

November 5, 2014

Dr. Sean McDeavitt, Director
Nuclear Science Center
Texas Engineering Experiment Station
1095 Nuclear Science Road
MS 3575
College Station, TX 77843

SUBJECT: TEXAS ENGINEERING EXPERIMENT STATION/TEXAS A&M UNIVERSITY SYSTEM - REQUEST FOR ADDITIONAL INFORMATION REGARDING THE RENEWAL OF FACILITY OPERATING LICENSE NO. R-83 FOR THE NUCLEAR SCIENCE CENTER TRIGA REACTOR (TAC NO. ME1584)

Dear Dr. McDeavitt:

The U.S. Nuclear Regulatory Commission (NRC) is continuing its review of your application for the renewal of Facility Operating License No. R-83, dated February 27, 2003 (a redacted version of the application, including the safety analysis report, is available on the NRC's public Web site at www.nrc.gov under Agencywide Documents Access and Management System Accession No. ML102920025), as supplemented, for the Texas Engineering Experiment Station/Texas A&M University System, Nuclear Science Center, TRIGA reactor. During our review, questions have arisen for which additional information is needed. The enclosed request for additional information (RAI) identifies the additional information needed to complete our review. We request that you provide responses to the enclosed RAI within 45 days from the date of this letter.

In accordance with Title 10 of the *Code of Federal Regulations* (10 CFR) 50.30(b), you must execute your response in a signed original document under oath or affirmation. Your response must be submitted in accordance with 10 CFR 50.4, "Written communications." Information included in your response that is considered sensitive or proprietary, that you seek to have withheld from the public, must be marked in accordance with 10 CFR 2.390, "Public inspections, exemptions, requests for withholding." Any information related to security should be submitted in accordance with 10 CFR 73.21, "Protection of Safeguards Information: Performance requirements." Following receipt of the additional information, we will continue our evaluation of your renewal request.

S. McDeavitt

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If you have any questions, or need additional time to respond to this request, please contact me at (301) 415-0893 or by electronic mail at Geoffrey.Wertz@nrc.gov.

Sincerely,

AAdams for /RA/

Geoffrey A. Wertz, Project Manager
Research and Test Reactors Licensing Branch
Division of Policy and Rulemaking
Office of Nuclear Reactor Regulation

Docket No. 50-128

Enclosure:
RAI

cc: See next page

S. McDeavitt

- 2 -

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RAI

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ADAMS Accession No: ML14293A449

*concurrence via email

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Texas A&M University

Docket No. 50-128

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OFFICE OF NUCLEAR REACTOR REGULATION

REQUEST FOR ADDITIONAL INFORMATION

FOR THE RENEWAL OF FACILITY OPERATING LICENSE NO. R-83

THE TEXAS ENGINEERING EXPERIMENT STATION/TEXAS A&M UNIVERSITY SYSTEM

NUCLEAR SCIENCE CENTER, TRIGA REACTOR

DOCKET NO. 50-128

The U.S. Nuclear Regulatory Commission (NRC) is continuing its review of your application for the renewal of Facility Operating License No. R-83, dated February 27, 2003 (a redacted version of the application, including the safety analysis report (SAR), is available on the NRC's public Web site at www.nrc.gov under Agencywide Documents Access and Management System (ADAMS) Accession No. ML102920025), as supplemented, for the Texas Engineering Experiment Station/Texas A&M University System (TEES/TAMUS), Nuclear Science Center (NSC), TRIGA reactor. During our review, the following questions have arisen for which additional information is needed. Provide responses to these questions within 45 days from the date of this letter.

