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Pennsylvania Power & Light Company

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AUG 03 1984

Bruce D. Kenyon
Vice President-Nuclear Operations
215/770-7502

Mr. Richard C. DeYoung, Director
Office of Inspection and Enforcement
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

SUSQUEHANNA STEAM ELECTRIC STATION
RESPONSE TO ENFORCEMENT ACTION 84-5
ER 100450/100508 FILE 841-04
PLA-2250

Docket Nos. 50-387/NPF-14
and 50-388/NPF-22

Dear Mr. DeYoung:

Pursuant to 10CFR2.201, Pennsylvania Power & Light Company hereby provides the attached response to Enforcement Action 84-5. Payment in the amount of \$75,000 is enclosed.

We trust the Commission will find our response acceptable.

Very truly yours,

B. D. Kenyon
Vice President-Nuclear Operations

Attachments
Affidavit

cc: Dr. Thomas E. Murley
Regional Administrator, Region I
U.S. Nuclear Regulatory Commission
631 Park Avenue
King of Prussia, PA 19406

Mr. R. H. Jacobs - NRC Resident Inspector

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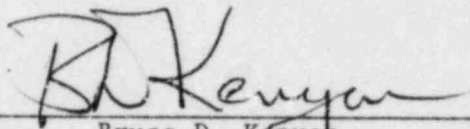
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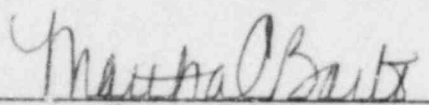
COMMONWEALTH OF PENNSYLVANIA)
: SS
COUNTY OF LEHIGH)

I, Bruce D. Kenyon, being duly sworn according to law, state that I am Vice President-Nuclear Operations of Pennsylvania Power & Light Company and that the facts set forth on the attached response to Enforcement Action 84-5 dated July 6, 1984, are true and correct to the best of my knowledge, information and belief.



Bruce D. Kenyon
Vice President-Nuclear Operations

Sworn to and subscribed
before me this *3rd* day
of August, 1984.



Notary Public

MARTHA C. BARTO, Notary Public
Allentown, Lehigh County, Pa.
My Commission Expires Jan. 13, 1986

RESPONSE TO ENFORCEMENT ACTION 84-5

In the forwarding letter for Enforcement Action 84-5, Dr. Murley raised two general concerns regarding the four violations as involving either ineffective response to indications and annunciators, or failure to recognize the applicability of technical specification requirements. In response to his concerns, the following information is provided.

PP&L has extensively investigated each of the incidents identified in Enforcement Action 84-5. Although the investigations indicated that these incidents were relatively unrelated, this collection of incidents caused us to question whether or not there were underlying deficiencies in our operations which had not been detected by these or previous reviews. Accordingly, in addition to the actions taken in response to each of the incidents, the following actions were taken as a means to more fundamentally assess the quality of our operations:

- o Management personnel were assigned to perform on-shift observations and report findings to the Plant Superintendent. In particular, management questioned the operators regarding plant status, evolutions in progress, and any abnormal conditions.
- o PP&L's Nuclear Safety Assessment Group conducted a five-day round-the-clock assessment of control room watchstanding practices. This assessment included particular attention to watch relief practices, responsiveness to alarms, and log keeping.
- o At PP&L's request, INPO conducted a five-day special assistance visit to Susquehanna SES to observe control room operations. INPO also examined operator distractions, hindrances, and performance.
- o PP&L retained a team of consultants to conduct a two-week review of control room work practices and environmental conditions to determine which of these, if any, detract from optimum operator performance.

The results of these investigations indicated that overall operator performance was good with no significant weaknesses.

One objective of the reviews was to identify factors which could detract from optimum operator performance. A number of items were identified which are being incorporated into an "Operations Enhancement Program." We believe that these actions, in the aggregate, should strengthen operator performance. Our responses to the four individual violations follow.

I.A. Violation Assessed a Civil Penalty (388/84-19-01):

Technical Specification 3.9.2 requires that whenever the reactor is in Operational Condition 5 (Refueling), at least two Source Range Monitor (SRM) channels shall be operable and inserted to the normal operating level, with one of the required SRM detectors located in the quadrant where core alterations are being performed and the other SRM detector located in an adjacent quadrant.

