

January 10, 2018

Dr. Sean McDeavitt, Director
Nuclear Science Center
Texas Engineering Experiment Station
Texas A&M University System
1095 Nuclear Science Road, M/S 3575
College Station, TX 77843

SUBJECT: TEXAS ENGINEERING EXPERIMENT STATION/TEXAS A&M UNIVERSITY
SYSTEM, NUCLEAR SCIENCE CENTER – U.S. NUCLEAR REGULATORY
COMMISSION ROUTINE INSPECTION REPORT NO. 50-128/2017-202

Dear Dr. McDeavitt:

From December 11-14, 2017, the U.S. Nuclear Regulatory Commission (NRC) conducted an inspection, at your Nuclear Science Center TRIGA Research Reactor Facility. The enclosed report documents the inspection results, which were discussed on December 14, 2017, with you, Mr. Jerry Newhouse, Associate Director, and Mr. Steve Miller, Reactor Operations Manager.

The inspection examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. The inspectors reviewed selected procedures and records, observed various activities, and interviewed personnel. Based on the results of this inspection, no findings of significance were identified. No response to this letter is required.

In accordance with Title 10 of the *Code of Federal Regulations*, Section 2.390, "Public inspections, exemptions, requests for withholding," a copy of this letter, its enclosure, and your response (if any) will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's document system (Agencywide Documents Access and Management System (ADAMS)). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

If you have any questions concerning this inspection, please contact Craig Bassett at (240) 535-1842 or by electronic mail at Craig.Bassett@nrc.gov.

Sincerely,

/RA/

Anthony J. Mendiola, Chief
Research and Test Reactors Oversight Branch
Division of Licensing Projects
Office of Nuclear Reactor Regulation

Docket No. 50-128
License No. R-83

Enclosure:
As stated

cc: See next page

Texas A&M University

Docket No. 50-128

cc:

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SUBJECT: TEXAS ENGINEERING EXPERIMENT STATION/TEXAS A&M UNIVERSITY
SYSTEM, NUCLEAR SCIENCE CENTER – U.S. NUCLEAR REGULATORY
COMMISSION ROUTINE INSPECTION REPORT NO. 50-128/2017-202
DATE: JANUARY 10, 2018

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DATE	1/3/2018	1/3/2018	1/10/2018

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U.S. NUCLEAR REGULATORY COMMISSION
OFFICE OF NUCLEAR REACTOR REGULATION

Docket No. 50-128

License No. R-83

Report No. 50-128/2017-202

Licensee: Texas Engineering Experiment Station/Texas A&M University System

Facility: Texas Engineering Experiment Station/Texas A&M University System
Nuclear Science Center

Location: College Station, Texas

Dates: December 11–14, 2017

Inspector: Craig Bassett

Accompanied by: William Schuster, Security Specialist/Inspector

Approved by: Anthony J. Mendiola, Chief
Research and Test Reactors Oversight Branch
Division of Licensing Projects
Office of Nuclear Reactor Regulation

EXECUTIVE SUMMARY

Texas A&M University
Texas Engineering Experiment Station/Texas A&M University System
Nuclear Science Center Reactor
NRC Inspection Report No. 50-128/2017-202

The primary focus of this routine, announced inspection included onsite review of selected aspects of the Texas Engineering Experiment Station/Texas A&M University System (the licensee's) Class II research and test reactor safety programs including: (1) organization and staffing, (2) operations logs and records, (3) procedures, (4) requalification training, (5) surveillance and limiting conditions for operation, (6) design changes, (7) committees, audits and reviews, (8) emergency planning, (9) maintenance logs and records, and (10) fuel handling logs and records. The licensee's programs were generally directed toward the protection of public health and safety.

Organization and Staffing

- The licensee's organization and staffing and assignment of responsibilities remained in compliance with the requirements specified in technical specification (TS) Section 6.1.

Operations Logs and Records

- Operational activities were consistent with applicable TSs and procedural requirements.

Procedures

- Facility procedures and document reviews satisfied TS Section 6.4 requirements and procedural compliance was acceptable.

Requalification Training

- The requalification program was being completed as required and records were being maintained.

Surveillance and Limiting Conditions for Operation

- The program for surveillance and limiting conditions for operation confirmations was implemented in accordance with TS Sections 3 and 4 requirements.

