U.S. NUCLEAR REGULATORY COMMISSION
REGION I

Report Nos. 50-387/87-14
50-388/87-14

Docket Nos. 50-387/87-14
50-388/87-14

License Nos. NPF-14 Priority - Category C
NPF-22

Licensee: Pennsylvania Power & Light Company
2 North Ninth Street
Allentown, Pennsylvania 18101

Facility Name: Susquehanna Steam Electric Station, Units 1 & 2

Inspection At: Salem Township, Pennsylvania

Inspection Conducted: July 27 - 31, 1987

Inspector: S Pullani 8/14/87
S. Pullani, Fire Protection Engineer, DRS date

Approved by: C J Anderson 8/18/87
C. J. Anderson, Chief, Plant Systems Section date

Inspection Summary: Inspection on July 27-31, 1987 (Combined Inspection Report Nos. 50-387/87-14 and 50-388/87-14)

Areas Inspected: Routine unannounced inspection of the fire protection/prevention program including a review of: the combustible material control/hazard reduction program; programmatic administrative controls; installation, operability and maintenance of fire protection systems; fire protection LERs; fire fighting capabilities; fire protection equipment maintenance inspection and tests; periodic inspections and quality assurance (QA) audits of the fire protection program; facility tour; and followup of previous inspection findings.

Results: Of the nine areas inspected, no violations were identified and one item remains unresolved.

DETAILS

1. Persons Contacted

1.1 Pennsylvania Power & Light Company (PP&L)

J. Blakeslee, Assistant Plant Superintendent
T. Clymer, NQA Coordinator
*T. Dalpiaz, Technical Supervisor
*S. Davis, Site Fire Protection Engineer
T. Gorman, Supervising Engineer-Civil, NPE (by telephone)
D. Heffelfinger, NQA Coordinating Engineer
D. Kohn, Fire Protection Engineer, NPE (by telephone)
J. Lex, Nuclear General Training Supervisor
F. McCreesh, Project Engineer - Civil, NPE (by telephone)
*D. McGann, Senior Compliance Engineer - Acting
*H. Palmer, Supervisor of Operations
*R. Prego, QA Supervisor of Operations
*K. Roush, Supervisor - Nuclear Instrumentation
D. Zeprazny, Project Engineer - Electrical, NPE (by telephone)
J. White, Supervisor - Nuclear Training Support Services
W. Williams, Project Licensing Specialist (by telephone)

1.2 Nuclear Regulatory Commission (NRC)

D. Notley, NRR/SPLB (by telephone)
*L. Plisco, Senior Resident Inspector
*J. Stair, Resident Inspector

*Denotes those present at the exit interview.

2. Inspection Purpose and Methodology

The purpose of this inspection was to evaluate the licensee's fire protection and prevention program (FPPP) and verify that the licensee has developed and implemented adequate procedures, consistent with the applicable Technical Specifications (TS), license conditions, regulatory requirements and commitments made in the Final Safety Analysis Report and the Fire Hazard Analysis (FHA). The evaluation of the program consisted of a documentation and procedure review, interviews with licensee personnel and field observations.

The documents reviewed, the scope of review and the inspection findings for each area reviewed are described in the following sections.

3. Fire Protection Program Review

3.1 Review of Combustible Material Control - Hazard Reduction

The inspector toured the plant to inspect housekeeping conditions, work in process and activities or conditions that may present a hazard to the facility.

The scope of review was to verify that the licensee:

a. Keeps safety related and adjacent plant areas free from transient combustibles;

b. Keeps flammable and combustible liquids under administrative control and the storage of such liquids is in accordance with the guidelines of the National Fire Protection Association (NFPA) Standards;

c. Performs periodic inspection for accumulation of combustibles;

d. Uses wood treated with flame retardant for work inside plant areas;

e. Does not allow the accumulation of waste, debris, rags, oil spills, and other combustible materials resulting from a work activity to extend beyond the end of each work shift or the end of the activity, whichever is sooner;

f. Properly maintains the housekeeping in all areas containing safety related equipment and components;

g. Prohibits smoking in safety related areas except where "smoking permitted" areas have been specifically designed by plant management; and

h. Requires special authorization (work permit) for activities involving welding, cutting, grinding, open flame or other ignition sources, and that these activities are properly safeguarded.

