

PRIORITY ROUTING

First	Second
RA	RC
DRA	EIC
DRP	SGP
DRS	QI
DNMS	PAO
DRMA	
<i>Burdick</i>	

FILE was

UNIVERSITY OF MISSOURI RESEARCH REACTOR

OPERATIONS MONTHLY SUMMARY

50-186

November 1998

Prepared by:

Operations Staff

9902050340 981130
 PDR ADOCK 05000186
 R PDR

052

JAN 19 1999

November 1998

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

On November 10, a reactor scram occurred due to a loss of site electrical power during a thunderstorm. The emergency generator operated satisfactorily for one hour and ten minutes until electrical power was restored. The reactor was then returned to normal operation.

On November 23, a nuclear instrument channel #5 high power scram occurred while an operator was handling the B-6 silicon irradiation position holder. The channel #5 drywell has recently been repositioned to a temporary location in order to make room for the installation of new gamma metrics nuclear instruments. When handling this B-6 holder, it is possible to pass it between the drywell/detector and the reactor. Should this occur, which we believe to have been the case, it is possible to effectively shadow this detector. The effect of this would be to create a void by replacing an amount of the water that normally exists between the detector and the core with the (approximately) 7 inch holder-plus-silicon. This would cause the detector to "detect" more neutrons and thus increase its indication. The indication for channel #5 subsequently rose to 119%, where the scram occurred. The scram setpoint is 119% and was tested approximately 6 hours prior to this event. The reactor physicist has since verified, by computer model, that this "void" would cause a concomitant neutron flux change as seen by the channel #5. The computer model predicted a flux increase by a factor of 3.5 to 4.0 at channel #5 detector position when a 7" diameter silicon is introduced between the graphite reflector and the detector. The reactor was subsequently returned to normal operation. Operators have since been explicitly instructed to avoid placing any material between this detector and the reactor core. When the new gamma metrics instruments become operable, this detector and drywell will no longer be in use and this particular problem should not recur.

Major maintenance items for the month included: installing, and subsequently replacing, the detector for the second gamma metrics nuclear instrument; rebuilding the south back-up door solenoids; installing and testing the new secondary acid addition valves.

0/1

A020

UNSCHEDULED SHUTDOWNS

<u>Date</u>	<u>No.</u>	<u>Type</u>	<u>Cause</u>
11/10/98	1091	Scram	Loss of site electrical power.
11/23/98	1092	Scram	Detector shadowing

OPERATIONS SUMMARY

HOURS OPERATED THIS PERIOD	650
TOTAL HOURS OPERATED	215,934
HOURS AT FULL POWER THIS PERIOD	648
TOTAL HOURS AT FULL POWER	212,819
INTEGRATED POWER THIS PERIOD	270 MWD
TOTAL INTEGRATED POWER	82,827 MWD

MAINTENANCE ACTIVITIES

11/02/98 Refueled - removed core 98-52, loaded core 98-53.

11/09/98 Refueled - removed core 98-53, loaded core 98-54.
Installed new detector for second gamma metrics instrument.
Rebuilt south back-up door solenoids.

11/16/98 Refueled - removed core 98-54, loaded core 98-55.
Installed new secondary acid addition valves.
Replaced the most recently installed gamma metrics detector.

11/23/98 Refueled - removed core 98-55, loaded core 98-56.

11/30/98 Refueled - removed core 98-56, loaded core 98-56.