1. The TEES/TAMUS updated SAR, dated May 2011 (ADAMS Accession No. ML111950376), Section 11.2.2, "Radioactive Liquid Waste," provides information about radioactive liquid waste, but does not describe the types or quantities of chemicals that may be used to treat the primary or secondary coolant systems, or used in the conduct of experiments. NUREG-1537, Part 1, "Guidelines for Preparing and Reviewing Applications for the Licensing of Non-Power Reactors: Format and Content," Chapter 11.2.3, "Release of Radioactive Waste," provides guidance that the use and disposal of chemicals in the facility should be described. Provide a description of the TEES/TAMUS use of chemicals and their disposal, or justify why no additional information is necessary.
2. The TEES/TAMUS updated SAR, Section 2.2.1.2, "Boundary and Zone Area Maps," indicates that the NSC site includes a linear accelerator and associated laboratory. NUREG-1537, Part 1, Chapter 1.4, "Shared Facilities and Equipment," provides guidance that the SAR should discuss any effect of the shared facility on the subject (licensed) facility. The TEES/TAMUS updated SAR does not provide any information relative to the licensing or safety impacts of the linear accelerator and associated laboratory to the NSC TRIGA reactor. Provide a description of the licensing and safety impacts of the linear accelerator or justify why no additional information is necessary.
3. The TEES/TAMUS proposed Technical Specification (TS) 5.3, "Reactor Core," Specification 2 (ADAMS Accession No. ML12321A321), states, in part, that the reflector includes heavy water. Neither the TEES/TAMUS updated SAR nor the Basis for TS 5.3, Specification 2, describes heavy water as a reflector material. NUREG-1537, Part 1, Chapter 14, Appendix 14.1, Section 3.1, "Reactor Core Parameters," Item (4), "Core Configurations," provides guidance that the reflector material be described in the TSs.

Enclosure

Provide a revised description of the reflector material in TS 5.3, Specification 2 or justify why no change is necessary.

4. The TEES/TAMUS proposed TS 5.3, "Reactor Core," Specification 4, states, in part, that the instrumented fuel element shall be located adjacent to the central bundle. The Basis for TS 5.3, Specification 4, refers to the Basis of TS 2.2, "Limiting Safety System Setting" (LSSS). However, the Basis of TS 2.2 does not provide a description for the location of the instrumented fuel element. NUREG-1537, Part 1, Chapter 14, Appendix 14.1, Section 1.2.2, "Format," provides guidance that the format should include the basis for each specification. Provide a basis for TS 5.3, Specification 4, which describes the location of the instrumented fuel element, or justify why no change is necessary.
5. The TEES/TAMUS proposed TS 1.3, "Definitions," Reference Core Condition, provides a value of -\$0.30 for xenon reactivity (negligible). Given that the reactivity required to satisfy TS 3.1.3, "Shutdown Margin" (SDM), is -\$0.50, with Specification 3 requiring the reactor in the reference core condition, the resulting SDM reactivity could be as low as -\$0.20, which is not consistent with the guidance in NUREG-1537, which provides a value of -\$0.50 SDM reactivity. Revise the TS 1.3 definition of Reference Core Condition for Xenon reactivity that results in a SDM reactivity that is consistent with the SDM guidance in NUREG-1537, or justify why no change is necessary.
6. The TEES/TAMUS proposed TS 4.1.3, "Shutdown Margin," Specification, states, in part, that the reactivity worth shall be determined following significant core configuration and/or control rod changes. However, significant core configuration is not defined. NUREG-1537, Chapter 14, Part 1, Appendix 14.1, Section 4.1, "Reactor Core Parameters," provides guidance that reactivity measurements should be done following changes in the core, in-core experiments, or control rods. Revise TS 4.1.3 to follow the guidance in NUREG-1537, or justify why no change is necessary.
7. The TEES/TAMUS proposed TS 4.1.6, "Maximum Excess Reactivity," states, in part, that the excess reactivity shall be determined biennially and following core configuration and/or control rod changes. NUREG-1537, Chapter 14, Appendix 14.1, Section 4.1, "Reactor Core Parameters," Item (1), "Excess Reactivity," provides guidance that the measurement should be performed annually. Additionally, the use of the "and/or" in the TS specification is unclear. Revise TS 4.1.6 to follow the guidance in NUREG-1537, or justify why no change is necessary.
8. The TEES/TAMUS proposed TS 4.2.2, "Reactor Safety Systems and Interlock," Specification 3, and TS 4.8.3, "Primary Coolant Temperature," Specification 2, provide requirements for calibration of the pool temperature measuring channel, and appears redundant, which could complicate TS compliance. Review TS 4.2.2, Specification 3, and TS 4.8.3, Specification 2, and revise to eliminate unnecessary redundancy, or justify why no change is necessary.
9. The TEES/TAMUS proposed TS 4.1.2, "Pulse Mode Operation," Specification, states, in part, that the reactor shall not be declared operational for pulsing until such pulse measurements are performed. However, the TS does not provide a requirement as to the acceptability of the measurements. NUREG-1537, Part 1, Chapter 14, Appendix 14.1,

Section 4.1, "Reactor Core Parameters," Item (3), "Pulse Limits," provides guidance that the fuel temperature and pulse reactivity relationship should be determined to be acceptable. Revise TS 4.1.2 to include a requirement that the results of the pulse measurements are acceptable, or justify why no change is necessary.