During the inspection, the inspector did not identify any conditions that present a safety hazard.

3.2 Review of Administrative Controls

The inspector reviewed the following licensee documents:

- Technical Specifications, Section 6, Administrative Controls;

- Administrative Procedure AD-QA-110, Station Fire Protection Program, Revision 3
- Administrative Procedure AD-QA-140, Use and Storage of Combustibles, Revision 2
- Administrative Procedure AD-QA-141, Fire Protection System Status Control, Revision 2
- Administrative Procedure AD-QA-142, Control of Ignition Sources/Cutting and Welding Permits, Revision 8
- Administrative Procedure AD-QA-143, Fire Watch Procedure, Revision 3
- Administrative Procedure AD-QA-144, Fire Alarm Response, Revision 2
- Administrative Procedure AD-QA-145, Fire Brigade, Revision 2
- Nuclear Department Instruction NDI-QA-8.2.3, Quality Assurance Requirements for the Fire Protection Program and Related Systems, Revision 0.
- Nuclear Department Instruction NDI-QA-15.3.1, Fire Protection Program, Revision 2
- Nuclear Plant Engineering Procedure DC 160.0/EPM-QA-440, Fire Protection Requirements, Revision 2

The scope of review was to verify that the licensee had developed administrative controls which require that:

a. Work authorization, construction permit or similar arrangement is provided for review and approval of modification, construction and maintenance activities which could adversely affect the safety of the facility;

b. Fire brigade organization and qualifications of brigade members are delineated;

c. Fire reporting instructions for general plant personnel are developed;

d. Periodic audits are to be conducted on the entire fire protection program; and

e. Fire protection/prevention program is included in the licensee's QA Program.

No unacceptable conditions were identified.

3.3 Review of Installation; Operability and Maintenance of Fire Protection Systems

The inspector reviewed the installation of randomly selected fire protection systems, fire protection system flow diagrams, made observations on the condition and operability of the fire protection equipment and reviewed the Fire Protection Equipment Maintenance Request List to determine whether:

a. Fire protection equipment such as stand pipes and hose stations are operable and accessible in all areas important to safety;

b. Adequate portable extinguishers are provided at designated places in each fire area;

c. The condition of all fire suppression devices inspected is satisfactory;

d. The system's valves are lined up in the proper position and are protected from tampering;

e. The fire protection equipment is well maintained; and

f. The fire barriers and related components such as fire doors, fire dampers, and penetration seals have been installed and maintained properly to insure against fire propagation.

No unacceptable conditions were identified.

3.4 Review of Licensee Event Reports (LERs)

The inspector reviewed eight recent fire protection LERs. The LERs reviewed were Nos. 85-12, 85-15 and 87-11 (all applicable to Unit 1); and 87-09 (applicable to both units). The purpose of the review was to ascertain that the corrective actions as documented in the LERs were adequate and were implemented in a timely manner.

No unacceptable conditions were identified except as follows:

Corrective Actions for LER 85-15

The LER identified that portions of structural steel in Unit 1 upper cable spreading room have intentional cut outs in their three hour fire proofing made to facilitate the installation of hangers,

brackets, etc. required while several modifications were made in the area. As an interim compensatory measure, fire watch was established and is still continuing until the fire proofing is restored or an engineering analysis determines the adequacy of the configuration. Subsequent inspections identified similar conditions in several other areas of the plant. Non-Comformance Report (NCR) 84-1228 on the subject is still open, pending completion of the engineering analysis. In response to the inspector's concern for the undue delay in the resolution of this item, the licensee stated that the delay is due to the complexity of the required engineering analysis but committed to complete the analysis by December 31, 1987.

