

U.S. NUCLEAR REGULATORY COMMISSION  
OFFICE OF INSPECTION AND ENFORCEMENT

Region I

Report No. 50-387/79-34

Docket No. 50-387

License No. CPPR-101 Priority -- Category B

Licensee: Pennsylvania Power and Light Company

2 North Ninth Street

Allentown, Pennsylvania 18101

Facility Name: Susquehanna Steam Electric Station, Unit 1

Inspection at: Berwick, Pennsylvania

Inspection conducted: October 29 to November 2, 1979

Inspectors: H. H. Nicholas  
H. H. Nicholas, Reactor Inspector

12/12/79  
date signed

for H. H. Nicholas  
G. G. Rhoads, Resident Reactor Inspector

12/12/79  
date signed

Approved by: D. L. Caphton  
D. L. Caphton, Chief, Nuclear Support Section  
No. 1, RO&NS Branch

date signed  
12/20/79  
date signed

Inspection Summary:

Inspection on October 29 to November 2, 1979 (Report No. 50-387/79-34)

Areas Inspected: Routine, unannounced inspection by a regional based inspector and a resident reactor inspector of the preoperational test program including test program requirements and implementation, test procedure status, approval cycle, availability, scheduling and sequencing; cooling water systems; integrated flush and hydrostatic testing of reactor pressure vessel; and emergency-standby power systems; vibration analysis and assessment in areas of reactor pressure vessel internals, loose parts monitoring system, and vibration of rotating equipment; site simulator and training center; tours of the facility; and, followup on previous inspection items. The inspection involved 37.5 inspector-hours onsite by one NRC regional based inspector and 23 inspector-hours onsite by one NRC resident inspector. Results: No items of noncompliance were identified.

## DETAILS

### 1. Persons Contacted

#### Pennsylvania Power and Light Company

Mr. R. Beckley, Coordinator NDE and Training  
\*Mr. J. Bradford, Quality Supervisor  
Mr. G. Burvis, NQA Engineer  
Mr. P. Capotosto, NQA Project Engineer  
Mr. E. Carlson, Simulator Supervisor  
Mr. E. Carroll, Senior NQA Analyst  
Mr. T. Clymer, Senior NQA Analyst  
\*Mr. G. Cranston, Resident Project Engineer  
\*Mr. S. Denson, Assistant Project Construction Manager  
Mr. B. Docherty, ISG Startup Engineer  
Mr. R. Dunn, Superintendent of Plant  
\*Mr. J. Everett, ISG Quality Engineer  
\*Mr. R. Featenby, Project Construction Manager  
\*Mr. J. Graham, Assistant Superintendent of Plant  
Mr. J. Green, Resident NQA Engineer  
Mr. G. Kuczynski, Starting and Testing Field Engineer  
\*Mr. L. O'Neil, Technical Supervisor  
Mr. R. Prego, NQA Coordinating Engineer  
Mr. M. Schaeffer, ISG Startup Engineer  
Mr. R. Shovlin, Assistant Project Director  
Mr. R. Wehry, ISG Startup Engineer  
Mr. T. Yezerski, Starting and Testing Coordinator

#### General Electric Corporation

Mr. W. Green, GE Lead TDA Engineer  
Mr. E. Scott, GE Startup IC Engineer  
Mr. D. Turner, GE Startup Supervisor

#### Bechtel Power Corporation

\*Mr. P. Drucker, Lead QA Engineer  
Mr. E. Figard, Assistant ISG Supervisor  
\*Mr. G. Gelinas, Lead Mechanical QC Engineer  
\*Mr. H. Lilligh, Project QA Engineer  
Mr. K. Matty, ISG Startup Engineer  
\*Mr. J. Minor, Project Field Engineer  
\*Mr. J. O'Sullivan, Assistant Project Field Engineer  
\*Mr. C. Turnbow, Field Construction Manager  
\*Mr. R. Webster, ISG Supervisor

U.S. Nuclear Regulatory Commission

\*Mr. R. Paulino, Reactor Inspector

The inspector also interviewed other licensee personnel during the course of the inspection.

\* denotes those present at the exit interview.

