

3.0 LIMITING CONDITIONS FOR OPERATIONS (Continued)

3.6 Emergency Power

3.6.1 Applicability

These specifications apply to the emergency power supply for the radiation monitoring system.

3.6.2 Objective

To specify the source of emergency electrical power and the minimum operating time.

3.6.3 Specifications

Fuel transfer operations shall not be performed unless the following conditions exist:

A. The battery-powered standby AC power supply for the radiation monitoring system shall be operable and shall have the following operating time capabilities:

- (1) Operating time without the radiation-evacuation horn being activated shall be not less than eight hours.
- (2) Operating time with the radiation-evacuation horn being activated shall be not less than two hours.

3.6.4 Bases

Specification A requires that the standby AC power system, which consists of at least two lead-acid storage batteries, a charger transfer unit, and an inverter, be capable of providing a tripless switchover for supplying AC power to the radiation monitoring system, and that the power source be able to sustain operation for the specified intervals. There are no systems, other than radiation monitoring, that need emergency power. The radiation evacuation horn imposes a large incremental load on the power source and severely reduces the operating time; however, the evacuation signal, if needed, would be of sufficient duration to accomplish its intended purpose.

3.0 LIMITING CONDITIONS FOR OPERATIONS (Continued)

3.7 Radiation Monitoring Systems and Effluents

3.7.1 Applicability

These specifications apply to the radiation monitoring systems and to the limits on effluent releases.

3.7.2 Objective

To specify the minimum number of acceptable components or the lowest acceptable level of performance for the radiation monitoring systems, ~~and the limits for release of effluents.~~

3.7.3 Specifications

~~Fuel transfer operations shall not be performed unless the following conditions exist: --~~

- A. The radiation monitoring channels and components shall be operable in accordance with Table 3-3, including the minimum number of channels or components, and their setpoints.

3.7.4 Bases

Specification A provides assurance that the required radiation monitors are operable.

- ~~• The air-particulate monitor is placed in service and operated continuously whenever fuel transfer operations are being performed which could produce airborne radioactivity. The alarm setpoint is influenced by the normal background reading.~~
- ~~• The radiation area monitors are placed on the walls adjacent to the fuel storage pit. The south and west units initiate an evacuation alarm at or above the radiation-evacuation setpoint of 5 mR/h. The 5 mR/h limit is based on the minimum value permitted for monitoring SNM in storage and applies when the area is unattended.~~
- The doorway radiation monitor serves as a frisker to detect abnormal levels of radiation when a person passes the detector. The increasing aural signal alerts the reactor operator and the affected individual that further assessment must be initiated.
- The radiation film badge (or its equivalent) provides radiation dose information at the perimeter wall of the reactor room and serves as a control for the film badges used by personnel in the restricted area.

3.0 LIMITING CONDITIONS FOR OPERATIONS (Continued)

Table 3-3. Required Radiation Monitoring Channels or Components.

Channel	Setpoint	Min. Operable	Function
Air-Particulate unit (a)	As required	1	Alarm
Area units	5 mR/h	2	Alarm
Doorway monitor	--	1	Warn of abnormal radiation level.
Environmental film	--	1	Integrated dose in restricted area.

~~(a) This unit is activated whenever fuel transfer operations are being performed.~~

4.0 SURVEILLANCE REQUIREMENTS (Continued)

4.6 Emergency Power

4.6.1 Applicability

These specifications apply to the surveillance activities required for the emergency power system.

4.6.2 Objective

To specify the frequency and type of testing to assure that the emergency power system conforms to the specifications of section 3 of these Specifications.

4.6.3 Specifications

These surveillance activities are required for safety when the reactor is not being operated.

A. The battery-operated AC standby power supply shall be tested for switchover action, and for voltage and specific gravity characteristics at least quarterly.

B. The batteries shall be tested for full discharge at least every three years.

4.6.4 Bases

Specification A requires verification of operability of the standby power supply to complete the switch-over from normal AC power to the batteries at an interval which is appropriate based on experience at this facility. The measured values of voltage and specific gravity give adequate warning of reduced battery performance within the testing interval.

A full discharge test of the batteries every three years, as required in specification B, is appropriate for the type of battery used in the power supply; the interval is well within the normal 4-5 year warranted life for conditions much more severe than those encountered in this application.

6.0 ADMINISTRATIVE CONTROLS

6.1 Organization

6.1.1 Structure

The organization for the management of the reactor facility shall be structured as indicated in Figure 6-1. Job titles are shown for illustration and may vary. Levels of authority indicated divide responsibility as follows:

- Level 1: Responsible for the facility license and site administration.
- Level 2: Responsible for the reactor facility operation and management.
- Level 3: Responsible for daily operations.

The Reactor Use Committee is appointed by, and shall report to the University Radiation Safety Committee. Radiation safety personnel shall report to Level 2 or higher through an independent organizational channel.

