



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

IOWA STATE UNIVERSITY

DOCKET NO. 50-116

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 9
License No. R-59

1. The U.S. Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment filed by the Iowa State University (the licensee), dated October 18, 1991, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations as set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance: (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public;
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied; and
 - F. Prior notice of this amendment was not required by 10 CFR 2.105(a)(4) and publication of notice for this amendment is not required by 10 CFR 2.106(a)(2).

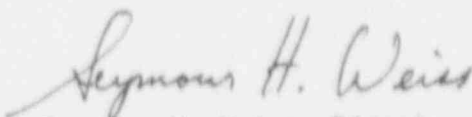
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the enclosure to this license amendment, and paragraph 2.C.2. of License No. R-59 is hereby amended to read as follows:

2. Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 9, are hereby incorporated in the license. The licensee shall operate the reactor in accordance with the Technical Specifications.

3. This license amendment is effective as of its date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Seymour H. Weiss, Director
Non-Power Reactors, Decommissioning and
Environmental Project Directorate
Division of Advanced Reactors
and Special Projects
Office of Nuclear Reactor Regulation

Enclosure:
Appendix A Technical
Specifications Changes

Date of Issuance: February 14, 1992

ENCLOSURE TO LICENSE AMENDMENT NO. 9

FACILITY OPERATING LICENSE NO. R-59

DOCKET NO. 50-116

Replace Section 6 of the Appendix A Technical Specification pages 6-1 through 6-17 and Figure 6-1 with pages 6-1 through 6-11. The revised pages are identified by amendment number and the changes are underlined. The Technical Specifications (TS) have been retyped in their entirety which results in new page numbers for the same paragraphs in the previous TS. However, the paragraph numbers have not changed.

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 designated alternates, or by higher levels, conditional upon appropriate qualifications.

6.1.3 Staffing

- (1) The minimum staffing when the reactor is not secured shall be:
 - a. A licensed reactor operator in the control room.
 - b. A licensed senior reactor operator readily available on call.
 - c. A health physics-qualified individual readily available on call.
- (2) Events requiring the direction of a senior reactor operator:
 - a. Recovery from unplanned or unscheduled shutdown (in this instance, documented verbal concurrence from a SRC is required).
 - b. Fuel transfer operations.
 - c. Any maintenance activity involving the reactor safety system that could cause a significant increase in the reactivity of the reactor
 - d. Relocation of any in-core experiment with a reactivity worth greater than one dollar.

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

- a. Fuel transfer operations.
- b. Installation, changing locations, or removal of an experiment that involves removal of a shield plug or closure.
- c. Any maintenance activity involving the reactor safety system 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-13.4n 1988, or its successor, and be in accordance with the Requalification Plan approved by the Nuclear Regulatory Commission.

6.0 ADMINISTRATIVE CONTROLS (Continued)

6.2 Review and Audit

The Reactor Use Committee (RUC) shall perform the independent review and audit of the safety aspects of reactor facility operations.

6.2.1 Composition and Qualifications

The Reactor Use Committee shall be composed of the Reactor Manager and a radiation health physicist, both ex officio (voting), and at least three other members having expertise in reactor technology. Committee members shall be appointed by the University Radiation Safety Committee. (The Radiation Safety Committee is composed of a representative from each of the colleges in the university in which research in the physical and life sciences and in engineering is conducted, plus three members with specific expertise in radiation protection. At least one of these members shall also represent university management. ~~(Sentence deleted.)~~ One of the three other members shall be the University Radiation Safety Officer (RSO). The chair of the committee shall be appointed by the Provost. The terms on the committee for the RSO and chair are indefinite. All others are for three years with reappointments being determined by the Provost.)

6.2.2 Charter and Rules

- (1) The Reactor Use Committee shall meet at least semiannually and more frequently as circumstances warrant, consistent with effective monitoring of facility activities. Written records of its meetings shall be kept and copies forwarded, in a timely manner, to the University Radiation Safety Committee.
- (2) A quorum shall be three members. Members of the operations staff shall not be a voting majority.
- (3) Any action recommended by the Reactor Use Committee that may adversely affect the operations and/or safety of the University community shall be reported by the RUC chairman to the University Radiation Safety Committee which shall have veto power over such a recommendation.
- (4) The Reactor Use Committee may appoint one or more qualified individuals to perform the audit function.

