

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

REGION III

Report No. 50-461/81-13

Docket No. 50-461

License No. CPPR-137

Licensee: Illinois Power Company
500 South 27th Street
Decatur, IL 62525

Facility Name: Clinton Power Station, Unit 1

Inspection At: Clinton Site, Dewitt, IL

Inspection Conducted: May 18-20, 1981

Inspector: *D. H. Danielson*
C. M. Erb

6/5/81

Approved By: *D. H. Danielson*
D. H. Danielson, Chief
Materials & Processes Section

6/5/81

Inspection Summary

Inspection on May 18-20, 1981 (Report No. 50-461/81-13)

Areas Inspected: Procedures, records and observation of installed structural steel inside and outside containment; records for setting of reactor pressure vessel; observation of welding and QC records for reactor coolant recirculation system and other safety related piping. This inspection involved a total of 22 inspector-hours on site by one NRC inspector.

Results: No items of noncompliance or deviations were identified.

DETAILS

Persons Contacted

Licensee Employees

- *M. C. Hollow, Supervisor QA
- R. Weber, Structural Engineer
- *J. S. Spencer, Director, Engineering
- J. Lasswell, QA Engineer
- *E. E. Cannon, Assistant Director, Construction
- R. Morganstern, QA Engineer
- *D. E. Korneman, Construction
- M. Stello, Construction

Other Personnel

- *J. W. Smart, QA Manager, Baldwin Associates (BA)
- *T. Selva, Manager, Quality & Technical Services (BA)
- *J. E. Findley, Project Engineer (BA)
- D. Threatt, Sr. Structural QC Engineer
- *G. Chapman, Manager, Technical Services (BA)
- W. Sobolewski, QC Engineer (BA)
- *H. R. Swift, Assistant Project Engineer (BA)
- C. Douglass, QC Inspector, U. S. Testing
- *S. G. Hall, Quality Control, General Electric (GE)

NRC Personnel

- *H. Livermore, Resident Inspector (NRC)

*Denotes those present at the exit meeting.

Functional or Program Areas Inspected

1. Records and Observation of Work on Structural Steel Inside and Outside Containment

A massive structure identification No. 4M2R was observed in work. This structure was welded using weld procedure WP-N-ASTM-A-Special and involved joining ASTM material A-588 and A-572 using E7018 electrode. The material thicknesses were 3/4 inch and 1-1/2 inch so a 150°F minimum preheat was used. Magnetic testing was performed by U. S. Testing Company. This structure served as a pipe restraint for the main steam piping. Materials were identified as were the welders on a drawing.

Bristol Steel & Iron Works supplied the structural steel and, whenever possible, reinforcement to the web or flanges was performed in the shop. The following areas were inspected during bolt-up of a connection.

- a. Condition of contacting surfaces.
- b. Bolt hole alignment.
- c. All equipment used to specification.
- d. Length bolts and type.
- e. Contact face on turning elements.
- f. Hand torque.
- g. Impact wrench.
- h. Specification S&L K-2948.

Beam No. 436B1 with connections was observed. These connecting bolts were 7/8" diameter to spec. ASTM A-325 in both ends.

Drawings No. ES-27-1002-01A, ES-27-1002-02A, and ES-27-1002-04A were examined. The 1-1/8" diameter bolts were to specification ASTM-A-490 while the 7/8" diameter bolts were specified as ASTM A-325.

The production impact wrench is checked twice daily with a hand torque wrench and a Skidmore is used to check both production and inspection wrenches.

No items of noncompliance or deviations were identified.

2. Setting Records for Reactor Pressure Vessel

- a. S&L specification K-2959 was used for transport, lifting and setting of the reactor pressure vessel. Reliance Truck performed the lifting and moving to procedures approved by S&L and BA. The test lift of 694 tons was performed to RT 102, Rev. 3. The equipment before use was inspected visually and in some cases by magnetic inspection. Reactor Controls Inc. (RCI) performed the alignment and tensioning of the hold down bolts.
- b. The hold down bolts for the reactor vessel were supplied by Schmitt Steel Company and the mechanical and impact tests were performed by Northwest Testing Laboratory. These bolts were procured to meet the requirements of Subsection NF of ASME Section III, 1974 Edition, Winter 1975 Addenda.

