



DOW CHEMICAL U.S.A.

December 10, 1984

MIDLAND, MICHIGAN 48640

J. G. Keppler
United States Nuclear
Regulatory Commission
Region III
799 Roosevelt Road
Glen Ellyn, Illinois 60137

MALFUNCTION OF THE WIDE-RANGE LOG CHANNEL DURING OPERATION OF
THE DOW TRIGA RESEARCH REACTOR

On Monday, December 3, 1984, at about 2:40 P.M., Senior Reactor Operator T. J. Quinn was taking the TRIGA to a power level of 95 KW. As this was the first operation of the day, Mr. Quinn first took the reactor to a steady-state power level of 5 watts for a measurement of the core excess, which he found to be correct for the current configuration of the TRIGA. Mr. Quinn then initiated the rise of power to the desired level by pulling the shim rod while watching the period meter and the log power and linear power recorder traces. Within a few seconds he observed the period meter indicate that the period was decreasing, while at the same time the log power trace was levelling off and the linear power trace continued to rise. At this point Mr. Quinn initiated a manual scram and secured the reactor. He discussed this event with Ward Rigot, the Assistant Reactor Supervisor. They concluded that the wide-range log channel had malfunctioned, possibly in the Campbell circuitry. Mr. Rigot reported this to me as I returned to the building some fifteen minutes later. I reviewed the experience and the recorder tracings with Mr. Quinn and determined that a malfunction had occurred. I notified D. L. Berry, Research Manager and chairman of the Reactor Operations Committee and telephoned Mr. Kenneth Ridgeway at Region III, U.S.N.R.C., shortly after 3:30 P.M. that day.

Subsequent investigation and consultation with the manufacturer indicated that the cause might be traced to a particular resistor in a filter on the detector high-voltage supply. Repairs and testing are in progress.

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