6.2.3 Review Function

The following items shall be reviewed:

- (1) Determinations that proposed changes in equipment, systems, tests, experiments, or procedures do not involve an unreviewed safety question.
- (2) All new procedures and major revisions thereto having safety significance and proposed changes in reactor facility equipment, or systems having safety significance.

- (3) All new experiments or classes of experiments that could affect reactivity or result in the release of radioactivity.
- (4) Proposed changes in the Technical Specifications or the Operating License.
- (5) Violations of the Technical Specifications or the Operating License. Violations of internal procedures or instructions having safety significance.
- (6) Operating abnormalities having safety significance.
- (7) Reportable occurrences listed in 6.6.2.
- (8) 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 one 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).
- (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 reactor 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 procedures which do not change their original intent may be made, but the modifications 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) Startup, operation, and shutdown of the reactor.
- (2) Fuel loading, unloading, and movement within the reactor.
- (3) Routine maintenance of major components of systems that could have an effect on reactor safety.
- (4) Surveillance tests and calibrations required by the Technical Specifications or those that may have an effect on reactor safety.
- (5) Personnel radiation protection consistent with applicable regulations.
- (6) Administrative controls for operations and maintenance and for the conduct of irradiations and experiments that could affect reactor safety or core reactivity.
- (7) Implementation of the Emergency and Physical Security Plans.

6.0 ADMINISTRATIVE CONTROLS (Continued)

6.4 Experiment Review and Approval

Approved experiments shall be carried out in accordance with established and approved procedures.

- (1) All new experiments or classes of experiments shall be reviewed by the Reactor Use Committee and approved in writing by the Reactor Manager or a designated alternate prior to initiation.
- (2) Substantive changes to previously approved experiments shall be made only after they are reviewed by the Reactor Use Committee and approved in writing by the Reactor Manager or a designated alternate. Minor changes that do not significantly alter the experiment may be approved by the Reactor Manager or a designated alternate.

6.0 ADMINISTRATIVE CONTROLS (Continued)

6.5 Required Actions

6.5.1 Action to be Taken in Case of Safety Limit Violation

- (1) The reactor shall be shut down and reactor operations shall not be resumed until authorized by the Nuclear Regulatory Commission (NRC).
- (2) The safety limit violation shall be promptly reported to the Reactor Manager or a designated alternate.
- (3) The safety limit violation shall be reported to NRC.
- (4) A safety limit violation report shall be prepared. The report, and any follow-up report, shall be reviewed by the Reactor Use Committee and shall be submitted to the NRC when authorization is sought to resume operation of the reactor. The report shall describe the following:
 - a. Applicable circumstances leading to the violation including, when known, the cause and contributing factors.
 - b. Effect of the violation upon reactor facility components, systems, or structures and on the health and safety of personnel and the public.
 - c. Corrective action to be taken to prevent recurrence.

6.5.2 Action to be Taken in the Event of an Occurrence of the Type Identified in 6.6.2(1)b and 6.6.2(1)c.

- (1) Reactor conditions shall be returned to normal or the reactor shall be shut down. If it is necessary to shut down the reactor to correct the occurrence, operations shall not be resumed unless authorized by the Reactor Manager or a designated alternate.
- (2) Occurrence shall be reported to the Reactor Manager or a designated alternate and to the NRC.
- (3) Occurrence shall be reviewed by the Reactor Use Committee at its next scheduled meeting.

