

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 5 TO

RENEWED FACILITY OPERATING LICENSE R-102

THE UNIVERSITY OF NEW MEXICO

DOCKET NO. 50-252

1.0 INTRODUCTION

By letter dated December 15, 2014 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML14364A155), as supplemented by letters dated March 4, 2015, September 28, 2015, May 22, 2017, September 19, 2017, and March 28, 2018 (ADAMS Accession Nos. ML15071A264, ML15279A343, ML17165A297, ML17263A047 and ML18101A030, respectively), the University of New Mexico (UNM or the licensee) requested an amendment to the technical specifications (TSs) in Appendix A to Facility Operating License No. R-102, for the UNM Aerojet-General Nucleonics-201 Modified (AGN-201M) Reactor (UNMR).

The requested amendment would revise the TSs to reflect changes associated with the split of a licensee department, the "Department of Chemical and Nuclear Engineering" that resulted in a new, stand-alone "Department of Nuclear Engineering." The proposed amendment would also make corrective changes and editorial changes to the TSs to be consistent with NRC regulations and industry standards, to correct formatting, and to standardize terminology to clarify existing requirements.

By letters dated February 18, 2015, September 9, 2015, and April 25, 2017 (ADAMS Accession Nos. ML15029A658, ML15161A515, and ML16041A596, respectively), the NRC staff requested additional information from UNM. By its letters dated March 4, 2015, September 28, 2015, and May 22, 2017, UNM provided responses to the NRC staff's requests for additional information (RAIs). By its letters dated September 19, 2017, and March 28, 2018, UNM provided further supplemental information and clarification regarding its amendment request. By electronic mail dated April 23, 2018 (ADAMS Accession No. ML18116A649), the NRC staff provided UNM with a draft copy of the license and TS change pages that would be issued with this amendment, to provide UNM with the opportunity to check the new license and TS pages for any errors and verify that the pages were consistent with UNM's requested changes. By electronic mail dated April 26, 2018 (ADAMS Accession No. ML18116A649), UNM confirmed that the draft change pages were correct and consistent with its amendment request.

2.0 EVALUATION

The NRC staff reviewed UNM's license amendment request. The NRC staff evaluated the proposed changes based on the regulations and guidance in:

- Title 10 of the *Code of Federal Regulations* (10 CFR) Part 20, 10 CFR 50.36, 10 CFR 50.54(k), and 10 CFR 51.22;

- NUREG-1537, "Guidelines for Preparing and Reviewing Applications for the Licensing of Non-Power Reactors Format and Content," Part 1, Appendix 14.1, "Format and Content of Technical Specifications for Non-Power Reactors" (ADAMS Accession No. ML042430055);
- American National Standards Institute/American Nuclear Society (ANSI/ANS)-15.1-2007, "The Development of Technical Specifications for Research Reactors," R2013;
- ANSI/ANS-15.4-2016, "Selection and Training of Personnel for Research Reactors;" and
- ANSI/ANS-15.11-2016, "Radiation Protection at Research Reactor Facilities."

The current TSs and proposed (revised) TSs are set forth below to illustrate the proposed changes.

2.1 TS 1.0, "Definitions"

UNM proposed to add a sentence to TS 1.0, "Definitions" to indicate the inclusion of definitions for Safety Limit (SL), Limiting Safety System Setting (LSSS), and Limiting Conditions for Operation (LCO). UNM stated that although these definitions are defined in 10 CFR 50.36, defining these definitions in the TS would be helpful.

The current TS 1.0 states:

The terms Safety Limit (SL), Limiting Safety System Setting (LSSS), and Limiting Conditions for Operation (LCO) are as defined in 10 CFR 50.36.

The proposed TS 1.0 states:

The terms Safety Limit (SL), Limiting Safety System Setting (LSSS), and Limiting Conditions for Operation (LCO) are as defined in 10 CFR 50.36. Those definitions are included here for ease of reference.

NRC staff evaluation of proposed revision to TS 1.0:

UNM proposed to add definitions for the terms Safety Limit (SL), Limiting Safety System Setting (LSSS), and Limiting Conditions for Operation (LCO) to the TSs (see Section 2.3 of this safety evaluation (SE)). UNM's proposed change would add a sentence stating that the SL, LSSS and LCO definitions are included for reference. The NRC staff concludes that the proposed change is editorial in nature, and therefore is acceptable.

2.2 TS 1.1.9, "Explosive Material"

In its original application, UNM proposed that TS 1.1.9, "Explosive Material," be revised to match the terminology in 10 CFR Part 61. However, in its May 22, 2017, RAI response, UNM withdrew its request to revise this definition.

2.3 TSs 1.1.11, “Limiting Conditions for Operation (LCO),” 1.1.12, “Limiting Safety System Setting (LSSS),” and 1.1.29, “Safety Limit (SL)”

UNM proposed to add definitions for “Limiting Conditions for Operation,” “Limiting Safety System Setting,” and “Safety Limit,” as TS 1.1.11, TS 1.1.12, and TS 1.1.29, respectively, to standardize terminology in its TS.

The proposed TSs 1.1.11, 1.1.12, and 1.1.29 state:

TS 1.1.11 Limiting Conditions for Operation (LCO) - The lowest functional capability or performance levels of equipment required for safe operation of the facility.

TS 1.1.12 Limiting Safety System Setting (LSSS) - Settings for automatic protective devices related to those variables having significant safety functions.

TS 1.1.29 Safety Limit (SL) - Limits upon important process variables that are found to be necessary to reasonably protect the integrity of certain of the physical barriers that guard against the uncontrolled release of radioactivity.

NRC staff evaluation of proposed addition of TS 1.1.11, TS 1.1.12, and TS 1.1.29:

UNM proposed to add TS definitions for the terms identified above. UNM also supplemented its amendment request by correcting the proposed SL definition on September 19, 2017, and the proposed LSSS definition on March 28, 2018. The NRC staff evaluated the proposed TS definitions using the definitions for these terms as stated in 10 CFR 50.36 and the guidance in ANSI/ANS-15.1-2007, Section 2 and Section 3. The NRC staff finds these additional definitions clarify the usage of the terms and enhance the TSs by defining “Safety Limit” and “Limiting Safety System Setting,” which are used in Section 2 of the UNMR TSs, and “Limiting Conditions for Operation,” used in Section 3 of the UNMR TSs. The NRC staff also finds the addition of the proposed definitions is consistent with industry standards and the NRC regulations in 10 CFR 50.36(c)(1) and 10 CFR 50.36(c)(2). Therefore, the staff concludes that the proposed changes are acceptable.