10. The TEES/TAMUS proposed TS 4.2.3, "Scram Time," states, in part, that the scram time shall be measured annually. However, the guidance in the American National Standard Institute/American Nuclear Society (ANSI/ANS)-15.1-2007, "The Development of Technical Specifications for Research Reactors," includes additional criteria to perform the surveillance following work done to the rods or rod drive system. Revise TS 4.2.3 to include the additional surveillance criteria in ANSI/ANS-15.1-2007, or justify why no change is needed.
11. The TEES/TAMUS response to RAI 4 by letter dated November 21, 2011 (a redacted version can be found in ADAMS Accession No. ML113410067), provided a calculated radiation dose estimate to a worker in confinement for 2000 hours from Argon-41 (Ar-41) of 416 milli-Roentgens Equivalent Man using the assumption that the TS limit of 30 curies of Ar-41 was released uniformly over a year resulting in an average concentration of 2.5E-7 micro-curies per milliliter. As such, the calculated dose estimate may not represent an upper limit as the production and release of Ar-41 results from the operation of the reactor, which is not typically operated uniformly over a year. For example, a better estimate of the maximum dose to a radiation worker from the Ar-41 released during reactor operations would assume the 30 curies of Ar-41 was released uniformly during the 2000 hours that the worker was in confinement. Provide a revised dose estimate for a working in confinement using a concentration of Ar-41 that could be released during reactor operation, or justify why no change is necessary.
12. The TEES/TAMUS proposed TS 3.7, "As Low As Reasonable Achievable (ALARA) Radioactive Effluents Released," Specification 4, states, in part, requirements for the discharge of radioactive material into the sanitary sewerage, but does not indicate a solubility requirement, or indicate how it would be satisfied. Title 10 of the *Code of Federal Regulations* (10 CFR) 20.2003(a)(1) states that the material must be readily soluble in water. Revise TS 3.7, Specification 4, to include a solubility requirement, including verification, or justify why no change is necessary.
13. The TEES/TAMUS proposed TS 3.7, "As Low As Reasonable Achievable (ALARA) Radioactive Effluents Released," Specification 3, states, in part, requirements for a significant fission product leak or airborne radioactive release. However, the qualitative meaning of significant is not defined in the TSs. Provide a definition for the application of the term "significant" or justify why no change is necessary.
14. The TEES/TAMUS proposed TS 3.5.3, "Xenon and Iodine Monitoring," Basis, does not appear to have a corresponding SAR description of the purpose or basis for the Xenon-125 (^{125}Xe) and Iodine-125 (^{125}I) monitors, or description of set points based on radiological consequences.
 - a. NUREG-1537, Part 1, Section 11.1.1.1, "Airborne Radiation Sources," provides guidance for describing the radiological consequences of a release to both workers and members of the public, including how the monitoring systems help to ensure that

the limits of 10 CFR Part 20, "Standards for Protection Against Radiation," are maintained. Provide a description, including the potential radiological doses (including calculations), to both workers and members of the public, for an accidental release of xenon and iodine. Demonstrate how the monitoring set points in TS 3.5.3 ensure that the potential doses from an accidental release would remain within the limits of 10 CFR Part 20.

- b. NUREG-1537, Part 1, Section 7.7, "Radiation Monitoring Systems," provides guidance that the licensee should provide a design basis, a system description, performance analysis and a conclusion about the suitability of the system to perform its function. Provide a Basis in TS 3.5.3, based on a SAR description of the ^{125}Xe and ^{125}I systems in TS 3.5.3, or justify why this information is not necessary.
- c. Table 4 lists the ^{125}I Air Monitor, which is not described in the SAR. Is this monitor part of the facility air monitoring (FAM) system similar to the ^{125}Xe Effluent Monitoring Channel (FAM Ch. 5)? Provide a description of the ^{125}I Air Monitor, or justify why this information is not necessary.