6.0 ADMINISTRATIVE CONTROLS (Continued)

6.6 Reports

6.6.1 Operating Reports

A routine operating report providing the following information shall be submitted to the Nuclear Regulatory Commission in accordance with the provisions of 10 CFR 50.59 at the end of each 12-month period:

- (1) A narrative summary of reactor operating experience including the energy produced by the reactor.
- (2) The unscheduled shutdowns including, where applicable, corrective action taken to preclude recurrence.
- (3) Tabulation of major preventive and corrective maintenance operations having safety significance.
- (4) Tabulation of major changes in the reactor facility and procedures, and tabulation of new tests or experiments, or both, that are significantly different from those performed previously and are not described in the Safety Analysis Report, including conclusions that no unreviewed safety questions were involved.
- (5) A summary of the nature and amount of radioactive effluents released or discharge to the environs beyond the effective control of the owner-operator as determined at or before the point of such release or discharge. The summary shall include to the extent practicable an estimate of individual radionuclides present in the effluent. If the estimated average release after dilution or diffusion is less than 25 percent of the concentration allowed or recommended, a statement to this effect is sufficient.
- (6) A summarized result of any environmental surveys performed outside the facility.
- (7) A summary of exposures received by facility personnel and visitors where such exposures are greater than 25 percent of that allowed or recommended.

6.6.2 Special Reports

- (1) There shall be a report not later than the following working day by telephone to the appropriate NRC Regional Office and confirmed in writing by telegraph or similar conveyance to the Nuclear Regulatory Commission, in accordance with instructions in 10 CFR 50.4, to be followed by a written report that describes the circumstances of the event within 14 days of any of the following:
 - a. Violation of safety limits (see 6.5.1).
 - b. Release of radioactivity from the site above allowed limits (see 6.5.2).
 - c. Any of the following (see 6.5.2):

- (i) Operation with actual safety system settings for required systems less conservative than the limiting safety system settings specified in the Technical Specifications.
 - (ii) Operation in violation of limiting conditions for operation established in the Technical Specifications unless prompt remedial action is taken.
 - (iii) A reactor safety system component malfunction which renders or could render the system incapable of performing its intended safety function unless the malfunction or condition is discovered during maintenance tests or periods of reactor shutdown.
 - (iv) An unanticipated or uncontrolled change in reactivity greater than the licensed excess reactivity, or one dollar, whichever is smaller.
 - (v) Abnormal and significant degradation in reactor fuel, or cladding, or both, or coolant boundary which could result in exceeding prescribed radiation exposure limits of personnel or environment, or both.
 - (vi) An observed inadequacy in the implementation of administrative or procedural controls such that the inadequacy causes or could have caused the existence or development of an unsafe condition with regard to reactor operations.
- (2) A written report within 30 days to the Nuclear Regulatory Commission, in accordance with instructions in 10 CFR 50.4, concerning the following:
- a. Permanent changes in the organization involving the Facility Director, Reactor Manager, or Radiation Safety Officer.
 - b. Significant changes in the transient or accident analysis as described in the Safety Analysis Report.

6.0 ADMINISTRATIVE CONTROLS

6.7 Records

6.7.1 Records to be Retained for a Period of at Least Five Years or for the Life of the Component if Less than Five Years

- (1) Normal reactor facility operation (but not including supporting documents such as checklists, log sheets, etc., which shall be maintained for a period of at least one year).
- (2) Principal maintenance operations.
- (3) Reportable occurrences.
- (4) Surveillance activities required by the Technical Specifications.
- (5) Reactor facility radiation and contamination surveys where required by applicable regulations.
- (6) Experiments performed with the reactor.
- (7) Fuel inventories, receipts, and shipments.
- (8) Approved changes in operating procedures.
- (9) Records of meetings and audit reports of the Reactor Use Committee.

6.7.2 Records to be Retained for at Least One Training Cycle

Training and requalification of licensed operators: Records of the most recent complete cycle shall be maintained at all times the individual is employed.

6.7.3 Records to be Retained for the Lifetime of the Reactor Facility

Applicable annual reports, if they contain all of the required information, may be used as records in this section.

- (1) Gaseous and liquid radioactive effluents released to the environs.
- (2) Off-site environmental monitoring surveys required by the Technical Specifications.
- (3) Radiation exposure for all personnel monitored.
- (4) Drawings of the reactor facility.