2.4 TS 1.1.34, “True Value”

UNM proposed to delete TS 1.1.34, “True Value,” because this term is not used in its TSs.

The current TS 1.1.34 states:

True Value - The true value is the actual value of a parameter.

NRC staff evaluation of proposed deletion of TS 1.1.34:

UNM proposed to delete the TS definition of “True Value” because this term is not used in its TSs. The NRC staff evaluated the proposed TS change using the guidance in ANSI/ANS-15.1-2007. The NRC staff finds that while the definition is provided in the ANSI/ANS-15.1-2007 guidance, the term “True Value” is not used again in the UNM TSs, and removing it enhances the readability of the TSs. The NRC staff finds that removing the definition is an editorial change that is consistent with operation of the facility as analyzed in the

UNMR Safety Analysis Report (SAR), dated February 21, 2007 (ADAMS Accession No. ML092170540), and, therefore, is acceptable.

2.5 Renumbering of Definitions in TS 1.1, "Definitions"

UNM proposed to renumber the definitions in TS 1.1, "Definitions," due to the addition of three definitions and removal of one definition. UNM proposed the following renumbering (current Definitions 1.1.1 through 1.1.10 remain as numbered):

- Proposed new Definitions 1.1.11 and 1.1.12 are added (see SE Section 2.3);
- Current Definitions 1.1.11 through 1.1.26 become Definitions 1.1.13 through 1.1.28;
- Proposed new Definition 1.1.29 is added (see SE Section 2.3);
- Current Definition 1.1.27 becomes Definition 1.1.30;
- Current Definitions 1.1.28 through 1.1.30 become Definitions 1.1.31 through 1.1.33;
- Current Definition 1.1.31 becomes Definition 1.1.34;
- Current Definitions 1.1.32 and 1.1.33 become Definitions 1.1.35 and 1.1.36; and
- Current Definition 1.1.34 is deleted (see SE Section 2.4).

NRC staff evaluation of proposed renumbering of definitions in TS 1.1:

UNM proposed to renumber the definitions in TS 1.1 resulting from the addition of definitions for SL, LSSS, and LCO, and the removal of the definition for "True Value," as evaluated above in SE Sections 2.3 and 2.4. In its letter dated September 28, 2015, UNM stated that current Definition 1.1.27 should become Definition 1.1.29; however, in its letter dated March 28, 2018, UNM clarified that this was a typographical error, and that Definition 1.1.27 should become Definition 1.1.30. The NRC staff concludes that UNM's proposed renumbering of the definitions is editorial in nature, and therefore is acceptable.

2.6 TS 1.1.31, "Shutdown Margin," and TS 3.1, "Reactor Core Parameters"

UNM proposed to revise current TS 1.1.31 (to be renumbered as TS 1.1.34 as discussed in SE Section 2.5), "Shutdown Margin," and TS 3.1, "Reactor Core Parameters," Specification b, to standardize terminology in its TSs.

The current TS 1.1.31 states:

Shutdown Margin – Shutdown margin shall mean the minimum shutdown reactivity necessary to provide confidence that the reactor can be made subcritical by means of the control and safety systems starting from any permissible operating condition with the most reactive rod in its most reactive condition, and the fine control rod in its most reactive position, and that the reactor will remain subcritical without further operator action.

The proposed TS 1.1.34 states:

Shutdown Margin – Shutdown margin shall mean the minimum shutdown reactivity necessary to provide confidence that the reactor can be made subcritical by means of the control and safety systems starting from any permissible operating condition with the

most reactive safety or coarse control rod fully inserted and the fine control rod fully inserted, and that the reactor will remain subcritical without further operator action.

The current TS 3.1, Specification b, states:

The shutdown margin with the most reactive safety or coarse control rod fully inserted and the fine control rod fully inserted shall be at least one dollar.

The proposed TS 3.1, Specification b, states:

The shutdown margin shall be at least one dollar.

NRC staff evaluation of proposed revisions to TS 1.1.31 (to be renumbered as TS 1.1.34) and TS 3.1, Specification b:

UNM proposed to revise the wording in TS 1.1.31 (to be renumbered as TS 1.1.34) and TS 3.1, Specification b, to clarify the UNMR shutdown margin (SDM) requirements. The NRC staff evaluated the proposed TS changes using the guidance in ANSI/ANS-15.1-2007 and NUREG-1537, Part 1, Appendix 14.1, Section 3.1.(2), and the information in Section 2.5 of the "Safety Evaluation Report [(SER)] Related to the Renewal of Facility Operating License No. R-102 for the University of New Mexico Research Reactor," dated February 18, 2011 (ADAMS Accession No. ML100990444).

The ANSI/ANS-15.1-2007, Section 1.3, "Definitions," definition for shutdown margin reads as follows:

Shutdown margin is the minimum shutdown reactivity necessary to provide confidence that the reactor can be made subcritical by means of the control and safety systems starting from any permissible operating condition and with the most reactive rod in the most reactive position, and the non-scrammable rods in their most reactive positions and that the reactor will remain subcritical without further operator action.

ANSI/ANS-15.1-2007 provides generic guidance for research and test reactors. The terms "reactive rod," "non-scrammable," and "most reactive position," are generic terms and were revised by UNM to provide an accurate description of UNM's AGN-201M reactor design. Section 2.5 of the SER states that the UNMR has four control rods: two safety rods, one coarse control rod, and one fine control rod. The two safety rods and coarse control rod are magnetically coupled to a carriage and compress a spring as they enter the core from the bottom. A scram signal, which de-energizes the electromagnet, causes these rods to be ejected out the bottom of the core by gravity, assisted by the springs, to the full-out position. The control rods in the UNMR consist of fuel. The UNMR control rods are inserted into the reactor core to add reactivity and withdrawn to reduce power or shut the reactor down. Moving a coarse control rod a given displacement results in a greater change in reactivity than the same displacement of a fine control rod.