Design Changes

- Based on the records reviewed, the inspectors determined that the licensee's design change program was being implemented as required.

Committees, Audits, and Reviews

- The Reactor Safety Board acceptably completed the review, audit, and oversight functions required by TS Section 6.2.

Emergency Planning

- The emergency preparedness program was generally conducted in accordance with the Emergency Plan.

Maintenance Logs and Records

- Maintenance was being completed as required.

Fuel Handling Logs and Records

- The fuel handling activities and documentation were completed in accordance with the facility TSs.

REPORT DETAILS

Summary of Plant Status

The Texas Engineering Experiment Station (TEES) Texas A&M University System (the licensee) Nuclear Science Center (NSC) TRIGA research reactor, licensed to operate at a maximum steady-state thermal power of one megawatt, continued to be operated in support of operator training, surveillance, research, and utilization involving neutron activation analysis. During the inspection the reactor was operated each day at varying power levels up to 900 kilowatts to conduct sample irradiations and research.

1. Organization and Staffing

a. Inspection Scope (Inspection Procedure [IP] 69001 [02.01])

The inspectors reviewed selected aspects of the following regarding the licensee's organization and staffing to ensure that the requirements specified in technical specification (TS) Section 6.1 were being met:

- Appendix A to Facility Operating License Number (No.) R-83, Docket No. 50-128, Amendment No. 18, "Technical Specifications," dated August 31, 2016
- Organization and staffing for the Texas A&M NSC during operation of the research reactor
- Administrative controls and management responsibilities specified in the facility TSs
- TEES, Texas A&M University System, 2015 Annual Report, submitted to the U.S. Nuclear Regulatory Commission (NRC) by letter dated April 20, 2016
- TEES, Texas A&M University System, 2016 Annual Report, submitted to the NRC by letter dated April 9, 2017
- NSC standard operating procedure (SOP), Chapter I, "Policy and Administrative Procedures," Section I-C

b. Observations and Findings

The structure and functions of the licensee's organization at the TEES/Texas A&M University System NSC Reactor Facility had not functionally changed since the last inspection (refer to NRC Inspection Report No. 50-128/2016-201). It was noted that the person who had been the radiation safety manager/radiation safety officer (RSO) for the facility had found other employment. Because of that fact, the facility Associate Director was temporarily filling the RSO position until a qualified replacement can be trained. The licensee's organizational structure and assignment of responsibilities, as reported in the annual reports, were consistent with those specified in TS Section 6.1. All positions reviewed were filled with qualified personnel. Review of records verified that management responsibilities were administered as required.

c. Conclusion

Despite the loss of the facility RSO, the licensee's organization and staffing were in compliance with the requirements specified in TS Section 6.1

Enclosure

2. Operations Logs and Records

a. Inspection Scope (IP 69001 [02.02])

The inspectors reviewed selected aspects of the following to verify compliance with TS Sections 2, 3, 4, and 6 and the applicable procedures:

- Selected facility logs and records including:
 - Scram Log
 - Tagout Log
 - Irradiation Cell Log
 - Weekly Ventilation and Scram Surveillances Log
- Staffing for operations as recorded on the reactor log sheets
- Nuclear Science Center Reactor (NSCR) Operations Log Books, Nos. 236-245, dated from December 21, 2015, to the present
- Selected entries on the following facility forms:
 - NSC Form 531, entitled "Morning Facility Checklist - Daily"
 - NSC Form 532, entitled "TRIGA Reactor Pre-startup Checklist"
 - NSC Form 533, entitled "Reactor Operations Facility Checklist - Daily Surveillance"
 - NSC Form 534, entitled "Facility Security Shutdown Checklist - Daily Surveillance"
 - NSC Form 573, entitled "Irradiation Cell Entry Log"
 - NSC Form 574, entitled "Irradiation Cell Operations Checklist"
 - NSC Form 590, entitled "Unscheduled Scram Recovery Checklist"
- Selected NSC daily senior reactor operator (SRO) Checklists for 2016 and 2017
- NSC SOP, Chapter II, "Reactor Operations," Sections II-A, II-B, II-C, II-D, II-F, II-I, II-M, and II-N
- TEES, Texas A&M University System, 2015 and 2016 Annual Reports

b. Observations and Findings

Reactor operations were carried out following written procedures and TS requirements. Information on the operational status of the facility was recorded in log books and on checklists as required by procedure. Use of maintenance and repair logs satisfied procedural requirements.

