

PHILADELPHIA ELECTRIC COMPANY

2301 MARKET STREET

P.O. BOX 8699

PHILADELPHIA, PA. 19101

SHIELDS L. DALTRON
VICE PRESIDENT
ELECTRIC PRODUCTION

(215) 841-5001

August 15, 1986

Docket Nos. 50-277
50-278

Inspection Report Nos. 50-277/86-05
50-278/86-05

Mr. Richard W. Starostecki, Director
Division of Reactor Projects
U.S. Nuclear Regulatory Commission
Region I
631 Park Avenue
King of Prussia, PA 19406

Dear Mr. Starostecki:

Your letter dated July 17, 1986 forwarded Combined Inspection Report Nos. 50-277/86-05; 50-278/86-05 for Peach Bottom Atomic Power Station. Appendix A of your letter addresses three items which do not appear to be in full compliance with Nuclear Regulatory Commission requirements. These items are restated below followed by our response.

Item A. 10 CFR 20.201(b) requires that each licensee make surveys to evaluate the radiation hazards incident to the release of radioactive materials. 10 CFR 20.106(d) requires that the concentration limits for effluents released to unrestricted areas shall be in accordance with 10 CFR 20, Appendix B, Table II, at the restricted area boundary.

1. Contrary to the above, from the time of the unplanned release to the unrestricted area at approximately 4:00 p.m. on February 16 until approximately 2:30 a.m. on February 17, effective surveys were not made to measure concentrations of radioactive material present at the restricted area boundary, in that no samples were taken from the actual outfall of the potentially contaminated storm drain system.

2. Contrary to the above, during the analysis of samples taken throughout the event, the radiation hazard was not effectively evaluated in that no determination was made of the radiation hazard due to radionuclides in the release other than those that emit gamma radiation.

These examples constitute a Severity Level IV Violation (Supplement IV).

Admission/Denial of Alleged Violation:

Philadelphia Electric Company acknowledges the violation as stated above.

Reason for Violation:

Item A1 - Failure to obtain samples from the actual outfall of the contaminated storm drain system was caused by procedural deficiency. Approximately one hour after the CST overflowed, the first samples were taken from three catch basins on-site. Two hours later (1900 hours on February 16), sampling began at a location that was thought to be the storm drain system discharge point to the river. The sampling point error occurred because there was no procedure in place at the time of the event to provide guidance for the individuals who were obtaining the samples.

Item A2 - Failure to evaluate the radiation hazard due to radionuclides other than those that emit gamma radiation was due to the inability to analyze for the required nuclides, e.g. Sr-90, Sr-89, Fe-55 and H-3, on a timely basis. For example, the analysis for Sr-90 takes approximately two weeks to perform.

Significance of Violation:

Item A1 - Lack of an effective procedure for providing guidance to individuals who obtain samples during an event such as this resulted in samples being obtained from an incorrect line. The sampling error occurred over a 7-1/2 hour time period (1900 hours on February 16 to 0230 hours on February 17). To account for this unmonitored release time, the analysis results of samples obtained from the correct sampling location were extrapolated back using conservative assumptions (See Bechtel's CST Overflow Report, Sections 8.5 and

8.6 provided to NRC via letter G. M. Leitch, PECo, to T. E. Murley, NRC, dated August 4, 1986).

Item A2 - Subsequent analysis of the CST moat sample has shown that Sr-90, Sr-89, Fe-55 and H-3 did not contribute significantly (approximately 5% MPC) to the total radiation hazard due to the spill.

Corrective Actions Taken and Results Achieved:

Item A1 - At 0230 hours on February 17, the sample location was changed because of the difficulty of obtaining samples from the icy slopes at the river's edge. The sampling location was changed from the incorrect line to the proper storm drain line without realizing that the previous samples had been obtained from an incorrect location.

Item A2 - Water samples from the CST moat and the Rest and Recreation (R&R) outfall were analyzed by an off-site laboratory for Sr-90, Sr-89, Fe-55, and H-3. These analyses results were evaluated for radiation hazard. The results of those evaluations are included in Bechtel's CST Overflow Report, Appendix A, provided to NRC via letter, G. M. Leitch, PECo, to T. E. Murley, NRC, dated August 4, 1986.

Corrective Actions Taken to Avoid Future Non-Compliance:

Item A1 - Subsequent to the event, Special Event Procedure SE-9 (Radioactive Liquid Spill) was prepared, approved, and distributed. This procedure includes (among other things) a sketch of the on-site storm drain system and specifies steps to be taken to ensure that the correct sample points are chosen. Proper use of this procedure will prevent recurrence of the sampling error identified by this violation.

Item A2 - The significance of Sr-90, Sr-89, Fe-55 and H-3 in the CSTs will be determined for varying plant conditions. If these radionuclides are found in significant concentrations, methods will be developed to ensure that these radionuclides are included in the evaluation of radiation hazards for abnormal releases.