The NRC staff finds that the "most reactive position" of the control rods is "fully inserted." The fine control rod must be driven out of the reactor during reactor shut down because it is mechanically coupled to its carriage, because it lacks an electromagnet, it cannot be de-coupled and therefore, fits the term of a "non-scrammable" control rod. The safety rods and the coarse

control rod have an approximate value of 1.25 percent reactivity ($\Delta K/K$) each. The NRC staff evaluated the differences between the proposed definition and the definition provided in the guidance. The NRC staff finds that the most reactive rod would be the coarse or either of the two safety rods because they have the same reactivity value, and that the non-scrammable rod for the UNMR is the fine control rod. The NRC staff finds that the proposed revision accurately describes UNM's AGN-210M reactor design. The NRC staff also finds that, because the rod configuration is in the definition of SDM, it is not necessary to repeat the definition again in TS 3.1, Specification b, and removing that part of the definition enhances the readability of the TSs. The NRC staff also finds that revising the definition in TS 1.1.31 (to be renumbered as TS 1.1.34) and removing the definition portion of TS 3.1, Specification b, are editorial changes that are consistent with the guidance in ANSI/ANS-15.1-2007. Therefore, the NRC staff concludes that the changes are consistent with operation of the facility as analyzed in the SAR, and are acceptable.

2.7 TS 3.3, "Limitations on Experiments"

UNM proposed to revise TS 3.3, "Limitations on Experiments," Specification d, to add English equivalent units, and to place the equivalent values using International Systems of Units (SI) units of Sieverts (Sv) in parentheses following the English units.

The current TS 3.3, Specification d, states, in part:

- (1) a total effective dose equivalent to any person occupying an unrestricted area in excess of 1 mSV or
- (2) a total effective dose equivalent to any person occupying a restricted area during the length of time required to evacuate the restricted area in excess of 50 mSv.

The proposed TS 3.3, Specification d, states, in part:

- (1) a total effective dose equivalent to any person occupying an unrestricted area in excess of 0.1 rem (0.001 Sv) or
- (2) a total effective dose equivalent to any person occupying a restricted area during the length of time required to evacuate the restricted area in excess of 5 rem (0.050 Sv).

NRC staff evaluation of proposed revisions to TS 3.3, Specification d:

UNM proposed to include roentgen equivalent man (rem) units in conjunction with the SI units, and also to change to SI units used from millisieverts (mSv) to Sv, in TS 3.3, Specification d. The NRC staff evaluated the proposed TS change using the NRC "Policy Statement - Conversion to the Metric System" (61 FR 31169, June 19, 1996). The NRC staff finds that NRC policy is to support and encourage the use of the metric system of measurement by licensees, and that English or metric units alone are permissible for documents specific to a licensee. The NRC staff reviewed UNM's mSv to Sv, and Sv to rem, conversions, and finds that UNM's conversions are correct. The NRC staff also finds that adding additional units is an editorial change, and that the change is consistent with the policy statement. Therefore, based on the above, the NRC staff concludes that the proposed changes are acceptable.

The NRC staff noted that although the TS change pages that UNM submitted by letter dated September 28, 2015, included a proposed TS 3.3, Specification d, which gave the SI unit doses

for (1) and (2) as 0.001 Sv and 0.050 Sv, respectively, UNM's summary of its changes in its September 28, 2015, letter, included the SI unit doses in parentheses for (1) and (2) as 1 mSv and 0.05 Sv, respectively. However, the NRC staff finds that the SI unit values in the TS change pages and in UNM's summary of changes (and in the current TS 3.3, Specification d, which was included in the license renewal TSs issued by the NRC staff on February 18, 2011 (ADAMS Accession No. ML100920074)) are equivalent. As discussed in SE Section 1.0, the NRC staff provided UNM with a draft copy of the TS change pages that would be issued with this amendment, and UNM confirmed that the proposed TS described above is correct and consistent with its amendment request.

2.8 TS 3.4, "Radiation Monitoring, Control And Shielding," and TS 3.4 Basis

UNM proposed to revise TS 3.4, "Radiation Monitoring, Control And Shielding," to enhance the readability of its TSs. UNM also proposed to revise the TS 3.4 Basis to change the units for radiation dose rate.

The current TS 3.4 states:

- a. An operable portable radiation survey instrument capable of detecting gamma radiation shall be immediately available to reactor operating personnel whenever the reactor is in operation.
- b. When the reactor is operating, the reactor room shall be considered a restricted area according to 10CFR20.
- c. Whenever the reactor is operated, the top of the reactor shall be considered a high radiation area, and the access stairs to the top of the reactor shall be equipped with a gate and a lock for access control. The keys for the gate shall be in control of the reactor operator during operation.
- d. The following shielding requirement shall be fulfilled during reactor operation:
The thermal column shall be filled with water or graphite except during a critical experiment (core loading) or during other approved experiments that require the thermal column to be empty.
- e. The core tank shall be sealed during reactor operation.

The proposed TS 3.4 states:

During Reactor Operation:

- a. An operable portable radiation survey instrument capable of detecting gamma radiation shall be immediately available to reactor operating personnel.
- b. The reactor room shall be considered a restricted area according to 10CFR20.

- c. The top of the reactor shall be considered a high radiation area, and the access stairs to the top of the reactor shall be equipped with a gate and a lock for access control. The keys for the gate shall be in control of the reactor operator.
- d. The following shielding requirement shall be fulfilled:
The thermal column shall be filled with water or graphite except during a critical experiment (core loading) or during other approved experiments that require the thermal column to be empty.
- e. The core tank shall be sealed.

The current TS 3.4 Basis states, in part:

When the reactor is secured, radiation levels at all points in the reactor room are below 100 μ R/hr.

The proposed TS 3.4 Basis states, in part:

When the reactor is secured, radiation levels at all points in the reactor room are below 100 μ rem/hr.

NRC staff evaluation of proposed revisions to TS 3.4:

UNM proposed to add "During Reactor Operation," before TS 3.4, Specifications a through e. UNM also proposed to delete:

- "whenever the reactor is in operation" from TS 3.4, Specification a;
- "When the reactor is operating" from TS 3.4, Specification b;
- "Whenever the reactor is operated" from TS 3.4, Specification c;
- "during operation" from TS 3.4, Specification c, as UNM clarified in its letter dated September 19, 2017;
- "during reactor operation" from 3.4, Specification d; and
- "during reactor operation" from 3.4, Specification e.

The NRC staff reviewed UNM's proposed deletion of the terms related to reactor operating from TS 3.4, Specifications a through e, and insertion of "During Reactor Operation" at the beginning of TS 3.4 so that "During Reactor Operation" would be applicable to all of the Specifications a through e in TS 3.4. The NRC staff finds that the proposed changes would enhance the TSs by clarifying their applicability and making them easier to read and follow. The NRC staff finds that the proposed changes are consistent with the guidance in NUREG-1537 and ANSI/ANS-15.1-2007, and that the changes are minor editorial changes that do not change the LCO restrictions. Therefore, the NRC staff concludes that the changes are consistent with operation of the facility as analyzed in the SAR, and are acceptable.

