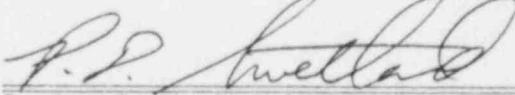


U. S. NUCLEAR REGULATORY COMMISSION

REGION I

Report No. 50-354/88-05 050354-880126  
Docket 50-354 050354-880213  
License NPF-57 050354-880226  
Licensee: Public Service Electric and Gas Company  
P. O. Box 236  
Hancocks Bridge, New Jersey 08038  
Facility: Hope Creek Generating Station  
Conducted: February 9, 1988 - March 21, 1988  
Inspectors: R. W. Borchardt, Senior Resident Inspector  
D. K. Aillsopp, Resident Inspector  
Approved:  4/4/88  
P. Swetland, Chief, Projects Section 2B Date

Inspection Summary:

Inspection on February 9, 1988 - March 21, 1988 (Inspection Report Number 50-354/88-05)

Areas Inspected: Routine onsite resident inspection of the following areas: followup on outstanding inspection items, operational safety verification, surveillance testing, maintenance activities, reactor coolant spill in the torus basement, loose parts in the reactor vessel, licensee event report followup, and assurance of quality.

Results: A violation was cited involving inadequate restoration of equipment following surveillance (paragraph 4). This licensee identified problem is similar to an event cited in NRC Inspection Report 50-354/87-29, indicating that past corrective actions may not have been effective. NRC concerns were raised in paragraph 6 relating to incomplete investigation of the cause of a reactor coolant spill in the torus room, and in paragraph 8 relating to further evaluation of an overdue containment local leak rate test. These two areas were unresolved.

## DETAILS

### 1. Persons Contacted

Within this report period, interviews and discussions were conducted with Mr. S. LaBruna and members of the licensee management and staff and various contractor personnel as necessary to support inspection activity.

### 2. Followup on Outstanding Inspection Items

- a. (Closed) Inspector Followup Item (87-29-02); Inoperable station service water system (SSWS) watertight doors. The inspector had noted during a previous inspection that both SSWS bay watertight doors were inoperable due to empty nitrogen flasks used to supply gas to inflate the door seal. The "A" and "C" SSWS bay door also had a cracked nitrogen supply line to the inflatable seal. The inspector verified that the nitrogen flasks for both doors were properly charged and that the cracked supply line was replaced. The inspector also verified incorporation of preventive maintenance inspections on the SSWS watertight doors into the licensee's computerized work order and surveillance scheduling system (MMIS). This item is closed.

### 3. Operational Safety Verification (71707, 71709, 71881)

#### 3.1 Inspection Activities

On a daily basis throughout the report period, inspections were conducted to verify that the facility was operated safely and in conformance with regulatory requirements. The licensee's management control system was evaluated by direct observation of activities, tours of the facility, interviews and discussions with licensee personnel, independent verification of safety system status and limiting conditions for operation, and review of facility records. The licensee's compliance with the radiological protection and security programs was also verified on a periodic basis. These inspection activities included weekend and backshift inspections conducted on February 13, 15, and 27.

#### 3.2 Inspection Findings and Significant Plant Events

The unit entered this report period at full power.

On February 13, 1988, a unit shutdown was conducted and Hope Creek entered its first refueling outage. The inspector witnessed portions of the reactor shutdown and the transitions

to cold shutdown and refueling operations. Performance of the following procedures, as well as a detailed review of the completed procedures, was conducted:

- OP-IO.ZZ-004 Shutdown from rated power to Cold Shutdown
- OP-IO.ZZ-005 Cold Shutdown to Refueling
- OP-IO.ZZ-009 Refueling Operations

The inspector determined that the shutdown activities were well controlled and conducted in accordance with the above procedures. Compliance with technical specifications was also verified during the various operational condition changes from run (power operation) to refueling.

Effective March 14, 1988, Corbin A. McNeill resigned his position as Senior Vice President - Nuclear at PSE&G to join the Philadelphia Electric Company.

On March 18, the licensee reported via the Emergency Notification System (ENS) that stale/tainted food had inadvertently been served at the site cafeteria. The licensee notified state and local health officials, and the Occupational Safety and Health Administration (OSHA). A total of 44 employees demonstrated symptoms of food poisoning, with 13 admitted to a local hospital for overnight fluid retention monitoring.

On March 21, work under the reactor vessel initiated an "A" IRM upscale trip signal. Since the shorting links were removed for control rod testing, the "A" IRM trip signal resulted in a full scram actuation. However, no rod motion occurred as all control rods had been previously fully inserted.

No violations were identified.

#### 4. Surveillance Testing (61726)

##### 4.1 Inspection Activity

During this inspection period the inspector performed detailed technical procedure reviews, witnessed in-progress surveillance testing, and reviewed completed surveillance packages. The inspector verified that the surveillance tests were performed in accordance with Technical Specifications, licensee approved procedures, and NRC regulations.

