

August 18, 2017

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Mail Station P1-37
Washington, DC 20555-0001

REFERENCE: Docket No. 50-186
University of Missouri-Columbia Research Reactor
Renewed Facility Operating License No. R-103

SUBJECT: Supplemental information to the written communication previously submitted to the U.S. Nuclear Regulatory Commission by the University of Missouri-Columbia Research Reactor on July 10, 2013, to change a commitment stated in that previous communication

The attached document provides supplemental information to the University of Missouri-Columbia Research Reactor (MURR) Licensee Event Report (LER) 13-03, dated July 10, 2013, to justify a change to the MURR commitment to the U.S. Nuclear Regulatory Commission (NRC).

If you have any questions regarding this report, please contact Bruce A. Meffert, the facility Reactor Manager, at (573) 882-5118.

Sincerely,



Ralph A. Butler, P.E.
Director

RAB:jlm

Enclosure

xc: Reactor Advisory Committee
Reactor Safety Subcommittee
Dr. Mark McIntosh, Vice Chancellor for Research, Graduate Studies, and Economic Development
Mr. Geoffrey Wertz, U.S. Nuclear Regulatory Commission
Mr. Johnny Eads, U.S. Nuclear Regulatory Commission

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Supplemental Information to Licensee Event Report No. 13-03, dated July 10, 2013
University of Missouri Research Reactor

Introduction

The following information briefly describes the event on June 11, 2013, but mostly provides information for the change to a commitment made in LER 13-03, dated July 10, 2013, and the bases for the change. For a detailed description of the event and the safety analysis following the event, please refer to LER 13-03.

Brief Description of the June 11, 2013 Event

On June 11, 2013, the reactor was shut down after 11 hours and 15 minutes of 10-MW operation to correct a slight misalignment between a control blade offset mechanism pull rod and housing. The misalignment was corrected, and retests on the shim control blade were performed satisfactorily. Because the reactor had only operated for 11 hours and 15 minutes at 10 MW, a decision was made to conduct a "hot reactor startup" instead of performing a complete core refueling with fuel elements containing no xenon poison. A hot reactor startup, as defined by administrative procedure AP-RO-110, "Conduct of Operations," is "*A startup in which restart capability is in doubt.*" This is based on the ability to override xenon during a reactor restart following an unplanned/unscheduled power reduction.

On June 11, 2013, a hot reactor startup was commenced in accordance with operating procedure OP-RO-211, "Reactor Startup – Hot," by a Reactor Operator (RO) under the direct supervision of a Senior Reactor Operator (SRO). While approaching a power level of 5 MW, the shim control blades were repeatedly inserted in "gang" control in small increments to stabilize reactor power and to overcome the positive reactivity that was added when the secondary coolant system circulation pumps and cooling tower fans were started in order to control primary and pool coolant temperatures. During each "gang" insertion, the difference between the heights of the shim control blades increased. This condition went unnoticed until reactor power level was stabilized at 5 MW at which time the RO noted that the distance between the highest and lowest control blade was 1.20 inches, which exceeds the Technical Specification (TS) 3.2.b requirement, "*Above 100 kilowatts the reactor shall be operated so that the maximum distance between the highest and lowest shim blade shall not exceed one inch.*" The heights of the shim control blades were adjusted so that no greater than a 0.9 inch difference existed between the highest and lowest shim blades while also maintaining reactor power level at approximately 5 MW. Several inspections and a safety analysis were performed to ensure no abnormalities occurred to the fuel elements due to this deviation from the TS 3.2.b.

Long-term Corrective Action Initiated By LER 13-03

In 2013, a procedural change was implemented which revised OP-RO-211, "Reactor Startup – Hot," such that only an SRO could perform a hot reactor startup.

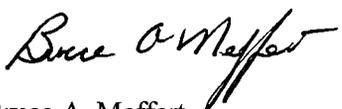
Commitment Change to the Above Long-term Corrective Action

MURR will be changing OP-RO-211, "Reactor Startup – Hot," such that an SRO or an RO under the direct supervision of an SRO can perform a hot reactor startup. This is a change back to the same requirement as before the LER 13-03 event. Instead, MURR will commit to changing OP-RO-211 so that the Lead Senior Reactor Operator will perform a pre-startup brief that will define the role for each of the reactor startup personnel, discuss the differences between a normal and a hot reactor startup, and discuss control of distance between the highest and lowest shim control blades above 100 kW. The procedural step that requires this brief will have this letter listed as a reference following the step.

Requiring a pre-startup brief which defines operator roles, highlights the differences between a hot and a normal reactor startup, and reminds the operator of the shim control blade height difference TS 3.2.b requirement is a more permanent, active solution than just requiring an SRO to perform the hot reactor startup. As years pass since the 2013 event, it is possible that SRO knowledge of why an SRO is required to perform a hot reactor startup could diminish. However, requiring a pre-startup brief by procedural step will remain indefinitely. Finally, allowing an RO to manipulate the reactor controls during a hot reactor startup liberates an SRO to direct and supervise all aspects of a reactor startup without having to manipulate the controls.

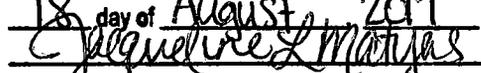
If there are any questions regarding this commitment change, please contact me at (573) 882-5118. I declare under penalty of perjury that the foregoing is true and correct.

Sincerely,


Bruce A. Meffert
Reactor Manager

ENDORSEMENT:
Reviewed and Approved,


Ralph A. Butler, P.E.
Director

State of Missouri
County of Boone
Subscribed and sworn to before me this
18 day of August, 2017

JACQUELINE L. MATYAS, Notary Public
My Commission Expires: March 26, 2019



JACQUELINE L. MATYAS
My Commission Expires
March 26, 2019
Howard County
Commission #15634308