

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

REGION III

Report No. 50-461/80-16

Docket No. 50-461

License No. CPPR-137

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

Facility Name: Clinton Power Station, Unit 1

Inspection At: Clinton Site, Clinton, IL

Inspection Conducted: July 1 - 31, 1980

Inspector: H. H. Livermore

RC Knop for

8/26/80

Approved By: R. C. Knop, Chief
Projects Section 1

RC Knop

8/26/80

Inspection Summary

Inspection on July 1-31, 1980 (Report No. 50-461/80-16)

Areas Inspected: Routine inspection by the IE Regional Resident Inspector (RI) of safety-related construction activities including concrete placements, material laydown and storage areas, welder qualification, HVAC hanger installations, pipe rigging practices, and rebar cadweld installations. The inspection involved 96 hours by one NRC resident inspector.

Results: Of the areas inspected, three items of noncompliance and three unresolved items were identified.

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155

DETAILS

Persons Contacted

Principal Licensee Employees

*G. M. Brashear, Site Manager, Clinton
*R. J. Canfield, Director-Construction
*A. J. Budnick, Director-QA
*E. E. Connon, Assistant Director-Construction
*L. W. Dozier, Assistant Director-Construction
*D. E. Korneman, Supervisor-Construction
*J. F. Hampton, Supervisor-QA
*R. W. Folck, QA Specialist
*J. S. Spencer, Director-Engineering
R. Backen, QA Specialist
R. Weber, QA Engineer
R. Becker, QA Consultant
*J. M. King, Electrical Supervisor
*R. L. Stomberski

Baldwin Associates

*J. R. Smart, QA Manager
*R. Selva, Manager Quality and Technical Services
*J. Linehan, QC Manager
*W. H. Harrington, Project Manager
*J. E. Findley, Project Engineer
M. Merritt, Quality Control
*T. F. Walker, Senior Quality Control
*R. D. Bennett, Manager, Technical Services
*L. B. Browne
*T. J. Yearick Assistant to Manager
*C. E. Winfrey, QC
*H. R. Swift, Assistant Project Engineer
*D. H. Smither, Assistant Project Manager
*B. Woolery, Welding Engineer

General Electric Company

*S. G. Hall, Quality Control

Zack Company

*R. St. Onge, Project Manager
*C. Nichols, Superintendent
*M. Franchuk, QC Manager

Other staff and personnel were contacted during the reporting period.

*Denotes those attending at least one of the exit meetings.

Functional or Program Areas Inspected

1. Plant Tours

One or more plant areas were toured several times each week during the reporting period to observe general construction practices, area cleanliness, and storage/maintenance of material and equipment.

Items of noncompliance are discussed in paragraphs 9 and 10.

2. Concrete Placement

The inspector performed surveillances of concrete placements (two separate pours) for walls in containment approximately at the 820' level over and about the periphery of the reactor vessel. The traveler numbers were 1299 and 1300 and involved approximately 135 and 155 yards of concrete respectively. The following conditions were noted:

- a. Preplacement inspections had been completed. The inspector noted that excessive amounts of water were collected at the bottom of the forms. Specific locations were pointed out to Illinois Power QA personnel and action was taken to correct the situation.
- b. Roving surveillance was performed by the contractor QC. Numbers and performance were adequate.
- c. U.S. Testing personnel were on hand in adequate numbers. Frequencies and test method were correct. Cylinder storage requirements were checked. Storage of cylinders without movement, and temperature of storage box was satisfactory.
- d. Adequate numbers of personnel were assigned to make the placement. Consolidation technique was correct and performed by experienced crews.
- e. Delivery and placement of concrete was satisfactory. Concrete was pumped to the placement area and deposited via spaced plastic elephant trunks. The inspector noted that the spacing of the elephant trunks approached the maximum for corners and congested areas. To insure minimum concrete movement, trunk spacing was minimized for the second pour.

No items of noncompliance or deviations were identified.

3. Inspection of Material/Component Storage Areas

The resident inspector toured storage areas in the outside laydown yard and within the power block several times during the month. The areas were randomly selected. The inspection was in relation to the requirements of ANSI N45.2.2; material protected and stored off the ground, caps on pipe ends, and segregation of safety and non-safety

material. In general, considering the massive amount of material, storage and maintenance was adequate.

No items of noncompliance or deviations were identified.

