



Research Reactor Center

University of Missouri-Columbia

Research Park  
Columbia, MO 65211

PHONE (573) 882-4211  
FAX (573) 882-6360

December 12, 2005

Mr. Alexander Adams, Jr.  
U.S. Nuclear Regulatory Commission  
Mail Stop O12-G13  
Washington, DC 20555-0001

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

SUBJECT: MURR Operations Monthly Summary

Dear Mr. Adams:

Enclosed is a copy of MURR's Monthly Operations Summary for November 2005. If you have any questions, please contact me at (573) 882-5276.

Sincerely,

Leslie P. Foyto  
Reactor Manager

LPF/djr

Enclosure

IE24  
A020

UNIVERSITY OF MISSOURI  
RESEARCH REACTOR

OPERATIONS MONTHLY SUMMARY

November 2005

Prepared by:  
Operations Staff

## INTRODUCTION

The reactor operated continuously in November with the following exceptions:  
4 shutdowns for scheduled maintenance and refueling; 4 unscheduled power reductions.

## MAINTENANCE ACTIVITIES

- 11/2/05            Refueled – removed core 05-54, loaded core 05-55.  
Shortened the cabling on Control Rod 'C' Drive Mechanism Electro-Magnet.  
Replaced the vibration switch on Cooling Tower Fan CTF-2 motor.
- 11/6/05            Refueled – removed core 05-55, loaded core 05-56.  
Replaced the Reactor Safety System "Green Leg" Trip Actuator Amplifier.
- 11/7/05            Refueled – removed core 05-56, loaded core 05-57.
- 11/14/05           Refueled – removed core 05-57, loaded core 05-58.  
Loaded new pool de-ionization bed 'F.'
- 11/15/05           Replaced the pressure switch for the Facility Main Air compressor.
- 11/16/05           Shipped eight spent fuel elements to Savannah River Site.
- 11/21/05           Refueled – removed core 05-58, loaded core 05-59.  
Completed Modification Record 05-09 (Redirect Resin Sluice Water to Waste Tanks).
- 11/25/05           Refueled – removed core 05-59, loaded core 05-60.  
Replaced the Rod Run-In Trip Actuator Amplifier.
- 11/28/05           Refueled – removed core 05-60, loaded core 05-61.  
Flooded Beamport 'C' with demineralized water.  
Replaced the level switch in Waste Tank 4.  
Replaced the harmonic filter on Secondary Coolant System Pump SP-1.

## UNSCHEDULED POWER REDUCTIONS

<u>Date</u>	<u>No.</u>	<u>Type</u>	<u>Cause</u>
11/2/05	1191	Rod Run-In	Rod Not In Contact With Magnet

On November 2, a "Rod Not In Contact With Magnet Rod Run-In" was automatically initiated when control blade "C" anvil separated from its magnet during a routine outward shimming evolution. The reactor was shutdown and the pull rod to housing alignment was checked and verified satisfactory. During the October 31 maintenance day activities, the electro-magnet cabling for Control Rod 'C' Drive Mechanism was replaced due to degradation of the cabling insulation. In comparison to the other Drive Mechanisms, it appeared that the new cabling was longer than the others. This may have caused the cabling to "bunch up" as the drive tube retracted into the upper housing. The cabling was shortened approximately 6-inches and the control rod was satisfactorily withdrawn to the full out position as part of the retest. The reactor was refueled and subsequently returned to 10 MW operation.

11/6/05	1192	Rod Run-In	Rod Not In Contact With Magnet
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On November 6, a "Rod Not In Contact With Magnet Rod Run-In" was automatically initiated when control rods 'C' and 'D' separated from their electro-magnets. It was immediately noted by the reactor operator that the Trip Actuator Amplifier (TAA) for the "Green Leg" of the Reactor Safety System had tripped. Troubleshooting efforts revealed not specific cause and the condition could not be re-created. As a precaution, the TAA was replaced with one from spares. Further bench-top testing will be performed. The reactor was refueled and subsequently returned to 10 MW operation.

11/25/05	1193	Rod Run-In	Failure of Trip Actuator Amplifier
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On November 25, the reactor was shutdown when all four control rods automatically inserted by rod run-in for no apparent reason. Troubleshooting efforts revealed that the Rod Run-In Trip Actuator Amplifier (TAA) had failed and could not be reset. Bench-top testing discovered two failed transistors. The TAA was replaced with one from spares, it was tested satisfactory, and the reactor was refueled and subsequently returned to 10 MW operation.

11/28/05	1194	Scram	Pool Loop Valve 509 Off Open
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On November 28, a "Pool Loop Valve 509 Off Open" scram was automatically initiated during a reactor startup (the reactor was still subcritical). Valve 509 position indication on the Instrument Panel indicated that the valve was open and the scram condition immediately cleared. Additionally, had the valve actually come off of its open seat, the pool coolant system pumps would have secured as part of the valve-pump interlock circuitry. The most probable cause was either dirt between the contact surfaces or the contact had not properly seated during system startup causing a momentary break in connectivity. All contacts on the relay block were burnished and the relay was manually cycled to ensure freedom of movement. All retesting indicated proper operation of the relay and its contacts, and the reactor was refueled and subsequently returned to 10 MW operation.

Nov

<b>OPERATION SUMMARY FOR MONTH OF</b> University of Missouri Research Reactor Center (MURR)	<b>Nov-05</b>
HOURS OPERATED THIS PERIOD	634.85
TOTAL HOURS OPERATED, REACTOR	270,329.10
HOURS OPERATED AT FULL POWER, THIS PERIOD	631.52
TOTAL HOURS AT FULL POWER, REACTOR	266,950.66
INTEGRATED POWER THIS PERIOD	263.28 MWD
TOTAL INTEGRATED POWER, REACTOR	105,432.29 MWD

Submitted by: Das K  
MWD Custodian/Reactor Physicist

Date: 12/1/05