15. The TEES/TAMUS proposed TS 4.5, "Radiation Monitoring Systems and Effluents," Specification 2, states, in part, requirements for the emergency xenon monitor. The following items were identified:

- a. The emergency xenon monitor is not defined in the TSs or SAR. Is this the same monitor described in proposed TS 3.5.3, Table 4, as the ^{125}Xe Effluent Monitoring Channel (FAM Ch. 5)? Provide a description of the emergency xenon monitor, revise the name, or justify why no change is needed.
 - b. The emergency xenon monitor is not channel tested consistent with the requirements of the FAM system. Revise TS 4.5, Specification 2, to require a channel test of the emergency xenon monitor or justify why no change is needed.
16. The TEES/TAMUS proposed TS 1.3, "Definitions," Excess Reactivity, states in part, control devices, which are not defined. Provide a definition for control devices, revise to control rods, or justify why no change is necessary.
17. The TEES/TAMUS proposed TS 1.3, "Definitions," License, states, in part, "the responsible authority," which is not defined. Provide a definition for responsible authority, change to U.S. NRC, or justify why no change is necessary.
18. The TEES/TAMUS proposed TS 1.3, "Definitions," Limiting Safety System Settings (LSSS), states, in part, "[t]he limiting safety system setting is a temperature," but does not indicate if it refers to the fuel element temperature. Provide a revision of the definition of the limiting safety system setting that indicates that it is the temperature of the fuel element or justify why no change is necessary.

19. The TEES/TAMUS proposed TS 1.3, "Definitions," Reactor Secured, Item (2)(a), states, in part, the number of neutron-absorbing control devices, without providing a definition or number. Provide a definition of neutron-absorbing control devices, including a number, change to state "control rods," or justify why no change is necessary.
20. The TEES/TAMUS proposed TS 1.3, "Definitions," "Reportable Occurrence," Item (4), does not include the guidance provided in ANSI/ANS-15.1-2007, Section 6.7.2, Special Reports, Item (1)(iv), that states, in part, "Reactor trips resulting from a known cause are excluded." Revise the definition of Reportable Occurrence to match the guidance in ANSI/ANS-15.1-2007, or justify why no change is necessary.
21. The TEES/TAMUS proposed TS 1.3, "Definitions," "Reportable Occurrence," Item (5), states, in part, "where appropriate," which is not clearly defined. Provide a definition for examples that would constitute exceptions to the reporting requirements of proposed TS 1.3, "Definitions," "Reportable Occurrences," Item (5), eliminate the exception "where appropriate," or justify why no change is necessary.
22. The TEES/TAMUS proposed TS 3.1.5, "Reactor Fuel Parameters," does not have a specification for burnup. NUREG-1537, Part 1, Appendix 14.1, Section 3.1, "Reactor Core Parameters," Item (6)(b), "TRIGA Fuel," provides guidance that the fuel matrix should not exceed 50 percent of its initial concentration. Provide a burnup limit consistent with the guidance in NUREG-1537, or justify why no change is necessary.
23. The TEES/TAMUS proposed TS 3.2.2, "Reactor Safety Systems and Interlocks," has the following items:
 - a. The specification provides requirements for operation with safety channels out of service for maintenance, surveillance, calibration or repair. However, no other limitations are provided, e.g., time or number of channels which may be out of service concurrently. Provide a revised specification, including the supporting basis, for allowing safety channels to be out of service, or justify why no change is necessary.
 - b. Table 2a, Safety Channel, Fuel Element Temperature, Function, states, "Scram \leq the LSSS," but does not provide a set point (numerical value). NUREG-1537, Part 1, Appendix 14.1, Section 3.2, "Reactor Control and Safety Systems," Item (4), "Scram Channels," provides guidance that the set points should be provided in a table. Provide a set point (numerical value) for TS 3.2.2 LSSS, or justify why no change is necessary.
 - c. Table 2a, Safety Channel, High Power Level, states, "Scram \leq 125%," which is not defined. Revise 125% to relate to the licensed power level, or define in terms of megawatts, and provide a basis for the setting being 25% above the licensed power level, as opposed to 10% or 15%, or justify why no change is necessary.