4. Control Building 825' Level

The inspector performed a surveillance of the subject area. Pinholes (1/32") were noted in the ends of two completed cadweld sleeves. Number 6 rebar cadwelds had just been fired and inspected in the two aisle walls at the south end of the control building. Manual excavation of the pinholes with a wire indicated possible voids that may have been overlooked during the inspection process. The licensee was notified and a re-inspection was performed. Recalculation proved the enlarged voids were still within Sargent and Lundy specification limits. The inspector was assured that the contractor QC excavates visible pinholes for inclusion in void calculations, but also noted that the contractor inspection procedure was vague in this area. The inspector has no further questions in this area, but will follow up to insure the procedure is updated to provide uniformity.

A continued surveillance of the 825' floor by the inspector noted some questionable welds on HVAC hanger assemblies in temporary storage waiting ceiling installation. Hangers were the first shipment prefabricated (welded) in Zack's Chicago plant by wire feed process (GMAW). Of the five sample hangers inspected, two had examples of undercut and poor welding technique (bead). Visual inspection was difficult as the welds had been spray painted. The licensee and contractor were notified and a subsequent 100% re-inspection was performed by site Zack inspection personnel. Three deficiencies were written (ZCR-R-74, 75 and 76) and weld areas on fifteen hanger assemblies were reworked. The inspector notes that the deficient welds were a small percentage of the total amount of hanger welds performed in Chicago. Corrective action was performed immediately by Zack and the contractor. Chicago shop personnel were re-instructed and site QC will also perform a duplicate inspection of the welds during Receiving Inspection.

The inspector has no further questions in this area, but will continue to follow the activity on a random basis.

No items of noncompliance or deviations were identified.

5. Seismic Qualification of HVAC Duct Longitudinal Joints

HVAC ducting and hangers installed in the 800' level Control Building (reactor control room area) are required to be designed to withstand a seismic event and remain functionally intact. HVAC sheet metal ducting manufactured by Zack has a longitudinal joint (non-welded) called a Pittsburgh Fold-Over. The joint is not mechanically or chemically bonded, but is a folded slip fit with internal sealant.

The inspector has requested the licensee to obtain engineering facts and rationale from the A-E, Sargent and Lundy, to insure seismic design qualification of the subject HVAC joints.

This is considered an unresolved item. (461/80-16-01)

6. Rigging of Loads From Installed Safety Related Piping

During inspection surveillances of the Power Block, the resident inspector noted examples of pipe and valve loads rigged (suspended) from installed safety related piping systems. The contractor procedure allowed the practice with the area construction superintendent's permission. The resident inspector first notified the licensee on May 19, 1980 that the practice was unsatisfactory and not in line with good construction practices. Superintendents are not normally considered qualified to make an engineering structural load judgement. Decisions shall be made by responsible engineers and the accompanying rationale be recorded. The inspector notes that the contractor has discontinued the uncontrolled practice and plans to revise the applicable procedure as recommended.

This is considered an unresolved item. (461/80-16-02)

7. Routing of Drain Line Over Class 1E (Safety Related) Electrical Cable Trays

Regulatory Guide 1.29 requires that Class 1E Electrical Systems be designed to withstand the effects of a Safe Shutdown Earthquake (SSE) seismic event and remain functional. The guide also requires that other systems whose failure could reduce the functioning of the Class 1E Electrical System, by virtue of proximity, also be designed and constructed so that SSE would not cause failure. One such example is the routing of non-safety drain line pipes over and in close proximity to Class 1E electrical cable trays. Pipe rupture with accompanying missile action, falling pipe, and pipe whip possible caused by a seismic event could reduce the functioning of a Class 1E Electrical System. One particular example of this design situation noted by the resident inspector is in the Power Block Fuel Building (southwest corner) at the ceiling area of the 712' level. (AL-104 approx.) Six inch drain lines in this area are routed directly over and across Class 1E electrical cable trays P2E and C2E 182A and P2E 185A. The inspector previously informed the licensee of this situation on May 30, 1980 and requested information to insure the subject drain lines have been designed and constructed to withstand the effects of a seismic event.

This is considered an unresolved item. (461/80-16-03)

8. ASME Welder Qualification

During reviews of welder qualification practices and records, the resident inspector noted that the contractor welder performance qualification for Automatic Stainless Steel, GTAW process, went beyond the normal substitution of mild steel for base metal, but also allowed the substitution of mild steel for austenitic stainless steel filler metal. The dual substitution was approved by an ASME code member by letter dated May 7, 1980.

