards for Protection Against Radiation contains radiation dose limits to members of the public from the release of radioactive gaseous and liquid effluents. Licensees are required to comply with these limits. In addition to the requirements of 10 CFR Part 20, for power reactors there are requirements to maintain radioactive effluents ALARA. These requirements are contained in 10 CFR 50.34a, 10 CFR 50.36a, General Design Criteria 60 of Appendix A to 10 CFR Part 50, 40 CFR Part 190, and Appendix I to 10 CFR Part 50. These regulatory requirements specify the identification of the radioactive effluent design objectives (i.e., radiation dose), and the means to be employed, for keeping levels of radioactive material in effluents ALARA during normal reactor operation, including anticipated operational occurrences.

To evaluate the significance of a finding in this portion of the SDP, the calculated dose from the effluent release must be known. As the dose to a member of the public from the radioactive effluent increases, so does the significance. A Green significance is given to those findings which involved an effluent release in which the licensee had an impaired ability to assess dose which resulted in doses to members of the public which are less than the values in Appendix I

to 10 CFR Part 50 and 10 CFR 20.1301(d) (40 CFR Part 190). The basis for the Green finding is that no regulatory limits were exceeded.

A White significance is given to those findings which involved an effluent release in which the calculated dose to a member of the public is greater than the values in Appendix I to 10 CFR Part 50 and/or 10 CFR 20.1301(d) but less than 0.1 rem. The basis for the White finding is that regulatory requirements related to maintaining radioactive effluents ALARA were exceeded, but still below the 10 CFR 20.1301 annual public dose limit of 0.1 rem.

A Yellow significance is given to those findings which involved an effluent release in which the calculated dose to a member of the public is greater than 0.1 rem but less than 0.5 rem. The basis for the Yellow finding is that the 10 CFR 20.1301 annual public dose limit of 0.1 rem was exceeded. This represents a violation of a regulatory safety standard.

A Red significance is given to those findings which involved an effluent release in which the calculated dose to a member of the public is greater than 0.5 rem. The basis for the Red finding is that the 10 CFR 20.1301 annual public dose limit of 0.1 rem is exceeded by a substantial margin. The value of 0.5 rem was chosen because it represents the upper limit that 10 CFR Part 20 would allow, based on specific authorization, for a limited time basis. However, without prior NRC authorization, the dose represents a violation of a regulatory safety standard.

2 Radiological Environmental Monitoring Program

This portion of the cornerstone evaluates the significance of findings related to the radiological environmental monitoring program. The significance is related to the licensee's ability to perform sampling and analysis of environmental media for the presence of licensed radioactive material released in gaseous and liquid effluents.

The regulatory basis for requiring radiological environmental monitoring is contained in General Design Criteria 64 of Appendix A to 10 CFR Part 50, and Section IV.B of Appendix I to 10 CFR Part 50.

To evaluate the significance of a finding in this portion of the SDP, the licensee's ability to assess the impact of its radioactive effluent releases on the environment surrounding the plant must be known.

A finding of Green significance typically involves situations where environmental sampling stations are not operable and/or where required environmental samples were not collected and/or analyzed as a result of the licensee not following its procedures or because of some error. However, although the licensee was missing required environmental sample data, the licensee was still able to perform and report a reasonable assessment of the environmental impacts.

The more significant White finding occurs when a licensee failed to assess the environmental impact for a dose pathway from its radioactive effluent releases. This failure is linked to the licensee's failure to obtain an adequate number of environmental samples to make an assessment, or the samples were improperly analyzed so that the data is not usable. A White finding is given for the failure to assess the environmental impact from radioactive effluent releases for a pathway because it is contrary to a regulatory requirements.

There are no findings of significance greater than White in this portion of the SDP.