Contrary to the above, between 4:28 p.m. on April 10, 1984, and 1:45 a.m. on April 11, 1984, core alterations were performed in the "A" reactor core quadrant; specifically, eleven fuel bundles were loaded and two control rods were withdrawn individually a total of six times, and during that time, the "A" source range monitor located in the "A" quadrant was inoperable in that its scram function was bypassed.

Response:

1. PP&L admits that core alterations were performed in the "A" reactor core quadrant while the scram function was bypassed on the "A" source range monitor. (See Licensee Event Report, Unit 2, 84-002-00, dated May 10, 1984.)
2. Based on a thorough review of this event, it has been determined that personnel error was the only significant contributing factor to the violation.

In evaluating this event, it is important to note that ample core protection was assured. Although the "A" source range monitor upscale scram had been bypassed, there were a total of seventeen (17) other non-coincident scram functions on line; three for the other source range monitors, eight for the intermediate range monitors, and six for the average power range monitor. Non-coincident scram functions had been established by removal of the shorting links required for channel coincidence.

Administrative controls to preclude inadvertent criticality were also in place during this event.

- a. The neutron monitoring function of the "A" source range monitor was operable throughout the event. This indication was incorrectly assumed to indicate that the "A" source range monitor was fully operable.
- b. An average inverse count rate measurement plot was maintained throughout the event.
- c. The source range monitor/fuel loading chamber detector indication was monitored throughout the event.

- d. The one-rod-out interlock with the reactor mode switch locked in the "refuel" position was operable and would have prevented the withdrawal of more than one control rod.

In addition, a partial core shutdown margin test had been performed after 144 bundles had been loaded. The test satisfactorily demonstrated that there was adequate shutdown margin for the partially loaded core.

3. The following steps were taken to correct the problem:
 - a. The shift supervisor, upon notification that the "A" source range monitor scram function was bypassed, immediately halted core alterations. The bypass was removed, Technical Specifications Section 3.9.2 was reviewed, and the status of the source range monitor/fuel loading chamber was verified for all core quadrants.
 - b. The average inverse count rate measurement plot was reviewed. It demonstrated that the core had not been near the predicted critical configuration.
4. The following corrective steps were taken to avoid further violations:
 - a. Management reiterated that no core alterations were to take place for the remainder of initial fuel load unless all four source range monitors were operable.
 - b. Management has taken appropriate actions in regard to personnel conduct.
 - c. Shift turnover practices have been revised to include several overlapping panel walkdowns. The on-coming Shift Supervision arrives early to begin turnover with the off-going Shift Supervision. The on-coming Shift Supervision then observes the operator turnovers which include panel walkdowns by the on-coming and off-going operators. As soon as practical following shift turnover, Shift Supervision conducts a second panel walkdown with the operators. In addition, the administrative procedure for shift routine has been revised to require the operators to record panel alarms and the reason for each alarm. The alarm status is revised during the shift as appropriate.
 - d. This event was incorporated into the licensed operators requalification training program. All shifts had training on this event.
5. PP&L is now in full compliance.

II.A. Violation Not Assessed a Civil Penalty (387/84-11---):

Technical Specification 3.0.4 requires that Limiting Conditions for Operation be satisfied, without reliance on the provisions of the action requirements, when entering into an operational mode or other specified condition. Technical Specification 3.5.1.c requires that the High Pressure Coolant Injection (HPCI) system be operable when in Operational Condition 2 (Start-up) with the reactor steam dome pressure greater than or equal to 150 psig.

Contrary to the above, at 7:15 a.m. on February 21, 1984, with the reactor in Operational Condition 2, reactor steam dome pressure exceeded 150 psig while the HPCI system was inoperable.