6.1.2 Responsibility

The Facility Director shall be responsible for the facility license and site administration. The dean, College of Engineering, shall appoint persons, qualified in accordance with paragraph 6.1.4, to the Facility Director and Reactor Manager positions.

Individuals at the various management levels shown in Figure 6-1, in addition to having responsibility for the policies and operation of the facility, shall be responsible for safeguarding the public and facility personnel from undue radiation exposures and for adhering to all requirements of the Operating License and the Technical Specifications.

In all instances, responsibilities of one level may be assumed by designed alternates, or by higher levels, conditional upon appropriate qualifications.

6.1.3 Staffing

- (1) ~~The minimum staffing during fuel transfer operations shall be:~~
- ~~a. A licensed senior reactor operator in the control room.~~
 - ~~b. A health physics-qualified individual in the control room.~~
 - ~~c. A qualified fuel transfer equipment operator.~~

6.0 ADMINISTRATIVE CONTROLS (Continued)

~~— (2) Events requiring the direction of a senior reactor operator: —~~

~~— a. Fuel transfer operations: —~~

(1) ~~(3)~~ Events requiring the presence of a health physics-qualified individual:

~~a. Fuel transfer operations: —~~

a ~~b~~. Any activity that involves removal of a shield plug or closure.

b ~~c~~. Any activity that could cause an abnormal release of radioactive materials.

~~6.1.4 Selection and Training of Personnel~~

~~The selection, training and requalification of operations personnel shall meet or exceed the requirements of American National Standard for Selection and Training of Personnel for Research Reactors, ANSI/ANS-15.4-1988, or its successor, meet or exceed the requirements set forth in 10 CFR 55, and be in accordance with the Requalification Plan approved by the Nuclear Regulatory Commission.~~

6.0 ADMINISTRATIVE CONTROLS (Continued)

6.2.3 Review Function

The following items shall be reviewed

- (1) Determinations that proposed changes in equipment, systems, tests, or procedures do not involve an unreviewed safety question.
- (2) All new procedures and major revisions thereto have safety significance and proposed changes in reactor facility equipment, or systems having safety significance.
- (3) Proposed changes in the Technical Specifications or the Operating License.
- (4) Violations of the Technical Specifications or the Operating License. Violations of internal procedures or instructions having safety significance.
- (5) Reportable occurrences listed in 6.6.2.
- (6) Audit reports.

6.2.4 Audit Function

The audit function shall include selective (but comprehensive) examination of operating records, logs, and other documents. Discussions with cognizant personnel and observation of operations should also be used as appropriate. In no case shall the individual immediately responsible for the area, audit in that area. Deficiencies uncovered that affect reactor safety shall be reported immediately to the University Radiation Safety Committee. A written report of the findings of the audit shall be submitted to the Reactor Use Committee within 30 days after completion of the audit. The following items shall be audited.

- (1) Facility operations for conformance to the Technical Specifications and applicable Operating License conditions, at least once per calendar year (interval between audits not to exceed 15 months).
- ~~(2) The retraining and requalification program for the operating staff, at least once every other calendar year (interval between audits not to exceed 30 months).~~
- (2) ~~(3)~~ The results of action taken to correct those deficiencies that may occur in the reactor facility equipment, systems, structures, or methods of operations that affect safety, at least once per calendar year (interval between audits not to exceed 15 months).
- ~~(4) The reactor facility Emergency and Physical Security Plans and implementing procedures at least once every other calendar year (interval not to exceed 30 months).~~

6.0 ADMINISTRATIVE CONTROLS (Continued)

6.3 Procedures

Written procedures shall be prepared, reviewed and approved prior to initiating any of the activities listed in this section. The procedures shall be reviewed by the Reactor Use Committee (see 6.2.3) and approved by the Reactor Manager or a designated alternate. These reviews and approvals shall be documented in a timely manner. Substantive changes to the procedures shall be made effective only after documented review by the Reactor Use Committee and approval by the Reactor Manager or a designated alternate. Minor modifications to the original procedure which do not change their original intent may be made, but the modification must be approved by the Reactor Manager or a designated alternate within 14 days. Temporary deviations from the procedures may be made by the on-duty SRO in order to deal with special or unusual circumstances or conditions. Such deviations shall be documented and reported to the Reactor Manager or a designated alternate. Several of the following activities may be included in a single manual or set of procedures or divided among various manuals or procedures:

~~—(1) Fuel element manipulations—~~

(1) ~~—(2) Surveillance tests and calibrations required by the Technical Specifications or those that may have an effect on safety.~~

(2) ~~—(3) Personnel radiation protection consistent with applicable regulations.~~

(3) ~~—(4) Administrative controls for operations and maintenance, and for the conduct of—
— irradiation and experiments that could affect safety.~~

~~—(5) Implementation of the Emergency and Physical Security Plans—~~