

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-461/84-12(DE)

Docket No. 50-461

License No. CPPR-137

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

Facility Name: Clinton Nuclear Power Station

Inspection At: Clinton Site, Clinton, Illinois

Inspection Conducted: April 18, May 22-25, and May 31, 1984

Inspectors: *D. E. Keating*  
D. E. Keating

6/19/84  
Date

*R. Smeenge*  
R. Smeenge  
(Training)

6/19/84  
Date

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

6/19/84  
Date

Inspection Summary

Inspection on April 18, May 22-25, and May 31, 1984 (Report No. 50-461/84-12(DE))

Areas Inspected: Special inspection to review of licensee's sampling program for Concrete Expansion Anchors (wedge type); Licensee actions on 50.55(e) items. The inspection involved a total of 80 inspector-hours onsite by two NRC inspectors.

Results: No items of noncompliance or deviations were identified.

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## DETAILS

### 1. Persons Contacted

#### Illinois Power Company

- \*D. P. Hall, Vice President
- \*W. Gerstner, Executive Vice President
- \*W. Connell, Manager, Quality Assurance
- \*R. E. Campell, Director, Quality Systems and Audits
- J. E. Loomis, Construction Manager
- D. Estes, Plant Staff Startup Group
- J. A. Miller, Assistant Supervisor Startup
- \*D. I. Herborn, Director Nuclear Licensing
- \*J. G. Cook, Assistant Plant Manager
- H. E. Daniels, Construction Project Manager
- \*J. Greene, Assistant Power Plant Manager
- \*J. R. Sprague, Station QA Specialist
- \*M. D. Hassebrock, Director Quality Engineering and Verification
- K. F. Sullivan, Supervisor IPQC

#### Baldwin Associates

- \*A. E. King, Jr., Project Manager
- E. L. Young, Assistant Manager Quality and Technical Services
- \*L. W. Osborne, Manager Quality and Technical Services

The inspectors also contacted and interviewed other licensee and contractor personnel.

\*Denotes those present at the exit interview.

### 2. Licensee Action on 10 CFR 50.55(e) Items

(Open) 50.55(e) (461/84-03-EE): Improper Installation of Concrete Expansion Anchor Bolts. The inspector reviewed the proposed reinspection plan and sampling system being used. The reinspection of 290 concrete expansion anchors (CEAs) for pipe hanger assemblies has been completed. The results of this reinspection, in some areas, are still in the process of evaluation. The most significant nonconformances to date have been the two regarding the identification of two additional instances where nuts and/or expansion anchors have been welded to installation plates. These were identified as having been installed by a pipefitter/welder that had worked with another welder who earlier had been identified as improperly installing expansion anchors in this manner and also wrapping the shanks of anchor bolts to achieve installation torque. 100% of the work of this second individual will be inspected to identify any additional nonconforming conditions.

A modified American Institute of Steel Construction (AISC) inspection of the expansion anchors and attachment plates has been used, i.e., 10% of the anchors per each attachment or one bolt which ever is smaller. The

normal AISC inspection method which is recommended for standard bolted connections is 10% of the bolts per connection or a minimum of two bolts randomly selected. The expansion anchors are also randomly selected per each attachment plate. In the case of the standard structural connection if the two bolts fail any of the inspection criteria all of the bolts are inspected. In the case of the expansion anchor reinspection at Clinton if the one bolts fail the remaining bolts of the attachment are reinspected.

As stated above, 290 expansion anchor assemblies have been reinspected. These are all in safety-related areas. The licensee is expanding this to include non-safety-related areas as well. In addition the licensee is going to expand the inspection of CEAs into electrical, HVAC, and instrumentation hanger assemblies. On a reduced population this inspection will include more than one crew per activity. In a progress meeting of April 25, 1984, and again during this last inspection of May 22 through 25, 1984, it was stressed to the licensee the importance of broadening the inspection effort to include other areas and additional crafts and of justifying the population to be used for the sampling program to be used.

Additionally, the inspector reviewed United States Testing Laboratory procedure No. 1033UT-4, Revision 0, "Ultrasonic Examination for Thickness Determination," ASME Section V, Article 5, 1974 edition, Winter 75 through Winter 76 addenda, and the reference ASME Code Interpretation III-77-106.

Also reviewed were the personnel certifications, qualifications, and test records of the three U.S. Testing Level II UT technicians. The procedure, personnel certifications, and test records appeared to be adequate and in order.

Eight randomly selected completed test records were reviewed by the inspector for recorded bolt length, actual bolt length, verification of frequency of calibration of instrument, instrument serial number, and proper sign-offs. These were verified to be as prescribed by procedure. In addition the inspector witnessed the UT testing of two expansion anchors.

A more clearly defined expansion of the CEA reinspection program is expected by mid-June which should address the concerns of the NRC regarding the sampling plan, sample size, the disciplines, and crafts to be involved.