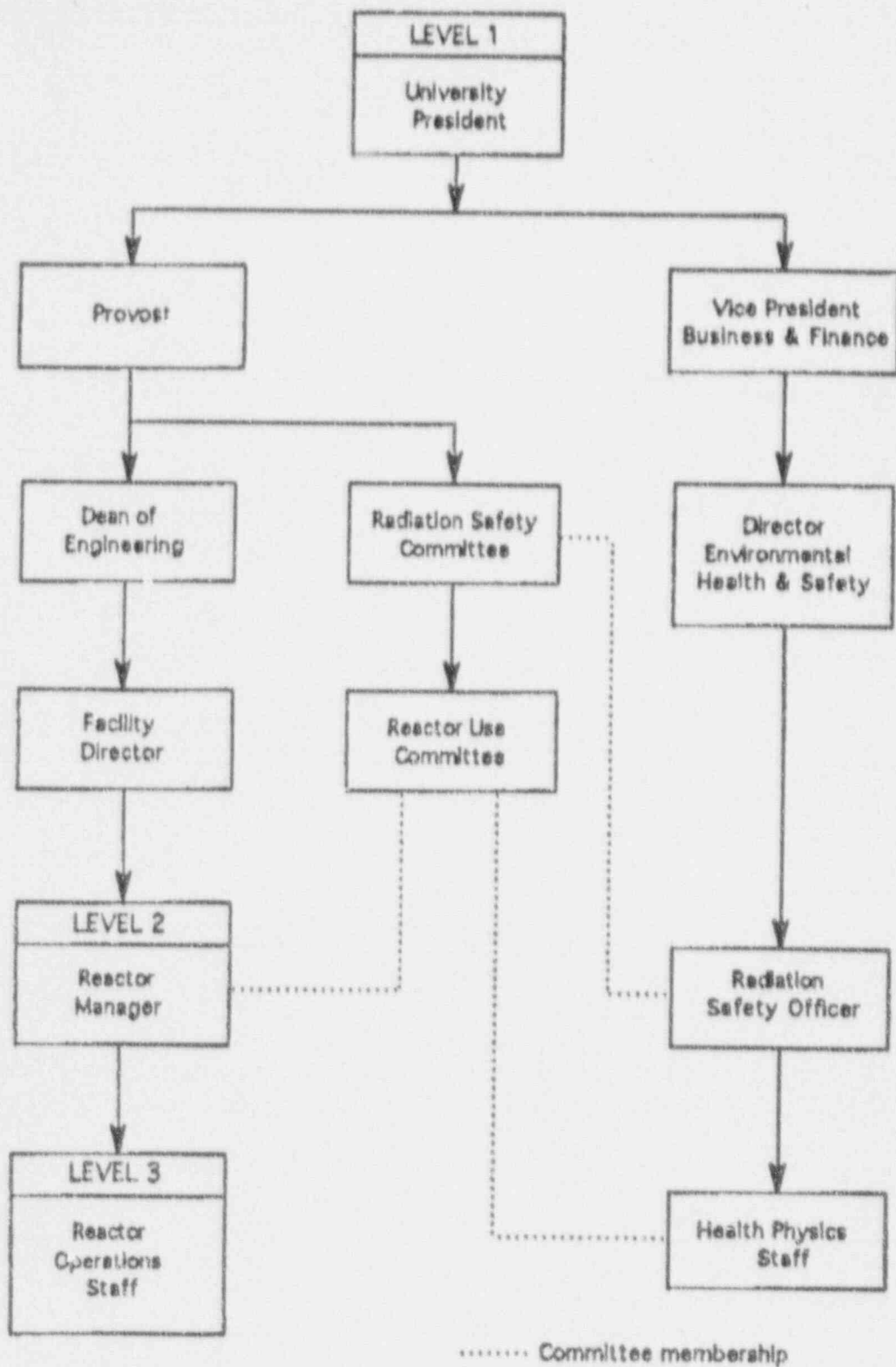


Figure 6-1. Organization structure