



Research Reactor Center

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Mr. Alexander Adams, Jr.
U.S. Nuclear Regulatory Commission
Mail Stop O12-D3
Washington, DC 20555-0001

SUBJECT: Monthly Operations Summary

Enclosed is a copy of MURR's monthly operations summary for February 2002. If you have any questions, please contact me at (573) 882-5264.

Sincerely,

Paul S. Hobbs, PE
Reactor Manager

PSH/djr

Enclosure

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UNIVERSITY OF MISSOURI RESEARCH REACTOR

OPERATIONS MONTHLY SUMMARY

February 2002

Prepared by:
Operations Staff

INTRODUCTION

The reactor operated continuously in February with the following exceptions: three shutdowns for scheduled maintenance and refueling, and six unscheduled shutdowns.

On February 16 and 17, there were five unscheduled rod run-ins and one unscheduled scram due to an intermittent faulty detector or cabling component for nuclear instrument power range monitor Channel 6.

MAJOR MAINTENANCE ITEMS

1. Replacing the Gamma-metrics signal processor No. 1 fission chamber detector.
2. Replacing the 901 A and B GE/MAC summer for primary differential temperature indication in accordance with Modification Record 01-4, Addendum No. 5.
3. Completing 529 series solenoid valve modifications for valves 546 A and B in accordance with Modification Record 01-6.
4. Replacing the NI Channel 6 dual trip unit.
5. Replacing the Channel 6 drawer.
6. Replacing the rod run-in trip actuator amplifier.
7. Replacing the rod run-in NCLU.
8. Replacing the Channel 6 detector and cabling.

Items 4 through 8 above are sequential maintenance activities that were performed as part of troubleshooting and repair of an intermittent electronic failure that caused five rod run-in actuations and one automatic scram.

UNSCHEDULED SHUTDOWNS

<u>Date</u>	<u>No.</u>	<u>Type</u>	<u>Cause</u>
2/16/02	1134	Rod Run-In	NI Channel 6
2/16/02	1135	Rod Run-In	NI Channel 6
2/16/02	1136	Rod Run-In	NI Channel 6
2/17/02	1137	Rod Run-In	NI Channel 6
2/17/02	1138	Rod Run-In	NI Channel 6
2/17/02	1139	Scram	NI Channel 6

On February 16 and 17, there were five unscheduled rod run-in actuations and one unscheduled scram due to an intermittent faulty detector or cabling component for nuclear instrument power range monitor Channel 6.

Initial attempts at determining and correcting the cause of the rod run-in actuations focused on examining and replacing components of the Channel 6 drawer after two of the events indicated Channel 6 high power on the drawer and annunciator panel. No actual power increase was indicated on any chart recorders or any other instrumentation. Monitoring equipment was connected to the input of the rod run-in non-coincidence logic unit (NCLU) in an effort to capture and record any electronic inputs that might be occurring faster than the response time of the installed instrumentation. The last shutdown, No. 1139, was clearly indicated as a Channel 6 high power scram.

After eliminating other possibilities, the detector and cabling for Channel 6 was replaced. No further problems of this type have occurred. The cause of these actuations was therefore attributed to failure of the Channel 6 detector or connectors and cabling.

This failure resulted in very rapid electronic spikes that were sufficient to cause the actuation, but not of sufficient duration to register on any installed instrumentation.

MAINTENANCE ACTIVITIES

- 2/4/02 Refueled – removed core 02-06, loaded core 02-07.
Replaced Gamma-metrics signal processor No. 1 fission chamber detector.
- 2/11/02 Refueled – removed core 02-07, loaded core 02-08.
Replaced 901 A and B GE/MAC summer in accordance with Modification Record 01-4, Addendum No. 5.
Completed solenoid valve 529 series modifications for valves 546 A and B in accordance with Modification Record 01-6.
- 2/16/02 Refueled – removed core 02-08, loaded core 02-09.
Replaced NI Channel 6 dual trip unit.
Replaced NI Channel 6 entire drawer.
- 2/17/02 Refueled – removed core 02-09, loaded core 02-10.
Replaced rod run-in trip actuator amplifier.
Connected and removed a voltage monitoring unit to rod run-in non coincidence logic unit (NCLU).
Replaced the rod run-in NCLU.
Replaced NI Channel 6 detector and cables.
- 2/25/02 Refueled – removed core 02-10, loaded core 02-11.

Feb

OPERATION SUMMARY FOR MONTH OF	Feb-02
University of Missouri Research Reactor Center (MURR)	
HOURS OPERATED THIS PERIOD	579.09
TOTAL HOURS OPERATED, REACTOR	240,978.58
HOURS OPERATED AT FULL POWER, THIS PERIOD	575.09
TOTAL HOURS AT FULL POWER, REACTOR	237,742.06
INTEGRATED POWER THIS PERIOD	239.85 MWD
TOTAL INTEGRATED POWER, REACTOR	93,255.61 MWD

Submitted by: Das K
MWD Custodian/Reactor Physicist

Date: 3/1/02