### 3. Structural Steel Field Verification/Overinspection

#### a. Document Review

The inspector reviewed the following Control Building structural steel Field Verification/Overinspection packages and procedures, and other data:

QAI-710.12, Revision 0  
QAI-710.12A03, Bolt Tightness  
QAI-710.21, Welds

OIA/4/2B5  
QAI-710.12C02, Revision 0, dated October 19, 1983

OIA/3/2B1  
QAI-710.12C02, Revision 0, dated October 19, 1983

OIA/2/2B1  
QAI-710.12C02, Revision 0, dated October 19, 1983

OIA/34/1B9  
QAI-710.01F01, Revision 3, dated May 23, 1983  
QAI-710.12C02, Revision 0, dated October 19, 1983

OIA/33/1B9  
QAI-710.01F01, Revision 3, dated May 23, 1983

OIA/32/1B9  
QAI-710.01F01, Revision 3, dated May 23, 1983

OIA/31/1B9  
QAI-710.01F01, Revision 3, dated May 23, 1983  
QAI-710.12C02, Revision 0, dated October 19, 1983

IP Surveillance Report QAP 118.05F01, Revision 3, dated January 19, 1984

Letter SLS-I-4309, dated February 17, 1984 (P. K. Agrawal to W. Connell)

Letter Y-21448, dated April 25, 1984 (W. Connell to J. Loomis)

Letter U-1005, dated April 20, 1984 (D. Hall to J. Keppler)

b. Field Walkdowns

The inspector also conducted a walkdown of field conditions of the Pool Swell Steel at El. 755'-0", Az. 180° (approx.); reviewed Traveler CS1409, FCR 23851, S&L dwg S27-1449, Revision J, Plan, S27-1002-02A, Revision AJ, and detail sheet for beam BM1A; and reviewed Traveler CS1410, FCR 23852, and S&L dwg S27-407GG, Revision J for beam BM1. The modifications were being installed according to procedures, drawings, AISC, and AWS Code requirements. Observed also was the preparatory work for some of field verification/over-inspection activities. The high strength nut traceability problem was observed. Some of the ASTM A325 nuts have been reversed when installed which conceals the markings indicating material designation. In letter SLS-I-4309, Sargent and Lundy has suggested that based on a sampling of 206 ASTM A325 nuts, selected at random, that this requirement can be removed from the checklists used by Baldwin Associates and Illinois Power in this program. However, ASTM A490 nut marking verification must remain and be performed.

No items of noncompliance or deviations were identified.

#### 4. Preoperational Test Program Status

Section 14.3.1.3 of the CPS-FSAR identifies the IP Startup Group as responsible for retaining responsibility for test administration and coordination during the preoperational phase, and provides technical direction to the Plant Staff in performance of Preoperational and Acceptance Tests. The procedures used by Illinois Power (IP) to perform preoperational testing functions are Startup Administrative Procedures (SAPs) with special requirements identified for preoperational testing.

IP has identified 86 different safety function Preoperational Test Procedures. There currently are 50 approved procedures and 19 procedures in the review and approval cycle. The hydrostatic tests, flushing and cleaning are not included under preoperational tests. These tests are identified as Checkout and Initial Operation Phase Tests. Preoperation tests on non-safety related systems are identified as Acceptance Tests.

Responsibilities for the test programs are identified in SAP-11, Conduct of Tests. Procedures are written, reviewed and approved in accordance with SAP-14, Startup Administrative Procedures. This procedure also identifies the responsibilities for procedures and the procedure contents (approval cover sheet, objective, acceptance criteria, references, prerequisites, initial conditions, special precautions, procedure, recorded data and appendices).

SAP-7, Certification of Test Personnel, identifies the levels of training, education and experience of the personnel who will perform the preoperation tests.

Methods have been established to change a test procedure prior to or during the conduct of testing and are controlled by SAP-16, Test Change Notice. Changes are approved by the same group or person who approved the original procedures.

Test procedures approval constitutes official sanction of the proposed testing objectives and methods, it does not constitute approval to perform the test. Test release is controlled by SAP-15, Test Release. Before an approval is given to commence testing, the approved test procedure is evaluated against any system scoping and design changes, against current system and plant conditions, the acceptance test criteria meets the most current commitment and the procedure will accomplish the acceptance criteria.

Tests may be interrupted or suspended by the plant shift supervisor if personnel are endangered or plant or any equipment is placed in an unsafe condition or the potential exists (SAP-11). Tests may also be interrupted when deficiencies are found. The deficiency is documented on a Maintenance Work Request (MWR, SAP-9), Field Problem Report (FPR, SAP-3) or a Construction Work Request (CWR, SAP-2). The resolution and identification of necessary retesting is documented on these forms.



Evaluation of test results is controlled by SAP-5, Test Procedure Results Review and Approval. This procedure identifies who is to review and what they are to review. The reviewers include those who approved the original procedure.

Temporary Modifications, jumpers and bypasses are controlled by SAP-8, Temporary Alteration. The Test Director is responsible for maintaining the log of such alterations during testings and returning the system to normal at the completion of the tests. An exception to using a log is allowed, if the test procedure includes a step which has a sign-off for returning the system to the original or normal condition. Five approved procedures were reviewed and in all cases the log was not required to cover alterations and return-steps were provided which return the system to normal. Procedures reviewed were:

PTP AX/AY-01, 4160/6900 VAC Aux. Power  
PTP NB-03, Nuclear Boiler Process Instrumentation  
PTP RD-01, Control Rod Drives  
PTP SX-01, Shutdown Service Water  
PTP TE-01, Turbine, Off Gas, Radwaste, Control and DG Building Equipment  
Drains

Preoperational tests are identified on the Level II schedule and the procedures are identified on the Master Procedure Index. The Monthly Report has been showing a status of 57 Preoperational Test Procedures approved rather than 50. The applicant will correct the Monthly Report.

5. Exit Interview

The inspectors met with licensee and contractor personnel (denoted in Paragraph 1) at the conclusion of the inspection and discussed the inspection scope and findings.