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REFERENCE: Docket 50-407
The University of Utah – TRIGA Research Reactor (UUTR)
License No. R-126

SUBJECT 3) : Detailed description of the change

Technical specification change is requested for Chapter 6.0. The change is: clarified the organizational chart, wording, and structure (main titles and subtitles) of the Chapter 6.0 to follow the ANSI/ANS15.1-2007 and ANSI/ANS15.4-2007. The following is detailed description of the changes:

1) Page 26 in the current TS, Chapter 14, Chapter 6.0

The current TS Chapter 14, Chapter 6.0 starts with 6.1 Responsibility (This became 6.1.2 Responsibility). We changed to start with 6.1 Organization.
In the current TS this section reads:

6.2 Organization

- (1) The reactor facility shall be an integral part of the Nuclear Engineering Laboratory of the University of Utah. The organization of the facility management and operation shall be as shown in Figure 6.1. The responsibilities and authority of each member of the operating staff shall be defined in writing.
- (2) When the reactor is not secured, the minimum staff shall consist of
 - (a) Reactor Operator (RO) at the controls (may be the SRO or RS).
 - (b) Senior Reactor Operator (SRO) on call but not necessarily on site.
 - (c) Another person present at the facility complex who is able to carry out prescribed written instructions.

We clarified the wording as follows:

6.1 Organization

6.1.1 Structure

- 1) ~~The reactor facility shall be~~ The UUTR is an integral part of the ~~Nuclear Engineering Laboratory~~ Nuclear Engineering Facilities (NEF) of the University of Utah. The organization of the facility management and operation shall be as shown in Figure 6.1. The responsibilities and authority of each member of the operating staff shall be defined in writing.
 - 2) As indicated in Fig. 6.1, the Reactor Safety Committee shall report to Level 1. Radiation safety personnel shall report to Level 2. Additional description of levels follows:
 - a. *Level 1:* Individual responsible for the reactor facility's licenses, i.e., the Associate Vice President for Research in the Office of Vice President for Research; The Vice President for Research will assign which of the Associate Vice Presidents for Research will be the responsible Level 1 individual.
 - b. *Level 2:* Individual responsible for reactor facility operation, i.e., the facility director shall be the Director of the Utah Nuclear Engineering Program, who shall also be the Director of the Nuclear Engineering Facilities (NEF) of the University of Utah.
 - c. *Level 3:* Individual responsible for day-to-day operation or shift shall be the reactor supervisor (RS). This person shall be a senior reactor operator (SRO).
 - d. *Level 4:* Operating staff shall be senior reactor operators, reactor operators, and trainees.
 - 3) Transition plan shall be defined as follows:
 - a. In the absence of the Level 2 individual [sabbatical leave, sudden leave]: Level 1 shall have the authority to automatically appoint the RS as an interim reactor administrator (RA) with direct access to Level 1 and communication to U.S.N.R.C; Radiation safety personnel shall report to RA unless Level 1 decides differently.
 - b. In the absence of the Level 3 individual [sabbatical leave, sudden leave]: Level 2 shall have the authority to automatically appoint a new RS who shall be a most senior Level 4 individual (SRO).
- 2) **Figure 6.1: Page 27 in the current TS, Chapter 14, Chapter 6.0**
The UUTR administrative organization flowchart was clarified to reflect clear administrative position, as well as to clarify the communication lines, and lines of responsibility and reporting.

The current Figure 6.1 is:

