

DUKE POWER COMPANY

POWER BUILDING ATLANTA, GEORGIA  
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WILLIAM O. PARKER, JR.  
VICE PRESIDENT  
STEAM PRODUCTION

May 7, 1982 82 MAY 14 A 8:50

TELEPHONE AREA 704  
373-4083

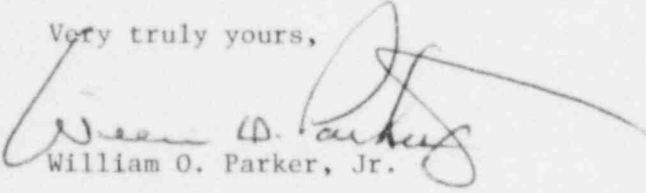
Mr. James P. O'Reilly, Regional Administrator  
U. S. Nuclear Regulatory Commission  
Region II  
101 Marietta Street, Suite 3100  
Atlanta, Georgia 30303

Re: McGuire Nuclear Station Unit 1  
Docket No. 50-369

Dear Mr. O'Reilly:

Please find attached Reportable Occurrence Report RO-369/82-30. This report concerns T.S.3.5.2, "Two independent ECCS subsystems shall be operable with each subsystem comprised of: a. One operable centrifugal charging pump,...". This incident was considered to be of no significance with respect to the health and safety of the public.

Very truly yours,

  
William O. Parker, Jr.

PBN/jfw  
Attachment

Cc: Director  
Office of Management and Program Analysis  
U. S. Nuclear Regulatory Commission  
Washington, D. C. 20555

Records Center  
Institute of Nuclear Power Operations  
1820 Water Place  
Atlanta, Georgia 30339

Mr. P. R. Bemis  
Senior Resident Inspector-NRC  
McGuire Nuclear Station

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DUKE POWER COMPANY  
MCGUIRE NUCLEAR STATION  
REPORTABLE OCCURRENCE REPORT NO. 82-30

REPORT DATE: May 7, 1982

FACILITY: McGuire Unit 1, Cornelius, NC

IDENTIFICATION: Train 1A Diesel Generator (D/G) Failed to Start For a Periodic Test and was Declared Inoperable. Since 1B Centrifugal Charging Pump was out of Service for Periodic Maintenance, Unit 1 was Shut Down. During the Shutdown the Reactor was Manually Tripped Because of Loss of Feedwater.

DISCUSSION: On April 23, 1982, D/G 1A failed the periodic test, "Diesel Generator 1A Operability Test", when the generator could not be paralleled to 1ETA (4160V Essential Bus). Centrifugal Charging (NV) Pump 1B was out of service for periodic maintenance at the time. Since neither NV pump was operable, unit shutdown was commenced. During the shutdown, the reactor was manually tripped due to an unrelated feedwater problem. The transient following the trip was not significant. Unit status at the beginning of the incident was Mode 1, 50% power. Reactor power had been reduced to 21% when the manual trip occurred. NV pump 1B and D/G 1A were returned to service on April 24.

Apparent cause of the incident was the failure of the station design change implementation program to adequately control work on station modifications.

EVALUATION: 1A 50 DGT is an instantaneous, overcurrent relay which protects the D/G from an overload in the event off-site power is lost while the D/G is connected to the non-safety 6.9kV busses for testing. 1A 50 DGT responds to excessive D/G current by tripping (open) the circuit breaker (1ETA-14) that connects the D/G to the safety-related, 4160V bus 1ETA.

Technicians making a modification concerning additional event recorder points for ESF testing also terminated several wires associated with a different modification. When they were taken off the job for higher priority work, the net effect of their work was that a jumper was removed from 1A 50 DGT terminals 9 and 10, and terminal 10 was connected to ground. When the D/G operability test was run on April 23, a positive ground fault existed on battery EVCA (which provides control power to 1ETA circuit breakers). The combination of the positive ground and the wire grounding 1A 50 DGT terminal 10, resulted in a positive potential on the terminal. This potential caused 1A 50 DGT to actuate and trip breaker 1ETA-14. The positive ground fault was later identified as a wire in which a sharp edge of a cabinet had penetrated the insulation when the wire was pressed against it. Removal of a fuse block prevented local closure of 1ETA-14 during the test, but would not have affected the controls during an emergency.

The technician involved had worked on station modifications before, but these had always involved drawings that were specially marked to show the changes. However, changes associated with several projects may be shown on the same drawing. The technician did not know the cross reference between the modification

numbers listed on his work request and the project numbers marked on the drawings. He thought he was supposed to make all of the changes shown on the drawings when in fact he was supposed to only make changes listed for the additional event recorder points modification.

An improper discharge pressure trip setpoint tripped main feedwater (CF) pump 1A which resulted in a turbine generator trip and a manual reactor trip. During the unit shutdown, feedwater flow to the steam generator (S/G) was swapped to the auxiliary (upper) nozzles. This flow path requires a higher CF pump discharge pressure to overcome the additional head. As the operators increased the CF discharge pressure, pump 1A tripped at 1335 psig. About six months ago, the CF pump discharge pressure setpoints were increased to 1335 psig for the alarm and 1435 psig for the trip, but the changes to the setpoints had not yet been included in the instrument list. Technicians responding to a recent work request recalibrated the pressure switches using the values listed in the instrument list which were the old values (1220 psig alarm, 1335 psig trip). The pressure switch which actuates the alarm was left pneumatically isolated which accounted for the alarm failure.

After the reactor trip, operators experienced problems with excessive steam leakage because numerous drain valves were left open. Switch RF 63 is labeled "Misc. Steam Drains" and marked Open-Closed. When the reactor trip occurred, the switch was in the open position and excessive steam was passing from the main steam lines to the condenser. Operators closed the main steam isolation valves (MSIV) to limit the cooldown and opened the MSIV bypass valves to provide cooling. The operating engineer heard the steam entering the condenser and instructed the control operators to place RF 63 in the closed position. This action closed the miscellaneous drain valves and corrected the cooldown problem. Minimum condenser vacuum reached about 24 in. Hg. No excessive cooldown occurred on the primary side as temperature and pressure were maintained above 525°F and 2100 psig.

SAFETY ANALYSIS: Offsite power was available throughout the incident so the health and safety of the public were unaffected. Power was available to IETA from both unit 1 and unit 2 during this time.

CORRECTIVE ACTION: The immediate corrective action to restore D/G 1A to operability was to return relay 1A 50 DGT to its initial configuration. Later the positive ground fault on EVCA was located and cleared. Additional corrective action to be taken is:

- 1) A training program on the design change process and the proper usage of drawings will be developed, and appropriate technicians and supervisors will be scheduled for the training.
- 2) A set of drawings will be prepared to accompany each modification with the changes clearly marked to avoid confusion.
- 3) D/G operability test procedures will be modified to insure that local control of IETA-14 will be checked periodically.

- 4) The CF pump discharge pressure alarm and trip setpoints have been corrected and the proper values will be entered in the instrument list.
- 5) The main steam operating procedure is being modified to require miscellaneous steam drain valve RF 63 be in the closed position during normal operation.