24. The TEES/TAMUS proposed TS 3.2.2, ‘Reactor Safety Systems and Interlocks,’ Table 2b, Function, provides descriptions of the Safety Channels’ functions that are not clearly worded. NUREG-1537, Part 1, Appendix 14.1, Section 3.2, “Reactor Control and Safety Systems,” Item (4), “Scram Channels,” provides guidance that the scram channels should be described in a table. Provide a more comprehensive description of the Function for the Safety Channel in Table 2b, or justify why no changes are necessary.
25. The TEES/TAMUS proposed TS 3.6.1, “Reactivity Limits,” Specification 1, states, in part, requirements for the reactivity worth, but does not describe if the reactivity worth involves positive or negative reactivity. Revise TS 3.6.1, Specification 1, to include the absolute reactivity worth, or justify why no change is necessary.
26. The TEES/TAMUS proposed TS 3.6.2, “Material Limitations,” has the following items:
 - a. Specification 1.a, describes explosive materials in quantities greater than 25 milligrams and less than 25 milligrams, but does not include quantities equal to 25 milligrams. Revise TS 3.6.2 to include quantities up to 25 milligrams, or justify why no change is necessary.
 - b. Specification 1.b, describes interior of the pool containment structure, which does not appear to be defined in the TSs or SAR. Provide a description or clearly define the area or location meant by the interior of the pool containment structure, or justify why no change is necessary.
 - c. Specification 2, states, in part, significant amounts of corrosive materials, which is not clearly defined. Revise TS 3.6.2, Specification 2, to provide a qualitative definition for significant amounts or justify why no change is necessary.
27. The TEES/TAMUS proposed TS 3.2.1, “Reactor Measuring Channels,” does not appear to have a corresponding TS 4.0 surveillance requirement. Provide a surveillance requirement for TS 3.2.1, or justify why one is not necessary.
28. The TEES/TAMUS proposed TS 4.2.2, “Reactor Safety Systems and Interlocks,” Specification 1, states, in part, “[a] channel check,” as identified in Table 2, except for the pool level alarm. However, the pool level alarm is not listed in TS 3.2.2, Table 2. Provide a revised TS 4.2.2, or TS 3.2.2, Table 2, or both, or justify why no change is necessary.
29. The TEES/TAMUS proposed TS 4.5, “Radiation Monitoring Systems and Effluents,” Specification 1, states, in part, “the FAM,” but does not identify it as a “system” as described in the SAR. Revised the FAM to include system, or justify why no change is necessary.
30. The TEES/TAMUS proposed TS 4.8.1, “Primary Coolant Purity,” Specifications 2 and 3, states, in part, that conductivity and pH measurements of the bulk pool water shall be performed quarterly during extended shutdowns, and quarterly, respectively. NUREG-1537, Part 1, Appendix 14.1, Section 4.3, “Coolant Systems,” Item (6) “Conductivity and pH,” provides guidance that the conductivity and pH should be measured weekly, or monthly, if the reactor is shutdown for long periods of time, if justification is provided in the SAR. A review of the SAR did not find justification for the proposed quarterly periodicity. Revise

TS 4.8.1, Specifications 2 and 3, to weekly, or monthly with an accompanying SAR justification, respectively, or justify why no change is necessary.

