U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-461/84-27

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, Unit 1

Inspection At: Clinton Site, Clinton, Illinois

Inspection Conducted: September 10-12; 19-21, 1984

Inspector(s): C. C. Williams for J. F. Norton 10/9/84
Date

Approved By: C. C. Williams, Chief 10/9/84
Date

Inspection Summary

Inspection on September 10-12, 19-21, 1984 (Report No. 50-461/84-27(DRS)
Areas Inspected: Concrete Drilling/coring program; licensee action on Bulletin 79-02 "Pipe Support Baseplate Design Using Concrete Expansion Anchor Bolts"; procedures for the structural integrity test; and quality records covering geotechnical work. The inspection involved a total of 57 inspector-hours by one NRC inspector.
Results: No items of noncompliance or deviations were identified.

DETAILS

1. Persons Contacted

Illinois Power Company

W. Connell, Manager of Quality Assurance
L. Floyd, Supervisor, Quality Systems
J. Loomis, Construction Manager
S. Richey, assistant Power Plant Manager
J. Sprague, Station Quality Assurance Specialist
H. Victor, Manager, Nuclear Station Engineering Division
D. Wilson, Licensing, Nuclear Station Engineering Division

Sargent & Lundy

D. Sclopfer, Field Project Manager
J. Petrich, Structural Project Engineer

Baldwin Associates

A. King, Jr., Project Manager
L. Osborne, Manager, Quality and Technical Services

U.S. Nuclear Regulatory Commission

P. Gwynn, Senior Resident Inspector

2. Functional or Program Areas Inspected

This inspection addressed the concrete drilling and coring program; licensee action on Bulletin 79-02 addressing pipe support baseplates using integrity test; and review of quality records covering geotechnical work.

3. Concrete Drilling and Coring

a. The adequacy of control over concrete drilling and coring activities was assessed by the NRC inspector primarily to assure that pertinent information regarding damaged reinforcing steel is properly documented and dispositioned by the licensee and design engineers to ensure adequate structural integrity.

b. Typically, drilled holes are provided for the installation of concrete expansion anchors which range in size from 1/4 inch to 1 inch in diameter, and have installation embedment depths of 5/8 inch to 8 inches respectively. Drilled holes partially penetrate the concrete section.

c. In the process of evaluating the drilling and coring program, Baldwin Associates Procedure (BAP) No. 2.16 "Concrete Expansion Anchor Work"; BAP No. 2.18, "Core Drilling"; and BAP Quality Control Instruction No. 202, "Core Drilling Inspection" were reviewed.

Additionally, several nonconformance reports (NCRs) addressing reinforcing steel hits/cuts were randomly selected and reviewed. The NCRs all reflected appropriate documentation, dispositioning, and signoffs by qualified personnel.

d. No ongoing concrete drilling was in progress during this inspection. The specifications, pertinent drawings, installation instructions and procedures collectively, contain adequate provisions to control drilling activities and identify and evaluate potentially damaged reinforcing steel in the process.

No items of noncompliance or deviations were identified.

4. Cored Holes

Typically, cored holes range up to 12 inches in diameter, and completely penetrate the concrete section. Coring is accomplished in accordance with the following:

a. The senior discipline engineer (SDE) - Identifies the need for core drilling.

b. SDE initiates an FCR/NCR in accordance with procedures in those instances when coring locations are not identified on structural design drawings.

c. SDE initiates (upon approval of the FCR/NCR) a Core Drill Release (CDR) form.

d. SDE assures that a unique number is assigned to the CDR correlated with the following:

(1) Piping Engineering is required to maintain a control log and assign a unique number to the CDR.

(2) Electrical, Mechanical, Containment, Civil/Structural Engineering and subcontractors are required to obtain a unique CDR number from the SDE maintained log.

e. SDE interfaces with other disciplines to obtain required review acceptance sign-offs. The Quality Control signoff is a mandatory hold point. No coring is permitted prior to this review/sign-off.

f. The Cognizant Discipline Engineer (CDE) then -

(1) Reviews applicable drawings and inspects the area to be cored to assure that no unforeseen interferences exist.

(2) Sign-off the CDR to signify their acceptance of the coring location.

g. The SDE then issues the CDR to the appropriate Discipline Superintendent/Subcontractor (DS/S) so that the DS/S can obtain the core drilling bit from the Quality Control Storage Area.

h. Quality Control -

(1) Issues the appropriate core drill bit and accompanies the Superintendent to the work location.

(2) Inspects the area to be cored to verify hole location, size, and other pertinent details are in agreement with the CDR.

(3) Verifies that all disciplines have signed the CDR.

(4) Signs/dates the CDR. This sign-off must be completed prior to commencing the drilling.

(5) Monitors the drilling process to verify that only the previously approved number of rebars have been cut.

(6) In the event the CDR approved rebar cuts are exceeded, initiates an NCR documenting the additional cuts/damage.

(7) Accompanies the return of the core drill bit to the QC storage area.

i. The SDE then -

(1) Reviews and signs the Core Drill Cut Rebar Report (required to be furnished by the cognizant Discipline Superintendent when item h(6), described above, occurs).

(2) Obtains an "Approved for Construction" copy of the FCR/NCR (if applicable) referenced on the subject CDR.

(3) Forwards the entire core drill package to QC.

j. Quality Control then -

(1) Reviews the core drill cut rebar report for proper dispositioning and retains a copy for the traveler package. Also, forwards a copy to the discipline engineer and conveys the original to the architect/engineer.

(2) Completes the core drill/cut rebar inspection report, and attaches it to the traveler package.

(3) Obtains a closed "Approved for Construction" copy of the NCR (written to report excessive cut rebar) and attaches to the traveler package during final review.

(4) Indicates final acceptance of the work by signing the final review block on the CDR.

(5) Verifies that referenced specifications, procedures, and drawings are current.

(6) Updates the Quality Control Record Log, and forwards the entire traveler package to Document Records Center.

k. The coring program at Clinton contains constraints which require appropriate review and authorization prior to drilling, and appropriate post-review and recording of rebar bits.

No items of noncompliance or deviations were identified.

5. Bulletin 79-02

(Closed) Items 79-02-BB; 79-02-1B; 79-02-2B, and 79-02-3B

a. Bulletin 79-02 addresses pipe support base plate design using concrete expansion anchors. The Bulletin was issued March 3, 1979, and supplemental revisions were issued July 21, 1979, August 20, 1979 and November 8, 1979. The primary purpose of the Bulletin was to assure that licensee's had appropriately considered base plate flexibility and its potential effect on anchor loads.

b. Licensee actions addressing Bulletin requirements were reviewed by the Region III inspector. The licensee has appropriately addressed requirements, as outlined in the Bulletin, to ensure required base plate stability for required loadings.

6. Geotechnical Quality Records

Quality Records documenting earth fill and geotechnical construction were selectively reviewed. The NRC inspectors review is incomplete in this area and several general questions need to be clarified by the licensee. The licensee indicated that adequate clarity can be provided and is in the process of assembling this data for review. This item is considered open (50-461/84-27-01).

7. Structural Integrity Test (SIT)

Procedures addressing test setup instrumentation and data accumulation requirements for the forthcoming SIT were reviewed. The requirements outlined in the procedures are appropriate to provide accumulation of required test data.

8. Exit Interview

The inspectors met with licensee representatives and others (denoted under persons contacted) on September 21, 1984, at the conclusion of the inspection. The inspector summarized the findings, as report herein, which were acknowledged by the licensee.