Date When Full Compliance was Achieved:

Item A1 - Full compliance was achieved at 0230 hours on February 17, 1986 when the sample point was changed to the storm drain at the Southeast corner of the R&R Building, thereby placing the sampling point in the discharge path of the release.

Item A2 - Full compliance was achieved on April 30, 1986, when the Bechtel CST Overflow Report was issued.

Item B. Technical Specification Section 6.8.1 requires that written procedures be established, implemented, and maintained that meet the requirements of Sections 5.1 and 5.3 of ANSI N18.7-1972, and Appendix A of Regulatory Guide 1.33 (November 1972).

ANSI N18.7-1972, Section 5.3.8.2, requires procedures for coping with excessive release of radioactive liquids. Regulatory Guide 1.33 (November 1972), Appendix A, Section F, requires procedures for combating abnormal releases of radioactivity.

Contrary to the above, as of February 16, 1986, no procedure existed to combat unplanned liquid radioactive releases via potential pathways other than the discharge canal.

This is a Severity Level IV Violation (Supplement IV).

Admission of Alleged Violation:

Philadelphia Electric Company acknowledges the violation as stated.

Reason for Violation:

The cause of the violation was an administrative oversight in that no procedure was in place at the time of the CST overflow for combating an abnormal release.

Significance of Violation:

Lack of an effective procedure for combating an abnormal release resulted in sampling an incorrect line. The sampling error occurred over a 7-1/2 hour time period (1900 hours on February 16 to 0230 hours on February 17). To account for this unmonitored release time, the analysis results of samples obtained from the correct sampling location were extrapolated back using conservative assumptions (See Bechtel's CST Overflow Report, Sections 8.5 and 8.6 provided to NRC via letter G. M. Leitch, PECo, to T. E. Murley, NRC, dated August 4, 1986).

Corrective Actions Taken and Results Achieved:

Special Event Procedure SE-9 titled, "Radioactive Liquid Spill", has been prepared, approved and distributed. This procedure provides immediate actions to be taken to locate, isolate and contain a spill, and specifies follow-up actions such as sampling, surveying, and posting. The procedure also directs personnel to the appropriate procedures to be used for notifications and dose calculations, and provides a quick-reference list of area drawings to facilitate investigation of a spill.

Emergency Plan procedures EP-318 and EP-319 have been revised to provide a mechanism for determining the downstream effects of a liquid effluent release which does not exit the site via the plant discharge canal.

Corrective Actions Taken to Avoid Future Non-Compliance:

SE-9 and the revisions to EP-318 and EP-319, as discussed above, will prevent future non-compliance as identified in this violation.

Date When Full Compliance was Achieved:

SE-9 was approved on May 29, 1986. Revisions to EP-318 and EP-319 were approved on June 27, 1986. Full compliance was achieved upon approval of the revisions to EP-318 and EP-319.

Item C.

10 CFR 50.59(a) allows the licensee to make changes in the facility as described in the FSAR without prior Commission approval if the change does not involve a change in Technical Specifications or an unreviewed safety question. 10 CFR 50.59(b) requires the licensee to maintain records of changes in the facility which shall include a written safety evaluation which provides the basis for the determination that the change does not involve an unreviewed safety question.

FSAR, Section 2.4.3.3, indicates that release to the environment of a large quantity of radwaste, such as emptying of a tank, is improbable because all outdoor tanks contain radioactive liquids are contained in watertight structures. The maximum expected radioactivity concentration in the condensate storage tank (CST) is given as 3N3 uCi/ml in the updated FSAR Table 9.2-7.

Contrary to the above, the increased probability and consequences of a CST release were not evaluated in that Unit 3 operated from January, 1984, to February, 1986, with the condensate storage tank dike not watertight and the radioactivity levels of up to 1N2 uCi/ml, a factor of three times the value in the FSAR. No safety evaluation was performed for these changes in the facility as described in the FSAR.

This is a Severity Level IV Violation (Supplement I).

Admission of Alleged Violation:

Philadelphia Electric Company acknowledges the violation as stated.

Reason for Violation:

At times, the radioactivity concentration in the Unit 3 CST exceeded 3N3 uCi/ml because reactor coolant was pumped to the CST during shutdown operations.

The Unit 3 CST moat was not watertight between January, 1984, and February, 1986, because two holes were dug in the moat dike to replace defective heat tracing.

Significance of Violation:

The condensate storage tank overflow occurred when the radioactivity level in the CST was at the FSAR maximum expected limit. Consequently, the maximum concentration possible at unrestricted areas was 98.3% of the Maximum Permissible Concentration (MPC). If the CST overflow had occurred with radioactivity concentrations in the CST of up to 1N2 uCi/ml, the concentration at unrestricted areas would have exceeded 100% MPC.