The inspector will hold this matter in abeyance until issuance of the 1980 ASME Code.

No items of noncompliance or deviations were identified.

9. Cadweld Splices in Containment

While performing surveillances in containment on the 825' level, the resident inspector witnessed three #8 rebar cadweld splices fired incorrectly and out of position. Vertical cadweld sleeves (without vent tubes) were used in the horizontal position, and the installation of a piece of tie wire horizontally through the sleeve for venting purposes was not performed. This procedure is a specific requirement of the 1978 Erico Cadweld Addenda Catalog when using vertical sleeves out of position (horizontal). The inspector also noted that numerous #8 and #11 rebar sidefill cadweld splices had been made out of position in the same building area (slab 11-1 north). The cadweld sleeve fill nozzle had been rotated 90° to the vertical thus allowing the open vent tubes in a side position. This configuration is not addressed in either the basic catalog or the addenda. Tie wire installation or vent tube closure had not been performed. Visual void examination had been passed by construction QC. Further investigation has revealed that 250 cadwelds in this containment area have been used out of their normal position.

This item is considered in noncompliance with the requirements of Criterion V of 10 CFR 50, Appendix B, and Sargent and Lundy Specification K2944 Amendment 17 and CPS-1-MCS Revision 9.
(461/80-16-04)

10. HVAC Hanger Installations

- a. The resident inspector performed a surveillance of the installation of safety related HVAC hangers in the 800' level of the Control Building. Four hanger installations were checked against the design drawings. Installation attachment checks were made in the area of ceiling structural beam to angle clips to auxillary beam to HVAC hanger. The inspector noted that the clip installation to auxillary steel beam did not agree with Sargent and Lundy drawing M14-11108D Sht. 11, in that the clip bolting slots were vertical rather than horizontal. The inspector notes however,

that this nonconformance was detected and corrected by NCR 3030 on March 24, 1980. Continued investigation by the resident inspector revealed that the installations of three out of four hangers did not agree with the disposition of NCR 3030:

- (1) the bolts were not supported at the bottom of the vertical slots.
- (2) the auxillary steel was not furnished with horizontal slots at the opposite end from the vertically slotted clips.

Auxillary steel slots were at the wrong end or not present. A later survey indicated that approximately 38 of 70 clip to auxillary steel hangers in the Control Building had incorrect installations as noted above.

This item is considered in noncompliance with the requirements of 10 CFR 50, Appendix B, Criterion V; Sargent and Lundy Design Drawing M14-111 Revision D; and Zack Procedure CB-QCP-15 Section 6. (461/80-16-05)

- b. Continuing with the surveillance of the aforementioned HVAC hangers, the resident inspector reviewed Zack QC records on the three subject hangers (C-6027, C-6030 and C-6083). There were not signoffs by QC indicating that the slot modification (NCR 3030) was complete. The responsible Zack inspector verbally verified he had bought off the incorrect installations and had so marked with yellow marker on the clip installation steel. The resident inspector noted that Hanger Installation (ZQF-07) and Repair Job Ticket (ZQF-14) QC Inspection Reports had not been filled out and data recorded although the actual work had long since been completed on the three subject hangers. The inspection reports did not reflect ongoing or completed work such as:

- (1) Mill certification acceptance
- (2) Correct type and location
- (3) Dimensional check and control of hanger
- (4) Signoff of welds on ZQF-14 form configuration pictures
- (5) Forms ZQF-14 did not reflect the proper identification of each hanger member to account for the interchangeability that had taken place on all three hangers.

The inspection records did not reflect the as-built status of each hanger.

This item is considered in noncompliance with the requirements of 10 CFR 50 Appendix B, Criterion X and Zack Procedure CB-QCP-15 Section 5. (461/80-16-06)

Unresolved Matters

Unresolved matters are items about which more information is required in order to ascertain whether they are acceptable items, items of noncompliance, or deviations. Three unresolved items disclosed during this inspection are discussed in paragraphs 5, 6, and 7.

Exit Meetings

The resident inspector attended exit meetings conducted by the RIII Inspectors Gallagher and Wescott on July 11, 1980 and E. Lee on July 31, 1980. The inspector met with the licensee representatives (denoted under Persons Contacted) on August 1 and July 3, 11, 21, and 25, 1980. The inspector summarized the scope and findings of the inspections performed. The licensee representatives acknowledged the findings reported in previous paragraphs.

