

September 11, 2015

EA-14-230

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

SUBJECT: TEXAS A&M NUCLEAR SCIENCE CENTER – NUCLEAR REGULATORY
COMMISSION INSPECTION REPORT 50-128/2015-202 AND OFFICE OF
INVESTIGATIONS REPORT NO. 4-2014-010

Dear Dr. McDeavitt:

This letter presents the results of an investigation completed on December 1, 2014, by the U.S. Nuclear Regulatory Commission (NRC) Office of Investigations (OI) at the Texas A&M Nuclear Science Center (Texas A&M NSC), College Station, Texas. The purpose of the investigation was to determine whether the reactor operations manager willfully falsified a reactor operations log shutdown checklist. The investigation examined whether the manager certified the required shutdown procedures were performed, although the manager knew they had not been done. A factual summary of the OI report is provided in Enclosure 1. The inspector discussed the results of the investigation and inspection with Mr. Jerry Newhouse, the facility Deputy Director, telephonically on July 28, 2015.

The investigation examined activities conducted under the Texas A&M NSC license to determine whether safety-related actions violated the Commission's regulations and the conditions of the Texas A&M NSC license. The OI investigation included interviews with Texas A&M NSC personnel, a review of Nuclear Science Center Standard Operating Procedure (NSC Form 112, 1-73, "Reactor Shutdown") in effect in May 2013 and the Texas A&M NSC Technical Specifications (TS) and supporting documentation.

Information gathered during an inspection conducted from November 4-7, 2013, and the OI investigation provides the basis for two apparent violations (AVs) of NRC requirements. The inspection report (Enclosure 2) documents the AVs, which are being considered for escalated enforcement action in accordance with the NRC Enforcement Policy. The current NRC Enforcement Policy appears on the NRC's website at <http://www.nrc.gov/about-nrc/regulatory/enforcement/enforce-pol.html>.

The first AV involves the reactor operations manager's failure to comply with TS, Appendix A, to License No. R-83, Sections 1.23 and 1.27. These sections detail the required procedures for securing the reactor console. The Nuclear Science Center Standard Operating Procedure (i.e., NSC Form- 112, 1-73) was also violated when the manager certified on the Daily Reactor Shutdown Checkoff section of the reactor operations log that the shutdown procedures had been completed. The technical specifications are required by Title 10 of the *Code of Federal Regulations* (10 CFR), Section 50.36, "Technical specifications," because Texas A&M NSC

holds a class 104 license pursuant to 10 CFR 50.21, "Class 104 licenses; for medical therapy and research and development facilities."

The Texas A&M NSC staff's actions were not in accordance with 10 CFR, Section 50.5, "Deliberate misconduct," paragraph (a). The apparently willful actions put Texas A&M NSC in violation of 10 CFR 50.9, "Completeness and accuracy of information," which states, in part, that information required by the Commission's regulations, orders, or license conditions to be maintained shall be accurate in all material respects. Specifically, on May 15, 2013, the reactor operations manager willfully falsified the reactor operations log shutdown checklist by certifying that the required shutdown procedures had been completed when they had not been performed.

The inaccurate reactor operations log shutdown checklist was material to the NRC because it provided evidence of completion of a procedure required by Texas A&M NSC's TS.

The second AV involves the apparent non-willful failure to meet the minimum facility staffing requirements on May 14–15, 2013, during which time the reactor was not secured. The staffing requirement TS 6.1.3, "Staffing," require that at least two individuals, a senior reactor operator and either a licensed reactor operator or operator trainee, be on duty when the reactor is not secured. The senior reactor operator and reactor operator left the facility complex without securing the reactor, resulting in a violation of staffing requirements on May 14–15, 2013.

Before the NRC makes its enforcement decision, we are providing you an opportunity to: (1) respond in writing to either or both AVs addressed in this letter within 30 days of the date of this letter; (2) request a pre-decisional enforcement conference (PEC); or (3) request an alternative dispute resolution (ADR). You must contact Dr. Kevin Hsueh at (301) 415-7256 within 10 days of the date of this letter to notify the NRC of which option you plan to use. If we have not heard from you within this timeframe, we will proceed with our enforcement decision, unless the NRC has granted you an extension time.