The NRC staff did not evaluate the change to the TS 3.4 Basis, because the regulation in 10 CFR 50.36(a) provides that bases are not a part of the TSs.

2.9 TS 4.4, "Radiation Monitoring and Control," and TS 4.4 Basis

UNM proposed to clarify the startup check requirements, and to correct a reference to TS 3.4, in TS 4.4, "Radiation Monitoring and Control," Specification b. UNM also proposed to correct the similar reference to TS 3.4 in the TS 4.4 Basis.

The current TS 4.4, Specification b, states:

Prior to each day's reactor operation or prior to each reactor operation extending more than one day, the reactor access control (Ref 3.4d) shall be verified to be operable.

The proposed TS 4.4, Specification b, states:

The reactor access control (Ref 3.4c) shall be verified to be operable prior to the first reactor startup of the day or prior to each reactor operation extending more than one day.

The current TS 4.4 Basis states, in part:

The periodic calibration of radiation monitoring equipment and the surveillance of the reactor access control (Ref 3.4d) will assure that the radiation monitoring and control systems are operable during reactor operation.

The proposed TS 4.4 Basis states, in part:

The periodic calibration of radiation monitoring equipment and the surveillance of the reactor access control (Ref 3.4c) will assure that the radiation monitoring and control systems are operable during reactor operation.

NRC staff evaluation of proposed revisions to TS 4.4, Specification b:

UNM proposed to clarify the term "prior to each day's operation" in TS 4.4, Specification b, to mean the first startup of the day, and to reword TS 4.4, Specification b, to be consistent with other specifications within the TSs. The NRC staff finds that the proposed changes and rewording would enhance TS 4.4, Specification b, by clarifying the applicability of the TS and making it easier to read and follow.

UNM also proposed to replace the TS 4.4, Specification b, reference to TS 3.4, Specification d, with a reference to TS 3.4, Specification c, in order to reference the correct TS 3.4 specification. UNM's September 19, 2017, submittal clarified that the error in the TS 4.4, Specification b, reference occurred because of changes to the numbering of the TS 3.4 specifications during the 2011 license renewal.

The NRC staff evaluated the proposed change using the guidance NUREG-1537, Part 1, Appendix 14.1, Section 4.9, which states, "There should be applicable surveillance specifications for any facility-specific LCOs in Section 3.9 of the technical specifications not explicitly included in Section 4." The NRC staff also evaluated the change using 10 CFR 20.1601, which requires control of access to high radiation areas. The NRC staff finds that actions required by TS 3.4, Specification c, which is an LCO controlling access to a

potentially high radiation area when the reactor is operating, would not change (see SE Section 2.8). When the reactor is secured, access control does not need to be limited because there is no radiation hazard.

The NRC staff finds the proposed TS 4.4, Specification b, continues to specify surveillance requirements as required by 10 CFR 50.36(c)(3). The NRC staff also finds the changes to TS 4.4, Specification b, are minor editorial changes because they do not change the TS 3.4 LCO requirement, and clarify, and correct the reference in, the corresponding TS 4.4 surveillance requirement. Therefore, the NRC staff concludes the changes to TS 4.4, Specification b, are consistent with operation of the facility as analyzed in the SAR, and are acceptable.

The NRC staff did not evaluate the change to the TS 4.4 Basis, because the regulation in 10 CFR 50.36(a) provides that bases are not a part of the TSs.

2.10 TS 6.1.2, "Chair, Department of Chemical and Nuclear Engineering"

UNM proposed to revise the title of TS 6.1.2, "Chair, Department of Chemical and Nuclear Engineering," to "Chair, Department of Nuclear Engineering," to update the personnel title change occurring as a result of a reorganization of departments at UNM.

NRC staff evaluation of proposed revision to TS 6.1.2:

UNM proposed to update the name of the department in TS 6.1.2 by deleting "Chemical and" to reflect the change in the name of the UNM department for which the department chair is part of the UNMR organizational structure. The NRC staff evaluated the proposed change using guidance in ANSI/ANS-15.1-2007, Section 6.1.1, and finds that the TS 6.1.2 responsibilities of the department chair are not changed. The NRC staff also finds that the change is to the position or title of an officer of the licensee, is consistent with guidance, and will help ensure that UNM will continue to have the organization and management that helps assure operation of the facility in a safe manner as required by 10 CFR 50.36(c)(5). Therefore, the NRC staff concludes that the proposed change is acceptable.

2.11 TS 6.1.3, "Reactor Administrator"

UNM proposes to revise TS 6.1.3, "Reactor Administrator," to update a personnel title, and remove responsibilities associated with the nuclear engineering laboratory.

The current TS 6.1.3 states:

Provides final policy decisions on all phases of reactor operation and regulations for the facility. The Reactor Administrator (Level 2) is selected by the Chair of the Chemical and Nuclear Engineering Department and shall hold a graduate degree in Engineering. The Reactor Administrator is advised on matters concerning personnel health and safety by the Radiation Safety Officer and/or the Radiation Control Committee. The Reactor Administrator is advised on matters concerning safe operation of the reactor by the Reactor Operations Committee and/or the Reactor Safety Advisory Committee; designates Reactor Supervisors and names the Chief Reactor Supervisor; approves all regulations, instructions and procedures governing facility operation; submits the annual

report to NRC; and is responsible for control of and changes to the cipher locks of the Nuclear Engineering Laboratory Building.

The proposed TS 6.1.3 states:

Provides final policy decisions on all phases of reactor operation and regulations for the facility. The Reactor Administrator (Level 2) is selected by the Chair of the Nuclear Engineering Department and shall hold a graduate degree in Engineering. The Reactor Administrator is advised on all matters concerning personnel health and safety by the Radiation Safety Officer and/or the Radiation Control Committee. The Reactor Administrator is advised on matters concerning safe operation of the reactor by the Reactor Operations Committee and/or the Reactor Safety Advisory Committee; designates Reactor Supervisors and names the Chief Reactor Supervisor; approves all regulations, instructions and procedures governing facility operation; and submits the annual report to NRC.

