

U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No: 50-461/91009(DRS)

Docket No: 50-461

License No: NPF-62

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

Facility Name: Clinton Power Station

Inspection At: Clinton, IL 61727

Inspection Conducted: April 22-26, and May 28, 1991

Inspector: Joseph M. Utie
Joseph M. Utie

6-4-91
Date

Approved By: F. J. Jablonski
F. J. Jablonski, Chief
Maintenance & Outages Section

6-4-91
Date

Inspection Summary

Inspection on April 22-26, and May 28, 1991 (Report No. 50-461/91009(DRS))

Areas Inspected: Routine, unannounced inspection to review the implementation of the licensee's fire protection program, which included a review of licensee action on previous inspection findings, general observations of fire protection equipment, and a review of the fire protection organization, administrative controls, surveillance and maintenance activities, fire protection program changes, fire reports, information notices, and the quality assurance area. The inspector utilized inspection modules 64150, 64704 and 92701.

Results: Strengths included: (1) the control of combustibles and cleanliness of the plant, (2) the actions of the fire brigade members including the brigade leader during a fire drill, and (3) knowledgeable and well trained mechanical maintenance personnel. A weakness identified that there was no plan to conduct periodic fire damper drop tests to assure continued damper operability, as described further in Paragraph 2.

DETAILS

1. Persons Contacted

Illinois Power Company (IP)

J. Perry, Vice President
J. Cook, Plant Manager
K. Graff, Director, Quality Assurance
S. Hall, Director, Nuclear Program Assessment
J. Miller, Manager, Nuclear Station Engineering Department
K. Moore, Director, Plant Technical
R. Morgenstern, Manager, Nuclear Training
J. Palchak, Manager, Nuclear Planning and Support
S. Razor, Director, Plant Maintenance
F. Spangenberg, Manager, Licensing and Safety

U. S. Nuclear Regulatory Commission (NRC)

F. Brush, Resident Inspector

All of the above individuals attended the exit meeting held on April 26, 1991. Other persons were contacted as a matter of course during the inspection.

2. Licensee Action on Previous Inspection Findings

(Closed) 10 CFR 50.55(e) Report Deficiency 55-84-23: Fire dampers potentially failing to close under air flow conditions. To address specific plant configurations, the licensee field drop tested the four most severe damper configurations to ensure that the dampers would close under air flow conditions as tested at the Ruskin test facilities. The inspector reviewed the fire damper test methodology, field drop test results, and corrective action. No problems were identified.

However, the licensee had not planned to conduct fire damper static (drop) tests during the life of the plant. As discussed with the licensee, past experience at another plant has shown that a surveillance program without periodic operability tests has not assured operability. Also, National Fire Protection Association (NFPA) 90A, the national consensus standard covering fire dampers, specifies the need to remove fusible links and operate the fire damper to assure operability. During the exit meeting the inspector stated that since Standard Technical Specifications only require a visual inspection, there is no basis for issuing a Notice of Violation at this time; however, the lack of a plan to conduct static fire damper tests is considered a weakness and an open item pending NRC review of the licensee's evaluation on this matter (461/91009-01(DRS)).

3. Fire Protection Organization

The inspector interviewed two persons performing fire watch duties. Both individuals were adequately trained and able to describe the required emergency actions to take upon spotting smoke or a fire condition.

The inspector witnessed part of the Incident Command System (ICS) training session. The training included leaders and members of the fire brigade, plant fire protection staff and safety organization representatives. The ICS has been adopted by the National Fire Academy and is the model system for providing incident command for the fire service. The inspector witnessed this training to assess its adequacy in providing an emergency management structure for emergency personnel including those involved in directing and coordinating firefighting activities. No problems were identified.

The inspector was also informed by plant fire protection staff that new upgraded protective clothing had been received for fire brigade use.

4. Fire Drills

The inspector witnessed an unannounced fire brigade drill that involved a postulated fire in the high pressure core spray pump motor upper bearing seal reservoir. The inspector evaluated the fire brigade and support personnel actions in determining and observing the following: (1) fire brigade members' conformance with established plant firefighting procedures; (2) an assessment of the fire brigade leader's direction of the firefighting efforts; (3) actual donning and simulated use of the self-contained breathing apparatus; (4) actual donning of protective clothing; (5) simulated use of the fire hose stations; (6) use of portable radio communication equipment; (7) brigade timeliness in response and numbers of personnel responding with proper firefighting equipment; and (8) brigade leader interaction with the radiation protection and other support personnel (e.g., security on scene). The inspector provided the following observations during the post-drill critique discussions:

- ° Six fire brigade members responded with full protective clothing and self contained breathing apparatus.
- ° Response to the brigade station and to the fire area was timely.
- ° Communications and firefighting tactics worked well.
- ° Radiation protection personnel were present and monitored the area for airborne contamination.
- ° Direction by the fire brigade leader was excellent.
- ° High morale and professional attitudes were exhibited by brigade members.
- ° Proper simulated notifications were completed, including a simulated request for offsite fire department assistance.

