

U. S. NUCLEAR REGULATORY COMMISSION
REGION I

Report No. 50-293/90-18

Docket No. 50-293

License No. DRP-35

Licensee: Boston Edison Company
RFD #1 Rocky Hill Road
Plymouth, Massachusetts 02360

Facility Name: Pilgrim Nuclear Power Station

Inspection At: Plymouth, Massachusetts

Inspection Conducted: July 9-13, 1990

Inspectors: *R. A. McBrearty for R.A.M.* 7/26/90
R. A. McBrearty, Reactor Engineer, Materials
and Processes Section, EB, DRS date

Approved by: *E. H. Gray for D.T.* 7/26/90
D. Terao, Acting Chief, Materials and
Processes Section, Engineering Branch, DRS date

Inspection Summary: Inspection on July 9-13, 1990 (Report No. 50-293/90-18)

Areas Inspected: A routine unannounced inspection was conducted of inservice inspection activities to ascertain whether the licensee's activities were conducted in compliance with applicable ASME Code and regulatory requirements. In addition, the results of the water chemistry program and licensee actions regarding selection and control of component materials to minimize personnel exposure to radiation were reviewed.

Results: No violations were identified. The licensee maintained good primary water chemistry for the reviewed period. Its program for reducing personnel exposure is good but not completely developed. The licensee's process for review of vendor personnel qualification records was noted to need improvement.

DETAILS

1.0 Persons Contacted

Boston Edison Company

- *G. W. Davis, Vice President, Nuclear Administration
- M. DiMeo, Senior Mechanical Engineer
- *R. V. Fairland, Nuclear Engineering Division Manager - Acting
- *F. N. Famulari, Quality Assurance Manager
- C. Garerow, NDE Level III
- *C. S. Goddard, Chemistry Division Manager
- *P. J. Hamilton, Compliance Division Manager
- *J. Kelly, Senior Compliance Engineer
- *E. S. Kraft, Plant Manager
- R. Pardee, Inservice Inspection Mechanical Engineer
- *B. Perkins, Senior Quality Control Engineer
- L. Simons, Quality Engineering Division Manager
- *R. N. Swanson, Regulatory Affairs Manager
- G. Vazquez, Senior Radiological Engineer
- *E. J. Wagner, Vice President Nuclear Engineering (telephone contact)

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- *J.B. Macdonald, Senior Resident Inspector

*Denotes those present at the exit meeting.

2.0 Examination Results and Personnel Qualification/Certification Records (73753)

Selected examination records were inspected to ascertain that the examination results were properly recorded, evaluated and dispositioned. The following were included in the inspection:

Visual Examination

- Reactor Water Cleanup System spring hanger #H-12-1-14

The examiner reported on March 14, 1990, that the part number of the installed hanger, B-P3400C-10, did not agree with the number identified by the drawing, B-P VS4 C-10. Nonconformance report (NCR) No. 90-27 was issued on 3/15/90 to track the problem. The licensee determined that the two part numbers were equivalent and were listed in the Bergen-Patterson catalogue #82R. The NCR was properly closed out on 3/16/90.

- Reactor Building Closed Cooling Water System Anchor #H-30-1-2SA

On March 26, 1990, visual examination results documented the presence of corrosion on a portion of a nut surface and what appeared to be a vertical crack along the corner of the nut. NCR #90-45 was issued on the same day. The condition was evaluated by Nuclear Engineering Division (NED) and it was determined that the nut was not cracked, but that the surface was damaged possibly by a wrench that slipped and gouged the metal. The corrosion was verified as being minor. Maintenance Request (MR) No. 90-56-24 was issued to remove the light corrosion and to apply a protective coating of epoxy paint. The NCR was dispositioned "accept-as-is" regarding the surface gouge and was closed out on April 16, 1990 subsequent to the repair work. The inspector agreed with the licensee's disposition.

- Main Steam System anchor #H-1-1-X7B

On March 28, 1990, visual examination results documented the presence of a 14½" long crack in the toe of the subject penetration anchor weld. NCR #90-52 was issued that day to track the rejectable condition. Evaluation and disposition by NED required repair of the crack and MR #90-1-17 was issued for that purpose. The crack was removed by grinding, the excavation was weld repaired and magnetic particle inspection was conducted of the finished weld repair. A visual examination was performed of the final configuration on April 17, 1990 and the acceptable result of this examination were documented by the licensee. The documentation package confirmed that the repair was properly performed and the NCR was closed out.

- Main Steam System rigid hanger #H-1-1-29

The visual inspector reported that a portion of the hanger was resting against a structural steel member and the condition was rejected. On March 12, 1990, the date of the visual examination, NCR #90-23 was issued to track the rejectable condition. NED evaluated the condition and determined that the pipe support could perform its intended function and that the structural integrity of the beam was not affected. The disposition was "accept-as-is" and the NCR was closed out on March 14, 1990.

In the case of NCR #90-23 the Quality Engineering Division (QED) was precluded from the review process because NED had determined that quality assurance requirements were not affected. Based on discussions with QED personnel regarding the processing of NCRs the inspector determined that QED involvement, or lack of same, in the NCR disposition review process was previously identified by the licensee as a problem and a deficiency report (DR) was issued against NED. Under similar circumstances QED would sometimes be involved or, at other times, be precluded from the NCR disposition review process.

During the course of this inspection NED completed its response to the DR and Procedure No. 15.01, Revision 15, entitled "Nonconformance Reports" was issued. Revision 15 requires that all NCRs that are dispositioned "Accept" or "Repair" shall be forwarded by the NED Manager to the Quality Engineering Division for review and approval.