Corrective Actions Taken and Results Achieved:

The radioactivity concentration in the Unit 3 Condensate Storage Tank was reduced to less than 3N3 uCi/ml.

The holes in the moat dike were backfilled, compacted and resealed, thereby restoring the design condition of the moat. This task was completed by March 1, 1986.

Corrective Actions Taken to Avoid Future Non-Compliance:

To prevent recurrence, the radioactivity concentration in the condensate storage tanks, refueling water storage tank, and torus dewatering tank will be controlled to less than the maximum expected levels identified in the FSAR for these tanks. Should plant operation require that these levels be exceeded, a safety evaluation will be performed for these changes in the facility as described in the FSAR.

Further, signs have been installed at the entrances to the condensate storage tank, refueling water storage tank, and torus water storage tank moats which indicate that the moats are barriers to the release of liquid effluents and must not be breached without plant management approval.

Date When Full Compliance was Achieved:

Full compliance was achieved by March 1, 1986, when the watertight condition of the Unit 3 CST moat was restored.

In addition to addressing the alleged violations identified above, your letter also requested that we address the following concerns:

1. "During this inspection, it was determined that the information available to operators regarding heat tracing for the condensate storage tank was not adequate to properly assess the status of the heat trace system. We are concerned that this condition apparently has existed since plant startup."
2. "It was also determined that a contractor dug holes in the Unit 3 CST dike in February, 1984, which effectively prevented the dike from performing its design function to prevent the release of potentially radioactive liquids to the environment. The holes remained in the dike until February, 1986, which indicates a problem regarding control and oversight of changes to the facility."
3. "The unavailability of up-to-date facility drawings of the site storm drain system was a major contributor to your sampling of the incorrect storm drain system discharge into the river during the February 16, 1986, CST overflow event. We are concerned that other site drawings which are not controlled by administrative procedures may not be up-to-date."

Response to Concern 1:

We agree that adequate procedures for assessing the operability of the CST heat trace system currently are not in place. A program has been established to correct this deficiency. The program involves the development of procedures for the various heat trace systems installed throughout the plant. We expect these procedures to be in place by October 31, 1986.

Response to Concern 2:

The activities associated with work on the moat penetrations, including the closure of the Maintenance Request Form which was being used to control the heat trace repair, were unusual.

An investigation was conducted to determine the cause of the holes in the moat. The investigation revealed that in early February, 1984, the area around the pipes had been excavated in order to replace defective heat tracing on the pipes. Although the heat tracing was replaced and verified to be working properly, the heat tracing failure alarm

would not reset. Troubleshooting the heat trace control circuit was pursued by the Maintenance group and the Instrument Lab. The holes were not refilled because it was not known exactly where the problem with the heat tracing existed. The investigation moved to the heat trace control panel located inside the Recombiner Building, but further efforts did not resolve the problem. To complicate matters, the new Computerized History and Maintenance Planning System (CHAMPS) was being placed into service at the time and the original hard copy Maintenance Request Form (MRF) that had been used to control the heat trace work was cancelled during the system changeover because it was believed that the heat trace work was complete. In January, 1985, temporary insulation was placed around the pipes, but the holes were not refilled and sealed because the individuals installing the insulation did not realize that the moat was a barrier. The holes remained in the moat and served as the release path during the CST overflow.

Further review of the activities and controls which resulted in permitting the holes in the moat barrier to remain for an extended period of time indicates that the present CHAMPS computer system provides an effective mechanism for tracking long-term tasks. This system should remove the root cause associated with the failure to resurface the moat.

Response to Concern 3:

Drawing C-59, titled "Extension of Construction Area Drainage Piping", which was used during the CST overflow event to pinpoint sample locations, is up-to-date. The line that was incorrectly sampled is not a construction drain and consequently does not belong on C-59. The incorrectly sampled line does appear on Drawing C-412, titled "Soil Erosion and Sedimentation Plan". C-412 is also up-to-date. Our review of C-412 indicates that the incorrectly sampled line is actually a ground water drain line which originates behind (to the west of) the new radwaste facility.

The sampling error was the result of lack of procedural guidance for the individuals obtaining the samples (as discussed previously in Item A of this submittal) and was not the result of unavailability of up-to-date facility drawings.

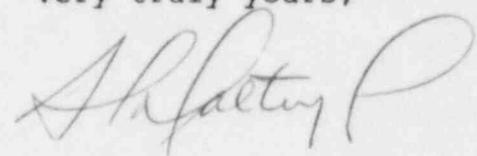
Mr. Richard W. Starostecki

August 15, 1986

Page 10

Should you have any questions or require additional information, please do not hesitate to contact us.

Very truly yours,

A handwritten signature in cursive ink, appearing to read "Richard W. Starostecki".

cc: T. P. Johnson, Resident Site Inspector