If you choose to provide a written response, it should be clearly marked as a "Response to Apparent Violations; EA-14-230" and should include for each AV: (1) the reason for the AV or, if contested, the basis for disputing the AV; (2) the corrective steps that have been taken and the results achieved; (3) the corrective steps that will be taken; and (4) the date when full compliance will be achieved. Your written response should be addressed to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, D.C. 20555.

If a PEC is held, the NRC will issue a press release to announce the PEC time and date.

However, the PEC will be closed to public observation since information related to an OI report will be discussed and this report has not been made public. A PEC should be held within 30 days of the date of this letter. If you choose to request a PEC, the conference will afford you the opportunity to provide your perspective on these matters and any other information that you believe the NRC should take into consideration before making an enforcement decision. This conference would be conducted to obtain information to assist the NRC in making an enforcement decision. The topics discussed during the conference may include information to determine whether a violation occurred, information to determine the significance of a violation, information related to the identification of a violation, and information related to any corrective actions taken or planned.

In lieu of a PEC, you may also request an ADR with the NRC in an attempt to resolve the issues. ADR is a general term encompassing various techniques for resolving conflicts outside of court using a neutral third party. The technique that the NRC has decided to employ is mediation. Mediation is a voluntary, informal process in which a trained neutral (the "mediator") works with parties to help them reach resolution. If the parties agree to use ADR, they select a mutually agreeable neutral mediator who has no stake in the outcome and no power to make decisions. Mediation gives parties an opportunity to discuss issues, clear up misunderstandings, be creative, find areas of agreement, and reach a final resolution of the issues. Additional information concerning the NRC's ADR program can be obtained at <http://www.nrc.gov/about-nrc/regulatory/enforcement/adr.html>. The Institute on Conflict Resolution at Cornell University has agreed to facilitate the NRC's program as a neutral third party. Please contact the Institute on Conflict Resolution at (877) 733-9415 within 10 days of the date of this letter if you are interested in pursuing resolution of the issues through an ADR. Additionally, as stated earlier, please contact Dr. Kevin Hsueh at the number given above within 10 days of the date of this letter to notify the NRC of the option you choose.

Please be advised that the number and characterization of AVs described in the enclosed inspection report may change as a result of further NRC review. You will be advised by separate correspondence of the results of our deliberations on this matter.

In accordance with 10 CFR Section 2.390, "Public inspections, exemptions, requests for withholding," a copy of this letter, its enclosures, and your response, if you choose to provide one, will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's Agencywide Documents Access and Management System (ADAMS), accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>. To the extent possible, your response should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the public without redaction.

If you have any questions, please contact Dr. Kevin Hsueh of my staff at (301) 415-7256.

Sincerely,

/RA/

Lawrence E. Kokajko, Director
Division of Policy and Rulemaking
Office of Nuclear Reactor Regulation

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

Enclosures:

1. Factual Summary
2. Inspection Report 50-128/2015-202

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OFFICE	NRR/DPR/PROB	NRR/DPR/LA	NRR/DIRS/IPAB *	OGC *
NAME	GMorlang	NParker/	FNestor	PJehle
DATE	8/26/2015	8/26/2015	8/31/2015	8/31/2015
OFFICE	OE/EB	NRR/DPR/PROB/BC	NRR/DPR/DD	NRR/DPR/D
NAME	RFretz *	KHsueh	MGavrilas	LKokajko
DATE	9/1/2015	9/1/2015	9/4/2015	9/11/2015

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FACTUAL SUMMARY

Office of Investigations Report No. 4-2014-010

On December 16, 2013, the U.S. Nuclear Regulatory Commission (NRC) Office of Investigations (OI), Region IV Field Office, initiated an investigation at the Texas A&M Nuclear Science Center (Texas A&M NSC). The purpose of the investigation was to determine whether the reactor operations manager willfully falsified the May 14, 2013, reactor operations log shutdown checklist. The investigation examined whether the manager certified the required shutdown procedures were performed, and whether the manager knew they had not been done. The NRC completed its investigation on December 1, 2014.

On the night of May 14, 2013, the senior reactor operator (SRO) and the reactor operator (RO) on duty began a shutdown of the Texas A&M NSC reactor following Standard Operating Procedure NSC Form 112, 1-73, "Reactor Shutdown." The Texas A&M NSC technical specifications 6.3.a requires implementation of this procedure at reactor shutdown. The procedure requires that operators:

1. Record the shutdown in the operations log,
2. Visually verify all control rods are down,
3. Complete the 'Daily Reactor Shutdown Checkoff' section of the reactor operations log, following the last shutdown of the day.

