

**PHILADELPHIA ELECTRIC COMPANY**

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March 6, 1980

Mr. Boyce H. Grier, Director  
Office of Inspection and Enforcement  
Region I  
United States Nuclear Regulatory Commission  
631 Park Avenue  
King of Prussia, Pennsylvania 19406

Dear Mr. Grier:

SUBJECT: Licensee Event Report Narrative Description

Reference: Docket Number 50-278

Report No: LER 3-80-04/3L

Report Date: March 6, 1980

Occurrence Date: February 5, 1980

Facility: Peach Bottom Atomic Power Station  
R.D. 1, Delta, PA 17314

Technical Specification Reference:

Technical Specification 3.6.B.3.(a) states that reactor water quality may exceed the limits of Specification 3.6.B.2 only for the time limits specified below. Exceeding these time limits or the maximum quality limits specified shall be cause for reducing the reactor coolant temperature to less than 212°F:

- a. Conductivity at 25°C  
Time above 5 umhos/cm - 2 weeks/year  
Maximum limit - 10 umhos/cm

Description of the Event:

The Unit 3 reactor water conductivity increased and exceeded the Technical Specification limit of 10 umho/cm during the startup of the Unit on February 4, 1980. The reactor water conductivity peaked at 12.6 umho/cm (at 12:10 AM on 2/5/80) and was greater than the 10 umho/cm limit for approximately 4.5 hours. The reactor water conductivity increase occurred during the heatup stage of the startup. After the reactor water

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conductivity exceeded 10.0 umho/cm, the reactor was shutdown using the normal plant procedure. The maximum reactor water temperature ("B" recirc loop temperature) and maximum reactor pressure recorded by ST 9.12 (used for startups) were 451°F and 505 psig respectively. During the startup the heat cycle was being cleaned on a recycle path via the long path recycle path to the main condenser. This recycle path passes water through the condensate filter/demineralizers for purification. While on long path recycle most of the water is returned to the main condenser; however, some water is supplied to the reactor for makeup. The reactor water cleanup system (RWCU) was operating in a dump mode returning water to the main condenser (normal for a startup). After the reactor shutdown, additional cleanup was obtained by placing an additional RWCU filter/demineralizer in service. The reactor water chemistry transient (sudden conductivity increase and pH decrease) indicated possible resin injection. However, there was no change in the main steam line activity (a normal indication of resin injection) because the reactor was at very low power at this point in the startup. Following the shutdown, the reactor water conductivity was less than 2.0 umho/cm within 10 hours. Startup of Unit 3 was begun again on February 6, 1980 at 1:30 AM. During the heatup of Unit 3 the reactor water conductivity once again increased. This second increase is believed to be due to the final breakdown of all the resin injected during the startup on 2/4/80. The peak conductivity during the second startup was 2.65 umho/cm which is well below the Technical Specification conductivity limit.

Consequences of Event:

During this chemistry transient, the peak chloride concentration was 250 ppb chloride which is well below the Technical Specification limit of 1000 ppb. Since the reactor water conductivity exceeded the Technical Specification limit for less than 4.5 hours and because the reactor pressure was below rated pressure during this transient, no effects are expected to the materials in the primary system boundary.

Cause of Event:

The chemistry data during this transient had all of the expected symptoms of a resin injection (high conductivity, low pH and a slow removal rate due to the slow breakdown rate of the resin). However, no mechanism for this resin intrusion could be found. All condensate filter/demineralizers and RWCU filter/demineralizers which were inservice during the heat cycle cleanup and plant startup have been tested for resin leakage. No abnormal resin leakage has been found. A General Electric Co. chemistry consultant arrived at the Peach Bottom site at the end of chemistry transient and before the plant startup on February 6, 1980. His investigation also found no positive cause for the

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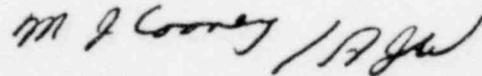
transient but it is also his belief that resin injection is the most probable cause. Since the RWCU system was dumping to the main condenser, the resin for the chemistry upset must have come from the condensate filter/demineralizer system during the outage prior to the startup on February 4, 1980.

Corrective Action:

Unit 3 was shutdown using the normal operating procedure. An additional reactor water cleanup filter/demineralizer was placed in service to obtain the maximum reactor water cleanup rate possible. All condensate filter/demineralizers and reactor water filter/demineralizers which were in service for heat cycle cleanup or during the plant startup have been tested for resin leakage. In addition, an investigation of this chemistry transient and possible causes for it has been conducted by plant staff personnel and by a General Electric Company chemistry consultant.

Changes have been made to the plant startup order (COL-G.P. 2 & COL-G.P. 2A) to require additional heat cycle cleanup and to specify heat cycle chemistry limits required before feedwater may be supplied to the reactor.

Yours truly,



M. J. Cooney  
Superintendent  
Generation Division-Nuclear

Attachment

cc: Director, NRC - Office of Inspection and Enforcement  
Mr. Norman M. Haller, NRC - Office of Management &  
Program Analysis