This item is unresolved pending completion of the licensee action and its review by NRC (50-387/87-14-01 and 50-388/87-14-01).

3.5 Review of Fire Fighting Capabilities

The inspector reviewed the licensee documents listed below, conducted interviews with personnel and inspected fire fighting gear to evaluate the on-site capability of the licensee to fight fires:

The documents reviewed were:

- SSES Fire Protection Review Report, Revision 1
- Nuclear Training Procedure NTP-QA-53.1, Susquehanna Fire Safety Training Program, Revision 3
- Administrative Procedure AD-QA-145, Fire Brigade, Revision 2
- Qualified Fire Fighter Rosters (Draft)
- Fire Preplans

The scope of the review was to:

a. verify that all personnel designated to take part in fire emergencies are trained in these actions and in the overall emergency plan;

b. verify that the licensee has established a training program that ensures the capability to fight potential fires;

c. verify that the licensee's training program consists of initial classroom instruction followed by periodic classroom instruction, firefighting practice and fire drills;

d. verify that the licensee had developed fire fighting strategies for fires in all safety related areas and in areas in which a fire could present a hazard to safety related equipment; and

e. verify that the fire fighters can fight plant fires with the equipment available.

No unacceptable conditions were identified.

3.6 Review of Equipment Maintenance, Inspection and Tests

The inspector reviewed the following documents to determine whether the licensee had developed adequate procedures which establish maintenance, inspection, and testing requirements for the plant fire protection equipment:

* Procedure SO-013-002, Annual Cycling of Fire Protection System Valves, Revision 2

* Procedure SO-013-010, Monthly Fire Protection System Valves Alignment Check, Revision 5

* Procedure SO-013-008, 31 Day Inspection of Hose Houses, Revision 3

* Procedure SM-113-008, 6 Month Halon Cylinder Inspection and Weighing, Revision 1

* Procedure SM-113-001, 31 Day Inspection - Indoor Fire Hose Stations, Revision 3

* Procedure SI-113-206, 184 Day Functional Check of Fire Protection Heat Detection, Revision 3

In addition to reviewing the above documents, the inspector reviewed the maintenance/inspection/test records of the items marked with an asterisk to verify compliance with Technical Specifications and established procedures.

No unacceptable conditions were identified.

3.7 Periodic Inspections and Quality Assurance Audits

3.7.1 Annual and Biennial Audit

The inspector reviewed Audit Report 85-92, NQA/SRC Annual and Biennial of Fire Protection Program. The scope of review was to ascertain that the audit was conducted in accordance with the Technical Specification Sections 6.5.2.8.h and i; and audit findings were being resolved in a timely and satisfactory manner.

No unacceptable conditions were identified.

3.7.2 Triennial Audit

The inspector reviewed Audit Report 86-044, Triennial Fire Protection Program Audit. The scope of review was to ascertain that the audit was conducted in accordance with TS 6.5.2.8.j and audit findings were being resolved in a timely and satisfactory manner.

No unacceptable conditions were identified.

3.8 Facility Tour

The inspector examined the fire protection water systems. This included fire pumps, fire water piping and distribution systems, post indicator valves, hydrants and the contents of hose houses. The inspector toured accessible vital and non-vital plant areas and examined fire detection and alarm systems, automatic and manual fixed suppression systems, interior hose stations, fire barrier penetration seals, and fire doors. The inspector observed general plant housekeeping condition and randomly checked tags of portable extinguishers for evidence of periodic inspections. No deterioration of equipment was noted. The inspection tags attached to extinguishers indicated that monthly inspections were performed. The inspector did not identify any unacceptable conditions.

