

January 24, 2014

Dr. David E. Moncton, Director  
Nuclear Reactor Laboratory  
Massachusetts Institute of Technology  
138 Albany Street  
Mail Stop NW 12-208  
Cambridge, MA 02139

SUBJECT: U.S. NUCLEAR REGULATORY COMMISSION OFFICE OF INVESTIGATIONS  
REPORT NO. 1-2013-004

Dear Dr. Moncton:

This letter refers to an investigation the U.S. Nuclear Regulatory Commission's (NRC) Office of Investigations initiated on December 12, 2012, and completed on July 12, 2013. The purpose of the investigation was to determine whether employees at Massachusetts Institute of Technology's (MIT) Nuclear Reactor Laboratory failed to follow requirements governing packaging and transportation of radioactive material. The investigation examined activities conducted under MIT's NRC license as they related to safety and compliance with the Commission's rules and regulations and with the conditions in the license. A factual summary of the NRC investigation is enclosed.

In January 2012, MIT submitted a report to the NRC under 10 CFR 71.95. In the report, MIT stated that when preparing to ship irradiated fuel assemblies to the Savannah River Site, they found that the packaging for the assemblies did not meet applicable requirements. Specifically, MIT found that the lower drain port o-ring seals (a containment boundary component) supplied with the package did not meet certain specifications in the package's Safety Analysis Report (SAR) or in the Certificate of Compliance (CoC) drawing for the package (1910-01-01-SAR, Revision 4). The nonconformance MIT identified involved the BEA Research Reactor Cask, for which Areva Federal Services (AFS) LLC is the CoC holder.

When MIT reviewed the nonconformance, it determined that the drain o-ring seals that were supplied with the package were smaller than the seals specified in the cask SAR. MIT also determined that the o-ring seals did not pass a required leak check. MIT attempted to acquire an o-ring seal with the correct dimensions, but the seal was not immediately available from the manufacturer identified in the SAR, Rainer Rubber. Unable to procure the specified o-ring seal from Rainer Rubber, MIT performed an equivalency determination and then procured seals with the correct dimensions from a different manufacturer, Parker-Hannifin, which MIT installed and leak checked satisfactorily.

On December 9, 2011, MIT proceeded with the shipment using the o-ring seal procured from Parker Hannifin. MIT was not authorized to make this component substitution, because 1) MIT is not the CoC holder; 2) the substitution would have required NRC approval; and 3) MIT is considered a Part 71 "user" of the package and therefore is not authorized to perform a design modification, which is what MIT's equivalency determination to use the Parker-Hannifin seal effectively constituted.

Based on the results of the NRC's investigation, an apparent violation was identified and is being considered for escalated enforcement action in accordance with the NRC's Enforcement Policy. The current Enforcement Policy is included on the NRC's Website at <http://www.nrc.gov/about-nrc/regulatory/enforcement/enforce-pol.html>. The apparent violation concerns that on or about December 9, 2011, MIT delivered for transport NRC-licensed material even though this action was not authorized by either MIT's specific NRC license or any general NRC license in 10 CFR Part 71, Subpart C. Specifically, MIT did not comply with NRC CoC No. 9341 because it used a Parker-Hannifin seal on the package drain port fitting. As a result, the package did not conform to CoC drawing 1910-01-01-SAR, Rev. 4, item 7, which specifically requires the drain port seal to be Rainier Rubber R0405-70.

The NRC has determined that MIT's substitution of a non-compliant part is of low safety significance (NRC staff review of MIT's 71.95 report concluded the substitution was acceptable) and that potential adverse consequences were not likely. However, MIT's actions in unilaterally evaluating, procuring, and shipping the package using a non-compliant part prevented both AFS and the NRC from reviewing whether the change might adversely affect public safety.