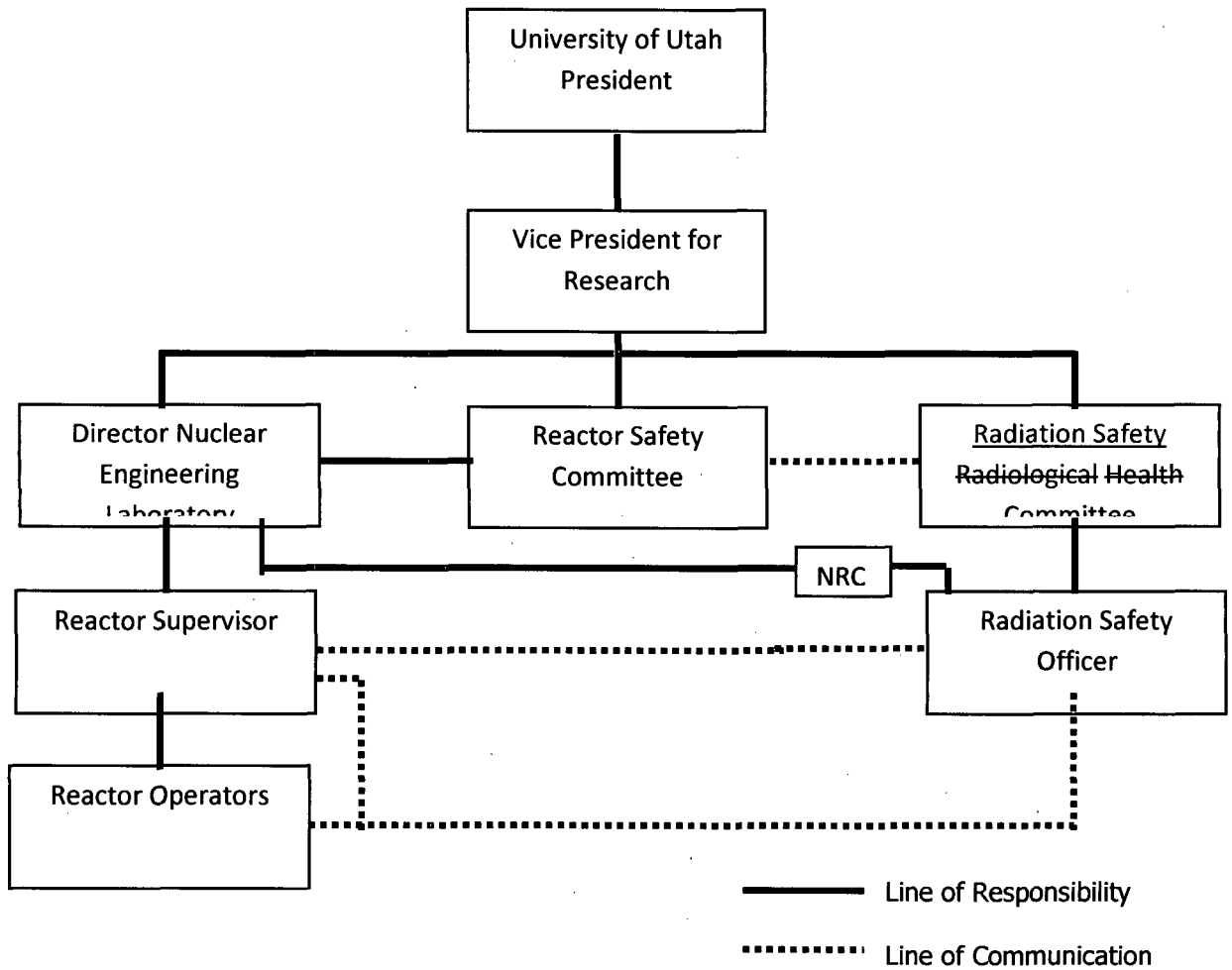


Figure 6.1
University of Utah Administrative Organization for Nuclear Reactor Operations

We clarified this figure into this:

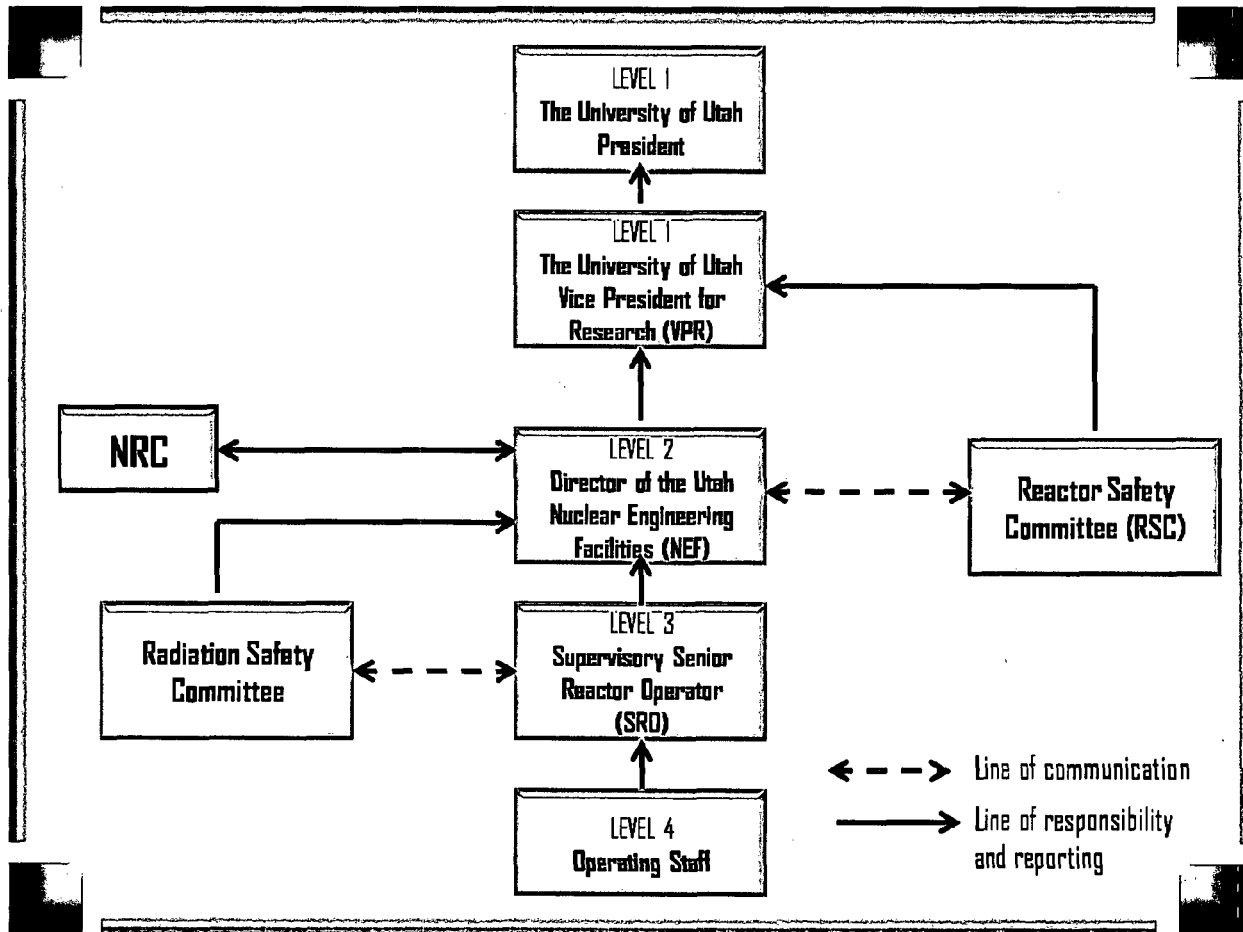


Figure 6.1

University of Utah Administrative Organization for Nuclear Reactor Operations [Clarified - December 2009; in compliance with ANSI/ANS 15.1-2007]

3) Page 26 in the current TS, Chapter 14, Chapter 6.0

The current text under 6.1 Responsibility reads:

6.1 Responsibility

The facility shall be under the direct control of a licensed Senior Reactor Operator (SRO) designated by the Reactor Supervisor (RS) who is also a licensed Senior Reactor Operator. The SRO shall be responsible to the RS for the overall facility operation including the safe operation and maintenance of the facility and associated equipment. The SRO shall also be responsible for ensuring that all operations are conducted in a safe manner and within the limits prescribed by the facility license, federal and state regulations, and requirements of the Reactor Safety Committee.

We changed the numbering into 6.1.2 and clarified the wording (as explained under 1) as follows:

6.1.2 Responsibility

Responsibility for the safe operation of the reactor facility shall be with the chain of command established in Fig. 6.1 following ANSI/ANS 15.1-2007:

- 1) Individuals at the various management levels, in addition to having responsibility for the policies and operation of the reactor 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 or charter and technical specifications.
- 2) In all instances, responsibilities of one level may be assumed by designated alternates or by higher levels, conditional upon appropriate qualifications.

The reactor facility shall be under the direct control of a licensed Senior Reactor Operator (SRO) designated by the Reactor Supervisor (RS) who is also a licensed Senior Reactor Operator. The SRO shall be responsible to the RS for the overall facility operation including the safe operation and maintenance of the facility and associated equipment. The SRO shall also be responsible for ensuring that all operations are conducted in a safe manner and within the limits prescribed by the facility license, federal and state regulations, and requirements of the Reactor Safety Committee.

4) Page 26 in the current TS Chapter 14, Chapter 6.0

The current section 6.3 Facility Staff Qualifications is renumbered into 6.1.3 Staffing. The current section reads

6.3 Facility Staff Qualifications

Each member of the facility staff shall meet or exceed the minimum qualifications of ANS 15.4 "Standard for the Selection and Training of Personnel for Research Reactors" for comparable positions.