31. The TEES/TAMUS proposed TS 5.3, "Reactor Core," Specification 3, states, in part, "[c]ore lattice position." Should this state "positions"? Revise TS 5.3, Specification 3, to state core lattice positions, or justify why no change is needed. Additionally, the basis to TS 5.3, Specification 3, states, in part, "accident." Should this be "accidental"? Revise TS 5.3, Basis 3, to state accidental, or justify why no change is necessary.
32. The TEES/TAMUS proposed TS 5.4, "Control Rods," Specification 2, provides a description of the regulating rod, but does not describe any control rod follower characteristics (i.e., is it a water follower, consistent with the follower descriptions provided in TS 5.4, Specifications 1 and 3). Revise TS 5.4, Specification 2, to include a description of the control rod follower characteristics, or justify why no change is necessary.
33. The TEES/TAMUS proposed TS 5.5, "Radiation Monitoring System," has the following items:
 - a. The Applicability statement indicates that the area radiation monitoring (ARM) and FAM systems are required for continuous monitoring, whereas, proposed TS 3.5.1, "Radiation Monitoring," indicates that the ARM and FAM Channels 1, 3, and 4, are required during reactor operation. Reconcile the applicability statements for TS 5.5 and TS 3.5.1, or justify why no change is necessary.
 - b. Proposed TS 5.5, Table 5, Radiation Monitoring Channel column, provides ARM and FAM system information, but does not state the applicable channel(s). Revise Table 5 to provide radiation monitoring channel information, or justify why no change is necessary.
 - c. The Basis does not indicate how the alarm setpoints are established in order to protect the workers or public. NUREG-1537, Part 1, Appendix 14.1, Section 3.7.1, "Monitoring System," Item (3) "Area Monitors," provides guidance that the alarm and automatic setpoints should be specified to ensure that personnel exposures and potential doses remain below the limits of 10 CFR Part 20. Provide the basis for the ARM and FAM setpoints, or justify why no change is necessary.
34. The TEES/TAMUS proposed TS 5.7, "Reactor Building and Central Exhaust System," has the following items:
 - a. Specifications 1, 2, and 3, provide requirements associated with the reactor building volume, exhaust system, and emergency controls, that are also stated in TS 5.1, "Site and Facility Description," Specifications 2, 3, and 4. In order to reduce unnecessary redundancy and avoid potential confusion, consider consolidating the requirements of TS 5.1, Specifications 2, 3, and 4, into TS 5.7, or justify why no change is necessary.

- b. Specification 3, states, in part, the fission product air monitor. However, this system is defined in the TSs. Provide a definition or description of the fission product facility air monitor, or justify why no change is necessary.
35. The TEES/TAMUS proposed TS 5.8, "Reactor Pool Water Systems, has the following issues:
- a. Specification 3, states, in part, that emergency covers are required in case of pool water loss due to external pipe system failure. The SAR does not provide a description of the use of the emergency covers. The proposed TS 5.8 Basis provides a description of the storage and assumed installation times for the use of the covers, but no supporting information is provided in the SAR. Provide a description of the covers, including a basis for the assumptions provided in the TS Basis, or justify why no change is necessary.
 - b. Specification 4 appears to be missing "at" prior to "a continuously monitored remote location." Provide a revised Specification 4, or justify why no change is necessary.
36. The TEES/TAMUS proposed TS 6.1.2, "Responsibility," provides requirements for responsibility for the safe operation of the reactor facility. However, no information is provided on the use of alternates. ANSI/ANS-15.1-2007, Section 6.1.2, "Responsibility," provides guidance for the use of alternates. Provide a revision to TS 6.1.2 that adds clarification on the use of alternates, or justify why no change is necessary.
37. The TEES/TAMUS proposed TS 6.1.3, "Staffing," has the following items:
- a. Specification 1.b, states, in part, "period of reactor maintenance" and "periods when the reactor is unsecured...." which appear to be typographical errors. Should "period" be "periods" and "unsecured" be "not secured"? Provide a revised TS 6.1.3, Specification 1.b, or justify why no change is necessary.
 - b. Specification 3, describes activities requiring designated individuals, including loading fuel and recovery from an unplanned or unscheduled shutdown. However, unloading fuel and power reductions are not included. Provide a revised TS 6.1.3, Specification 3 that includes unloading fuel and power reductions, as appropriate, or justify why no changes are necessary.
38. The TEES/TAMUS proposed TS 6.2.1, "Reactor Safety Board (RSB)," has the following items: a) the word "normally" is used in two instances; b) the title "Deputy Director of TEES" is used without a corresponding definition in TS 6.1.1, and c) "Level 1" is used without a corresponding title. These items may create a potential for misinterpretation of the requirements contained in TS 6.2.1. ANSI/ANS-15.1-2007, Section 6.2, "Review and audit," provides guidance for the review and audit function. Provide a revision of TS 6.2.1 consistent with the guidance in ANSI/ANS-15.1-2007, or justify why no change is necessary.

