



Public Service Company of Colorado

16805 Weld County Road 19 1/2, Platteville, Colorado 80651-9298

June 9, 1982
Fort St. Vrain
Unit No. 1
PPC-82-1175

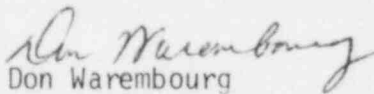
Mr. George Kuzmycz
Nuclear Regulatory Commission
7920 Norfolk Avenue
Bethesda, Maryland 20034

Dear Mr. Kuzmycz:

As per your request, attached is information concerning the manual scram taken June 5, 1982, due to an undervoltage relay trip in the plant electrical system.

If you have any further questions, please contact Ed Hill.

Very truly yours,


Don Warembourg
Manager, Nuclear Production

DW/clS

Attachment

A015

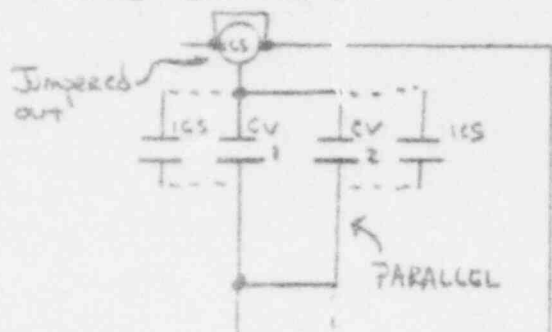
On June 5, at 1550 hours, with the reactor at approximately 13% power, one of two undervoltage relays, which monitor two phases of the 4KV side of the reserve auxiliary transformer, tripped, causing load shedding of the 480V essential busses 1, 2, and 3. Both undervoltage relays have to trip to cause the 4KV feed breaker to trip, thus, it remained closed and 4KV power equipment ("B" boiler feedpump, A and B condensate pumps, A and B circulator pumps), except the 480V busses, remained operating/operable. The purpose of the relays is to detect low voltage from the 4KV (i.e., loss of electrical power or phase loss) coincidental with a turbine trip and shed the load from the 480V busses in order to ensure the diesel generators close in on a dead bus.

The reactor operator manually scrammed the reactor, and the diesel generator units A and B automatically started and closed in to the dead 480V busses. 1A diesel generator set picked up 480V bus 1 and 2 as it was the first up-to-speed and 1B diesel generator set picked up bus 3. The programmed automatic sequencer for the diesel generators started up essential equipment as designed, and no problems were encountered. The buffer/bearing water upset tripped three of four helium circulators and resulted in a small amount of activity being released to the Reactor Building; however, MPC limits were not exceeded. Activity levels had decayed to background levels by 2240 hours.

Recovery actions were started immediately, and the 480V busses and diesel generator units were paralleled to the 4KV at 1810 hours. The electrical system was restored to normal at 2030 hours and plant recovery operations continued as expected. Subsequent investigation revealed a PSC relay department procedural inadequacy in calibrating the relay in question. A followup report will be submitted per the reporting requirements of Fort St. Vrain Technical Specification AC 7.5.2(b)3.

IN ORDER TO LOAD SHED OUR 480V ESSENTIAL BUSES CR-9200A OR CR-9200B MUST BE ENERGIZED. THIS IS CAUSED BY THE MAIN TURBINE BEING TRIPPED AND THE RAT BEING UNAVAILABLE OR UNDERVOLTAGE ON THE RAT. REFER TO E1203 P.20 AND P.21.

THE UNDERVOLTAGE RELAYS ARE SET UP SUCH THAT NO SEAL IN CONTACT IS USED (ICS). THE TWO UNDERVOLTAGE CONTACTS ARE CONNECTED IN PARALLEL. SEE DRAWING.



NORMALLY ICS CONTACTS AND CV CONTACT ARE CONNECTED per dotted lines.

THE RELAY SETTINGS WERE LAST CHECKED ON MAY 20, 1982. THE RELAY TECHNICIANS CHECKING THE SETTING WERE NOT AWARE OF THE CONTACT CONFIGURATION USED AT FORT ST. VRAIN. DURING THEIR CHECK THEY FOUND ONE CONTACT TO BE SET AT 44V (NORMAL SETTING IS 55V). THE CONTACT WAS ADJUSTED TO 55V. SINCE THE TWO UNDERVOLTAGE CONTACTS ARE NOT INDEPENDANT OF EACH OTHER, WHEN THE FIRST CONTACT WAS ADJUSTED FROM 44V TO 55V THE SECOND CONTACT WAS INCREASED TO 63V (69V IS 100%). WE FEEL THE IMPROPER SETTING ON THE RELAY CAUSED THE PREMATURE INITIATION OF THE LOAD SHED.