

ATTACHMENT A

PROPOSED CHANGE PAGES 7, 17, 37, 39, AND 40
OF TECHNICAL SPECIFICATIONS

shall, should and may - the word "shall" is used to denote a requirement; the word "should" to denote a recommendation; and the word "may" to denote permission, which is neither a requirement nor a recommendation.

shim/safety rods - high reactivity-worth rods used primarily to provide coarse reactor control. They are connected electromagnetically to their drive mechanisms and have scram capabilities.

shutdown margin - the minimum shutdown reactivity necessary to provide confidence that the reactor can be made subcritical by means of the control and safety system starting from any permissible operating condition with the maximum worth scrammable rod and any non-scrammable control rod in their fully withdrawn positions and that the reactor will remain subcritical without further operator action.

start-up source - a spontaneous source of neutrons which is used to provide a channel check of the start-up (fission chamber) channel.

surveillance time intervals -

- two-year (interval not to exceed 30 months).
- annually (interval not to exceed 15 months).
- semiannually (interval not to exceed 7 1/2 months).
- quarterly (interval not to exceed 4 months).
- monthly (interval not to exceed 6 weeks).
- weekly (interval not to exceed 10 days).
- daily (must be done during the working day).

trainee - an individual who is preparing to become licensed at the facility or for a utility company.

true value - the actual value of a parameter.

unscheduled shutdown - any unplanned shutdown of the reactor caused by actuation of the reactor safety system, operator error, equipment malfunction, or a manual shutdown in response to conditions which could adversely affect safe operation, not including shutdowns which occur during testing or check-out operations.

element cladding and to reduce neutron activation of dissolved materials.

Specification:

- (1) The reactor shall not be operated unless there is at least 16 feet (4.88 m) of water above the core.
- (2) The resistivity of the pool water shall be greater than 0.2 megaohm-cm as long as there are fuel elements in the pool.

Bases:

- (1) Cooling of the reactor core is provided by the natural convection in the reactor pool. In order to maintain the convection flow path intact the reactor core must be fully submerged. Radiation levels at licensed power require a sufficient depth of water for shielding.
- (2) A small rate of corrosion continuously occurs in a water-metal system. To limit this rate, and thereby extend the longevity and integrity of the fuel cladding, a water purification system is required. Experience with water quality control at this and many other reactor facilities has shown that maintenance within the specified limit provides acceptable control of the corrosion rate. (See section 5.2 of the SAR for further information.)

3.4 Confinement

Applicability: This specification applies to the capability of isolating the reactor facility from the unrestricted environment when necessary.

Objective: To prevent the exposure to the public resulting from airborne activity released into the reactor facility from exceeding the limits of 10 CFR 20.105 for unrestricted areas, and to be consistent with the ALARA concept.

6. ADMINISTRATIVE CONTROLS

6.1 Organization

6.1.1 Structure

The Nuclear Reactor Facility is a part of the School of Mines and Metallurgy of the University of Missouri-Rolla. The organizational structure is shown in Figure 6.1.

6.1.2 Responsibility

The Dean of the School of Mines and Metallurgy is the individual responsible for the reactor facility's licenses (Level 1).

The Director of the Nuclear Reactor Facility is the contact person for the NRC and will have overall responsibility for management of the facility (Level 2).

The Reactor Manager shall be responsible for the day-to-day operation and for ensuring that all operations are conducted in a safe manner and within the limits prescribed by the facility license and the provisions of the Radiation Safety Committee (Level 3). During periods when the Reactor Manager is absent, his responsibilities are delegated to a Senior Operator (Level 4).

The Reactor Manager shall have a Bachelor's degree in engineering or science or an equivalent combination of education and experience from which comparable knowledge and abilities can be acquired. As soon as reasonably possible after being assigned to the position, the Reactor Manager shall obtain and maintain a NRC Senior Operators license.

A Health Physicist who is organizationally independent of the Reactor Facility operations group, as shown in Figure 6.1, shall be responsible for radiological safety at the facility.

6.1.3 Staffing

When the reactor is operating the following staffing conditions shall be met:

- (1) At least two persons (one of whom is a licensed Senior Operator) shall be present in the Reactor Building.
- (2) A licensed Reactor Operator or Senior Operator shall be present in the control room.

All rearrangements of the core, fuel movement, and associated Health Physics monitoring, or other nonroutine actions shall be supervised by a licensed Senior Operator.

When the reactor is being used for training purposes the following conditions shall be met:

- (1) Students and Trainees may operate the reactor under the direct supervision of a licensed Reactor Operator provided the excess reactivity is less than 0.7% $\Delta k/k$.
- (2) Trainees may operate the reactor under the direct supervision of a Senior Operator when the excess reactivity is greater than 0.7% $\Delta k/k$ and less than 1.5% $\Delta k/k$.

6.1.4 Selection and Training of Personnel

The selection, training, and regualification of operations personnel shall meet or exceed the requirements of American National Standard for Selection and Training of Personnel for Research Reactors, ANSI/ANS-15.4-1977, Sections 4-6.(7).

6.2 Review and Audit

There shall be a committee that reviews and audits reactor operations to ensure that the facility is operated in a manner consistent with public safety and within the terms of the facility license. The Committee shall be referred to as the Radiation Safety Committee and shall report to the Chancellor of the campus and advise the Dean of the School of Mines and Metallurgy, and the Reactor Director on those areas of responsibility specified below.

6.2.1 Composition and Qualifications

The Committee shall be composed of at least five members, one of whom shall be the Radiation Safety Officer of the campus. No more than two members will be from the organization responsible for reactor operations. The membership of the Committee shall be such as to maintain a thorough knowledge in areas relating to reactor safety and research use of radioisotopes.

6.2.2 Charter and Rules

- (1) A quorum of the Committee shall consist of at least one half of the voting members.
- (2) The Committee shall meet at least quarterly. Minutes of all meetings shall be disseminated to Committee members and