

6.16 RADIOLOGICAL EFFLUENTS

- a. Written procedures shall be established, implemented and maintained covering the activities referenced below:
 1. Process Control Program (PCP) implementation
 2. OFF-SITE DOSE CALCULATION MANUAL (ODCM) implementation
 3. Quality Assurance Program for effluent and environmental monitoring
- b. The following programs shall be established, implemented, and maintained:
 1. Radioactive Effluent Controls Program

A program shall be provided conforming with 10 CFR 50.36a for the control of radioactive effluents and for maintaining the doses to MEMBER(S) OF THE PUBLIC from radioactive effluents as low as reasonably achievable. The program shall: (1) be contained in the ODCM, (2) be implemented by procedures, and (3) include remedial actions to be taken whenever the program limits are exceeded. The program shall include the following elements:

- A. Limitations on the OPERABILITY of radioactive liquid and gaseous monitoring instrumentation including surveillance tests and setpoint determination in accordance with the methodology in the ODCM.
- B. Limitations on the concentrations of radioactive material released in liquid effluents to UNRESTRICTED AREAS conforming to ten times the concentration values in Appendix B, Table 2, Column 2 to 10 CFR 20.1001-20.2402.
- C. Monitoring, sampling, and analysis of radioactive liquid and gaseous effluents in accordance with 10 CFR 20.1302 and with the methodology and parameters in the ODCM.
- D. Limitations on the annual and quarterly doses or dose commitment to a MEMBER(S) OF THE PUBLIC from radioactive materials in liquid effluents released from each unit to UNRESTRICTED AREAS conforming to Appendix I to 10 CFR Part 50.
- E. Determination of cumulative dose contributions from radioactive effluents for the current calendar quarter and current calendar year in accordance with the methodology and parameters in the ODCM at least every 31 days. Determination of projected dose contributions from radioactive effluents in accordance with the methodology in the ODCM at least every 31 days.

- F. Limitations on the OPERABILITY and use of the liquid and gaseous effluent treatment systems to ensure that the appropriate portions of these systems are used to reduce releases of radioactivity when the projected doses in a 31 day period would exceed 2% of the guidelines for the annual dose or dose commitment conforming to Appendix I to 10 CFR Part 50.
- G. Limitations on the dose rate resulting from radioactive material released in gaseous effluents from the site to areas at or beyond the SITE BOUNDARY shall be limited to the following:
 - 1. For noble gases: a dose rate ≤ 500 mrem/yr to the total body and a dose rate of ≤ 3000 mrem/yr to the skin, and
 - 2. For iodine-131, iodine-133, tritium, and for all radionuclides in particulate form with half-lives greater than 8 days: a dose rate ≤ 1500 mrem/yr to any organ.
- H. Limitations on the annual and quarterly air doses resulting from noble gases released in gaseous effluents from each unit to areas beyond the SITE BOUNDARY conforming to Appendix I to 10 CFR Part 50.
- I. Limitations on the annual and quarterly doses to MEMBER(S) OF THE PUBLIC from Iodine-131, Iodine-133, tritium, and all radionuclides in particulate form with half-lives greater than eight days in gaseous effluents released from each unit to areas beyond the SITE BOUNDARY conforming to Appendix I to 10 CFR Part 50.
- J. Limitations on the annual dose or dose commitment to any MEMBER(S) OF THE PUBLIC, beyond the site boundary, due to releases of radioactivity and to radiation from uranium fuel cycle sources conforming to 40 CFR Part 190.

The provisions of TS 4.0.b and 4.0.c are applicable to the Radioactive Effluents Controls Program surveillance frequency.

2. Radiological Environmental Monitoring Program

A program shall be provided to monitor the radiation and radionuclides in the environs of the plant. The program shall provide: (1) representative measurement of radioactivity in the highest potential exposure pathways, and (2) verification of the accuracy of the effluent monitoring program and modeling of environmental exposure pathways. The program shall: (1) be contained in the ODCM (2) conform to the guidance of Appendix I to 10 CFR Part 50, and (3) include the following:

- A. Monitoring, sampling, analysis, and reporting of radiation and radionuclides in the environment in accordance with the methodology and parameters in the ODCM.

6.18 OFF-SITE DOSE CALCULATION MANUAL (ODCM)

- a. The ODCM shall be approved by the Commission prior to implementation.
- b. Licensee initiated changes to the ODCM:
 1. Shall be documented and records of reviews performed shall be retained as required by TS 6.10.b.11. This documentation shall contain:
 - A. Sufficient information to support the change together with the appropriate analyses or evaluations justifying the change.
 - B. A determination that the change will maintain the level of radioactive effluent control required by 10 CFR 20.1302, 40 CFR Part 190, 10 CFR 50.36a, and Appendix I to 10 CFR Part 50 and not adversely impact the accuracy or reliability of effluent, dose, or setpoint calculations.
 2. Shall become effective after review and acceptance by the PORC.
 3. Shall be submitted to the Commission in the form of a complete, legible copy of the entire ODCM as a part of or concurrent with the Radioactive Effluent Release Report for the period of the report in which any change to the ODCM was made. The date the changes were made shall be indicated. In addition, a method such as redlining should be used to clearly identify the changes.