2. Status of Previous Inspection Items

(Open) Inspector followup item (387/79-24-01): Incorporate freeze protection as a generic procedure in preoperational test program. This item is being looked at by the integrated startup group and the licensee and is forthcoming. The inspector will followup this item on a subsequent inspection. This item will remain open.

(Open) Inspector followup item (387/79-29-01): Develop a procedure for reactor pressure vessel internals vibration. This item is being examined and developed by the licensee's representatives and is forthcoming. The inspector will followup this item on a subsequent inspection. This item will remain open.

3. Preoperational Test Program

a. Test Program Requirements and Implementation

Discussion:

The inspector met with the ISG supervisor and members of his staff, and discussed the following items:

- Test program review requirements;
- Test program implementation;
- Test procedures;
- Test scheduling and sequencing;
- Test witnessing;
- Test results evaluation;
- System turnovers;
- Construction delays; and,
- Test program direction and problem areas.

References:

- Final Safety Analysis Report;
- Regulatory Guide 1.68, Initial Test Program for Water Cooler Nuclear Power Plants;

- Startup Administrative Manual;
- Startup Technical Manual;
- ANSI N18.1 Selection and Training of Nuclear Power Plant Personnel; and,
- ANSI N45.2.6 Qualifications of Inspection, Examination and Testing Personnel for the Construction of Nuclear Power Plants.

#### Findings:

As a result of discussions with the ISG supervisor, the licensee's representatives, and a review of the referenced documents, no discrepancies were noted, and the inspector had no further questions at this time.

#### b. Test Procedures

##### Discussion:

The inspector met with the Starting and Testing Coordinator and his staff and discussed the following areas:

- Preoperational test procedures;
- Acceptance test procedures;
- Startup test procedures;
- Test procedure review and approval;
- Test scheduling and sequencing; and,
- Test witnessing.

The following documents were received for review by the NRC:

##### Preoperational test procedure:

- P30.2 Revision 0, draft copy, Control Structure Chilled Water System.

##### Acceptance test procedures:

- A40.1 Revision 0, draft copy, Lube Oil Transfer, Storage and Purification System.
- A41.1 Revision 0, draft copy, Cooling Tower System.

##### Startup administrative procedures:

- AD3.2 Revision 4, Approved October 10, 1979, Design Document Control.
- AD6.2 Revision 3, Approved October 17, 1979, Startup Work List.

- AD6.8 Revision 1, Approved October 8, 1979, Temporary Modification Control.
- AD7.6 Revision 3, Approved October 4, 1979, Preoperational-Acceptance Test Procedure Control.

Startup Technical Procedures:

- TP1.6 Revision 1, Approved October 2, 1979, Equipment Vibration Testing.
- TP3.37 Revision 0, Approved October 2, 1979, Control Structure Chilled Water Flush.
- TP3.41 Revision 0, Approved October 2, 1979, Core Spray System Flush.
- TP1.9 Revision 2, Approved October 23, 1979, Digital Control Scheme Testing.
- TP3.42 Revision 0, Approved October 17, 1979, Reactor Water Cleanup System Flush.
- TP3.26 Revision 0, Approved October 23, 1979, Integrated Flush.

The inspector attended the Integrated Startup Group weekly startup meeting with the ISG Supervisor and the Startup and Testing Coordinator.

References:

- Regulatory Guide 1.68 Initial Test Programs for Water Cooled Nuclear Power Plants;
- Final Safety Analysis Report;
- Preoperational and Acceptance Test Procedures;
- Test procedure approval status list;
- Startup Administrative Manual;
- Startup Technical Manual; and,
- Quality Assurance Manual.

Findings:

As a result of the discussions with the ISG Starting and Testing Supervisor and his staff, and review of the referenced documents, no discrepancies were noted at this time. The above areas will be followed up in detail by NRC personnel in subsequent inspections.

The inspector had no further questions regarding these items at this time.



c. Cooling Water Systems

## Discussion:

The inspector met with the licensee's representatives and held preliminary discussions and inspected the following areas concerning cooling water systems:

- River intake system and structure;
- Cooling tower system including cooling towers and basins;
- ESSW pump house;
- Spray pond;
- Circulating and service water pump house;
- Cooling Water System procedures; and,
- Test Witnessing.

## References:

- Final Safety Analysis Report;
- Startup Administrative Manual;
- Startup Technical Manual;
- System Description Manual;
- Prints, drawings, and diagrams; and,
- Test procedures.