39. The TEES/TAMUS proposed TS 6.2.2, "RSB Charter and Rules," has the following items:

- a. Specification 2, "Quorum," states, in part, that "[a] quorum is comprised of 3 voting members." This limits the quorum to three, and doesn't match the guidance in ANSI/ANS-15.1-2007, which states that a quorum is not less than half of the voting membership. Revise TS 6.2.2, Specification 2, to follow the guidance in ANSI/ANS-15.1-2007, or justify why no change is necessary.
- b. Specification 5, "Meeting Minutes," does not follow the guidance in ANSI/ANS 15.1-2007, which provides that the meeting minutes will be provided to the Level 1 in a timely manner. Revise TS 6.2.2, Specification 5, to follow the guidance in ANSI/ANS-15.1-2007, or justify why no change is necessary.

40. The TEES/TAMUS proposed TS 6.2.3, "RSB Review Function," has the following items:

- a. Specification 1, states, in part, "unreviewed safety question," which is not consistent with 10 CFR 50.59, "Changes, tests, and experiments," or the guidance in ANSI/ANS-15.1-2007. Revise TS 6.2.3, Specification 1, to comply with 10 CFR 50.59 and the guidance in ANSI/ANS-15.1-2007, or justify why no change is necessary.
- b. Specifications 4 and 6, state, in part, "the charter" which is not applicable to NRC licensees. Revise TS 6.2.3, Specifications 4 and 6, consistent with NRC licensees, or justify why no change is necessary.

41. The TEES/TAMUS proposed TS 6.2.4, "RSB Audit Function," contains components of the audit function as provided in ANSI/ANS-15.1-2007, but lacks information provided in the introductory paragraph concerning discussions with cognizant personnel, audit responsibilities, timeliness, and resolution of deficiencies. Revise TS 6.2.4 to follow the guidance in ANSI-15.1-2007, or justify why no changes are necessary.

42. The TEES/TAMU proposed TS 6.3, "Radiation Safety," provides requirements for implementing the radiation protection program at TEES/TAMUS NSC. However, TS 6.3 does not follow the guidance in ANSI/ANS 15.1-2007, which refers to the guidance in ANSI/ANS-15.11-2004, "Radiation Protection at Research Reactor Facilities." Revise TS 6.3 to follow the guidance in ANSI/ANS-15.1-2007, or justify why no change is necessary.

43. The TEES/TAMUS proposed TS 6.4, "Procedures," states, in part, that operating procedures "shall be in effect," which may be not be clearly defined in all situations. Consider modifying the statement, such as, "shall be used" to ensure effective procedure adherence. Revise TS 6.4 to provide a clear definition for the use of procedures, or justify why no change is necessary.

44. The TEES/TAMUS proposed TS 4.6, 'Experiments,' Specification 1, states, in part, that experiments shall be reviewed for compliance with Section 6.5, "Experiment Review and Approval," of the TSs. TS 6.5 require reviews and approvals by the RSB and TEES Director. However, there is no requirement to review the proposed experiments in

accordance with TS 3.6, "Limitations on Experiments." Consider adding a review for compliance with TS 3.6 to Specification 1 of TS 4.6. Revise TS 4.6, Specification 1 to add TS 3.6 to the review requirement, or justify why no change is necessary.