4. Followup of Previous Inspection Findings

(Closed) Unresolved Items (50-387/85-06-05 and 50-388/85-06-05) Lack of Analysis for Spurious Signals Concern Caused by Opening of Current Transformer Secondary by Fire

The 1985 Appendix R inspection identified that the licensee's Fire Protection Review Report (FPRR), Revision 2, did not include the above analysis, nor did they have a separate analysis. However, for other reasons, the licensee had addressed part of this concern in October 1984. They had contacted the manufacturers and others and came to the conclusion that the opening of secondary leads of current transformers, as a result of a fire, will not cause a second fire in the current transformer itself due to high induced voltage. However, if the secondary leads of any current transformer associated with a safe shutdown equipment open as a result of a fire, the associated protective relay could trip open its circuit breaker and make the equipment inoperable. At the time of the 1985 Appendix R inspection, the licensee had not analysed this concern.

Subsequent to the above inspection, the licensee made the required analysis and concluded that only one of the redundant divisions would be affected and that the safe shutdown would still be achievable. Further, the licensee will install Thyrite protectors in the secondary circuit of the current transformers associated with the emergency diesel generator metering circuits to protect the circuits from overvoltage that could be

induced by opening of the current transformers. Based on the above licensee actions, these items are considered resolved and closed.

(Closed) Deviations (50-387/85-06-06 and 50-388/85-06-06)
Failure to Produce the Duct Failure Analysis

The NRC Safety Evaluation Report documented a concern that the actual installation of an approved fire damper in a gypsum board wall (drywall) assembly had not been previously fire tested or approved. By letter dated March 26, 1981 and during a meeting held on March 25, 1981, the licensee committed to analyze duct failure potential and provide, where necessary, duct support fire proofing and/or additional supports sufficient to prevent the duct dampers from being pulled out of the wall. Based on the licensee's commitments, the staff concluded that the fire damper installation met the guidelines of Appendix A to BTP 9.5-1 and was therefore, acceptable (see SER Supplement 1, Section 9.5.2.2).

Contrary to the above licensee commitment, as of February 15, 1985 (Appendix R inspection), the licensee could not demonstrate that they conducted the duct failure analysis. The Appendix R inspection identified this as a deviation from the licensee commitment.

Subsequent to the inspection, the licensee made a duct failure analysis and concluded that fire induced failure of the ducts and/or their support will not degrade the integrity of the drywalls nor will it prevent proper operations of fire dampers installed in these walls. Based on the above licensee action, these items are closed.

(Closed) Unresolved Items (50-387/85-06-08 and 50-388/85-06-08)
Emergency Lighting Misaimed at Several Areas

The licensee completed the proper aiming of these emergency lighting (Reference: Work Authorizations V50418, V5440, S51339). The inspector verified the proper aiming of selected samples of these emergency lighting units. These items are resolved and closed.

(Closed) Unresolved Items (50-387/85-06-09 and 50-388/85-06-09)
Inadequate Administrative Control of Combustibles

Previously, the licensee relied on the job planners who review the work packages to determine the level of fire protection required for each proposed work package, rather than a designated onsite staff member do this function. This could result in inadequate control of transient combustibles in work areas. Currently, the onsite fire protection engineer performs this function. He determines the level of required protection and verifies that the transient combustibles resulting from work activities are limited and consistent with the assumptions in the Fire Hazard Analysis. The licensee's present practice therefore provides adequate administrative control of transient combustibles in work areas. These items are resolved and closed.

5. Unresolved Items

Unresolved items are matters about which more information is required to ascertain whether they are acceptable items, violations or deviations. An unresolved item disclosed during the inspection is discussed in Section 3.4.

6. Exit Interview

The inspector met with the licensee representatives (see Section 1.0 for attendees) at the conclusion of the inspection on July 31, 1987. The inspector summarized the scope and findings of the inspection at that time. The inspector also confirmed with the licensee that the report will not contain any proprietary information. The licensee agreed that the inspection report may be placed in the Public Document Room without prior licensee review for proprietary information (10 CFR 2.790).

At no time during this inspection was written material provided to the licensee by the inspector.