NRC staff evaluation of proposed revisions to TS 6.1.3:

UNM proposed to revise to the department name in the description of the Reactor Administrator in TS 6.1.3 by deleting "Chemical and" to reflect the change in the name of the department for which the department chair is part of the UNMR organizational structure, as the result of a departmental reorganization at UNM. UNM also proposed to remove the last sentence, "is responsible for control of and changes to the cipher locks of the Nuclear Engineering Laboratory Building," because the Nuclear Engineering Laboratory Supervisor has the responsibility to control the Nuclear Engineering Laboratory locks and changes to cipher locks.

The NRC staff noted that UNM's proposed wording for TS 6.1.3, provided in UNM's letter dated September 28, 2015, appeared to contain an editorial error, in that an "and" appeared to be missing in the last sentence. By its electronic mail dated April 26, 2018, UNM confirmed that the "and" should be included in the TS 6.1.3 wording, and that the proposed TS described above is correct and consistent with its amendment request.

The NRC staff evaluated the proposed changes using guidance in ANSI/ANS-15.1-2007, Sections 6.1.1 and 6.1.2, and in ANSI/ANS-15.4-2016, Section 3. The NRC staff finds that the deletion of "Chemical and" involves a change to the position or the title of an officer of the licensee. The NRC staff also finds that ANSI/ANS-15.1-2007, Sections 6.1.1 and 6.1.2, and ANSI/ANS-15.4-2016, Section 3, do not specifically state that the TSs should contain security procedures or security responsibilities for personnel. In addition, the NRC staff reviewed the physical security plan (PSP), submitted as part of the UNMR SAR Appendix G, and finds that the revised TS 6.1.3 will not adversely affect UNM's ability to prohibit unauthorized entry and control access, or reduce the effectiveness of the PSP. The NRC staff finds that the changes are consistent with guidance, and provide organization and management controls that help assure operation of the facility in a safe manner as required by 10 CFR 50.36(c)(5). Therefore, the NRC staff concludes that the proposed changes are acceptable.

2.12 TS 6.0, "Administrative Controls," Figure 1 (Organizational Chart)

UNM proposed to revise TS 6.0, "Administrative Controls," Figure 1, to update the title of the chair of the chemical and nuclear engineering department to the chair of the nuclear engineering department due to the reorganization of the departments at UNM, and to remove the nuclear engineering laboratory supervisor from the organization chart.

The current TS 6.0, Figure 1, appears as follows:

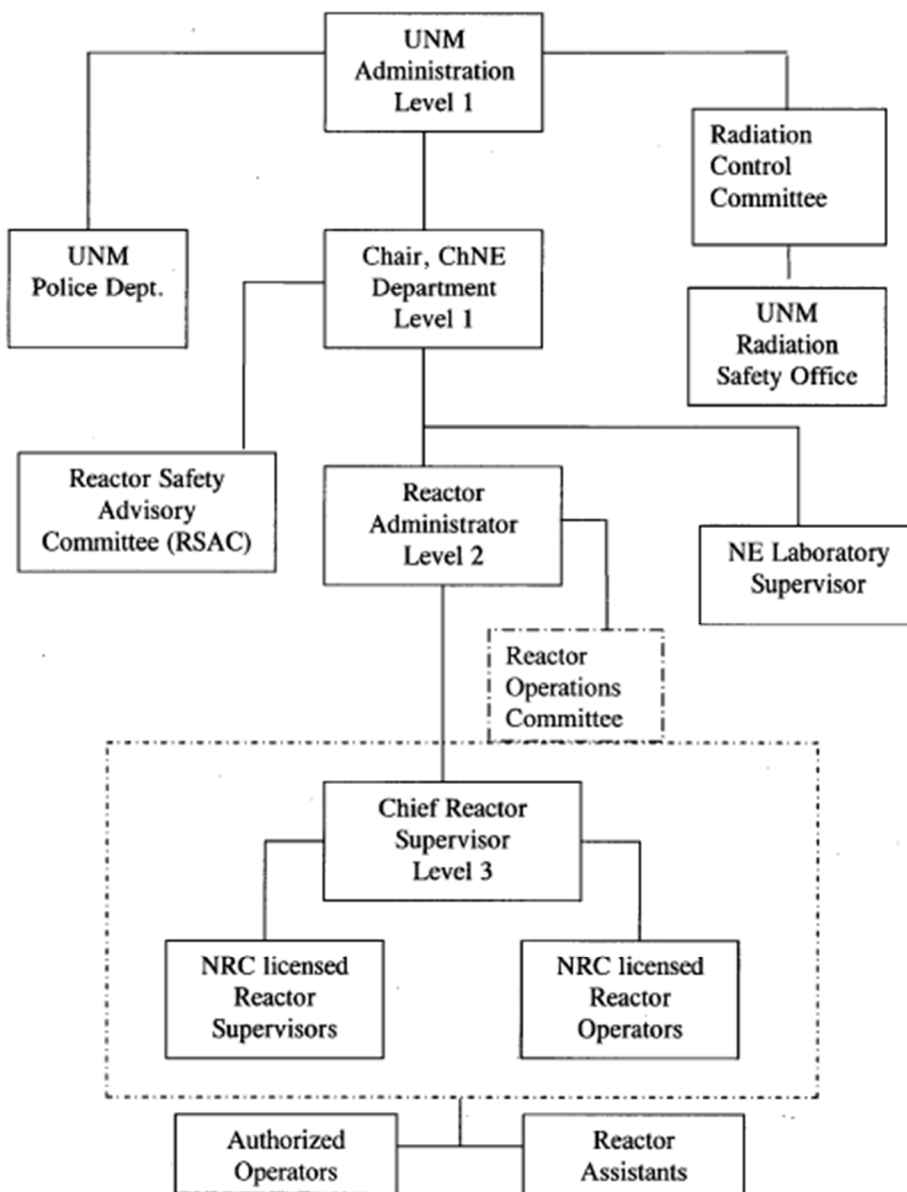


Figure 1

The proposed TS 6.0, Figure 1, appears as follows:

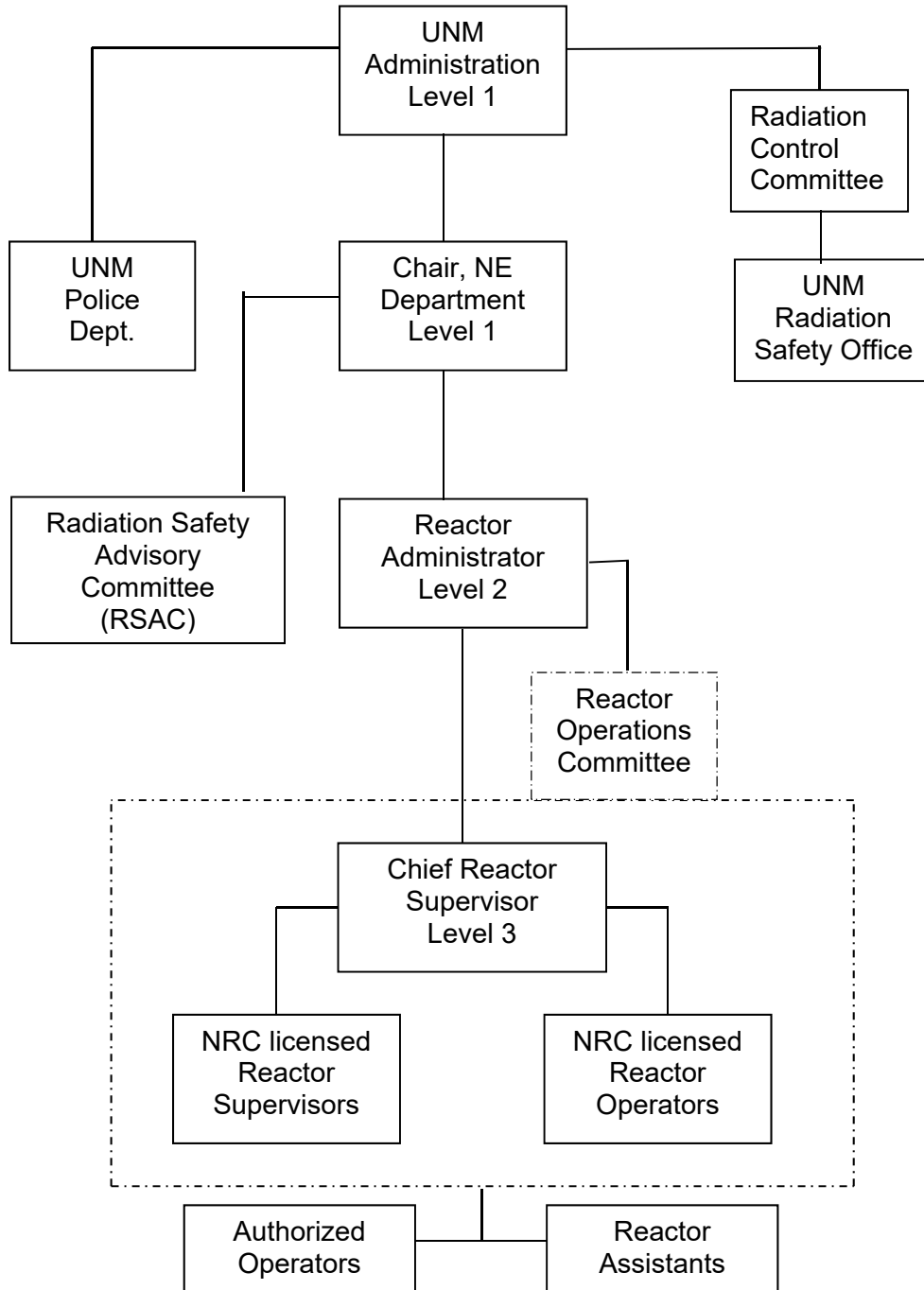


Figure 1

NRC staff evaluation of proposed revisions to TS 6.0, Figure 1:

UNM proposed to update the title of a Level 1 position in TS 6.0, Figure 1, by deleting “Ch” to reflect the change in the name of the department. UNM reorganized its “Department of Chemical and Nuclear Engineering” by splitting that department to create a new, stand-alone “Department of Nuclear Engineering.” UNM’s proposed changes to TS 6.0, Figure 1, would also delete the Nuclear Engineering Laboratory Supervisor from the organization chart. In its letter dated September 19, 2017, UNM stated that this position is not required because the Nuclear Engineering Laboratory Supervisor has no reactor responsibilities. The NRC staff evaluated the proposed changes using guidance in ANSI/ANS-15.1-2007, Section 6, Figure 1, and guidance in ANSI/ANS-15.4-2016. The NRC staff finds that the changes are to the position or title of an officer of the licensee, and that the Nuclear Engineering Laboratory Supervisor position is not necessary, because the Reactor Administrator and Chief Reactor Supervisor are responsible for safe operation of the reactor facility, safeguarding the public and facility personnel from undue radiation exposures, and for adhering to all requirements of the operating license and TSs. The NRC staff also finds that the proposed changes are consistent with the guidance above, and provide organization and management controls that assure operation of the facility in a safe manner as required by 10 CFR 50.36(c)(5). Therefore, the NRC staff concludes that the proposed changes are acceptable.

2.13 TS 6.1.4, “Radiation Safety Office”

UNM proposed to revise TS 6.1.4, “Radiation Safety Office,” to provide personnel flexibility.

The current TS 6.1.4 states, in part:

The UNM Radiation Safety Officer normally represents the Radiation Control Committee in matters concerning the radiation safety aspects of reactor operation.

The proposed TS 6.1.4 states, in part:

The UNM Radiation Safety Officer or designee normally represents the Radiation Control Committee in matters concerning the radiation safety aspects of reactor operation.

NRC staff evaluation of proposed revision to TS 6.1.4:

UNM proposed to allow a designee to represent the Radiation Safety Officer in matters concerning radiation safety. In its letter dated September 19, 2017, UNM stated that the Radiation Safety Officer designee would be filled by a person determined by the Radiation Safety Office to be qualified. The NRC staff has evaluated the change using the guidance in ANSI/ANS-15.1-2007, Section 6.1.2, which states that responsibilities of one level may be assumed by designated alternates or by higher levels. The NRC staff finds that the change would allow flexibility for the staff at the UNMR while helping to ensure that a qualified designee represents the Radiation Safety Officer. The NRC staff also finds that adding a representative is a change to the position or title of an officer of the licensee. The NRC staff finds that the change is consistent with guidance, and provides organization and management controls that assure operation of the facility in a safe manner as required by 10 CFR 50.36(c)(5). Therefore, the NRC staff concludes that the proposed change is acceptable.

2.14 TS 6.1.7, "Chief Reactor Supervisor"

During its review of the license amendment request, the NRC staff identified a discrepancy in TS 6.1.7, "Chief Reactor Supervisor," between TSs issued on February 18, 2011 by the NRC staff as part of the UNMR license renewal, and the copy of the TSs held by UNM. UNM requested that TS 6.1.7 be corrected to resolve the discrepancy.