We changed the numbering of the section and clarified the wording as follows:

6.1.3 Staffing

- 1) When the reactor is not secured, the minimum staff shall consist of:
 - a. A licensed reactor operator in the control room, e.g., Reactor Operator (RO) (may be the SRO or RS).
 - b. A designated Senior Reactor Operator (SRO) on call but not necessarily on site.
 - c. Another person present at the facility complex who is able to carry out prescribed written instructions.
- 2) A list of reactor facility personnel by name and telephone number shall be readily available in the control room for use by the operator. Level 1/2The list shall include:
 - a. management personnel,

- b. radiation safety personnel,
 - c. other operations personnel;
- 3) Events requiring the presence at the facility of the senior reactor operator are:
- a. initial startup and approach to power,
 - b. all fuel or control-rod relocations within the reactor core region,
 - c. relocation of any experiment with reactivity worth greater than one dollar;
 - d. recovery from unplanned or unscheduled shutdown or significant power reduction.

5) Page 26 in the current TS Chapter 14, Chapter 6.0

The current section 6.4 Training is renumbered into 6.1.4. The current section reads:

6.4 Training

The Reactor Supervisor shall be responsible for the facility's Requalification Training Program and Operator Training Program.

We clarified the words and changed the section number as follows:

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 "Selection and Training of Personnel for Research Reactors," ANSI OANS-15.4-1988 ~R1999, Sections 4 through 7.

Reactor Supervisor shall be responsible for the facility's Requalification Training Program and Operator Training Program.

6) Pages 26 and 27 in the current TS Chapter 14, Chapter 6.0

The current section 6.5 Reactor Safety Committee is renumbered to 6.2 Reactor Safety Committee. The current subtitle 6.5.1 Function is renumbered to 6.2.1 Function.

The text is not changed, except the beginning of the first sentence to better clarify the abbreviation. The current first sentence starts with:

The RSC shall function...

We changed into:

The Reactor Safety Committee (RSC) shall function...

7) Page 28 in current TS Chapter 14, Chapter 6.0

The subsection 6.5.2 Composition and Qualifications is renumbered into 6.2.2. The current subsection reads:

6.5.2 Composition and Qualifications

The RSC shall be composed of at least five members knowledgeable in fields that relate to nuclear reactor safety. The members of the committee shall include the Reactor Supervisor and faculty and staff members designated to serve on the committee. The University's Radiation Safety Officer shall be an ex officio member of the committee.

We clarified the wording of this subsections as follows:

6.2.2 Composition and Qualifications

The RSC shall be composed of at least five members knowledgeable in fields that relate to nuclear reactor safety. The members shall collectively represent a broad spectrum of expertise in the appropriate reactor technology.

The members of the committee shall include the Reactor Supervisor and faculty and staff members designated to serve on the committee. The University's Radiation Safety Officer shall be an ex officio member of the ~~committee~~ RSC.

Members and alternates shall be appointed by and report to Level 1 management. Individuals may be either from within or outside the operating organization (univ. Qualified and approved alternates may serve in the absence of regular members.

8) Page 28 in current TS Chapter 14, Chapter 6.0

The subsection 6.5.3 Operation was renumbered into 6.2.3 Operation. The current subsection reads:

6.5.3 Operation

The Reactor Safety Committee shall operate in accordance with a written charter, including provisions for

- (1) meeting frequency: the full committee shall meet at least semiannually and a subcommittee thereof shall meet at least quarterly
- (2) voting rules
- (3) quorums: chairman or his designate and two members

- (4) method of submission and content of presentations to the committee
- (5) review, approval, and dissemination of minutes

We clarified some of the wordings, as follows:

6.2.3 Operation

The Reactor Safety Committee shall operate in accordance with a written charter, including provisions for

- 1) meeting frequency: ~~the full committee shall meet at least semiannually and a subcommittee thereof shall meet at least quarterly~~ not less than once per calendar year and more frequently as circumstances warrant, consistent with effective monitoring of facility activities
- 2) ~~voting rules~~
- 3) ~~quorums: chairman or his designate and two members~~
- 2) voting and quorums: a quorum shall be made up of the chairman or his designate and voting members such that at least half of the voting body is represented, and where the Level 2 facility director and anyone who reports directly to him/her (such as Level 3 and Level 4 personnel) does not constitute a voting majority
- 3) ~~method of submission and content of presentations to the committee~~ use of subcommittees
- 4) review, approval, and dissemination of minutes in timely manner

9) Page 28 in current TS Chapter 14, Chapter 6.0

The subsection 6.5.4 Reviews was renumbered and changed into subsection 6.2.4 Review Function. The first sentence in new version has designated subcommittees in plural.

