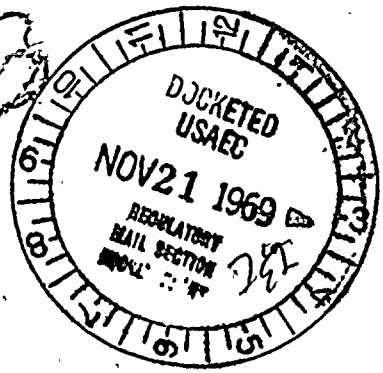
DOCKET NO 50-220

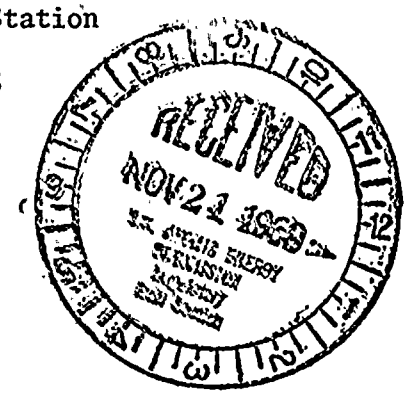


NIAGARA MOHAWK POWER CORPORATION

NIAGARA MOHAWK

Regulatory File Cy.

Nine Mile Point Nuclear Station
P. O. Box 32
Lycoming, New York 13093
November 18, 1969



United States Atomic Energy Commission
Division of Reactor Licensing
Washington, D. C. 20545

Attention: Dr. Peter A. Morris, Director

Gentlemen:

While in the process of heating the Nine Mile Point Nuclear Station reactor to operating pressure and temperature prior to supplying steam for turbine testing, on November 8, 1969, the reactor scrammed on momentary upscale trips from intermediate range monitoring channels. The flux spike had occurred due to an increase in feedwater flow. Examination of the rod display disclosed that ten of the 129 rods had missed being driven to their fully inserted position by one notch, and one had missed by two notches. The reactor was made sub-critical. These control rods were then individually driven to full insertion by operator action.

Prior to the complete insertion of all rods, the IRM returned below high trip setting; and the scram trip was reset, stopping the scram action. The operator contends that he did not operate the scram reset button. No occurrence of an unsafe condition existed as the reactor was shut down as was called for by the high IRM trip; and if the trip condition had persisted, no manual or spurious reset could have prevented full insertion of all control rods

Investigation by the Station Operations Review Committee disclosed inadequate coordination of the relay which interrupts power to the four sets of scram solenoid pilot valves. This relay is normally energized through a series arrangement of sensor trip relays and an auxiliary seal-in contact. The main contacts of the GE type CR-105 relay which interrupts power to the scram solenoid pilot valves open in from 10 to 12 milli-seconds. However, the auxiliary "seal-in" does not open in less than 20 milli-seconds after the coil deenergizes. Sensor trip relays operate much faster than 20 milli-seconds which can cause the CR-105 relay to drop out and pick up before the "seal-in" (actually prevents coil to pick up unless reset by pushbutton) contact opens producing an auto reset.

Relay circuits were revised to prevent the possibility of future auto resets. An existing relay type GE HFA whose coil is parallel with the CR-105 relay and had spare contacts available was utilized. This type relay has contacts which open in approximately 10 milli-seconds thus producing good coordination with the main contacts of the CR-105 relay. The contacts were added in series with the seal-in contacts of the CR-105 relay. This arrangement insures that the trip will not reset automatically on fast sensor trips because the sensor trip relays are no faster than the added contacts of the type HFA relay.

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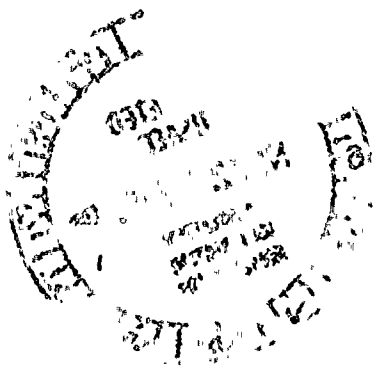

Investigation also disclosed that it was possible to be manually resetting a "half-scram" on one channel and imposing a reset on the other channel (there was only one reset button for two channels). Should the second channel be in the process of initiating a full scram, the operator would by this action reset the scram trip. If the reactor protection system trip was only momentary in nature and no longer present, the scram solenoids would reset arresting the rod travel in mid-travel causing a strong pressure surge in the index tubes of the drives. To avoid this possibility, reset buttons were installed in each of the two separate RPS channels instead of one button for two.

Presently design investigations are underway to install timers in the reset circuitry to prevent operator reset action before the control rods are fully inserted on scram action.

Very truly yours,

P. Allister Burt

P. Allister Burt
Station Superintendent

mjs

cc: Mr. M. H. Pratt
Mr. F. J. Schneider
Mr. J. N. Ewart, Chairman, SR & A Board
Mr. M. Hildreth, A.E.C. Compliance