U.S. NUCLEAR REGULATORY COMMISSION
REGION I

Report No. 50-354/86-27

Docket No. 50-354

License No. NPF-50

Licensee: Public Service Electric and Gas Company
80 Park Plaza
Newark, New Jersey 07101

Facility Name: Hope Creek Generating Station, Unit 1

Inspection At: Hancocks Bridge, New Jersey

Inspection Conducted: May 19-30, 1986

Inspectors: D Florek 6/26/86
D. Florek, Lead Reactor Engineer date

for L E Bugg 6/26/86
L. Wink, Reactor Engineer date

Approved by: for L E Bugg 6/26/86
P. Eselgroth, Chief, Test Programs Section, OB, DRS date

Inspection Summary: Inspection on May 19-30, 1986 (Inspection Report No. 50-354/86-27)

Areas Inspected: Routine, unannounced inspection of the power ascension test program, technical specification surveillance activities for operational condition 2, independent measurements and evaluations, QA/QC interfaces, licensee action on previous inspection findings and tours of the facility.

Results: One violation was identified for implementing temporary procedures prior to the required review and approval (see Section 4).

NOTE: For acronyms not defined refer to NUREG 0544 Handbook of Acronyms and Initialisms.

DETAILS

1.0 Persons Contacted

Public Service Electric and Gas Company (PSE&G)

*J. Carter, Startup Manager
°G. Chew, Power Ascension Results Coordinator
°G. Conner, Operations Manager
G. Daves, Senior Engineer, Operations
*°R. Donges, Licensing Engineer
*M. Farshon, Power Ascension Manager
°J. Fischer, Quality Control (QC) Supervisor
B. Forward, Power Ascension Administration
*°S. Funsten, Instrument and Control (I&C) Supervisor
*°A. Giardino, Manager Station Quality Assurance (QA)
*R. Griffith, Principal QA Engineer
*°P. Krishna, Assistant to the General Manager
*S. LaBruna, Assistant General Manager
*°M. Metcalf, Principal QA Engineer
L. Neuman, Senior Nuclear Shift Supervisor
J. Montgomery, Maintenance Surveillance Coordinator
°S. Riggle, QA Engineer
E. Riley, Senior Nuclear Shift Supervisor
*J. Rucki, Maintenance Engineer
E. Rush, I&C Surveillance Coordinator
W. Ryder, Operations Surveillance Coordinator
°R. Salvesen, General Manager, Hope Creek Operations
°W. Schell, Power Ascension Technical Director
°W. Schultz, Manager QA Programs and Audits
M. Trum, Senior Nuclear Shift Supervisor

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*D. Allsopp, Resident Inspector
°R. Borchardt, Senior Resident Inspector

The inspector also contacted other members of the licensee's staff including senior nuclear shift supervisors, reactor operators, test engineers and other members of the technical staff.

° Denotes those present at the interim exit meeting on May 23, 1986.
* Denotes those present at the exit meeting on May 30, 1986.

2.0 Licensee Action on Previous Inspection Findings

(Open) Unresolved Item (354/86-24-02) Performance of power ascension tests in conformance with administrative procedures. As discussed in Section 3.3 the inspector reviewed the approved test results packages

covering initial fuel loading. The licensee had identified and evaluated a number of administrative non-compliances which occurred during initial fuel loading. Deficiency Report HPA-86-005 was issued to document these non-compliances and institute corrective actions. The root cause of the problem was identified as a lack of procedural understanding on the part of test personnel. To address the root cause the licensee is implementing an augmented training program for test personnel and has committed to completing this program prior to the start of heatup testing. Pending completion of this training program, and subsequent interviews with test personnel, this item remains unresolved.