45. The TEES/TAMUS proposed TS 6.5, "Experiment Review and Approval," Specification 2, provides requirements for changes to previously approved experiments. However, the requirements do not include a review in accordance with the requirements of 10 CFR 50.59. Revise TS 6.5 to add the review requirements associated with 10 CFR 50.59, or justify why no changes are necessary.
46. The TEES/TAMUS proposed TS 6.6.1, "Action to be Taken in the Event of a Safety Limit Violation," Specification 2, states, in part, that an immediate notification is made to NRC, and a report in accordance with TS 6.7.2, "Special Reports" (within the next day). The immediate notification is not provided in the guidance in ANSI/ANS-15.1-2007, and may result in duplicative reporting. Revise TS 6.6.1, Specification 2, to follow the guidance in ANSI/ANS-15.1-2007, or justify why no change is necessary.
47. The TEES/TAMUS proposed TS 6.7.1, "Annual Operating Report," provides requirements for information for the annual report. However, several of the Specifications 1 through 8 are not consistent with the guidance in ANSI/ANS-15.1-2007, Section 6.7.1, "Operating Reports." For example, Specification 3 provides the number of emergency shutdowns; whereas the guidance in ANSI/ANS-15.1-2007 requests unscheduled shutdowns and, where applicable, corrective actions to preclude recurrence. Specification 6 does not include an estimate of the individual radionuclides, as practicable. Revise TS 6.7.1 to include the guidance provided in ANSI/ANS-15.1-2007, Section 6.7.1, or justify why no changes are necessary.
48. The TEES/TAMUS proposed TS 6.7.2, "Special Reports," Specification 1.b, states, in part, "accidental release." The guidance in ANSI/ANS-15.1-2007 does not include accidental, but refers to any release. Revise TS 6.7.2, Specification 1.b to follow the guidance in ANSI/ANS-15.1-2007, or justify why no change is necessary.
49. The TEES/TAMUS updated SAR, dated May 2011, does not appear to provide any information on accidents associated with the mishandling or malfunction of equipment. NUREG-1537, Part 1, Section 13.1.9, "Mishandling or Malfunction of Equipment" provides guidance for types of accidents that should be evaluated. Provide an analysis of the accidents that may be associated with mishandling or malfunction of equipment, or justify why no information is necessary.
50. The TEES/TAMUS proposed TS 1.3, "Definitions," "Experiment," provides an exclusion for experimental samples, which is not consistent with the guidance in ANSI/ANS-15.1-2007, Reactivity. Revise the definition of Experiments to follow the guidance in ANSI/ANS-15.1-2007, or justify why no change is necessary.
51. The TEES/TAMUS proposed TS 1.3, "Definitions," provides definitions for "Channel" and "Measuring Channel," which appear identical. Redundant definitions could unnecessarily complicate TS compliance. Revise the definitions of Channel and Measuring Channel for consistency, or justify why no change is necessary.

52. The TEES/TAMUS proposed TS 5.3, "Reactor Core," Specifications 1, 3, and 4 appear identical to proposed TS 3.1.4, "Core Configuration Limitation," Specifications 1, 2, and 3. Redundant specifications could unnecessarily complicate TS compliance. Revise TS 5.3, or TS 3.1.4, for consistency, or justify why no change is necessary.
53. The TEES/TAMUS proposed TS 3.2.3, "Minimum Number of Operable Scrammable Control Rods and Scram Time," provides operability requirements for the scrammable control rods. However, the regulating rod is not included, and, as such, it is not clear if the regulating rod is required to be operable for reactor operation or reactor secured. Provide TS requirements on the operability of the regulating rod, or justify why no change is necessary.
54. The TEES/TAMUS updated SAR, Section 5.3, "Secondary Coolant System," describes cooling tower water chemistry control through make-up and blow down, but does not explain the system's operation (i.e., if its automatic or manually operated, or how the blow down material is handled). Provide a more comprehensive description of the cooling tower water chemistry control system, including the handling of any cooling tower blow down, or justify why no additional information is necessary.
55. The TEES/TAMUS proposed TS 3.5.1, "Radiation Monitoring," Table 3, Footnote, and TS 3.5.3, "Xenon and Iodine Monitoring," Table 4, Footnote, provide requirements for out of service radiation monitors. However, the requirements are not clearly delineated. Provide revised TS 3.5.1, and TS 3.5.3, Table 3, and 4, Footnotes, or justify why no changes are necessary.
56. The TEES/TAMUS response to RAI no. 3, by letter dated January 12, 2012 (a redacted version is available in ADAMS Accession No. ML120260016), provided an assumption that the doses to any members of the public in the laboratory areas are no worse than the doses present at the fence line under the plume. The basis for this assumption was not provided. Provide the basis to substantiate the assumption provided in the response to RAI no. 3, or justify why no additional information is necessary.
57. The TEES/TAMUS proposed TS 3.3.1, "Operations that Require Confinement," provides requirements for confinement. However, some of the guidance provided in ANSI/ANS-15.1-2007 is not contained in the proposed TS 3.3.1. Revise TS 3.3.1 to include the guidance provided in ANSI/ANS-15.1-2007, or justify why no change is necessary.