By letter dated November 19, 1985, the cities of Clinton and Farmer City indicated that annual fire drills would be held with the licensee's fire brigade barring any unforeseen actual emergency occurring. Licensee records indicated that fire drills with the Clinton Fire Department occurred December 13, 1989, and June 20, 1990. The most recent fire drill with the Farmer City Fire Department occurred on September 17, 1990.

Additionally, the inspector visited the Clinton Volunteer Fire Department, which is the primary local offsite mutual aid fire department for the Clinton Power Station. The inspector interviewed the Clinton Fire Chief, and the Clinton Assistant Fire Chief. Both officers remarked positively about the mutual aid agreement between the city and the plant. The Clinton Fire Chief indicated that the annual training sessions had improved in recent years, scenarios were more realistic, and the Clinton fire department members had received sufficient radiation protection training. The city fire hose threads were checked for compatibility with the plant hose threads.

5. Fire Protection Administrative Controls

To determine the effectiveness of implementation of the fire protection program the inspector examined certain administrative control procedures and conducted inspections of plant safety related areas during day shift and swing shift hours to ensure vital plant equipment was adequately protected. The procedures examined were: Clinton Power Station (CPS) procedure 1893.02, "Control of Ignition Sources," Revision 4, and CPS procedure 1893.03, "Control of Flammable and Combustible Liquids and Combustible Materials," Revision 6. The procedures were well written and administratively minimized the exposure to safety related areas from combustibles.

The following observations were made:

- ° The screenhouse needed improvements in general housekeeping and cleanliness to reduce the potential for fire hazards.
- ° In the auxiliary building, on the 81' elevation, two nonflammable compressed gas cylinders were improperly secured. If tipped over a cylinder could become a missile and cause damage to safety related equipment or personnel. The licensee took action to correct the condition.

The licensee indicated that an ongoing program had been implemented to paint facility areas and improve the appearance of the plant. Except for the examples above, the programs for control of combustibles and housekeeping were considered strengths.

6. Fire Protection Surveillance and Maintenance Activities

The inspector reviewed fire protection surveillance and maintenance activities required by Technical Specifications and other procedures to assure that fire protection equipment was adequately maintained. The inspector reviewed the completed and in-process surveillance procedures delineated below.

CPS 3822.16C001, "Emergency Lighting Functional Test Checklist," Revision 2, for surveillances completed June 13, July 9, and August 2, 1990.

CPS 3822.17C001, "Safe Shutdown Evaluation Path Emergency Light Checklist," Revision 0, for surveillance completed May 7, 1990.

CPS 9981.02D001, "Fire Protection Fuel Oil Analysis Data Sheet," Revision 21, for surveillance conducted April 23, 1991.

No concerns were identified.

The inspector also observed portions of work associated with maintenance work request D14991, a major overhaul of the "A" diesel fire pump. There were no problems identified. Maintenance supervisors were present throughout the activity, which was done on the day and swing shifts. Mechanical maintenance personnel were knowledgeable and well trained in the work performed. Five plant personnel had recently attended a Cummins Engine Company diesel fire pump maintenance training course. Three plant persons were from the mechanical maintenance department, one was from quality control, and one from engineering. Overall, the inspector concluded that maintenance on fire protection equipment was adequately performed and accomplished by skilled maintenance personnel.

The inspector requested information and periodic test data to support that the designated backup pumps to the fire protection pumps could supply the required flow and pressure demands to the fire suppression systems and associated hose streams. The inspector reviewed a Sargent and Lundy (S&L) letter to the licensee dated January 18, 1988, which indicated that the plant service water system could be used as a backup if 144 psig was maintained at pressure gauge 1PIWS107. On May 8 and 10, 1991, a member of the licensee's fire protection staff reaffirmed that the plant service water system could be used as a backup to supply the fire suppression systems and associated hose streams if both fire pumps were inoperable. Additionally, the licensee indicated that abnormal operating procedure 3213.01, "Fire Detection and Protection," Revision 13, was in place to assure that appropriate actions would be taken to put the service water system in service for fire protection use without adversely affecting the nuclear safety of the plant.

The inspector also reviewed S&L letter dated April 22, 1988, regarding the ability of the construction fire pump to be used as a backup to the fire protection pumps. On May 10, 1991, the inspector was informed by the licensee that the construction fire pump was to be used only when one fire pump was inoperable. Otherwise, as previously discussed, the service water system is used. Test procedure 2103.01, "Centrifugal Pump Performance", Revision 3, was a generic centrifugal pump test and was not specifically written for the construction fire pump. Therefore, specific applicability to the construction fire pump was unclear. This matter is considered an open item which warrants consideration by the licensee (461/91009-02(DRS)).