Response:

1. PP&L admits that the reactor steam dome pressure exceeded 150 psig while HPCI was inoperable. (See Licensee Event Report, Unit 1, 84-009-00 dated March 20, 1984.)
2. The violation was the result of uncertainty as to the proper interpretation of Technical Specifications.
 - a) Technical Specifications Section 3.5.1 requires HPCI to be operable in Condition 1 and when reactor steam dome pressure exceeds 150 psig in Conditions 2 and 3. Technical Specifications Section 3.0.4 states "Entry into an OPERATIONAL CONDITION or other specified condition shall not be made unless the conditions for the Limiting Condition for Operation are met without reliance on provisions contained in the ACTION requirements."
 - b) The reactor remained in Condition 2 (Startup) throughout the event. However, the operators failed to recognize that, although no change in operational condition occurred, exceeding 150 psig did represent entry into a "specified condition".

It should be noted that feedwater and low pressure coolant injection were available to cover the core throughout the event. Also, there was minimal decay heat since the unit had just started operation following an extended outage and had not exceeded 2% power at the time of the event.

3. The following steps were taken to correct the problem:
 - a. The HPCI topaz inverter was energized.
 - b. The HPCI steam supply valves and drain valves were properly repositioned.

Following these corrective actions, HPCI was declared ready for operation and was subsequently tested satisfactorily.

4. The following corrective steps were taken to avoid further violations:
 - a. The general operations plant start-up procedure has been revised to require a sign off that HPCI is operable prior to exceeding 150 psig steam dome pressure.
 - b. The HPCI topaz inverter has been added to the system checkoff list, the HPCI operating procedure, and the Operator Instructions for operator rounds.
 - c. This event was incorporated into the licensed operators requalification training program. All shifts had training on this event.
5. PP&L is now in full compliance.

II.B. Violation Not Assessed a Civil Penalty (387/83-24-01):

Technical Specification Limiting Condition for Operation (LCO) 3.3.7.11 and the Table and Notation referenced therein, require that two Main Condenser Offgas Treatment System Explosive Gas Monitoring System channels be operable during Main Condenser Offgas Treatment System operation. If less than two channels are operable, operation of the Main Condenser Offgas Treatment System may continue for up to 30 days provided grab samples are collected at least once every four hours.

Contrary to the above, from 2:00 p.m. November 3, 1983 to 12:20 p.m. November 5, 1983, both channels of the Main Condenser Offgas Treatment System Explosive Gas Monitoring System at Unit 1 were inoperable, grab samples were not collected during that time, and the offgas system continued in operation.

Response:

1. PP&L admits that the main condenser offgas treatment system was operated with both channels of the explosive gas monitoring system inoperable and grab samples were not collected as required. (See Licensee Event Report, Unit 1, 83-144/01T-0, dated November 18, 1983.)
2. The following factors contributed to the violation:
 - a. The operating procedure for the hydrogen analyzers inadequately described the number of valves associated with the common recombiner system in that the individual supply and return valves were not identified. The operator assigned to line up the common recombiner system analyzers could only find two valves and, with shift supervision concurrence, incorrectly concluded that there were only two valves in the system. The fact that the two return valves were partially blocked from view by an instrument line protective tray was a contributing factor.
 - b. The hydrogen analyzer annunciating alarms, located on a local panel, were not promptly investigated. A common control room panel alarm exists but was already annunciating due to other alarms at the local panel.
3. The following steps were taken to correct the problem:
 - a. An investigation of the hydrogen analyzer alarms identified the two return valves as being in the closed position. The valves were opened placing both channels of the hydrogen analyzers in service.
 - b. An analysis was performed utilizing the hydrogen recombiner's inlet and outlet temperatures for the period

during which the analyzers were inoperable. The analysis concluded that during the period the analyzers were inoperable, the hydrogen recombiners functioned properly and no abnormal concentrations of hydrogen existed.

