

U. S. NUCLEAR REGULATORY COMMISSION
REGION I

Report No. 50-293/84-15
Docket No. 50-293
License No. DPR-35 Priority -- Category C

Licensee: Boston Edison Company M/C Nuclear
800 Boylston Street
Boston, MA 02199

Facility Name: Pilgrim
Inspection At: Plymouth, Mass.
Inspection Conducted: May 14-17, 1984

Inspectors: *S. V. Pullani* 6/12/84
S. V. Pullani, Fire Protection Engineer date

for *S. V. Pullani* 6/12/84
A. G. Krasopoulos, Reactor Engineer date

Approved by: *Chifford J. Anderson* 6/12/84
C. J. Anderson, Chief, Plant Systems Section date

Inspection Summary: Inspection Conducted on May 14-17, 1984 (Report No. 50-293/84-15)

Areas Inspected: Routine, unannounced inspection of the Fire Protection/Prevention Program including: program administration and organization; administrative control of combustibles; administrative control of ignition sources; other administrative controls; equipment maintenance, inspection and tests; fire brigade training; periodic inspections and quality assurance audits; and facility tour. The inspection involved 68.5 inspector-hours onsite and 4 inspector-hours in office by two region-based inspectors.

Results: No violations were identified.

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DETAILS

1.0 Persons Contacted

1.1 Boston Edison Company (BECo)

- * J. Crowder, Compliance Engineer
- * E. Graham, Compliance Group Leader
- E. Hunter, Sr. QA Engineer
- * B. Lapira, Sr. Fire Protection Engineer
- R. Larowe, Nuclear Training Specialist
- * G. Lawson, Sr. QA Engineer
- * C. Mathis, Nuclear Operations Manager
- J. Mattia, QA Audit Group Leader
- * J. McEachern, Loss Control Group Leader
- R. Oliveira, Nuclear Training Specialist
- * E. Peters, Fire Protection Engineer
- * E. Ziemanski, Nuclear Operations Support Manager

1.2 Nuclear Regulatory Commission (NRC)

- * J. Johnson, Senior Resident Inspector
- M. McBride, Resident Inspector

*denotes those present at the exit interview.

2.0 Followup of Previous Inspection Findings

(Closed) Violation (50-293/81-01-01) Failure to Perform Fire Protection Surveillance on Standby Gas Treatment System Charcoal Sprays

The inspector reviewed the corrective actions described in licensee's response letter, dated March 24, 1984 and verified that the required actions to close out this item were completed.

(Closed) Unresolved Item (50-293/82-08-03) Maintenance Request Procedure for Diesel Fire Pump Battery Check not Effective

The inspector reviewed and determined that the licensee's revised procedure 8.C.14, Weekly Pilot Cell and Overall Battery Check, Revision 8, is adequate for this purpose. The inspector also reviewed selected samples of test results performed in accordance with the 8.C.14 procedure and verified that the required maintenance requests called for in the test results were followed up and completed. The inspector also inspected the battery and verified that it is maintained in good operating condition. This item is resolved.

(Closed) Unresolved Item (50-293/82-08-04) Fire Prevention/Protection Officer (FPPO) not aware of the status of fire protection equipment affected by maintenance

The FPPO is currently keeping a status log of fire protection equipment affected by maintenance. The inspector determined that this status log is adequate for this purpose. This item is resolved.

(Closed) Unresolved Item (50-293/82-08-05) Calibration of meters on fire protection system and equipment not under site calibration program

The calibration of meters on fire protection system and equipment is presently included in the site calibration program as described in Site Procedure 8.B.6, Pre-Action/Deluge Sprinkler System, as revised on February 22, 1984. This item is resolved.

(Closed) Unresolved Item (50-293/82-08-06) Manpower for fire protection plan - FPPO staff appears not adequate to carry out requirements of the plan

The training responsibilities for the fire brigade were transferred to the Training Department and the fire protection plan and the affected section of the Training Manual were revised to reflect this change. The revised plan and the section are:

- NOP 83FP1, PNPS Fire Protection, Revision dated October 14, 1983
- Training Manual Section 4.2, Fire Brigade Team, Revision 9

The inspector reviewed the above documents as revised and determined that the FPPO staff manpower is adequate to carry out the requirements of the plan as revised. This item is resolved.