Operational problems and events noted in the appropriate logs were reported, reviewed, and resolved as required. The inspectors verified that required items were logged and cross-referenced with other logs and forms, as required, and that selected TS Sections 2 and 3 operational limits had not been exceeded. Operations logs and records also documented that shift staffing met the minimum requirements for duty and on-call personnel.

Unintentional shutdowns or scrams that occurred during reactor operations were recorded in the scram log. The licensee had investigated these events and when a scram occurred, a root cause analysis was completed by the SRO on duty before the resumption of operations. (Refer to paragraph 9 below for more information on this subject.)

The inspectors conducted observations of the reactor staff on December 12, 13, and 14, 2017, and reviewed the log books and associated records and logs. The inspectors noted that the licensed reactor operators (ROs) were knowledgeable and competent. When trainees operated the reactor they were closely supervised and observed by a licensed operator. Inspector observation of operational activities also confirmed that reactor operations were carried out in accordance with written procedures and TS requirements.

c. Conclusion

Operational activities were consistent with applicable TSs and procedural requirements.

3. Procedures

a. Inspection Scope (IP 69001 [02.03])

The inspectors reviewed the following to ensure that the requirements of TS Section 6.4 were being met concerning written procedures:

- NSC SOP Chapter I, "Policy and Administrative Procedures," Sections I-B, I - C, I-D, I-E, I-F, I-G, and I-H
- Reactor Safety Board (RSB) Meeting Minutes for 2015, 2016, and 2017 to date (RSB meeting Nos. 177 – 182)
- NSCR Operations Log Books, Nos. 236 – 245, dated from December 21, 2015 to present
- TEES, Texas A&M University System, 2015 and 2016 Annual Reports

b. Observations and Findings

Oversight and review of procedure implementation was provided by licensee management and the RSB. The procedures in use at the facility appeared to be relatively current. It was noted that minor procedure changes were accomplished using a procedure change notice (PCN) system. The PCN listed the procedure steps affected, the current wording, the new wording, and the reason for the change. These types of changes could be approved by NSC management, the RSO, and the Facility Director. All substantive changes were required to be approved by the Facility Director and the RSB. The inspectors verified that this was the current practice. It was noted that procedure changes and new procedures were posted so that all licensed ROs and SROs were able to review the revisions and/or new procedures.

c. Conclusion

Procedure review, revision, adherence to, and implementation satisfied TS requirements.

4. Requalification Training

a. Inspection Scope (IP 69001 [02.04])

To verify that operator requalification activities and training were conducted as required in the licensee's "Senior Reactor Operator and Reactor Operator Requalification Program," Rev. 5, dated March 11, 2014, and to verify that medical requirements were met, the inspectors reviewed:

- Active license status of current operators
- Medical examination records for licensed operators
- Written examinations given to operators for 2015, 2016, and 2017
- NSCR Operations Log Books, Nos. 236 – 245, dated from December 21, 2015 to the present
- Various other logs and records of reactivity manipulations for 2016 through the present
- Training lectures and records for selected individuals for the current and previous training cycles documented on:
 - NSC Form 521, "Reactor Operations Two-Year Training Cycle"
 - NSC Form 522, "Reactor Operator Two-Year Training Records"
 - NSC Form 523, "NSC Reactor Operator Requalification/Training Lecture"
 - NSC Form 524, "SRO and RO Requalification Exam Cover Sheet"
- RSB Reactor Requalification Program Audit dated December 21, 2016
- TEES, NSC, "Senior Reactor Operator and Reactor Operator Requalification Program," Rev. 5, dated March 11, 2014

b. Observations and Findings

The facility had eight licensed SROs, two ROs, and nine trainees on staff at the facility. As of the date of the inspection, all of the qualified operators' licenses were current.

