

**Excerpt from Inspection Manual Chapter 0609, Appendix D
Public Radiation Safety Significance Determination Process**

I. RADIOACTIVE EFFLUENT RELEASE PROGRAM

A. Objective

This branch of the logic diagram focuses on the licensee's routine (i.e., non-accident) radioactive effluent release program. It assesses the licensee's ability to monitor and maintain radioactive effluents ALARA (i.e., the design dose objectives contained in Appendix I to 10 CFR Part 50 and 10 CFR 20.1301(d)). Being able to assess dose from radioactive effluents and maintain radiation doses to a member of the public within Appendix I design objectives is the success criterion.

B. Basis

The regulatory basis for requiring radiological effluent monitoring programs is given in General Design Criterion 60, "Control of releases of radioactive materials to the environment," of Appendix A, "General Design Criteria for Nuclear Power Plants," to 10 CFR Part 50, "Licensing of Production and Utilization Facilities." Criterion 60 requires a licensee to provide for a means to control the release of radioactive materials in gaseous and liquid effluents during normal reactor operation, including anticipated operational occurrences. An additional requirement is in Section IV.B.1 of Appendix I to 10 CFR Part 50. This section requires a licensee to provide data on the quantities of radioactive material released in liquid and gaseous effluents to assure that such releases are within the ALARA design objectives. This data, pursuant to 10 CFR 50.36a, is reported to the NRC annually. There is also a requirement in 10 CFR 20.1301(d), that requires power reactors to comply with the U.S. Environmental Protection Agency's environmental radiation standards in 40 CFR Part 190.

II. SDP DETERMINATION PROCESS

Is there a finding in the licensee's radiological effluent monitoring program that is contrary to NRC regulations or the licensee's Technical Specifications (TS), Offsite Dose Calculation Manual (ODCM), or procedures? If yes, was the licensee able to assess the dose from the release of radioactive effluent and what is the dose impact (as calculated by the licensee) of the event? If there was no radiological release associated with the event (no dose impact to a member of the public) then there is minimal "risk" and the SDP classifies it as GREEN. The licensee is responsible to resolve the finding. The NRC will periodically inspect the effectiveness of the licensee's corrective action program.

If the licensee failed to have any data in which to assess the dose (i.e., no monitor data, no independent sample data, no actual release sample data, etc.), then the finding would be WHITE. This would be a rare situation. Usually the licensee has enough plant data (i.e., from tank volumes and periodic sample analysis of the radioactive material in the tank) to be able to reconstruct a source term and calculate a bounding dose from the unmonitored release.

If the event resulted in an effluent release of radioactive material that, based on the methodology in the licensee's ODCM, exceeded the dose values in Appendix I to 10 CFR Part 50 and/or 10 CFR 20.1301(d) but is less than 0.1 rem, the SDP classifies the event as WHITE.

NOTE: The licensee has a Performance Indicator (PI) in this area that uses dose values equal to the quarterly dose values given in the TS or the ODCM. This SDP is not to be used to "double count" the PI. If a situation results in which the dose exceeds Appendix I values because of multiple effluent releases which exceeded the PI threshold it should not automatically be assessed as a degraded cornerstone. The SDP is to be used to assess the significance of a finding on an action or event by the licensee which was contrary to NRC regulations, the licensee's TS, ODCM, or procedures.

If the event resulted in effluent release of radioactive material that, based on the methodology in the licensee's ODCM, exceeded the annual public dose limit in 10 CFR Part 20 of 0.1 rem but is less than 0.5 rem, the SDP classifies the event as YELLOW.

If the event resulted in effluent release of radioactive material that, based on the methodology in the licensee's ODCM, exceeded 0.5 rem, the SDP classifies the event as RED.

III. RADIOACTIVE ENVIRONMENTAL MONITORING PROGRAM

A. Objective

This branch of the logic diagram focuses on the licensee's ability to operate an effective radioactive environmental monitoring program.

B. Basis

The regulatory basis for requiring radiological environmental monitoring programs is given in General Design Criterion 64, "Monitoring Radioactivity Releases," of Appendix A, "General Design Criteria for Nuclear Power Plants," to 10 CFR Part 50, "Licensing of Production and Utilization Facilities." Criterion 64 requires a licensee to provide for a means for monitoring the plant environs for radioactivity that may be released during normal operations, including anticipated operational occurrences, and from postulated accidents. An additional requirement is in Section IV.B.3 of Appendix I to 10 CFR Part 50. This section requires that the monitoring program identify changes in the use of unrestricted areas (e.g., for agricultural purposes) to permit modifications in the monitoring program for evaluating doses to individuals from principal pathways of exposure.

Radiological environmental monitoring is important both for normal operations, as well as in the event of an accident. During normal operations, environmental monitoring verifies the effectiveness of the plant systems used for controlling the release of radioactive effluents. It also is used to check that the levels of radioactive material in the environment do not exceed the projected values used to license the plant. For an accident, the program provides an additional means to estimate the dose to members of the public.

IV. SDP DETERMINATION PROCESS

Is there a finding in the licensee's radiological environmental monitoring program that is contrary to NRC regulations or the licensee's Technical Specifications (TS), Offsite Dose Calculation Manual (ODCM), or procedures? If yes, the question is; did it impair the licensee's ability to assess the impact of its radiological effluents on the environment? This means that a few of the environmental sampling stations were not operable or that not all the required environmental samples were collected or analyzed. Even though the licensee was missing data, an assessment of the environmental impact was still able to be done. For this case, the risk significance is GREEN.

The more significant finding is where the licensee failed to assess the environmental impact from its radioactive effluents. To answer the question with a yes means that the licensee's overall program is degraded. It does not mean that a few environmental samples over the course of a year were not taken, or improperly analyzed. A failure in one or two parts of the licensee's program is not sufficient to reach a WHITE significance determination. A failure to evaluate a required pathway (i.e., no valid data to be able to assess the environmental impact for that pathway) would result in a YES answer to the decision diamond and result in a WHITE risk significance finding. This is a high threshold to reach. Historically, inspection findings have documented that samples are missed, or a land use census was not performed, or the air samplers were broken for extended periods of time or they were not in the correct location. Overall, these findings have resulted in lost data, but not a complete failure to be able to assess the impact on the environment from that pathway, therefore a GREEN risk significance finding is typical for environmental monitoring programs.

PUBLIC RADIATION SAFETY

