

11.4 RADIOACTIVE MATERIALS SAFETY

11.4.1 MATERIALS SAFETY PROGRAM

The overall radiation safety program includes provisions to assure the safe storage, handling, and use of sealed and unsealed special nuclear, source, and byproduct materials (Section 11.3).

In addition to indoctrination and training, personnel dosimetry, radiation and contamination surveys, and contamination control methods, the Radiation Safety Program includes specific provisions for radioactive material control. These provisions include procedures for the proper receipt of radioactive materials, the storage and movement of material within the plant, radioactive source control and inventory, and the packaging and labeling of radioactive materials for shipment.

11.4.2 SEALED SOURCE CONTAMINATION

Sealed sources containing radioactive material either in excess of 100 microcuries of beta and/or gamma emitting material or 5 microcuries of alpha emitting material are periodically verified to be free of ≥ 0.005 microcuries of removable contamination. The limitations on removable contamination for sources requiring leak testing, including alpha emitters, is based on 10 CFR 70.39(c) limits for plutonium. This limitation ensures that leakage from byproduct, source, and special nuclear material sources will not exceed allowable intake values. The test method has a detection sensitivity of at least 0.005 microcuries per test sample.

Each sealed source is tested for leakage and/or contamination by CCNPP personnel or other persons specifically authorized by the NRC or an Agreement State. Each category of sealed sources (excluding startup sources and fission detectors previously subjected to core flux) will be tested at the frequencies described below:

- a. Sources in use - At least once per six months for all sealed sources containing radioactive material:
 1. With a half-life greater than 30 days (excluding Hydrogen 3), and
 2. In any form other than gas.
- b. Stored sources not in use - Each sealed source and fission detector is tested prior to use or transfer to another licensee unless tested within the previous six months. Sealed sources transferred without a certificate indicating the last test date are tested prior to being placed into use.
- c. Startup sources and fission detectors - Each sealed startup source and fission detector is tested within 31 days prior to being subjected to core flux or installed in the core and following repair or maintenance to the source or detector.

Sealed sources with removable contamination in excess of 0.005 microcuries are immediately withdrawn from use and either decontaminated and repaired, or disposed of in accordance with NRC requirements.

11.4.3 FACILITIES AND EQUIPMENT

Plant laboratory facilities and equipment, survey and measuring instruments, and monitoring devices are described in Sections 11.2.3, 11.3.3, and 11.3.4.

11.4.4 PERSONNEL AND PROCEDURES

The experience and qualifications of key Radiation Safety personnel responsible for handling and monitoring radioactive materials are described in Sections 12.1 and 12.2.

11.4.5 REQUIRED MATERIALS

	<u>MATERIAL</u>	<u>FORM AND USE</u>	<u>POSSESSION LIMIT</u>
1.	Any byproduct, source, and special nuclear material	As reactor fuel; as sealed neutron sources for reactor start-up; as sealed sources for reactor instrument and radiation monitoring equipment calibration; and as fission detectors.	As required by Unit 1 or Unit 2 License.
2.	Any byproduct, material	Any form for sample analysis or counting equipment calibration.	As required by Unit 1 or Unit 2 License.
3.	Any source or special nuclear material	Any form for sample analysis or instrument calibration.	As required by Unit 1 or Unit 2 License.
4.	Sodium-24	Liquid form for tracer measurements for steam.	As required by Unit 1 or Unit 2 License.
5.	Byproduct and special nuclear materials	Possess but not separate such materials in such form as may be produced by operation of the facility.	As required by Unit 1 or Unit 2 License.