3.0 Power Ascension Test Program (PATP)

3.1 References

- Regulatory Guide 1.68, Revision 2, August 1978, "Initial Test Programs for Water-Cooled Nuclear Power Plants",
- ANSI N18.7 - 1976, "Administrative Controls and Quality Assurance for the Operational Phase of Nuclear Power Plants",
- Hope Creek Generating Station (HCGS) Technical Specifications, April 11, 1986,
- HCGS Final Safety Analysis Report (FSAR), Chapter 14, "Initial Test Program",
- HCGS Safety Evaluation Report, Chapter 14, "Initial Test Program",
- Station Administrative Procedure, SA-AP.ZZ-036, Revision 3, "Phase III Startup Test Program",
- Specification NEBO 23A4137, Revision 0, "Hope Creek Startup Test Specification" and
- HCGS Power Ascension Test Matrix, Revision 3

3.2 Overall Power Ascension Test Program

Discussion

The inspector held discussions with the Power Ascension Manager, Power Ascension Technical Director and other members of the PATP staff to determine the status of testing, test results evaluation and test procedure reviews. The inspector determined that, with the exception of the initial criticality testing sequence, all open vessel testing had been completed and test results evaluation was proceeding smoothly.

The licensee indicated that plans were being made to shift the initial criticality testing sequence from Test Condition Open Vessel to Test Condition Heatup and that a revision to the procedure was in process to allow initial criticality to be performed in Operational Condition 2.

The inspector witnessed portions of the licensee's Technical Review Board discussions on the revision to the initial criticality procedure TE-SU.ZZ-041, Full Core Shutdown Margin Demonstration. The inspector also witnessed portions of the Technical Review Boards final review and comment resolution of the completed test TE-SU.KE-032, Fuel Loading.

During this review, the inspector observed the dispositioning of the Quality Assurance comments.

Findings

No unnacceptable conditions were noted.

3.3 Power Ascension Test Results Evaluation

Scope

The power ascension test results listed in Attachment A were reviewed for the attributes identified in Inspection Report 50-354/86-24.

Discussion

Except as discussed below, all tests listed in Attachment A were technically reviewed and discussed in Inspection Report 50-354/86-24.

--TE-SU.ZZ-011, Chemical and Radiochemical Pre-Fuel Load Test

The inspector reviewed the approved test results package and verified that all acceptance criteria were satisfied. Two results deficiencies were identified for balance of plant systems and properly dispositioned.

--TE-SU.ZZ-173, NSS Systems Piping Thermal Expansion Sensor Data

The inspector reviewed the approved test results package. This test contained no acceptance criteria and only obtained baseline data against which the subsequent thermal expansion of the main steam and recirculation systems would be evaluated.

Findings

No unacceptable conditions were identified.

4.0 Surveillance Test Activities

Scope

The inspector reviewed the surveillance procedures listed in Attachment B to ascertain whether the licensee is conforming with technical specifications for operational condition 2 to support initial criticality. The inspector reviewed selected procedures to determine if the procedures satisfied technical specification requirements, reviewed selected completed surveillance procedures, witnessed performance of selected surveillance procedures and also reviewed the computer based surveillance log to ascertain that the surveillance procedures were completed.

Discussion

The inspector focused on surveillance procedures under the responsibility of the I&C and Operations Departments. Specific findings on each are discussed.

Operations Department

During review of the completed Operations Department surveillance procedures relating to inservice testing the inspector noted that the operations department was utilizing temporary procedures (TE) to perform surveillance activities (Attachment B lists nine such TE procedures). Furthermore, the inspector noted that the licensee was utilizing the On-the-Spot Change (OSC) method to approve use of the procedure in the field. The inspector specifically addressed surveillance procedure OP-TE.EE-101 to assess the licensee method in the use of OSC to approve temporary procedures for use in the field to satisfy surveillance requirements.

The licensee administrative procedures SA-AP.ZZ-001, Preparation of Station Procedures and Procedure Revision, Revision 6 dated February 4, 1986 and SA-AP.ZZ-032, Review and Approval of Station Procedures and Procedure Revision, Revision 3 dated February 4, 1986 describe the use of temporary procedures and on-the-spot changes. Per these procedures, an On-the-Spot Change (OSC) is a procedure revision that is implemented temporarily pending review and approval by the normal revision process. Also, an OSC shall not alter the intent of a procedure and shall only be used in situations where a critical station activity would be delayed by the normal revision process. The administrative procedures indicate that a Temporary Procedure is expected to be used only one time to accomplish or support a specific work order; for use during unusual plant conditions; or when a temporary modification is installed and requires deviations from approved system operating procedures.