TS 6.1.7 issued on February 18, 2011, by the NRC staff, states, in part:

[...] the Reactor Safety Advisory Committee and/or the Committee on Radiation Control (or the Radiation Safety Officer) [...]

The proposed TS 6.1.7, states, in part:

[...] the Reactor Safety Advisory Committee and/or the Radiation Control Committee (or the Radiation Safety Officer) [...]

NRC staff evaluation of proposed revision to TS 6.1.7:

The NRC staff determined that the copy of TS 6.1.7 held by the UNM states, "Radiation Control Committee," but the TS 6.1.7 issued February 18, 2011, by the NRC, states, "Committee on Radiation Control." During telephone calls held with UNM on October 18, 2015 (ADAMS Accession No. ML15292A412), and July 26, 2017 (ADAMS Accession No. ML17243A450), UNM staff clarified that "Radiation Control Committee" is the correct name. By its letter dated September 19, 2017, UNM supplemented its amendment application by requesting to have the name corrected.

The NRC staff evaluated the change, as corrected, using ANSI/ANS-15.1-2007, Section 6.2, and ANSI/ANS-15.11-2016, Appendix B. The NRC staff finds that the title "Radiation Control Committee" is consistent with the TS 6.0, Figure 1, organizational chart, and TS 6.1.1 and TS 6.1.3. The NRC staff also finds that the Radiation Control Committee is an independent review and audit group as described in TS 6.1.1, and that the name of the group is consistent with the guidance. In addition, the NRC staff finds that the correction is an editorial change, is consistent with guidance, and provides organization and management controls that assure operation of the facility in a safe manner as required by 10 CFR 50.36(c)(5). Therefore, the NRC staff concludes that the correction to TS 6.1.7 is acceptable.

2.15 TS 6.1.12, "Reactor Assistants," and TS 6.1.13, "Operating Staff"

During its review of UNM's license amendment request, the NRC staff identified a numbering discrepancy in TS 6.1, "Organization," between the TSs issued on February 18, 2011, by the NRC staff as part of the UNMR license renewal, and the copy held by UNM. UNM requested that the TS 6.1 numbering be corrected to resolve the discrepancy.

The TSs issued on February 18, 2011, by the NRC staff, include TS 6.1.12, "Reactor Assistants," and TS 6.1.13, "Operating Staff." UNM requested by its letter dated

September 19, 2017, that current TS 6.1.12 be renumbered as TS 6.1.11, and current TS 6.1.13 be renumbered as TS 6.1.12.

NRC staff evaluation of proposed revisions to TS 6.1.12 and TS 6.1.13:

The NRC staff identified that a TS 6.1.11 was not included in the TSs issued on February 18, 2011. It appeared that the TS numbering skipped TS 6.1.11. During the conference call with UNM held on October 18, 2015, UNM staff clarified that TS 6.1.11 should be "Reactor Assistants," and TS 6.1.12 should be "Operating Staff," and UNM subsequently requested the corrections. The NRC staff finds that the proposed corrections clarify the TSs by placing the two specifications in sequential order. Therefore, the NRC staff concludes that the proposed changes are acceptable.

2.16 TS 6.1.13, "Operating Staff"

UNM proposed to revise TS 6.1.13 (to be renumbered as TS 6.1.12), "Operating Staff," Specifications a.1 and c, to make terminology for the area in which the reactor controls and the reactor are located more consistent.

The current TS 6.1.13, Specification a.1, states:

The minimum operating staff during any time in which the reactor is not secured shall consist of all of the following:

1. One Reactor Operator or Reactor Supervisor in the reactor control room.

[...]

The proposed TS 6.1.12, Specification a.1, states:

The minimum operating staff during any time in which the reactor is not secured shall consist of all of the following:

1. One Reactor Operator or Reactor Supervisor in the reactor room.

[...]

The current TS 6.1.13, Specification c, states:

A listing of reactor facility personnel by name and phone number shall be conspicuously posted in the reactor control room.

The proposed TS 6.1.12, Specification c, states:

A listing of reactor facility personnel by name and phone number shall be conspicuously posted in the reactor room.

NRC staff evaluation of proposed revisions to TS 6.1.13 (to be renumbered as TS 6.1.12), Specifications a.1 and c:

In its amendment request, as supplemented by its letter dated May 22, 2017, UNM proposed to replace the “reactor control room” terminology in TS 6.1.13 (to be renumbered as TS 6.1.12), Specifications a.1 and c, with “reactor room.” The NRC staff evaluated the terminology change using guidance in ANSI/ANS-15.1-2007, Section 6.1.3. The NRC staff reviewed the UNMR SAR and UNM RAI responses dated May 22, 2017, and finds that the reactor room contains the reactor controls and the reactor; therefore, the TS change is consistent with the information in the SAR and RAI responses. The NRC staff also finds that the proposed changes to TS 6.1.13 (to be renumbered as TS 6.1.12) are editorial and clarify existing requirements by using terminology consistent with existing TS 5.3, “Reactor Room (065),” where the reactor location is defined. The NRC staff further finds that the changes satisfy 10 CFR 50.54(k), which provides the requirements for when operators shall be present at the reactor controls. The NRC staff finds that the changes are consistent with guidance, and will continue to help provide organization and management controls that assure operation of the facility in a safe manner as required by 10 CFR 50.36(c)(5). Therefore, the NRC staff concludes that the proposed changes are acceptable.

UNM also proposed to revise TS 6.1.13 (to be renumbered as TS 6.1.12), Specification a.3, to clarify the individuals who may be available on call to satisfy TS 6.1.13 (to be renumbered as TS 6.1.12), Specification a.3.

The current TS 6.1.13, Specification a.3, states:

The minimum operating staff during any time in which the reactor is not secured shall consist of all of the following:

[...]

3. One health physicist who can be readily contacted by telephone and who can arrive at the reactor facility within 30 minutes.

[...]

The proposed TS 6.1.12, Specification a.3, states:

The minimum operating staff during any time in which the reactor is not secured shall consist of all of the following:

[...]

3. One radiation safety staff member who can be readily contacted by telephone and who can arrive at the reactor facility within 30 minutes.

[...]

