

50-186

PRIORITY ROUTING

First	Second
RA	RC
DRA	EIC
DRP	SGA
DRS	QI
DNMS	PAO
DFMA	
<i>Harrick</i>	

FILE

UNIVERSITY OF MISSOURI RESEARCH REACTOR
 OPERATIONS MONTHLY SUMMARY

DECEMBER 1997

Prepared by:
 Operations Staff

IE24 0/1

000001

9802200383 971231
 PDR ADOCK 05000186
 R PDR



December 1997

The reactor operated continuously in December with the following exceptions: five shutdowns for scheduled maintenance, refueling, and/or flux trap sample changes; four unscheduled shutdowns.

On December 8, a reactor scram occurred during a normal startup when an electrical short to ground was produced in the yellow leg "white rat" scram monitor while it was being worked on by an electronics technician. Electronics technicians performing the work on the scram monitors know not to troubleshoot the monitor while the reactor is operating. The scram occurred because of miscommunication between the electronics technician and the shift supervisor.

On December 9, a nuclear instrument Channel #4 high power scram occurred while operating at 10 MW in automatic control. The cause for this scram could not be readily determined, but was believed to involve an actual reactivity insertion. This event falls under the Technical Specification definition of an abnormal occurrence because it apparently involved an unanticipated significant change in reactivity [T.S. 1.1.e]. A Licensee Event Report, as required by Technical Specification 6.1.h(2), was submitted to the NRC on January 8, describing the event, its evaluation, and follow-up actions. The reactor was subsequently restarted on December 9.

On December 21, a Channel #4 (wide range monitor) high power scram occurred during a normal startup. No actual high power was indicated on any other instrumentation. The most likely cause was a momentary open or high resistance in the Channel #4 amplifier feedback loop associated with the range switch and the picoammeter relays. Electronics technicians removed, cleaned, checked, and reinstalled the range switch. A normal startup was then completed with no recurrence of this problem.

On December 28, a reactor loop low flow scram occurred when primary pump 501B tripped off. Electronics technicians found and replaced a failed K2 relay coil in the control circuit for this pump. The pump operated satisfactorily and the reactor was returned to normal operation.

UNSCHEDULED SHUTDOWNS

<u>Date</u>	<u>No.</u>	<u>Type</u>	<u>Cause</u>
12/08/97	1071	Scram	Electrical short to ground in scram monitor
12/09/97	1072	Scram	Channel #4 high power
12/21/97	1073	Scram	Spurious Channel #4 high power
12/28/97	1074	Scram	Primary pump 501B tripped off

OPERATIONS SUMMARY

HOURS OPERATED THIS PERIOD	660
TOTAL HOURS OPERATED	208,711
HOURS AT FULL POWER THIS PERIOD	657
TOTAL HOURS AT FULL POWER	205,627
INTEGRATED POWER THIS PERIOD	274 MWD
TOTAL INTEGRATED POWER	79,829 MWD

MAINTENANCE ACTIVITIES

12/01/97 Refueled - removed core 97-52, loaded core 97-53.

12/08/97 Refueled - removed core 97-53, loaded core 97-54. Replaced equalize/float potentiometers and switch on the UPS.

12/09/97 Refueled - removed core 97-54, loaded core 97-55.

12/15/97 Refueled - removed core 97-55, loaded core 97-56.

12/21/97 Refueled - removed core 97-56, loaded core 97-57.

12/28/97 Refueled - removed core 97-57, loaded core 97-58. Replaced K2 relay in control circuit for P501. Replaced a resistor in NI Channel #3 circuit drawer.