The administrative procedures describe the approval process for an OSC to be a review and concurrence by a supervisor from the procedure's originating department and approval by the Nuclear Shift Supervisor prior to implementation and within 14 days of implementation the OSC shall be approved as a procedure revision. This entails review by a Station Qualified Reviewer (SQR) and approval by the Department Manager. For station procedures, the administrative procedures identify the approval process as a review by a Station Qualified Reviewer and procedure approval by the Department Manager prior to implementation.

The licensee began the practice of using an OSC to implement a temporary procedure based on a memorandum from the Operations Manager to the Operations Supervisors on February 11, 1986, and had been using this extensively since then and was currently in use.

The inspector expressed concern that the licensee was using temporary procedures approved as an OSC and was not following the administrative procedure for review and approval of a station procedure. The representative example selected by the inspector (OP-TE.EE-101) was approved as an OSC on April 25, 1986, performed on April 25, 1986 and as of May 22, 1986 had not completed the required SQR review and Department Manager Approval. Other temporary procedures processed in a similar manner include OP-TE.AB-102, OP-TE.BC-101, OP-TE.BC-105, OP-TE.BE-101, OP-TE.JE-008, OP-TE.AE-102, OP-TE.SE-101 and OP-TE.BF-101.

The inspector noted the licensee commitment in FSAR Section 13.5.2.1.5 that temporary procedures require the same review and approval process as other plant procedures including independent review. Furthermore, technical specification 6.8.2 requires that procedures for surveillance and test activities of safety related equipment shall be reviewed and approved prior to implementation. The technical specification requires a review by either the SORC or a designated Station Qualified Reviewer and approval by the Department Manager. The licensee's activities related to the use of temporary procedures to satisfy surveillance requirements, by implementing the procedure with only the approvals required by an OSC, with the SQR and Department Manager review after the fact, is contrary to the requirements contained within technical specification 6.8.2 and is considered a violation (354/86-27-01).

Following the identification of this item, the licensee immediately stopped the practice of implementing temporary procedures via the methodology of an OSC. The licensee will also review the backlog of the completed surveillance procedures implemented via a temporary procedure that have not yet completed the SQR and Department Manager approval. This affected approximately 60 surveillance tests. The inspector concluded from the review of the nine "as-run" temporary procedures utilized to satisfy technical specifications, that the procedures appeared to address the surveillance requirements in the technical specifications. The licensee also indicated that a modification to the administration procedure would also be made to make it clear that temporary procedures require the same level of review and approval as normal plant procedures prior to implementation.

Following identification of the problem the inspector discussed the concern with Quality Assurance representatives. QA had identified a similar concern during review of procedure OP-TE.KJ-007 and issued a corrective action request (CAR) dated April 25, 1986 with a reply requested May 9, 1986. QA issued the CAR since among other things, the procedure was not approved prior to release to the field by the Department Manager as required per the administrative procedures. The responding organization, Operations, requested an extension to May 23, 1986. The licensee action to the CAR will also be assessed in the response to the violation identified above.

Even though the OSC methodology was not appropriate for approval of temporary procedures, the inspector was also concerned about the tracking of the OSC approval process. The inspector noted that the formal OSC approval for OP-TE.EE-101 had exceeded 14 days. The licensee representative from the Operations Department indicated that they had several OSC approvals for temporary procedures that had exceeded the 14 days requirement for formal approval. The inspector reviewed the method for tracking OSCs in the Operations Department and noted that tighter controls on the 14 day clock were required and the licensee representative also agreed. This item will also be tracked under the corrective action to be taken for the above violation.