A review of the logs and requalification records showed that annual operational examinations were being administered as required. Written examinations were administered within the time frame as required. The inspectors noted that the licensee was tracking and documenting hours and reactor manipulations to ensure that the operators met the requalification program requirements and those stipulated in Title 10 of the Code of Federal Regulations (10 CFR) 55.53(e) to maintain operating licenses in an active status. In order to comply with the requirement for actively performing their operator functions for a minimum of four hours per calendar quarter, the licensee included time spent on the reactor console, supervisory functions, and maintenance, as appropriate. This was consistent with 10 CFR Part 55 requirements. Operators that were not able to perform their functions for a minimum of four hours per calendar quarter reinstated their license to active status. This was completed in accordance with the requalification program requirements by performing operator functions for a minimum of six hours under the direction of another qualified operator.

The inspectors also noted that all operators were receiving biennial medical examinations within the allowed time frame as required. The inspectors

determined that the requalification program was being maintained up-to-date. No problems or anomalies were noted.

c. Conclusion

Required records documenting the Requalification Program were being maintained and the program was being completed as required. Medical examinations for operators were completed within the required time frame.

5. Surveillance and Limiting Conditions for Operation

a. Inspection Scope (IP 69001 [02.05])

To determine that surveillances and limiting conditions for operation (LCOs) verifications were being completed as required by TS Sections 2, 3, and 4, the inspectors reviewed:

- NSCR Operations Log Books, Nos. 236 – 245, dated from December 21, 2015 to the present
- Surveillance and calibration data and records for 2016 and 2017 documented on the following facility forms:
 - NSC Form 532, entitled “TRIGA Reactor Pre-startup Checklist”
 - NSC Form 546, entitled “Semiannual Fuel Element Temperature Measuring Channel Maintenance”
 - NSC Form 547, entitled “Semiannual Linear Power Measuring Channel Maintenance and Surveillance”
 - NSC Form 548, entitled “Semiannual Log Power Measuring Channel Maintenance”
- NSC SOP, Chapter III, “Reactor Maintenance and Surveillance,” Sections III-A, III-B, III-C, III-D, III-K, and III-L
- NSC SOP, Chapter VI, “Maintenance and Surveillance of Support Systems,” Section VI-A
- TEES, Texas A&M University System, 2015 and 2016 Annual Reports

b. Observations and Findings

The inspectors determined that selected daily, weekly, monthly, semi-annual, annual, and other periodic checks, tests, verifications, and calibrations for TSs required surveillances and LCOs were completed as stipulated. Surveillances, LCOs, and calibration reviews were generally completed on schedule and performed in accordance with licensee procedures. The recorded results were within the TSs and procedurally prescribed parameters and in agreement with the previous surveillance results. The records and logs reviewed were accurate, complete, and being maintained as required. All values checked by the inspectors satisfied the limits/parameters listed in the procedure or checklist.

c. Conclusion

The program for surveillance and LCO confirmations was implemented in accordance with TS Sections 3 and 4 requirements.

6. Design Changes

a. Inspection Scope (IP 69001 [02.08])

To determine whether modifications to the facility, if any, were consistent with 10 CFR 50.59 guidance, the inspectors reviewed:

- RSB Meeting Minutes for 2015, 2016, and 2017 to date (RSB meeting Nos. 177 – 182)
- NSC SOP, Chapter I, "Policy and Administrative Procedures," Sections I-B and I-H
- Modification Authorization (MA) No. M-27-A, "Changing Facility Air Monitoring Equipment," dated December 3, 2014, with RSB review and approval dated December 15, 2014
- MA No. M-61, "Heat Exchanger Replacement," dated December 4, 2014, with RSB review and approval dated December 15, 2014
- MA No. M-62, "Replacement of the Demineralizer System," dated May 28, 2015, with RSB review and approval dated June 18, 2015
- TEES, Texas A&M University System, 2015 and 2016 Annual Reports

b. Observations and Findings

The inspectors determined that design changes at the NSCR facility required a facility staff review followed by approval by the Facility Director and an RSB review and subsequent approval. One design change had been processed since the last NRC inspection. It was evident from the review of the licensee's MA process, involving reviews and approvals using 10 CFR 50.59 guidance, that process was focused on safety and met licensee program requirements. No safety significant issues were noted by the inspectors during the inspection and the modifications completed by the licensee did not involve a change to the license or TSs.

c. Conclusion

The licensee's design change program was being implemented as required.