4. The following corrective steps were taken to avoid further violations:
 - a. The offgas system operating procedure has been revised to clarify that two supply valves and two return valves are required to be open to place the hydrogen analyzers in service for each recombiner.
 - b. More visible means of identifying those valves obscured by other components have been installed by adding large easy-to-read tags and stenciling the structures in close proximity to the valves for all recombiners.
 - c. The operating procedure for heatup has been revised to specifically identify placing the hydrogen analyzers in service per the offgas system operating procedure.
 - d. The administrative procedure for shift routine has been revised to require the operators to record panel alarms and the reason for each alarm. The alarm status is revised during the shift as appropriate.
 - e. Training on the event has been completed as follows:
 - 1) The event was reviewed by the Operations Supervisor at his weekly training session, with emphasis placed on making operators aware of all local control panel annunciators in accordance with the "operator rounds" procedure.
 - 2) The STA's conducted training sessions on the event with the unit supervisors, nuclear plant operators, auxiliary system operators, and plant control operators. The training emphasized communication between unit supervisors and nuclear plant operators, procedural clarification, and valve visibility.
 - 3) This event was incorporated into the licensed operators requalification training program. All shifts had training on this event.
5. PP&L is now in full compliance.

II.C. Violation Not Assessed a Civil Penalty (387/83-24-02):

Technical Specification LCO 3.8.1.1a requires two physically independent circuits between the offsite transmission network and the onsite class 1E distribution system. With one offsite circuit inoperable, the LCO action statement requires that the remaining AC sources be demonstrated operable by performing Surveillance Requirement 4.8.1.1.1.a within one hour, and Surveillance Requirement 4.8.1.1.2.a.4 for each diesel generator within four hours. Technical Specification 3.0.3 requires that when a LCO is not met, except as provided in the associated Action requirements, action shall be initiated within one hour to place the unit in an operational condition in which the specification does not apply by placing it in at least the start-up operational mode within the next six hours.

Contrary to the above, on October 19, 1983, the alternate supply breaker (1A203-09) to Engineered Safeguards Auxiliary Bus 1A203 for Unit 1 was inoperable from 9:30 a.m. to 4:30 p.m. and Surveillance Requirements 4.8.1.1.1.a and 4.8.1.1.2.a.4 were not performed to demonstrate that the remaining AC sources were operable. Additionally, when the Limiting Condition for Operation was not met, action was not initiated within one hour to place the unit in an operational condition in which the specification did not apply. The offsite circuit was restored prior to the time when the plant was required to be in the start-up operational mode.

Response:

1. PP&L admits that with the alternate supply breaker inoperable, required surveillances were not performed to demonstrate that the remaining AC power sources were operable. (See Licensee Event Report, Unit 1, 83-139/01X-1, dated November 21, 1983.)
2. The violation was the result of an incorrect determination that Technical Specifications Section 3.8.3.1 rather than Section 3.8.1.1a applied when the alternate supply breaker was removed from service for maintenance. Technical Specifications Section 3.8.3.1 specifies onsite power distribution lineups; however, Technical Specifications Section 3.8.1.1a requires two physically independent circuits between the offsite transmission network and the onsite Class 1E distribution system. Although both off-site power sources were available, maintenance on the alternate supply breaker resulted in both off-site sources relying on a single circuit breaker for connection to the on-site system. The fact that this did not meet the intent of the requirement for physical independence was not recognized. Since the proper LCO was not recognized, the operators were not aware that the action statement was violated.

3. The following steps were taken to correct the problem:
 - a. Operating shift personnel identified this violation after the electrical system was returned to the normal lineup. Subsequent to their review of the completed work, they initiated an Event Report to inform Management of a potentially reportable event. Management then informed the NRC resident inspector and explained the incident in detail including the difficulty in understanding the intent of the Technical Specification.
 - b. Once the correct interpretation of Technical Specifications Section 3.8.1.1.a had been recognized, the surveillances associated with the LCO were initiated. A breaker alignment and a quick start of the "C" Diesel Generator were performed with acceptable results.
4. The following steps were taken to avoid further violations:
 - a. The event was reviewed by the Operations Supervisor at his weekly training session to ensure that the intent of Technical Specifications Section 3.8.1.1a was understood by all licensed operators. Also, shift supervision has been instructed on the proper interpretation of the Technical Specifications. A formal Notice of Interpretation has been issued.
 - b. The preventative maintenance work authorization form has been revised to note that Technical Specifications Sections 3.8.1.1 and 3.8.3.1 are to be referenced when work is performed on Unit 1 or 2 4.16kV main or alternate feeder breakers.
 - c. This event was incorporated into the licensed operators requalification training program. All shifts had training on this event.
5. PP&L is now in full compliance.