The inspector had no further questions regarding this matter.

Ultrasonic Examination

- Feedwater System welds 6-A-10 and 6-B-8, 18" diameter pipe to flued head welds

The welds were reported to be free of recordable indications and were deemed acceptable.

Qualification/Certification records of the individuals who performed the aforementioned examinations were inspected in addition to the records of other Stone and Webster personnel, the licensee's ISI vendor, who performed inservice inspections at Pilgrim. The inspection was performed to ascertain that the examiners responsible for the inservice inspection were properly qualified in accordance with requirements of SNT-TC-1A, the governing document.

The inspector voiced a concern regarding the qualification of the Level II examiner who aided in the ultrasonic examinations listed above. The individual's resume, which was included in records provided by Stone and Webster to the licensee, contained evidence of his having been previously certified to Level II by other employers. However, large gaps in his involvement with ultrasonic examination were apparent during his career, including the eight years prior to his employment by Stone and Webster in February, 1990. The licensee's review of the records failed to question the gaps in the individual's ultrasonic experience. Additional information provided by Stone and Webster at the licensee's request during the course of this inspection indicated that Stone and Webster had verified the individual's prior employment and experience. The additional information also confirmed that Stone and Webster had complied with SNT-TC-1A requirements regarding certification of an individual based on prior certification by a previous employer. Stone and Webster, in accordance with its documented practice rules, provided eight hours training to the individual and administered three examinations: general, specific and practical, also in accordance with its written practice rules. The individual successfully passed the examinations, including the practical, which consisted of ultrasonic testing samples containing real defects. The licensee's program for vendor personnel includes training and testing on procedures, equipment and surveillance by one of its Level III examiners of individual performance during the conduct of a routine inservice examination. The subject Level II examiner was found to be acceptable in all instances. The licensee concluded that the individual was properly certified in accordance with his employer's SNT-TC-1A written practice. The inspector agreed that applicable requirements of the Stone and Webster written practice were complied with, as was the licensee's program.

At the exit meeting the inspector stated that the licensee's review of vendor NDE personnel qualification records should have identified that a potential problem existed and that the documentation necessary to verify that there was no problem should have been acquired prior to allowing the individual to perform examinations at the site.

No violations were identified.

3.0 Water Chemistry (84750)

Water chemistry data were reviewed as part of this inspection. The methods of collecting and verifying the accuracy of these data were not included in the scope of this inspection.

The inspector reviewed the primary water chemistry data for the period of December 25, 1989 through July 2, 1990, and discussed these data with responsible individuals in the licensee's chemistry department. The period of March 12, 1990 through April 26, 1990 when the reactor was in coldshutdown, and the period of April 27, 1990 through April 30, 1990, when the reactor was in the startup mode, was excluded from the review. The sampling point for monitoring the reactor water quality is at the reactor water sampling panel, rack No. C-121, at the 51' elevation in the reactor building.

The average conductivity per week of the primary water during the reviewed period ranged from 0.108 $\mu\text{S}/\text{cm}$ to 0.197 $\mu\text{S}/\text{cm}$, which was within the licensee's goal of 0.20 $\mu\text{S}/\text{cm}$ and the Technical Specification Limit of 1.0 $\mu\text{mho}/\text{cm}$ (1.0 $\mu\text{S}/\text{cm}$). The average chloride concentration per week was reported as ranging from less than 1.0 part per billion (ppb) to 2.6 ppb, the average sulfate concentration ranged from 1.7 ppb, 10.7 ppb, and pH ranged from 6.6 to 7.0 which was within the guidelines of 15.0 ppb for chloride and sulfate, and 5.6 to 8.6 for pH. The average values for chloride and pH also were within the Technical Specification limits of 0.2 parts per million (ppm) and 5.6 to 8.6, respectively.

A few instances were reported when conductivity values exceeded the BWR Owners Group guideline. The reasons for the high readings were documented and the inspector determined that the conductivity was brought within the guideline value within a short period of time. Technical Specification limit for conductivity, pH, or chloride was not exceeded during the reviewed period.

4.0 Occupational Exposure (83750)

The licensee's program for selecting and controlling component materials to minimize personnel exposure to radiation include the following:

- The licensee contracted ABB Atom, Inc. to perform a study on radiation source reduction for Pilgrim which has been completed and the final report was issued in March, 1990.

- The licensee has initiated a program of control blade management to replace control blades with stellite-free materials.
- A program was initiated to identify and quantify cobalt contributors in the plant.
- The licensee is investigating the advantages, short term and long term, of chemical decontamination.
- The available fuel improvements to reduce cobalt sources is being investigated with fuel suppliers.
- Feedwater regulator valves were replaced in 1977 with non-stellite material.
- The valve maintenance procedure contains precautions regarding minimizing the entry of stellite into piping systems. The maintenance work plan for valve maintenance contains steps which verify that procedural precautions are observed.
- Recirculation pumps will be rebuilt, when required, with low cobalt materials.
- The licensee has acquired a Gamma Spectrometer for the purpose of quantifying a radiation source.

Several other initiatives are being considered for the reduction of personnel exposure, but they are still in the planning stage.

5.0 Exit Meeting

The inspector met with licensee representatives (denoted in paragraph 1) at the conclusion of the inspection on July 13, 1990. The inspector summarized the scope and findings of the inspection.

No written material was provided by the inspector to the licensee during the inspection. The licensee did not indicate that proprietary information was involved within the scope of this inspection.