7. Committees, Audits, and Reviews

a. Inspection Scope (IP 69001 [02.09])

To verify that the licensee had established and conducted reviews and audits as required in TS Section 6.2, the inspectors reviewed:

- RSB Charter dated July 2015
- Completed audits and reviews from 2015 thru 2017 to date
- RSB Meeting Minutes for 2015, 2016, and 2017 to date (RSB meeting Nos. 177 – 182)
- NSC SOP, Chapter I, "Policy and Administrative Procedures," Sections I-B and I-H
- TEES, Texas A&M University System, 2015 and 2016 Annual Reports

b. Observations and Findings

The inspectors reviewed minutes of the last six RSB meetings. The minutes showed that the committee met more often than required by the TSs and that a quorum was present for each meeting. It was noted that the current RSB Charter required the board to meet three times per year. During 2016, four RSB meetings were held. However, to date in 2017, only one meeting had been held. Another meeting was scheduled for the week of December 18, 2017. The topics considered during the meetings were appropriate and as stipulated in the TSs.

The TSs required that the RSB or a subcommittee thereof audit reactor operations and various other programs on an annual or biennial basis depending upon the program. The inspectors reviewed the documentation and results of the audits that had been conducted by the RSB from 2015 through the present. The inspectors confirmed that an audit of the facility operations including the radiation protection program, the facility emergency plan (E-Plan) and the security plan had been conducted per TS requirements. It was noted that the RSB Charter appeared to require more frequent audits than the TSs. The inspectors verified that the audit frequency met the requirements of the TSs but not necessarily those mentioned in the RSB Charter. The RSB Charter appeared to misinterpret the requirements stipulated in the TSs.

c. Conclusion

The RSB acceptably completed review, audit, and oversight functions required by TS Section 6.2.

8. Emergency Planning

a. Inspection Scope (IP 69001 [02.10])

To verify compliance with TS Section 6.2 and the licensee's E-Plan entitled, "Emergency Preparedness Plan for the Texas A&M Engineering Experiment Station Nuclear Science Center," Revision 3, dated May 2016, the inspectors reviewed selected aspects of:

- NSC SOP, Chapter IX, "Emergency Preparedness," Sections IX-A, IX-B, IX - C, IX-D, and IX-E
- Annual training records for the College Station Fire Department, the Texas A&M Environmental Health and Safety Department, and the College Station Medical Center
- Offsite support and annual reconfirmation letters of agreement between NSC and the Baylor Scott & White Medical Center College Station and between NSC and the College Station Fire Department
- Emergency drills and exercises for 2016 and 2017
- Emergency response facilities, supplies, equipment and instrumentation
- RSB Meeting Minutes for 2015, 2016, and 2017 to date (RSB meeting Nos. 177 – 182)
- Summary of the most recent emergency drill conducted on May 24, 2017, involving off-site participation (the Baylor Scott & White Hospital)

- The two most recent RSB E-Plan Audits dated December 14, 2015, and October 4, 2017
- TEES, Texas A&M University System, 2015 and 2016 Annual Reports

b. Observations and Findings

(1) Emergency Plan Audit and Review

TS Section 6.2.4, entitled “RSB Audit Function,” required in Paragraph 4 that audits shall include but are not limited to the following: “The reactor facility emergency plan and implementing procedures: at least once every other calendar year (interval between audits not to exceed 30 months).”

Section 10.4 of the facility Emergency Preparedness Plan required that “The Emergency Plan . . . shall be reviewed annually by the Reactor Safety Board to ensure the plan is adequate and up to date.”

The E-Plan in use at the reactor and emergency facilities was the same as the version most recently submitted to the NRC. The inspectors noted that the E-Plan stipulated that the RSB was to review and audit the E-Plan and Implementing Procedures at least annually.

The inspectors looked at the reviews that had been conducted by the RSB during the past three years. It was noted that the E-Plan had been reviewed on December 14, 2015, and not again until October 4, 2017. The inspectors noted that this frequency met the requirements of the TSs but not those of the E-Plan.

During the RSB review in October 2017, the RSB auditor noted that the E-Plan had been reviewed in December 2015 and not again until October 2017. The RSB auditor stated that this was an interval exceeding the 15 months allowed by the TSs for an “annual” surveillance or review. The licensee indicated that renewed efforts would be made to ensure that the E-Plan required annual audit would be completed as stipulated.