The following surveillance tests were reviewed, with portions witnessed by the inspector:

- MD.ST.PK-003 "C" Channel 125 VDC Battery Service Test
- OP-ST.KE-001 Refuel Interlock Operability Functional Test
- MD-ST.KE-001 Refueling Platform 7-Day Operational Check
- IC-SC.BB-029 Sensor Calibration of Channel B21-N680C  
Reactor Vessel Level
- OP-IS.JE-001 Inservice Test on "A" Diesel Generator "A"  
Fuel Oil Transfer Pump
- OP-IS.JE-002 Inservice Test on "A" Diesel Generator "B"  
Fuel Oil Transfer Pump
- IC-TR.BB-100 Division 4 Reactor Level 3 Response Time  
Testing

On February 26, a controls group technician failed to return the "B" filtration, recirculation, and ventilation system (FRVS) ventilation fan to service following performance of a surveillance test. The technician had completed a device calibration of a FRVS flow switch but failed to properly restore the instrument to service. This event was caused by a lack of strict procedural compliance on the part of the I&C technicians. Procedure IC-DC.ZZ-057, "Device/Equipment Calibration Dwyer Differential Pressure Switch Series 1800 and 1900" provides specific instructions for the return to service of the pressure switch and also requires independent verification. However, these steps were not adequately performed. The licensee was informed that the failure to properly return the "B" FRVS ventilation fan pressure switch to service constituted an apparent violation of station procedures (354/88-05-01). Although this violation was licensee identified and prompt corrective actions were implemented, it is being cited as a violation due to the recurring problems in the procedural compliance and system alignment areas. (Reference: NRC inspection reports 50-354/87-23, 87-24, and 87-29). The licensee immediately implemented the following corrective actions:

1. The maintenance manager personally conducted training on procedural compliance with all members of the maintenance-controls organization (including contractors).
2. Additional specific training was conducted by controls supervision regarding documentation and verification of valve/switch manipulations. All members of the controls group reviewed and signed a statement acknowledging both instructional sessions and their full acceptance and understanding of their responsibilities.

3. The technical department will conduct a human performance evaluation system review and factor the results into the station's long term corrective action plan.
4. Station quality assurance dedicated two inspectors to exclusively monitor activities of the maintenance-controls group.
5. Instrument lineup verifications are scheduled on the four channels of reactor level instrument racks prior to returning the unit to service.

The inspector had no further questions in this Area.

## 5. Maintenance Activities (62703)

### 5.1 Inspection Activity

During this inspection period the inspector observed selected maintenance activities on safety related equipment to ascertain that these activities were conducted in accordance with approved procedures, Technical Specifications, and appropriate industrial codes and standards.

### 5.2 Inspection Findings

Portions of the following activities were observed by the inspector:

<u>Work Order</u>	<u>Procedure</u>	<u>Description</u>
871117142	MD-GP.ZZ-057	Installed seal penetration in Bailey 862 cabinet.
870813137	DCP 4 EC 1058	"B" service water traveling screen enclosure.
870813144	DCP 4 EC 1058	"D" service water traveling screen enclosure.
880108094	DCP 4 EC 1082-8	Install and calibrate "A" SRM period meter.

No violations were identified.

## 6. Reactor Spill In Torus Basement

At approximately 11:41 a.m. on March 13, the licensee spilled approximately 12,000 gallons of reactor cavity water onto the torus floor in the secondary containment building. The reactor was shutdown with the reactor cavity (including dryer/separator pool, reactor well, and fuel pool) flooded up for refueling operations. The station had modified a maintenance boundary to allow Movats testing of HV-F006B, residual heat removal (RHR) pump shutdown cooling suction valve. The operations department had isolated portions of the RHR system to allow testing of the HV-F006B while running the "A" RHR pump in the shutdown cooling mode. The control room operator performed an adequate pre-job brief with the technician and authorized the technician to manually position HV-F006B just off its shut seat. While the technician was positioning the valve, he heard flow noises and immediately shut the valve. The technician was informed by the control room that flow noise was expected while filling the drained downstream piping, and was directed to open the valve but to stand by to shut the valve if needed. The control room operator monitored the skimmer surge tank levels while HV-F006B was opened which initially responded as the operator expected, until the levels dropped rapidly. The control room operator directed the technician to manually shut HV-F006B which took approximately 2 1/2 minutes. During this time about 12,000 gallons of reactor cavity water drained past one of the shut maintenance boundary valves and onto the torus floor through a partially disassembled valve. No one was injured or contaminated from the spill. The spill was cleaned up and the torus floor decontaminated. The licensee's investigation of this event is ongoing. NRC concerns regarding the cause of the leaking downstream isolation valve and the control of isolation boundaries which can drain the spent fuel or refueling cavities will be reviewed following completion of the licensee's investigation. This item is unresolved. (UNR 354/88-05-02)

## 7. Loose Parts In The Reactor Vessel

During the performance of a visual surveillance inspection of the reactor vessel feedwater spargers by the licensee's Inservice Inspection Group, two pieces of wire were located on February 26. One wire was located in a 90 degree feedwater sparger, and the other wire was located in a 150 degree sparger. Contractors retrieved both wires on February 27, using a remotely operated vice-grip-like tool and an underwater camera. The inspector observed the wire retrieval process. Upon examination, one wire was determined to be approximately .032 gauge stainless steel bare wire, about three inches long. The second wire was determined to be a standard 3/32 inch diameter ER70S3 tig welding rod, about five inches long. The retrieved wire pieces had a combined measured contact radiation reading of 15 mrem/hr. The licensee determined that the wires were most probably construction debris that accumulated in the feedwater lines and were not flushed out during pre-operational testing prior to initial criticality in 1986.