(Closed) Unresolved Item (50-293/83-04-01) Watch Engineer is designated as Fire Brigade Chief in Technical Specifications and Fire Plan contrary to the Emergency Procedure requirements and current NRC position

Operating License Amendment 69, dated April 26, 1983, revised Technical Specifications (TS) Section 6.2 and deleted TS Figure 6.2.3, thereby deleting the requirement for Watch Engineer to be the Fire Brigade Chief. The revised TS is in accordance with the Station Emergency Procedure and the current NRC Position. This item is resolved.

(Closed) Unresolved Item (50-293/83-04-02) Fire brigade training program not adequate in ensuring that all members perform drills and participate in required training

The inspector reviewed the licensee's revised fire brigade training program as described in Training Manual, Section 4.2, Fire Brigade Team, Revision 4, and records of training to determine the adequacy of the training. No

unacceptable conditions were observed. This is further discussed in Sections 3.6.1 and 3.6.2 of this report. This item is resolved.

(Closed) Unresolved Item (50-293/83-04-03) Licensee has not submitted revised TS as required by Amendment 35 to License concerning fire protection

By letter dated March 27, 1984, the licensee submitted the required revision to the T.S. This item is resolved.

3.0 Fire Protection/Prevention Program

The inspector reviewed several documents in the following areas of the program to verify that the licensee had developed and implemented adequate procedures consistent with the Fire Hazard Analysis (FHA), Final Safety Analysis Report (FSAR), and Technical Specifications (TS). The documents reviewed, the scope of review, and the inspection findings for each area of the program are described in the following sections.

3.1 Program Administration and Organization

The inspector reviewed the following licensee documents:

- Technical Specifications, Section 6, Administrative Controls
- Procedures NOP 83FP1, PNPS Fire Protection, Revised October 14, 1983

The scope of review was to ascertain that:

- a. Personnel were designated for implementing the program at site; and
- b. Qualifications were delineated for personnel designated to implement the program

No unacceptable conditions were identified.

3.2 Administrative Control of Combustibles

The inspector reviewed the following licensee documents:

- Procedure 1.4.3, Storage of Flammable, Combustible Materials and Transient Combustibles Control, Revision 13.
- Procedure 1.4.8, Hazardous and Restricted Materials controls, Revision 8

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

- a. Special authorization for the use of combustible, flammable or explosive hazardous material in safety-related areas;

- b. Prohibition on the storage of combustible, flammable or explosive hazardous material in safety-related areas;
- c. the removal of all wastes, debris, rags, oil spills or other combustible materials resulting from the work activity or at the end of each work shift, whichever is sooner;
- d. All wood used in safety-related areas to be treated with flame retardant;
- e. Periodic inspection for accumulation of combustibles;
- f. Transient combustibles to be restricted and controlled in safety-related areas; and
- g. Housekeeping to be properly maintained in areas containing safety-related equipment and components.

No unacceptable conditions were identified.

3.3 Administrative Control of Ignition Sources

The inspector reviewed the following licensee documents:

- Procedure 1.5.5, Cutting, Welding and Hot Work Fire Safety, Revision 15
- Procedure 1.4.2, Smoking in the Station, Revision 5
- Temporary Fire Watch Training Program and Guidelines

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

- a. Requirements for special authorization (work permit) for activities involving welding, cutting, grinding, open flame or other ignition sources and that they are properly safeguarded in areas containing safety-related equipment and components; and
- b. Prohibition on smoking in safety-related areas, except where "smoking permitted" areas had been specifically designated by plant management.

No unacceptable conditions were identified.

3.4 Other Administrative Controls

The inspector reviewed the following licensee documents:

- Technical Specifications, Section 6, Administrative Controls
- Procedure 1.5.3, Maintenance Requests, Revision 16

- Procedure NOP 83FP1, PNPS Fire Protection, Revised October 14, 1983
- Procedure 5.5.1, General Fire Procedure, Revision 9
- General Employee Training Course (GET)

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.