The licensee was informed that failure to review the E-Plan annually as required was a violation of the requirements of the E-Plan but that the requirements of the TSs were met. Although this issue should be corrected, it constitutes a violation of minor significance that is not subject to enforcement action in accordance with Section 2 of the Enforcement Policy.

(2) Other Emergency Plan Observations

Emergency facilities, instrumentation, and equipment were being maintained and inventoried as required by E-Plan Sections 10.4 and 10.5. To ensure appropriate emergency response personnel were notified in the event of an emergency, the emergency notification roster was updated and verified quarterly as required by E-Plan Section 8.5.

Through records review, and interviews with licensee personnel, the inspectors determined that emergency responders were knowledgeable of the proper actions to take in case of an emergency. Agreements with outside response organizations had been updated and maintained as necessary.

The inspectors reviewed documentation of the latest off-site emergency response drill. The biennial drill required by the E-Plan had been conducted on May 24, 2017. The Baylor Scott & White College Station Hospital participated in the drill. In addition to the other activities of the drill, communications capabilities with emergency support groups were tested during the recent biennial drill and were determined to be acceptable. A critique was held following the drill to discuss the strengths and weaknesses identified during the exercise and to develop possible solutions to any problems identified. The results of the critique were documented.

The inspectors verified that emergency preparedness and response training was being completed as required and that training for off-site and reactor staff personnel was conducted and documented as stipulated by the E-Plan. Based on a review of training records, it was evident that the College Station Fire Department and other offsite groups continued to support facility operations.

The inspector and the Reactor Operations Manager visited the Baylor Scott & White College Station Hospital and observed the facilities and equipment at that location. The inspector interviewed hospital's Emergency Department Director. The inspector determined that there were adequate supplies and equipment available at the hospital to handle an emergency at the NSC. It was also noted that the emergency area for handling serious problems at the hospital was well equipped and properly staffed. Through talking with Emergency Department Director, the inspector noted that the hospital staff was knowledgeable of their duties and responsibilities with respect to the NSC. There appeared to be a good working relationship between hospital staff and the licensee personnel.

c. Conclusion

The emergency preparedness program was generally conducted in accordance with the E-Plan.

9. Maintenance Logs and Records

a. Inspection Scope (IP 69001 [02.11])

To determine that maintenance was being completed as required by the TSs and applicable procedures, the inspectors reviewed:

- NSCR Operations Log Books, Nos. 236 – 245, dated from December 21, 2015 to the present

- Surveillance and calibration data and records for 2016 and 2017 documented on the following facility forms:
 - NSC Form 546, entitled “Semiannual Fuel Element Temperature Measuring Channel Maintenance”
 - NSC Form 547, entitled “Semiannual Linear Power Measuring Channel Maintenance and Surveillance”
 - NSC Form 548, entitled “Semiannual Log Power Measuring Channel Maintenance”
- NSC SOP, Chapter III, “Reactor Maintenance and Surveillance,” Sections III-A, III-B, III-C, III-D, III-K, and III-L
- NSC SOP, Chapter VI, “Maintenance and Surveillance of Support Systems,” Section VI-A
- TEES, Texas A&M University System, 2015 and 2016 Annual Reports

b. Observations and Findings

A review of the reactor console and maintenance logs showed that adequate documentation of maintenance activities was being maintained as required. It was also noted that problems, if any, were noted, reviewed, and resolved prior to resuming routine operations. The review demonstrated that maintenance was being conducted consistent with the TSs and applicable procedures. Maintenance activities ensured that equipment remained consistent with the safety analysis report and TS requirements.

The inspectors reviewed the Scram Log which detailed the unintentional shutdowns or scrams that occurred at the facility during reactor operations. The inspectors acknowledged that the issue of scrams at a research reactor was not a safety concern but it was an inconvenience for the licensee and hindered timely completion of some experiments. It was noted that there had been 20 scrams that occurred at the facility in 2015, five of which were due to magnet failure. When the magnet(s) failed, a control rod would drop and cause an unintentional shutdown. There were 21 scrams in 2016 and, again, five were due to magnet failure. To date in 2017, there have been 26 scrams. Of this number seven were due to magnet failure and nine were due to problems with the air handling system.