NRC staff evaluation of proposed revision to TS 6.1.13 (to be renumbered as TS 6.1.12), Specification a.3:

In its letter dated March 28, 2018, UNM stated that the reason for the change in terminology from “health physicist” to “radiation safety staff member” is to clarify which university radiation

safety staff would allow the TS requirement to be satisfied. UNM stated that the on call radiation safety staff member could be the Radiation Safety Officer, Health Physicist, or Radiation Specialist.

The NRC staff evaluated the change, and finds that the proposed TS 6.1.13 (to be renumbered as TS 6.1.12), Specification a.3, would continue to require that an appropriate Radiation Safety Office staff member, regardless of specific title, would be available by phone and able to arrive at the reactor facility within 30 minutes. The NRC staff also finds that the proposed TS 6.1.13 (to be renumbered as TS 6.1.12), Specification a.3, would give UNM additional flexibility and would more clearly define the how the TS would be satisfied. Additionally, the NRC staff finds that ANSI/ANS-15.1-2007, Section 6.1.3, does not recommend that TSs include on call requirements for radiation safety personnel. Therefore, based on the above, the NRC staff concludes that the proposed TS 6.1.13 (to be renumbered as TS 6.1.12), Specification a.3, is acceptable.

The NRC staff noted that although the TS 6.1.12, Specification a.3, in the TS change pages that UNM submitted by letter dated September 28, 2015, used the term “reactor room,” the term “reactor facility” was used in the TS 6.1.13 (to be renumbered as TS 6.1.12), Specification a.3, in the license renewal TSs issued by the NRC staff on February 18, 2011. However, because UNM did not discuss a request that “reactor facility” be changed to “reactor room” for this TS in its September 28, 2015, letter, or in subsequent supplements to its application, the term “reactor facility” remains in TS 6.1.13 (to be renumbered as TS 6.1.12), Specification a.3. As discussed in SE Section 1.0, the NRC staff provided UNM with a draft copy of the TS change pages that would be issued with this amendment, and UNM confirmed that the proposed TS described above is correct and consistent with its amendment request.

2.17 TS 6.9.3, “Special Reports”

UNM proposed to revise TS 6.9.3, “Special Reports,” to include personnel change reporting requirements for all managerial positions, and to add the word “Level” in front of all numbers denoting management levels of positions.

The current TS 6.9.3 states, in part:

This includes personnel changes in Level 1 (University President), 2 (Reactor Administrator) or 3 (Chief Reactor Supervisor) administration, as shown in Figure 1, which shall be reported within 30 days of such a change.

The proposed TS 6.9.3 states, in part:

This includes personnel changes in Level 1 (University President), Level 1 (NE Chair), Level 2 (Reactor Administrator), or Level 3 (Chief Reactor Supervisor) administration, as shown in Figure 1, which shall be reported within 30 days of such a change.

NRC staff evaluation of proposed revisions TS 6.9.3:

UNM proposed to add a requirement to TS 6.9.3 for reporting personnel changes in the staffing of the Level 1 position of “Chair, Department of Nuclear Engineering,” to the NRC. UNM also proposed to insert the word “Level” in front of the “2” and “3” denoting the management level of

the Reactor Administrator and Chief Reactor Supervisor. The NRC staff evaluated the proposed changes using guidance in ANSI/ANS-15.1-2007, Section 6.7.2, which states that there shall be a written report of permanent changes in the facility organization involving Level 1 or Level 2 personnel. The NRC staff finds that the Nuclear Engineering Chair is a Level 1 position as shown in TS 6.0, Figure 1. The NRC staff also finds adding this reporting requirement to report personnel changes to a Level 1 position is consistent with guidance and is necessary to comply with organization and management controls that assure operation of the facility in a safe manner as required by 10 CFR 50.36(c)(5). The NRC staff further finds that the insertion of the word "Level" is editorial in nature and increases the clarity of the TS. Therefore, the NRC staff concludes that the proposed changes are acceptable.

2.18 TS 6.10.2, "Records to be Retained for the Life of the Facility"

During its review of UNM's amendment request, the NRC staff noted that UNM appeared to have made changes to TS 6.10.2, "Records to be Retained for the Life of the Facility," Specification h, to include acronyms for SL and LSSS, but these changes were not described in the request or marked as changes on submitted TS change pages. In addition, the NRC staff noted that TS 6.10.2, Specification h, includes the term "limiting safety setting" in place of "limiting safety system setting," which appeared to be an error and inconsistent with the LSSS acronym. During the October 18, 2015, conference call, the NRC staff discussed the discrepancy with UNM. By letter dated March 28, 2018, UNM clarified its proposed revision to TS 6.10.2, Specification h.

The current TS 6.10.2, Specification h, states:

Records of the review of:

- Violations of any safety limit
- Violations of any limiting safety setting
- Violations of any limiting condition of operation (LCO)

The proposed TS 6.10.2, Specification h, states:

Records of the review of:

- Violations of any safety limit (SL)
- Violations of any limiting safety system setting (LSSS)
- Violations of any limiting condition of operation (LCO)

NRC staff evaluation of proposed revisions to TS 6.10.2, Specification h:

The NRC staff reviewed the proposed revisions, and finds that revising TS 6.10.2, Specification h, to add the acronyms and to correct to "limiting safety system setting" are editorial changes, improve the clarity of the specification, and provide consistent formatting with other TSs. Therefore, the NRC staff concludes that the proposed changes are acceptable.

2.19 Conclusion

The NRC staff evaluated UNM's proposed changes to the UNMR TSs in the license amendment request, as supplemented, and the information provided by UNM in support of the proposed TS

changes. The NRC staff finds that the changes correct, clarify, and/or make minor administrative or editorial changes to the TSs, and that the changes are consistent with applicable guidance and the regulations in 10 CFR 50.36. Therefore, on the basis of its review, the NRC staff concludes that the changes are acceptable.

3.0 ENVIRONMENTAL CONSIDERATION

The NRC staff determined that a finding of no significant hazards consideration is not required in accordance with 10 CFR 51.22 because the license amendment involves changes that are subject to categorical exclusions pursuant to 10 CFR 51.22(c)(10). The changes to record keeping, reporting, and administrative procedures or requirements are subject to categorical exclusions pursuant to 10 CFR 51.22(c)(10)(ii); the changes to the position or title of an officer of the licensee are subject to categorical exclusions pursuant to 10 CFR 51.22(c)(10)(iv); and the formatting, editorial, or corrective changes are subject to categorical exclusions pursuant to 10 CFR 51.22(c)(10)(v). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment is required to be prepared in connection with the issuance of this amendment.

4.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) there is reasonable assurance that such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

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