3.5 Equipment Maintenance, Inspection and Tests

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

- Procedure 8.B.1, Fire Pump Test, Revision 16
- * -- Procedure 8.B.3.1, Fire Hose Station Equipment Inspection, Revision 0
- * -- Procedure 8.B.3.2, Fire Hose Station Equipment Inspection, Revision 0
- * -- Procedure 8.B.4, Smoke and Heat Detection Systems Main Process Buildings, Revision 11
- Procedure 8.8.5, CO₂ "CARDON" Fire Protection, Revision 4
- * -- Procedure 8.B.6, Reaction/Deluge Sprinkler System, Revision 8
- Procedure 2.1.15, Daily Surveillance Log (Tech. Specs and Regulatory Agencies), Revision 52

- Procedure 8.B.7, Fixed Dry Chemical, Fire Protection Systems, Revision 7
- Procedure 8.B.8, Fire Hydrant Operability, Revision 6
- Procedure 8.B.9, Wet Pipe and Dry Pipe Sprinkler System, Revision 9
- Procedure 8.B.11, Fire Valve Operability, Revision 6
- Procedure 8.B.13.1, Hydrostatic Testing of a Fire Hose, Revision 0
- * -- Procedure 8.B.13.2, Hydrostatic Testing of a Fire Hose NFPA Code 1962 - ANI related, Revision 1
- Procedure 8.B.14, Fire Watch Patrol, Revision 2
- * -- Procedure 8.B.15, Fire Pump 150% Capacity, Revision 3
- * -- Procedure 8.B.16.1, Inspection of Fire Barrier Fire Seals, Revision 0
- * -- Procedure 8.B.17, Inspection for Fire Doors and Dampers, Revision 2

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

No unacceptable conditions were identified except as follows:

Clarification of the Acceptance Criteria of the Fire Protection System Flow Tests Procedure

The acceptance criteria of procedure 8.B.12, Fire Protection System Flow Tests, Revision 4, Section VII, Paragraph A, states in part: "Plotted Public water flow curve, Figure A-2, should closely match that plotted in June, 1980." The inspector noted that this type of wording, i.e., "closely match" is subjective to the individual performing the test.

In order to avoid misunderstandings on what constitutes acceptable flow conditions, the licensee agreed to revise the procedure to include the quantitative acceptance criteria to wit 1000 gpm at 20 PSIG. This is an Unresolved Item pending revision of the procedure and its review by NRC. (50-293/84-15-01)

3.6 Fire Brigade Training

3.6.1 Procedure Review

The inspector reviewed the following licensee procedures:

- Procedure 1.4.23, Fire Brigade Training Drill, Revision 4

- Nuclear Operations Procedure Manual, PNPS Fire Protection, Revised October 14, 1983
- Temporary Fire Watch Training Program and Guidelines
- Nuclear Training Manual, Section 4.2

The scope of review was to verify that the licensee had developed administrative procedures which included:

- a. Requirements for announced and unannounced drills;
- b. Requirements for fire brigade training and retraining at prescribed frequencies;
- c. Requirements for at least one drill per year to be performed on a "back shift" for each brigade;
- d. Requirements for local fire department coordination and training; and
- e. Requirements for maintenance of training records.

No unacceptable conditions were identified.

3.6.2 Records Review

The inspector reviewed training records of fire brigade members for calendar years 1982 and 1983 to ascertain that they had successfully completed the required quarterly training/meeting, semiannual drill, and yearly hands-on fire extinguishment practice.

No unacceptable conditions were identified.

3.7 Periodic Inspections and Quality Assurance Audits

3.7.1 Annual Audit

The inspector reviewed the report of the following annual audit:

Audit Number 83-40, performed on November 28-December 14, 1983

The scope of review was to ascertain that the audit was conducted in accordance with Technical Specification 6.14.1 and audit findings were being resolved in a timely and satisfactory manner.

No unacceptable conditions were identified.

3.7.2 Biennial Audit

The inspector reviewed the report of the following audits:

Audit Number 81-11, performed on July 1-14, 1981

Audit Number 83-20, performed on July 11-August 12, 1983

The scope of review was to ascertain that the audits were conducted in accordance with Technical Specification 6.5.B.8.h and audit findings were being resolved in a timely and satisfactory manner.

No unacceptable conditions were identified.