In discussing these issues with the licensee representatives, they indicated that the problem with the magnet failures was apparently due to the practice of trying to refurbish and reuse the same magnets and electronics after they had failed. The corrective action was to stop that practice and replace the problem items with new equipment. The problem with the air handling system was that it was made up of antiquated equipment and needed to be replaced. The corrective action for the air handling system was to purchase a new air handling system. This had been done and the new system was installed and was operating in conjunction with the “old” system. The licensee was going to continue this dual air handling system operation until the data and an evaluation proved that the new system was acceptable and capable of replacing the old one. The licensee was informed that the issue of using new equipment to prevent unintentional scrams, i.e., using new magnets and a new air handling system would be

followed by the NRC as an Inspector Follow-up Item (IFI) and would be reviewed during a subsequent inspection (IFI 50-128/2017-202-01).

c. Conclusion

Maintenance was completed as required.

10. Fuel Handling Logs and Records

a. Inspection Scope (IP 69001 [02.12])

To verify adherence to TS Sections 3.1.4, 3.1.2, 5.2, 5.3, 5.4, and 5.5, the inspectors reviewed:

- Fuel handling equipment and instrumentation
- NSC SOP, Chapter III, "Reactor Maintenance and Surveillance," Section III-H
- NSCR Operations Log Books, Nos. 236 – 245, dated from December 21, 2015 to the present
- Fuel bundle movement records for Bundles 55, 58, 59, 60, and 62
- Selected fuel data as noted on the "2017 Fuel Inspection" forms

b. Observations and Findings

The inspectors reviewed selected records for the movement of fuel associated with the low-enriched uranium core. The inspectors also verified that fuel locations were consistent with records. Records showed that TSs required surveillances for refueling and fuel movement were completed to ensure controlled operations for the reactor core. All fuel movements were recorded in the reactor log and on the individual fuel element log sheets.

The inspectors observed that the data recorded for fuel was acceptable and was cross referenced in the operations logs. Log entries verified that fuel movements were completed under the direct supervision of an SRO as required. Through records review and interviews with licensee personnel, the inspectors determined that fuel was moved to authorized locations in accordance with TSs. Through records review and interviews with licensee personnel, the inspectors confirmed that acceptable radiological and criticality controls were established and implemented for fuel movements as required.

c. Conclusion

The fuel handling activities and documentation were conducted in accordance with the facility TSs.

11. Exit Interview

The inspectors presented the inspection results to Texas A&M NSC staff at the conclusion of the inspection on December 14, 2017. The inspectors described the areas inspected and discussed in detail the inspection observations. The licensee

acknowledged the findings presented and did not identify as proprietary any of the material provided to or reviewed by the inspectors during the inspection.

PARTIAL LIST OF PERSONS CONTACTED

Licensee Personnel

C. Macdonnell	Reactor Supervisor
S. McDeavitt	Director, Nuclear Science Center
S. Miller	Reactor Operations Manager
J. Newhouse	Associate Director
D. Rios	Radiation Safety Supervisor

Other Personnel

L. Gerhart	Director, Emergency Department, Baylor Scott & White Healthcare of College Station
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INSPECTION PROCEDURES USED

IP 69001	Class II Non-Power Reactors
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ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

50-128/2017-202-01	IFI	Follow-up on the issue of the licensee of installing new equipment to prevent unintentional scrams, i.e., using new magnets for the control rods and a new air handling system.
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Closed

None

LIST OF ACRONYMS USED

10 CFR	Title 10 of the <i>Code of Federal Regulations</i>
E-Plan	Emergency Plan
IFI	Information Follow-up Item
IP	Inspection Procedure
LCOs	Limiting Conditions for Operation
MA	Modification Authorization
No.	Number
NSC	Nuclear Science Center
NSCR	Nuclear Science Center Reactor
NRC	U.S. Nuclear Regulatory Commission
PCN	Procedure Change Notice
RO	Reactor Operator
RSB	Reactor Safety Board
RSO	Radiation Safety Officer
SRO	Senior Reactor Operator
SOP	Standard Operating Procedure
TEES	Texas Engineering Experiment Station
TSs	Technical Specifications