The Daily Reactor Shutdown Checkoff includes the same check list items.

The SRO and RO on duty the night of May 14, 2013, could not visually check that all control rods were down because one rod did not fully insert. When interviewed by OI, the SRO and RO did not recall completing the reactor operations log shutdown checklist for the May 14, 2013 shift.

On the morning of May 15, 2013, the reactor operations manager arrived at the Texas A&M NSC with knowledge of the events of the night of May 14, 2013. The manager observed that the reactor operations log shutdown checklist for the prior night was incomplete. The reactor operations manager testified to subsequently completing the form. One of the checkoff items stated, "Visually check all rods down." The manager admitted awareness that one reactor rod was not fully seated in the down position as documented in OI Report No. 4-2014-010.

Based on the information developed during OI investigation 4-2014-010, the evidence indicates that the reactor operations manager willfully falsified the May 14, 2013, reactor operations log shutdown checklist, stating that the required shutdown procedures were performed.

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

Docket No: 50-128

License No: R-83

Report No: 50-128/2015-202

Licensee: Texas A&M University

Facility: Texas A&M Engineering Experiment Station
Nuclear Science Center Reactor

Location: College Station, TX

Date: September 11, 2015

Inspector: Mike Morlang

Approved by: Kevin Hsueh, Chief
Research and Test Reactors Oversight Branch
Division of Policy and Rulemaking
Office of Nuclear Reactor Regulation

Texas A&M University
Texas A&M Engineering Experiment Station
Nuclear Science Center
Inspection Report No. 50-128/2015-202

This inspection report documents the results of a U.S. Nuclear Regulatory Commission (NRC) Office of Investigations (OI) investigation of the Texas A&M Nuclear Science Center (Texas A&M NSC), College Station, Texas. The purpose of the investigation was to determine whether the reactor operations manager willfully falsified the May 14, 2013, reactor operations log shutdown checklist without performing the required shutdown procedures.

The investigation examined activities conducted under the Texas A&M NSC license to determine whether these safety-related actions complied with the Commission's regulations and the conditions of the Texas A&M NSC license. The information gathered during a November 4–7, 2013, inspection and the OI investigation provides the basis for two apparent violations (AVs) of NRC requirements. The AVs are being considered for escalated enforcement action in accordance with the NRC Enforcement Policy.

1. Failure to Maintain an Accurate Reactor Operations Log Shutdown Checklist

Title 10 of the *Code of Federal Regulations* (10 CFR) 50.9, "Completeness and accuracy of information," paragraph (a) which states, in part, that information required by the Commission's regulations, orders, or license conditions to be maintained shall be complete and accurate in all material respects.

The regulation in 10 CFR 50.21, "Class 104 licenses; for medical therapy and research and development facilities," which states, in part, that a class 104 license will be issued, to a production or utilization facility, which is useful in the conduct of research and development activities, for any one or more of the following: to transfer or receive in interstate commerce, manufacture, produce, transfer, acquire, possess, or use.

The regulation in 10 CFR 50.36, "Technical specifications," paragraph (b), which states, in part, "Each license authorizing operation of a production or utilization facility of a type described in § 50.21 or § 50.22 will include technical specifications." paragraph (c), which states, in part, "Technical specifications will include items in the following categories: (1) "Safety limits, limiting safety system settings, and limiting control settings...", (2) "Limiting conditions for operations...", and (5) "Administrative controls..."

Texas A&M NSC established Standard Operating Procedure NSC Form 112 1-73, "Reactor Shutdown," as the implementing procedure for reactor shutdown. Section 2.a of the procedure states,

- a. the SRO will instruct the RO to shut down the reactor, and
- b. the RO record the shutdown in the operations log, and
- c. the RO visually verify all rods are down.

Section 2.c of the procedure requires, in part, that, the Daily Reactor Shutdown Checkoff section of the reactor operations log be completed following the last shutdown of the day.

The Daily Reactor Shutdown Checkoff includes the same checklist items that are listed in Section 2.a of Standard Operating Procedure NSC Form 112 1-73.

Texas A&M NSC Technical Specifications (TS) 6.3 requires compliance with Section 2.a of Standard Operating Procedure NSC Form 112, 1-73 during reactor shutdown.