3.7.3 Triennial Audit

The licensee hitherto has not performed triennial audits, as required by Technical Specification 6.14.2. The licensee explained and the inspector verified that the biannual audits performed to date included the scope of the triennial audits. The licensee has scheduled to perform the first triennial audit in July 1984. No unacceptable conditions were identified.

3.8 Facility Tour

The inspector examined fire protection water systems, including fire pumps, fire water piping and distribution systems, post indicator valves, hydrants and contents of hose houses. The inspector toured accessible vital and nonvital 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 conditions 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.

No unacceptable conditions were identified, except as follows:

a. Bird Screen Interference with Fire Damper Operation

In the 4160 Volt Switchgear Room B, there is a fire damper installed in a wall ventilation opening. This opening is protected with a security screen attached to the wall on the outside of the room and a bird screen attached on the other side. The inspector noted that this bird screen was bent and could possibly interfere with the operation of the fire damper. The licensee agreed to take action and correct this condition.

This is an unresolved item pending corrective action by the licensee.
(50-293/84-15-02)

b. Lube Oil Leak on the Emergency Diesel Generator B Pad

The recirculating lube oil pump of the Emergency Diesel B is leaking oil on the diesel pad. This oil leak is a fire hazard. The licensee agreed to correct this condition by stopping the leak.

This is an unresolved item pending corrective action by the license (50-293/84-15-03).

3.9 Review of LER 84-006, 37 Fire Doors Potentially Non-Functional

The licensee identified 37 fire doors that are potentially degraded because of either holes drilled in the door and frame or excessive gaps between door frame and wall opening, or other deficiencies.

The licensee's engineering department indicated that the problem was evaluated and that they will provide the necessary documentation which proves that the identified deficiencies do not violate the fire rating of the doors. Because this documentation was not available to the inspector during this inspection, the licensee agreed to transmit same to the NRC within approximately 2 weeks.

This is an unresolved item pending receipt and review of the documentation certifying the fire rating of the 37 doors. (50-293/84-15-04)

3.10 Recent Minor Fire Incidents

The inspector reviewed reports of eight fires that have occurred at this facility since January 1984. Seven of these fires were initiated by sparks from welding and cutting operations associated with the replacement of the reactor coolant piping in the Drywell and other miscellaneous piping work. None of these fires required fire brigade response since all of these fires were extinguished by the fire watch on duty.

The eighth fire was in an elevator machine room in the new Administration Building and was caused by an electrical short. The fire brigade extinguished this fire promptly.

The licensee explained that most of the welding and cutting operations taking place in the Drywell use "plasma arc" process because this type of equipment is better suited for work in confined spaces such as the Drywell. The disadvantage of this process is that it generates more sparks than other types of welding and cutting.

The licensee committed to be more aggressive in the implementation of the existing Fire Prevention and Housekeeping Procedures and to take immediate action for developing a plan aiming at eliminating or drastically reducing the incidents of fire at this facility.

This is an unresolved item pending receipt and review by NRC of the licensee's plan for greater fire prevention (50-293/84-15-05).

3.11 Cable Spreading Room Penetrations-ENS Call

During the time of this inspection, on May 15 at 2:00 p.m., the licensee initiated an Emergency Notification System (ENS) call upon discovering three fire barrier penetrations with non-functional seals in the fire barrier walls of the cable spreading room. Technical Specification section 3.12.F requires that all fire barrier penetration fire seals, protecting safety related areas shall be functional at all times. With a penetration fire barrier not functional, a continuous fire patrol shall be established on at least one side of the affected penetration within 1 hour.

When this incident occurred, the licensee was in compliance with the above referenced section of the Technical Specifications because due to other fire protection considerations there was a continuous fire watch in this room already. This fire watch was initiated after the CO fire protection system for this area was taken out of service. The licensee is in the process of installing a Halon system to replace the CO fire protection system for this area.

No unacceptable conditions were identified.

4.0 Unresolved Items

Unresolved items are matters about which more information is required to ascertain whether they are acceptable items, violations or deviations. Unresolved items disclosed during the inspection are discussed in Sections 3.5, 3.8, 3.9 and 3.10.

5.0 Exit Interview

The inspector met with licensee management representatives (see Section 1.0 for attendees) at the conclusion of the inspection on May 17, 1984. The inspector summarized the scope and findings of the inspection at that time.

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