The subsection is not revised, except the following sentence is added at the end of the subsection:

A written report or minutes of the findings and recommendations of the review group shall be submitted to Level 1 and the review and audit group members in a timely manner after the review has been completed.

10) Page 29 in current TS Chapter 14, Chapter 6.0

The subsection 6.5.5 Audits was renumbered into 6.2.5 Audits.

11) Page 29 in current TS Chapter 14, Chapter 6.0

The subsection 6.5.6 Records was renumbered into 6.2.6 Records.

12) Additional section to current TS Chapter 14, Chapter 6.0

The section on Radiation Safety is added as follows:

6.3 Radiation Safety

The Radiation Safety Office of the University of Utah shall be assigned responsibility for implementing the radiation protection program at the reactor using the guidelines of American National Standard "Radiation Protection at Research Reactor Facilities," ANSI/ANS-15.11-1993 (R2004). The Radiation Safety Officer shall report to Level 2 [Fig. 6.1].

13) Page 29 in current TS Chapter 14, Chapter 6.0

The subsection 6.6 Quality Assurance is renumbered into 6.9 Quality Assurance.

14) Page 29 in current TS Chapter 14, Chapter 6.0

The subsection 6.7 Action To Be Taken in the Event a Safety Limit is Exceeded is renumbered into 6.6 Required Actions and the subsection 6.6.1 . Action To Be Taken in the Event a Safety Limit is Exceeded.

The current reading of this section is:

6.7 Action To Be Taken in the Event a Safety Limit is Exceeded

In the event a safety limit is exceeded:

- (1) The reactor shall be shut down and reactor operation shall not be resumed until authorized by the U.S. Nuclear Regulatory Commission (NRC).
- (2) An immediate report of the occurrence shall be made to the Chairman of the Reactor Safety Committee, and reports shall be made to the NRC in accordance with Section 6.10 of these specifications.
- (3) A report shall be prepared that shall include an analysis of the causes and extent of possible resultant damage, efficacy of corrective action, and recommendations for measures to prevent or reduce the probability of recurrence. This report shall be submitted to the Reactor Safety Committee for review and then submitted to the NRC when authorization is sought to resume operation of the reactor.
- (4) A report shall be made to the NRC in accordance with Section 6.10 of these specifications.

We added under 2) that the immediate report of the occurrence shall also be reported to Level 2 and not only to Chairman of the Reactor Safety Committee, and we changed NRC into U.S.N.R.C., as follows:

6.6 Required Actions

6.6.1 Action To Be Taken in the Event a Safety Limit is Exceeded

In the event a safety limit is exceeded:

- 1) The reactor shall be shut down and reactor operation shall not be resumed until authorized by the U.S. Nuclear Regulatory Commission (~~NRC~~) (U.S.N.R.C.).
- 2) An immediate report of the occurrence shall be made to Level 2 and to the Chairman of the Reactor Safety Committee, and reports shall be made to the ~~NRC~~ in accordance with ~~Section 6.10~~ U.S.N.R.C in accordance with Section 6.7 of these specifications.
- 3) A report shall be prepared that shall include an analysis of the causes and extent of possible resultant damage, efficacy of corrective action, and recommendations for measures to prevent or reduce the probability of recurrence. This report shall be submitted to the Reactor Safety Committee for review and then submitted to the ~~NRC~~ U.S.N.R.C when authorization is sought to resume operation of the reactor.
- 4) A report shall be made to the U.S.N.R.C in accordance with Section 6.7 of these specifications.

15) Page 30 in current TS Chapter 14, Chapter 6.0

The current section 6.8 Operating Procedures was renumbered into section 6.4 Operating Procedures.

16) Page 30 in current TS Chapter 14, Chapter 6.0

The current section 6.9 Facility Operating Records was renumbered into 6.8 Facility Operating Records.

17) Page 31 in current TS Chapter 14, Chapter 6.0

The current section 6.10 Reporting Requirements was renumbered and renamed into 6.7 Reports. The NRC was changed into U.S.N.R.C.

18) New section added in current TS Chapter 14, Chapter 6.0

Section 6.5 Experiments Review and Approval is added.