Contrary to the above, on May 15, 2013, the licensee apparently failed to maintain complete and accurate records in all material respects. The actions of the reactor operations manager on May 15, 2013, created an incomplete and inaccurate record and put the licensee in apparent violation of 10 CFR 50.9(a). The licensee apparently violated 10 CFR 50.9(a) by failing to maintain records that were complete and accurate in all material respects. The Daily Reactor Shutdown Checkoff is a safety record that documents that mandatory procedures for the safe shutdown of a reactor were performed. The licensee is required to maintain these records for inspection by the NRC staff and the completeness and accuracy of this safety information is material to the NRC inspection process.

(AV 50-128/2015-202-01, Failure to Maintain an Accurate Reactor Operations Log Shutdown Checklist)

2. Failure to Maintain the Technical Specifications Minimum Facility Complex Staffing

The regulation in 10 CFR 50.21, which states, in part, that a class 104 license will be issued, to a production or utilization facility, which is useful in the conduct of research and development activities, for any one or more of the following: to transfer or receive in interstate commerce, manufacture, produce, transfer, acquire, possess, or use.

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TS 1.26, Reactor Secured, states,

A reactor is secured when:

- a) It contains insufficient fissile material or moderator present in the reactor and adjacent experiments to attain criticality under optimum available conditions of moderation and reflection, or
- b) The reactor console is secured and
 - 1) No work is in progress involving core control, core structure, installed control rods, or control rod drives unless they are physically decoupled from the control rods, and

- 2) No experiments in or near the reactor are being moved or serviced that have, on movement, a reactivity worth exceeding the maximum value of one dollar.

TS 1.23, Reactor Console Secured, states "The reactor console is secured whenever all scrammable rods have been fully inserted and verified down and the console key has been removed from the console."

TS 6.1.3(a), Staffing, states, in part, that:

The minimum staffing when the reactor is not secured shall be as follows:

- 1) At least two individuals will be present at the facility complex and will consist of a licensed senior reactor operator and either a licensed reactor operator or operator trainee. . . .
- 2) A licensed reactor operator or senior reactor operator will be in the control room.

Texas A&M NSC is required by 10 CFR 50.36 to develop and comply with its TS because it holds a class 104 license, pursuant to 10 CFR 50.21.

TS 1.26 states, in part, that: "A reactor is secured when: The reactor console is secured" TS 1.23 states: "The reactor console is secured whenever ALL scrammable rods have been FULLY inserted and verified". Therefore 6.1.3(a) was deviated from when the operating team left the control room and the Texas A&M NSC. The requirements of TS 1.26(b) had to be met for the reactor to be secure. However, TS 1.26(b) was not met because the reactor console was not secured according to the requirements of TS 1.23, because not all scrammable rods were fully inserted and verified down. Importantly, during the event, there was no elevated risk to the public or NSC personnel from the reactor.¹

Contrary to the above, on May 14, 2013, the facility complex apparently did not maintain minimum staffing requirements and failed to have an SRO and either a licensed RO or operator trainee on duty when the reactor was not secured. Specifically, the reactor was not secured on the night of May 14-15, 2013 when the RSO and RO left the facility—in violation of TS 1.26, 1.23, and 6.1.3(a). The reactor did not meet the requirements of TS 1.26(a) because it contained sufficient fissile material to attain criticality under optimum available conditions of moderation and reflection. Therefore, the requirements of TS 1.26(b) had to be met for the reactor to be secure. However, TS 1.26(b) was not met because the reactor console was not secured according to the requirements of TS 1.23 in that not all scrammable rods were fully inserted and verified down.

¹ Although leaving the reactor in a cold shutdown condition did not create an elevated risk in this circumstance, the technical specifications in the license and the operating procedures require a secured reactor console and reactor before facility staff leave. The NRC considers having an unsecured reactor console and reactor to create a situation that could cause or lead to an unsafe condition. Therefore, the fact that no further injury or elevated state resulted did not undercut the violation or need to report the event to the NRC.

(AV 50-128/2015-202-02, Failure to Maintain the TS Minimum Facility Complex Staffing)

3. Telephone Discussion Summary

The inspector discussed the identification of AVs documented in the inspection report with Mr. Jerry Newhouse, the facility Deputy Director, Nuclear Science Center telephonically on July 28, 2015. Mr. Newhouse acknowledged the findings presented in the report.