The inspector also reviewed the practice of using temporary procedures and OSC in other departments (Maintenance, Reactor Engineering, and Instrument and Control) and did not observe the deficiencies found in the Operations Department.

MSIV Testing

During inspector's review of OP-TE.AB-102 he questioned the technical adequacy of the methodology used to calculate the Main Steam Isolation Valve (MSIV) closure time. Whereas the acceptance criteria was consistent with the technical specification (3-5 seconds), the methodology utilized only determined the time from switch actuation until the closed limit switch was actuated. Based on review of the preoperational test data, the closed limit switch may in fact be representative of only 90% closed. Thus the measured stroke time were not corrected to obtain full closure time. The actual limit switch position is being determined to support MSIV stroke time determination for the power ascension tests and will be utilized to provide a correction factor to the surveillance procedure. Inspector review of the MSIV stroke times determined in OP-TE.AB-102 appeared acceptable when a conservative correction factor is applied except for the outboard MSIV B which had a measured time of 4.9 seconds. This item will be considered unresolved pending licensee applying the appropriate correction factor (354/86-27-02).

In addition, the inspector expressed concern about correction factors to be applied to compensate for the MSIV stroke time "hot versus cold". The inspector indicated that further discussion would occur after tests performed on the MSIVs during the power ascension program.

RHR Surveillances

The inspector did a cross check of the RHR system inservice surveillance tests to support the RHR primary containment isolation valves listed in Table 3.6.3-1 of the technical specifications. The inspector noted that RHR Suppresion Pool Return Valves HV-F011A and HV-F011B were not included in the surveillance procedures. The licensee indicated that these valves are no longer considered remote manual valves since the steam condensing mode of RHR is no longer part of the plant design and should be relocated to the "other valve" part of Table 3.6.3-1 of the technical specifications. The licensee P&ID's indicated the valve to be lock closed, tagged and power removed from the operator. Inspector field observation concluded that the valve was locked closed and tagged. The licensee also indicated a technical specification change would be made to place these valves in the proper section of Table 3.6.3-1. Pending the technical specification change, this will remain an unresolved item (354/86-27-03).

Operations Findings

As discussed above, one violation was identified for not properly approving temporary procedures prior to use to perform surveillance test activities. Two unresolved items were identified for MSIV closure times and Technical Specification changes for RHR containment isolation valves.

I&C Department

The inspector focused on the actual performance of specific I&C procedures to assess procedural adequacy, personnel performance and equipment operability. In addition, the inspector reviewed the in-place controls for documenting and processing procedure revisions, including On-The-Spot Changes (OSC), and for documenting and resolving equipment deficiencies.

The inspector determined that the surveillance procedures released for field performance were adequate to satisfy technical specification requirements. The I&C department was found to have a comprehensive system for tracking OSCs and insuring review and approval in accordance with administrative procedures and technical specifications. Deficiencies in procedures identified during field performance were evaluated for generic applicability and the information obtained was used during revisions to similar procedures.

Personnel performing surveillance procedures appeared qualified for the tasks involved. When difficulties were encountered during the performance of procedures the technicians were quick to obtain any required engineering assistance to resolve the problems. Trouble-shooting appeared to be a well thought out evolution.

Equipment trouble identified during surveillance procedure performance is effectively documented and resolved by use of the deficiency reporting (DR) system.

I&C Findings

No unacceptable conditions were identified.

5.0 Scram Discharge Volume Valves

The inspector reviewed a recent licensee equipment failure that occurred to one of the scram discharge line drain valves. The drain valve is a 2 inch Hammel Dahl valve. A portion of the bolt that holds the coupling halves together (that join the actuator shaft to the valve stem) sheared off at the point where the bolt also connects the manual engaging mechanism to the coupling halves. The coupling halves did not appear to be separated, however, and the valve appeared to be automatically operable. The licensee investigation into the failure determined that the manual actuation mechanism was not in the neutral position to permit unimpeded automatic action. When the valve handwheel position indicated a neutral position, the sliding scale was aligned such that it indicated neutral, but was partially engaged. The licensee corrective action included obtaining a new mechanism, assuring neutral position and providing a lock wire to lock the manual handwheel in the neutral position. This failure was addressed in GE SIL-422 dated May 13, 1985. The inspector also noted that a related failure, caused by the manual mechanism not being in the neutral position, occurred at another plant and the corrective action there also included periodic visual observation of the correct alignment and coupling which is being considered by the licensee.