Subsection NF requires that these Class 1 bolts be preloaded to the requirements of specification SA-540, Grade B23, Class 4. The material is AISI 4340-H alloy steel heat treated to 269-341 BHN. Procedure BAP 3.4.1, Rev. 1 was utilized to preload the bolts in increments using tensioner equipment. The bolts are 3 inches in diameter x 23 inches long and there are 120 of them. Sixty bolts in a circle attach the flange to the biologic shield from inside the pedestal and 60 are equally distributed outside the pedestal. The extension under load is required to be .0395" - .0415" and relaxation was also measured 24 hours after final tensioning. A nonconformance was issued, when loads on the bolts were noted to be low and non-uniform. While some

variation was due to lack of parallelism in the flange and support, there is some question whether the heat treatment was adequate in all the bolts. Any low strength bolts could show low loads because the proportional yield limit had been exceeded. The licensee agreed to check the outside circle of 60 bolts to determine if the heat treatment was acceptable on that group. If these are acceptable, there should be no problem with the inner circle. This is an unresolved item, until the results of this testing program are available to the inspector. (461/81-13-01)

3. Q.C. Records and Observation of Welding in Reactor Recirculation Piping and Other Safety Related Piping

A Class 1 weld in Recirculation System piping 20" diameter x .878" wall was examined. This weld was P-8 to P-8 base materials and was made by BA to Weld procedure GENP-8-8-BA-2L, Rev. 2. A Grinell type insert was used with the GTAW weld process for the root and completed using shielded metal arc (SMAW). It was ground and had a finish acceptable for pre-service inspection.

A P-1 to P-1 weld in the 24" Main Steam System was observed at the 50% point of completion. The weld was of a main steam stop valve to pipe. The weld was under preheat using blankets and wall thickness was 1.066 inches. The process sheet and sign offs has been made properly and the weld was acceptable to that point.

Weld No. FW1RH-31-2 in the Residual Heat Removal System was examined. This weld is an open butt weld made to WPN-1-1-BA-M/5 and is Class 2. The weld is in A106, Grade B, 8" diameter schedule 40 pipe. This weld has a minimum preheat of 50°F and a maximum temperature of 450°F. The weld was made to the requirements of ASME Section III, 1974 Edition, with Summer 1974 Addenda. Welder symbols were available for all the above welds.

A repair was witnessed on system 1RH17-9-3Q1 which is a 14" pipe in the Residual Heat Removal System. This weld had been completed, but RT by U. S. Testing showed that suckback had occurred in the root. The weld had been completely ground out in two locations totaling about 6" in length. A U. S. Testing inspector with a Level II rating was making PT tests on the excavated area to assure that no cracks or defects were present. The welder was standing by to either do additional grinding or repair weld as indicated by the PT.

A Class 3 weld in the Fuel Pool Cleaning and Cooling system 1FC16-7, was inspected. This weld was an open butt weld of stainless steel to stainless steel utilizing procedure NP-8-8-B5. The weld was in an 8" diameter x 3/8 wall and was subject to PT inspection. The weld was gas tungsten arc weld from start to finish and made by symbol F451.

No items of noncompliance or deviation were identified.

4. Internals Fit and Inspection

Incore housings and CRD housings are welded into the reactor vessel. The insert and withdraw lines have not been installed between the reactor vessel and the modules. Ten inlet N2 nozzles have been completed. The feed water charger system is not installed and the core spray nozzles have not been attached to the header. The steam dryer and steam separator have not been fitted into the vessel yet.

No items of noncompliance or deviation were identified.

Unresolved Items

Unresolved items are matters about which more information is required in order to ascertain whether they are acceptable items, items of noncompliance, or deviations. One unresolved item disclosed during the inspection is discussed in Paragraph 2.b.

Exit Interview

The inspector met with licensee representatives (denoted in Persons Contacted paragraph) on May 20, 1981. The inspector summarized the purpose and findings of the inspection, which were acknowledged by the licensee.