Attachments: Preliminary
Inspection Findings

PRELIMINARY INSPECTION FINDINGS

1. LICENSEE

I. Power

2. REGIONAL OFFICE

III, IE

3. DOCKET NUMBERS

50-461

4. LICENSE NUMBERS

CPPR-137

5. DATE OF INSPECTION

6/30 - 7/3/0

6. Within the scope of the inspection, no items of noncompliance or deviation were found.

7. The following matters are preliminary inspection findings:

The following will be carried on
- uncorrected items:

1. Rigging from Safety Related Pipe
2. Drain lines routed over safety related cables
3. Seismic Qualific. of HVAC horizontal joints (Pittsburgh fold-over).

8. These preliminary inspection findings will be reviewed by NRC Supervision/Management at the Region III Office and they will correspond with you concerning any enforcement action.

[Signature]
Nuclear Regulatory Commission Inspector

7/3/0

PRELIMINARY INSPECTION FINDINGS

1. LICENSEE

Illinois Power

2. REGIONAL OFFICE

III
Resident

3. DOCKET NUMBERS

50-461

4. LICENSE NUMBERS

CPR-137

5. DATE OF INSPECTION

7/7-11/80

6. Within the scope of the inspection, no items of noncompliance or deviation were found.

7. The following matters are preliminary inspection findings:

8. These preliminary inspection findings will be reviewed by NRC Supervision/Management at the Region III Office and they will correspond with you concerning any enforcement action.


Nuclear Regulatory Commission Inspector

7-11-0

PRELIMINARY INSPECTION FINDINGS

1. LICENSEE

Illinois
Power

2. REGIONAL OFFICE

III
IE RESIDENT

3. DOCKET NUMBERS

50-461

4. LICENSE NUMBERS

C P P R - 1 3 7

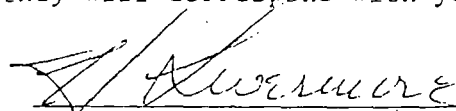
5. DATE OF INSPECTION

7/14-18/80

6. Within the scope of the inspection, no items of noncompliance or deviation were found.

7. The following matters are preliminary inspection findings:

8. These preliminary inspection findings will be reviewed by NRC Supervision/Management at the Region III Office and they will correspond with you concerning any enforcement action.


Nuclear Regulatory Commission Inspector

PRELIMINARY INSPECTION FINDINGS

1. LICENSEE Illinois Power		2. REGIONAL OFFICE III IE Resident	
3. DOCKET NUMBERS 50-461	4. LICENSE NUMBERS CPR-127	5. DATE OF INSPECTION 7/21-25/80	

6. Within the scope of the inspection, no items of noncompliance or deviation were found.

7. The following matters are preliminary inspection findings:

① Noncompliance - Infraction
Control Bldg 800' level HVAC Hanger to Aux. Steel Support Clips not installed per drawing instructions (NCR 3030).
Noncompliance with 10CFR 50 App B Criteria V

② Noncompliance - Infraction
- Inspection records of HVAC Hangers (in 800' level of Control Bldg) do not reflect ongoing or completed work installations.
- Inspection incorrectly verified the faulty rework installation of the HVAC Hanger/Aux Steel Clips noted in Item ①.
Noncompliance with 10CFR 50 App B Criteria X and Rack Procedure CB-QCP-15.

8. These preliminary inspection findings will be reviewed by NRC Supervision/Management at the Region III Office and they will correspond with you concerning any enforcement action.

E. H. Swenson 7/25/80
Nuclear Regulatory Commission Inspector

PRELIMINARY INSPECTION FINDINGS

1. LICENSEE Illinois Power		2. REGIONAL OFFICE III - IE RESIDENT	
3. DOCKET NUMBERS 50-461	4. LICENSE NUMBERS CIPR - 137	5. DATE OF INSPECTION 7/28 - 8/1/0	

6. Within the scope of the inspection, no items of noncompliance or deviation were found.

7. The following matters are preliminary inspection findings:

D Noncompliance - Infraction
Containment upper level. Approximately 200
horizontal cables not installed (shot) per
Sargent & Lundy Specification K2944 and
Erico manufacturers instructions 1978
Addenda.
Noncompliance with 10CFR 50 Appendix B Criteria I

8. These preliminary inspection findings will be reviewed by NRC Supervision/
Management at the Region III Office and they will correspond with you
concerning any enforcement action.

F. Kovermore
Nuclear Regulatory Commission Inspector

7/29/0