The inspector also discussed with licensee personnel whether any procedures or practices existed at Hope Creek to preclude an RPS actuation that occured at another plant where maintenance on the scram discharge volume vent and drain line air header resulted in the scram discharge volume filling up and caused an RPS actuation on high instrument volume water level. This occurred while the unit was shutdown. The licensee indicated that no procedure was specifically prepared for that type of maintenance on the air header. Their tag out procedure would require them to assess the out of service equipment and potential affects and require three levels of review prior to actual work, the last of which is the senior licensed operator. This was acceptable to the inspector.

6.0 Independent Measurements and Verifications

The inspector performed multiple independent measurements and verifications during the witnessing of I&C surveillance functional tests, channel calibrations, sensor calibrations and sensor response time testing. The inspector's measurements and verifications agreed with those of the licensee.

7.0 QA/QC Interfaces

The inspector observed acceptable QA involvement in the I&C surveillance program including the implementation of mandatory witnessing of the calibration of safety related equipment. QA involvement in the Operations Surveillance Program is discussed in Section 4.0.

8.0 Tours of the Facility

In the course of witnessing I&C surveillance activities the inspector made tours of various areas of the facility to observe work in progress, housekeeping and cleanliness controls.

No unacceptable conditions were identified.

9.0 Unresolved Items

Unresolved items are matters about which more information is required in order to determine whether they are acceptable, an item of noncompliance or a deviation. Unresolved items disclosed during the inspection are discussed in Section 4.0.

10.0 Exit Interview

A the conclusion of the site inspection on May 30, 1986, an exit meeting was conducted with the licensee's senior site representative (Denoted in Section 1.0). The findings were identified and previous inspection items were discussed.

At no time during the inspection was written material provided to the licensee by the inspector. Based on the NRC Region I review of this report and discussions held with licensee representatives during this inspection, it was determined that this report does not contain information subject to 10 CFR 2.790 restrictions.

ATTACHMENT A

Power Ascension Test Results Reviewed

TE-SU.ZZ-011	Chemical and Radiochemical Pre-Fuel Load Test, Results Approved May 22, 1986
TE-SU.KE-032	Fuel Loading, Results Approved May 27, 1986
TE-SU.KE-033	Full Core Verification, Results Approved May 17, 1986
TE-SU.BF-051	Control Rod Drive Functional Testing (Post Fuel Load) Results Approved May 28, 1986
TE-SU.BF-052	Scram Testing of Selected Control Rods, Results Approved May 17, 1986
TE-SU.BF-053	Control Rod Drive System Friction and Scram Testing at Zero Reactor Pressure, Results Approved May 28, 1986
TE-SU.SE-061	SRM Signal-To-Noise Radio and Minimum Count Rate Determination, Results Approved May 17, 1986
TE-SU.ZZ-173	NSS Systems Piping Thermal Expansion Sensor Data, Results Approved May 22, 1986

ATTACHMENT B

Surveillance Procedures

KEY: PR = Procedure Reviewed for Technical Specification Compliance
VC = Verified Test Complete Via Surveillance Log
CT = Completed Test Results Reviewed
SW = Surveillance Witnessed

IC-CC.AB-001 Main Steam - Division 1 Main Steam Line Flow (VC,CT)

IC-CC.BB-009 Nuclear Boiler - Division 1 Drywell Pressure (VC,CT)

IC-CC.BB-027 Nuclear Boiler - Division 1 Low Reactor Vessel Level (3) Trip (VC,CT)

IC-CC.BB-034 Reactor Protection - Division 4 High Drywell Pressure (VC,CT)