## Findings:

As a result of the inspections of systems, areas, components and structures, review of referenced documents, and discussions with licensee personnel, no discrepancies were noted and the inspector had no further questions at this time.

A review of these areas will continue during subsequent inspections.

d. Integrated Flush and Hydrostatic Test of Reactor Pressure Vessel

## Discussion:

The inspector met with ISG startup engineers and held preliminary discussions on the following items:

- Integrated flush;
- Hydrostatic test;
- Test procedures;
- Test witnessing;

- Areas of responsibility;
- System diagrams;
- Boundaries of flush and hydro; and,
- Preparations being made for flush and hydro.

References:

- TP3.26, Revision 0, Integrated Flush;
- FCI-M169, Revision B, Reactor Vessel and Associated Piping Hydrostatic Test; and,
- System diagrams and prints.

Findings:

As a result of discussions with the ISG startup engineers and review of the referenced documents, no discrepancies were noted at this time. Review in this area will continue during subsequent inspections as approved procedures and system diagrams are received.

The inspector had no further questions regarding these items at this time.

e. Emergency-Standby Power Systems

Discussions:

The inspector met with ISG startup engineers and held preliminary discussions on the following:

- Diesel Generator Sets and Auxiliaries;
- 250 Volt DC Power System;
- 125 Volt DC Power System;
- 24 Volt DC Power System;
- Batteries;
- Battery Chargers;
- Turnover and testing of systems;
- Procedures; and,
- Test witnessing.

References:

- Final Safety Analysis Report;
- Applicable Regulatory Guides;
- Institute of Electrical and Electronics Engineers Standards;
- Prints, Drawings and Diagrams; and,
- Procedures.

## Findings:

As a result of discussions with the ISG startup engineers, and review of referenced documents, no discrepancies were noted and the inspector had no further questions at this time.

Further review and discussions of the emergency-standby power systems, procedures, completions and turnovers, will continue during subsequent inspections.

4. Vibration Analysis and Assessment

## Discussions:

The inspector met with the ISG Supervisor and his staff, the General Electric Startup Supervisor and his staff, and other licensee representatives, and discussed items in the following areas:

- Reactor pressure vessel internals vibration;
- Loose parts monitoring system; and,
- Vibration of rotating equipment.

Items of discussion included procedures, witnessing, areas of responsibility, testing, and test results evaluation.

## References:

- Regulatory Guide 1.20, Comprehensive Vibration Assessment Program for Reactor Internals During Preoperational and Initial Startup Testing;
- Regulatory Guide 1.133, Loose Part Detection Program for the Primary System of Light-Water-Cooled Reactors;
- General Electric Procedure 22A2271AX GE-17 Reactor Vessel Flow Induced Vibration Test;
- TPI.6 Equipment Vibration Testing; and,
- System Diagrams, Prints and Drawings.

## Findings:

As a result of discussions with the licensee's representatives, and review of referenced documents, no discrepancies were noted and the inspector had no further questions at this time.



Further review of procedures and discussions with licensee personnel will continue during subsequent inspections.

5. Site Simulator and Training Center

Discussion:

The inspector met with the Simulator Supervisor and discussed the installation and operation of the simulator, the computers and the training center. Included in the discussion were items concerning training, qualifications and retraining of operators and station personnel.

Findings:

As a result of discussions with the simulator supervisor, inspection and observation of the simulator and its auxiliaries and a tour of the entire training center, no discrepancies were noted and the inspector had no further questions at this time.

6. Plant Tours

The inspectors made several tours of the entire facility during the course of the inspection including the containment wet well and drywell areas, the reactor building, turbine building, control room and control structure, steam tunnel, cable spreading and relay rooms, new fuel and spent fuel storage areas, river water structure, cooling towers and basins, spray pond, ESSW pump house, circulating and service water pump house, and simulator and training center.

The inspectors observed work in progress, housekeeping, cleanliness controls, and storage and protection of components, piping and systems.

No items of noncompliance were identified and no discrepancies were noted.

7. Exit Interview

At the conclusion of the site inspection on November 2, 1979, an exit meeting was conducted with the licensee's senior site representatives (denoted in Paragraph 1). The findings were identified and previous inspection items were discussed.