7. General Plant Inspection of Fire Protection Equipment

The inspector observed safety related areas of the plant for general housekeeping and control of combustibles, hot work activities in progress, and the condition of fire protection systems and equipment. No welding, cutting, or use of open flame ignition sources were observed during inspector tours in the plant.

The inspector observed the positioning of valves of the fire water and carbon dioxide systems. The inspector also assessed the operability and/or integrity of interior hose stations, portable fire extinguishers, fire doors, penetration fire seals, structural steel fire resistive protection, cable tray fire wrap, fire barrier walls and floors. The inspector observed fire brigade equipment at the brigade stations to assure readiness for use and proper maintenance. All deficiencies that were observed had already been identified and documented by the licensee.

The inspector determined that administrative controls were in place to prevent a hazardous hydrogen concentration in the battery rooms. Annunciators were located in the control room, which would alarm in the control room upon low air flow in a battery room. Procedure CPS 5050.05, "Alarm Panel 5050 Annunciator Revision 5, Window 5A thru 5M," Revision 27, required that an operator be sent to the battery room during a low air flow condition. When the battery is being charged the hydrogen concentration may rapidly increase. If the concentration reached 2%, the procedure stated that it would be necessary to open the door and a portable blower set up to ventilate the room. An engineering calculation showed that at maximum equalizing charge, it would take approximately 39 days for a battery room to reach a 2% hydrogen level, which is sufficiently below the lower explosive level of approximately 4.2%.

8. Fire Protection Program Changes

The licensee is allowed by a plant license condition to make changes to the fire protection program provided that a 10 CFR 50.59 evaluation has been completed which shows the level of fire protection has not been reduced. The inspector reviewed selected portions of the annual change documents for 1987 through 1990 that included fire protection. The accompanying evaluations to support the changes were also reviewed. The inspector observed one plant area where a fire protection change allowed the removal of the fire detection system. The inspector assured that access to this area was key-controlled and that no combustibles were present. The inspector confirmed that the basis was being maintained. No problems were identified during this review.

9. Fire Reports

The inspector reviewed fire reports. Three fires had occurred, one in 1989 and two in 1990. The fires consisted of the following: (1) cafeteria microwave oven due to an internal wiring short; (2) trash placed in a cigarette butt receptacle; (3) and drawings that were ignited due to

overhead stick welding in the reactor water cleanup heat exchanger "A" room. Each of these fires was in the incipient phase of burning and was immediately identified by plant personnel. One fire was extinguished with the use of a portable fire extinguisher. The other two were extinguished by patting, which was not considered a good practice. One of the fires was extinguished by a fire watch who had not properly positioned the portable fire extinguisher for ready use. Future fire watch training will continue to reinforce the need to have portable fire extinguishers readily available during hot work activities and that notification of the control room must always occur prior to or concurrent with firefighting efforts. The inspector discussed this comment with the fire watch training instructor.

10. Information Notices

The inspector reviewed NRC Information Notices (IN) applicable to fire protection activities, including 86-17, 87-20, 88-04, 88-64, 89-04, 89-44, 90-69, and an un-numbered notice pertaining to battery packs for emergency lighting. In all cases, the inspector considered the licensee actions to be adequate.

11. Quality Assurance

The inspector evaluated the licensee's quality verification process in the fire protection area by the review of records of two QA audits. The inspector reviewed these records to assess the coverage of fire protection, technical adequacy, timeliness and adequacy of justification for closeout of corrective action documents. The audits included No. Q38-89-26 and No. Q38-90-29, which emphasized observation of fire protection activities and verification that the quality program requirements were implemented. These audit reports were viewed as performance oriented. The audit findings were technically oriented and promptly issued. Corrective actions to audit recommendations were generally completed in a timely manner. However, there were some deficiencies with the diesel fire pumps that had not been resolved in a timely manner.

12. Open Items

Open items are matters that have been discussed with the licensee and will be reviewed further by an inspector, and which involve some action on the part of the NRC or licensee or both. Open items disclosed during the inspection are discussed in Paragraphs 2 and 6.

13. Exit Meeting

The inspector met with licensee representatives (denoted in Paragraph 1) at the conclusion of the inspection on April 26, 1991, and summarized the scope and findings of the inspection. The inspector also discussed the likely informational content of the inspection report with regard to documents reviewed by the inspector during the inspection. The licensee did not identify any of the documents as proprietary. On May 28, 1991, a telephone call was held between the inspector and a licensee representative to discuss further the test criteria for the service water pumps.