Because MIT identified the violation, because MIT has not been the subject of escalated enforcement action within the last 2 years, and based on our expectation that MIT will take significant corrective action and implement methods to prevent recurrence, a civil penalty may not be warranted. The NRC can decline to issue a civil penalty in accordance with Section 2.3.4 of the NRC's Enforcement Policy. The NRC's final decision on whether to issue a civil penalty will be based on MIT confirming in writing that certain corrective actions previously described to the NRC staff have been or are being taken. Depending on MIT's written response, the NRC may also decide that it has sufficient information to make an enforcement decision without holding a predecisional enforcement conference.

Before the NRC makes its enforcement decision, we are providing MIT an opportunity to state your perspective on the apparent violation. You may provide your input on the significance of the violation, the cause, your corrective actions, and any other information that you believe the NRC should take into consideration. You can provide your input by: (1) responding to the apparent violation addressed in this letter within 30 days of the date of this letter; (2) requesting a predecisional enforcement conference (PEC) to meet with the NRC and provide your views in person; (3) requesting Alternative Dispute Resolution (ADR); or (4) accepting the violation as characterized in this letter and notifying us of that decision within 10 days. The NRC provides more information on each of these options below.

If you choose to provide a written response, it should be clearly marked as a "Response to Apparent Violation in NRC Investigation No. 1-2013-004; EA-13-170" and should include: (1) the reason for the apparent violation or, if contested, the basis for disputing the apparent violation; (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 response may reference or include previously docketed correspondence, if the correspondence adequately addresses the required response. You should clearly mark the response as a "Response to Apparent Violations in NRC Investigation No. 1-2013-004; EA-13-170," and send it to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001. If an adequate response is not received within the time specified or an extension of time has not been granted by the NRC, the NRC will proceed with its enforcement decision or schedule a PEC.

If you choose to request a PEC, the conference will afford you the opportunity to provide your perspective on the matter and any other information that you believe the NRC should take into consideration before making an enforcement decision. The decision to hold a predecisional enforcement conference does not mean the NRC has determined that a violation occurred or that enforcement action will be taken. 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 presenting your corrective actions, you should be aware that the promptness and comprehensiveness of your actions will be considered in assessing any civil penalty for the apparent violations. The guidance in NRC Information Notice 96-28, "Suggested Guidance Relating to Development and Implementation of Corrective Action," may be helpful. If a PEC is held, the NRC will issue a press release announcing the time and date of the conference; however the PEC will be closed to public observation since information related to an Office of Investigations report will be discussed and the report has not been made public.

In lieu of a PEC, you may request Alternative Dispute Resolution (ADR) with the NRC in an attempt to resolve this issue. ADR is a general term encompassing various techniques for resolving conflicts using a third party neutral. 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 program can be obtained at <http://www.nrc.gov/about-nrc/regulatory/enforcement/adr.html>. The Institute on Conflict Resolution (ICR) at Cornell University has agreed to facilitate the NRC's program as a neutral third party. Please contact ICR at 877-733-9415 within 10 days of the date of this letter if you are interested in pursuing resolution of this issue through ADR.

Please contact Robert Temps, Senior Safety Inspector, Rules, Inspections, & Operations Branch at (301) 287-9190, within 10 days of the date of this letter to notify the NRC whether you are interested in attending a PEC or ADR, providing a written response, or accepting the violation as characterized in this letter and its enclosure (in which case the NRC will proceed with its enforcement decision).

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure(s), 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.

D. Moncton

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If you have any questions concerning this matter, again, please contact Robert Temps, Senior Safety Inspector of my staff at (301) 287-9190.

Sincerely,

/RA/

Mark Lombard, Director  
Division of Spent Fuel Storage and Transportation  
Office of Nuclear Material Safety  
and Safeguards

Docket Nos. 071-00164 and 050-00020  
License No. R-37

Enclosure: Factual Summary of NRC Investigation

D. Moncton

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If you have any questions concerning this matter, again, please contact Robert Temps, Senior Safety Inspector of my staff at (301) 287-9190).

Sincerely,

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Mark Lombard, Director  
Division of Spent Fuel Storage and Transportation  
Office of Nuclear Material Safety  
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Docket Nos. 071-00164 and 050-00020  
License No. R-37

Enclosure: Factual Summary of NRC Investigation

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