Both of these wires were restrained in feedwater nozzles and had not been dislodged by full feed flow conditions. The licensee submitted a Regulatory Guide 1.133 report for a loose part in the reactor vessel based on the potential for the wires to become dislodged in the future. This is the first documented occurrence of a loose part in the reactor vessel. The licensee conducted an underwater inspection of the reactor vessel annulus deck area but could not find any additional construction debris. The licensee's evaluation of past thermal and hydraulic core performance concluded that no anomalies could be attributed to feedwater sparger blockage due to the small surface area of the subject wires.

8. Licensee Event Report Followup (92700)

The licensee submitted the following event reports during the inspection period. These event reports and periodic reports were reviewed for accuracy and timely submission. The asterisked reports received additional followup by the inspector for corrective action implementation. The (#) items identify reports which involve licensee identified technical specification violations which are not being cited based upon meeting the criteria of 10 CFR 2 Appendix C.

Monthly Operating Report for January, 1988

- \* Special Report 88-001      Invalid Failure to Start of "A" Emergency Diesel Generator Caused by Misconfigured Part Received From Vendor
- Special Report 88-002      Potential Loose Parts in Feedwater Sparger Nozzles Due to Leftover Construction Debris
- \*# LER 88-002-00            Primary Containment Isolation Valves Inoperable  
- Personnel Error

Special Report 88-001 describes an invalid failure of the "A" emergency diesel generator (EDG) to start following replacement of the AC shutdown contactor. It was determined that the newly installed shutdown contactor had a missing jumper wire which prevented the generator field from properly flashing. Corrective actions included the replacement of the missing jumper wire in the contactor, a visual inspection of all similar spare contactors to determine if properly configured, and notification to other utilities with similar contactors. Longer term corrective actions included requesting the contactor vendor to investigate the source of the missing jumper wire and report their findings to the licensee.

LER 88-002 describes an overdue primary containment leak rate test of the recirculation sample inboard isolation valve. The inservice inspection (ISI) group had adequately tracked this technical specification (TS) surveillance test due date which expired prior to the plant shutdown for

refueling. However, the ISI group failed to notify the operations department when the surveillance grace period expired. When the overdue surveillance test was identified to the operations department the unit was at 12% power, in the process of shutting down. The operators entered the (TS) action statement and attempted to isolate the recirculation sample penetration. The operators shut the inboard recirculation sample isolation valve but were unable to comply with the action statement, in that the outboard sample isolation valve would not shut. The unit continued shutting down and entered operational condition 4 approximately 12 hours later in accordance with TS 3.0.3. The corrective actions include reemphasizing the responsibility to report missed surveillance tests to the control room, reviewing this event when scheduling future outages, and investigation of the cause of the valve failure to close. The LER did not specify when the TS surveillance test grace period expired, the as-found leak rate of the inboard isolation valve when tested, and the cause of failure of the outboard valve to close. The inspector informed the licensee that this information should be included in a supplement to LER 88-02. The item is unresolved pending NRC review of the revised LER. (UNR 354/88-05-03)

#### 9. Assurance of Quality

During the past six months there have been several incidents involving the lack of strict procedural compliance. These discrepancies are detailed in the following NRC inspection reports:

- 87-23 Failure to comply with station procedures involving the review, authorization and control of temporary modifications.
- 87-24 Three separate and unrelated instances of procedure compliance problems.
  1. Internal/external torus inspection not conducted as required by the failed open safety relief valve abnormal procedure.
  2. Failure to comply with function test on reactor vessel water level instruments regarding emergency core cooling system logic tester operation.
  3. Failure to comply with 4.16 KV breaker preventative maintenance procedure, in that a number of supervisory hold points had been passed over.
- 87-29 Failure to comply with a device calibration of the filtration, recirculation and ventilation system (FRVS), in that equipment was not properly restored after completion of the surveillance test.

- 88-05 This inspection report describes a failure to comply with a device calibration of FRVS, in that equipment was not properly restored after completion of the surveillance test.

The recurring nature of procedural compliance deficiencies indicate that corrective actions resulting from the previous problems noted above were not fully effective.

10. Exit Interview (30703)

The inspectors met with Mr. S. LaBruna and other licensee personnel periodically and at the end of the inspection report to summarize the scope and findings of their inspection activities.

Based on Region I review and discussions with the licensee, it was determined that this report does not contain information subject to 10 CFR 2 restrictions.