IC-CC.BE-017 Core Spray Surveillance (SW)

IC-CC.FC-001 RCIC - Division 2 Steam Line Flow (PR,CT,SW)

IC-CC.SB-015 Reactor Protection - Division 2 Suppression Chamber Water Temperature (CT)

IC-CC.SK-008 RWCU - Division 4 Steam Leak Detection Temperature Switch (PR,CT,SW)

IC-CC.SM-003 NSSS System A, Logic C Low Condenser Vacuum (PR,CT,SW)

IC-FT.AB-001 Main Steam - Division 1 Main Steam Line Flow (PR,VC-monthly)

IC-FT.AB-033 Main Steam - Safety Relief Valve Position Indication (PR)

IC-FT.BB-001 Nuclear Boiler - Division 1 Reactor Vessel Level Trips 1,2,8 (PR)

IC-FT.BB-009 Nuclear Boiler - Division 1 High Drywell Pressure (PR)

IC-FT.BB-014 Nuclear Boiler - Division 2, Logic B Core Spray Permissive and SRV Low-Low Set (PR,CT,SW)

IC-FT.BB-015 Nuclear Boiler - Division 1, Channel A1/A, Low Reactor Vessel Level (3) Trip (PR)

IC-FT.BB-019 Nuclear Boiler - Division 1, Channel A1, High Drywell Pressure (PR)

IC-FT.BB-023 Nuclear Boiler - Divison 1, Channel A1, High Reactor Pressure (PR)

IC-FT.SE-007	Nuclear Instrumentation System - Channel C IRM (PR,CT,SW)
IC-FT.SE-015	Nuclear Instrumentation System Division 3 - Channel C APRM (PR,CT,SW)
IC-FT.SM-011	NSSSS - Division 3, Reactor Vessel Level (Trip 1,2) (SW)
IC-SC.AB-001	Main Steam - Division 1 Main Steam Line Flow (CT)
IC-SC.BB-086	Nuclear Boiler - Division 1 Reactor Level ATWS (PR,CT,SW)
IC-SC.BB-098	Nuclear Boiler - Division 4 Reactor Level RCIC (CT)
IC-TR.BB-094	Nuclear Boiler - Division 2 Low Reactor Level Sensor (3) Trip (PR,CT,SW)
OP-ST.BB-002	Suppression Pool Spray Valves (VC-Monthly)
OP-ST.BC-003	Suppression Pool Cooling Valves (VC-Monthly)
OP-ST.BH-001	Standby Liquid Control (VC-Monthly)
OP-ST.GS-002	Drywell/Suppression Pool Purge Valves (PR)
OP-ST.GS-003	Reactor Building/Suppression Pool Vacuum Breakers (PR)
OP-ST.GS-004	Suppression Pool/Drywell Vacuum Breakers (PR,VC-monthly)
OP-ST.GS-005	Containment Recombiner Functional Test (PR)
OP-ST.GU-001	FRVS Operability (PR,VC-Monthly)
OP-ST.SF-002	RSCS Operability (PR)
OP-ST.SF-003	RPS Manual Scram (PR, VC-monthly)
OP-ST.SV-001	Remote Shutdown (VC-monthly)
OP-ST.ZZ-003	Secondary Containment Integrity (VC-monthly)
OP-TE.AB-102	MSIV Closure Time (PR,CT)
OP-TE.AE-102	Feedwater System Valves Cold Shutdown Inservice Test (CT)
OP-TE.BC-101	RHR System A Valves Inservice Test (CT)
OP-TE.BC-105	RHR Valves Cold Shutdown Inservice Test (CT)

OP-TE.BE-101	Core Spray System A Valves Inservice Test (CT)
OP-TE.BF-101	CRD System Valves Inservice Test (CT)
OP-TE.EE-101	Torus Water Cleanup System Valves Inservice Test (CT)
OP-TE.JE-008	Diesel Fuel Oil Transfer Pumps (CT)
OP-TE.SE-101	TIP System Valves Inservice Test (CT)