

U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-461/90021(DRP)

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 Site, Clinton, Illinois

Inspection Conducted: October 4 - November 19, 1990

Inspectors: P. G. Brochman  
F. L. Brush

Approved By: Roger D. Lanksbury, Chief  
Reactor Projects Section 3B

12/17/90  
Date

Inspection Summary

Inspection from October 4 - November 19, 1990 (Report No. 50-461/90021(DRP))

Areas Inspected: A routine unannounced, safety inspection by the resident inspectors of licensee action on previous inspection findings, operational safety, radiological controls, maintenance/surveillance, security, licensee event reports, licensee effectiveness at assuring quality, and commissioner visits.

Results: Of the seven areas inspected, no violations or deviations were identified in six areas. However, one violation was identified in the remaining area: (failure to update procedure acceptance criteria - paragraph 7.a); however, in accordance with 10 CFR 2, Appendix C, Section V.G.1, a Notice of Violation was not issued.

The following is a summary of the licensee's performance during this inspection period:

#### Plant Operations

- Operations performance at power and during the shutdown were quite good, with no personnel errors. Performance during the initial part of the outage was also good for the most part. Two events were of concern: the more significant involved the miss hanging of a danger tag and the electrical shocking of a worker, the second involved the loss of 19 parts from the underwater lights inside the reactor vessel. The long term status of these lost parts will be followed (OPN 461/90021-01(DRP)).

#### Radiological Controls

- Performance during the outage remained good. Accumulated dose was down due to good shielding efforts and planning. Skin contaminations were higher than desired, but none were significant. One uptake of airborne radioactivity did occur.

#### Maintenance/Surveillance

- Most maintenance activities preceded very well; however, some events did occur which indicated that management attention needed to remain high. These events included the overstressing of Residual Heat Removal (RHR) system manway studs, overextending some RHR snubbers, and problems with AMP splices.

#### Security

- Performance in the security area showed a need to continue management attention and to improve the attention to detail by the security force.

#### Engineering and Technical Support

- A violation was identified where a procedure change was not properly made and a valve was tested with incorrect acceptance criteria. This indicated weaknesses still remained in the area of procedure updating and communications (NCV 461/90021-02(DRP)).

#### Safety Assessment and Quality Verification

- The quality of the licensee's LERs remained acceptable.
- The evaluation of the licensee's self assessment program showed that it was an excellent program and was producing results.

## DETAILS

### 1. Persons Contacted

#### Illinois Power Company (IP)

- \*J. Perry, Vice President
- \*J. Cook, Manager, Clinton Power Station
- \*R. Wyatt, Manager, Quality Assurance
- \*J. Miller, Manager, Nuclear Station Engineering
- \*F. Spangenberg, III, Manager, Licensing and Safety
- \*R. Morgenstern, Manager, Scheduling and Outage Management
- \*D. Gill, Manager, Nuclear Training
- \*J. Palchak, Manager, Nuclear Planning and Support
- \*P. Yocum, Director, Plant Operations
- \*S. Rasor, Director, Plant Maintenance
- \*R. Phares, Director, Licensing
- \*S. Hall, Director, Nuclear Program Assessment
- \*J. Sipck, Supervisor, Regulatory Interface

#### Soyland Power

- \*J. Greenwood, Manager, Power Supply

The inspectors also contacted and interviewed other licensee and contractor personnel during the course of this inspection.

\*Denotes those present during the exit interview on November 19, 1990.

### 2. Action on Previous Inspection Findings (92702)

- a. (Closed) Unresolved Item (461/87035-04(DRS)): No required sequence for procedural steps were identified in several maintenance work requests. Because this item has little or no safety significance and has been open for a prolonged period of time, this item is being administratively closed; in accordance with a memorandum from S. Burgess to P. Brochman, dated October 31, 1990. Consequently, the inspector has no further concerns or questions regarding this issue.
- b. (Closed) Open Item (461/87035-05(DRS)): Review of components and equipment for adequate preventive maintenance coverage. Because this item has little or no safety significance and has been open for a prolonged period of time, this item is being administratively closed; in accordance with a memorandum from S. Burgess to P. Brochman, dated October 31, 1990. The inspector has no further concerns or questions regarding this issue.
- c. (Closed) Violation (461/89014-03(DRP)): Failure of the Shift Supervisor/Assistant Shift Supervisor to correctly evaluate the impact on other equipment and plant operations when removing instrument air from service to the containment. On March 20, 1989, the Shift

Supervisor/Assistant Shift Supervisor ordered that service air to the containment be removed from service. This resulted in the loss of air to the steam dryer storage gate pool seal and the draining of approximately 40,000 gallons of water into the drywell. The licensee's corrective actions included: Issuing a night order to the shift supervisors to perform a plant impact assessment as part of the tagout approval process and to emphasize the need to utilize reference documents while performing this assessment, All Shift Supervisors were briefed on this event, and Clinton Power Station (CPS) procedures 1014.01, "Safety Tagging Procedure" and 3214.01, "Plant Air (IA & SA)" have been revised. Based on the licensee's actions, the inspectors had no further concerns, and this matter was considered closed.

- d. (Closed) Violation (461/90016-02(DRP)): Failure to adequately control flammable liquids. The inspectors discovered a flammable liquid, acetone, in approved containers but unattended in four locations of various safety-related structures. They also discovered acetone in an unapproved container in one of the safety related structures. The licensee's corrective actions included: providing a memorandum for each keycard holder to ensure they are aware of the proper handling requirements for flammable liquids, briefing IP plant personnel on this issue, revising General Employee Training (GET) to provide instruction on the proper handling of small quantities of flammable liquids, changing the method for removing flammable liquids from contaminated areas, and revising CPS procedure 1893.03 to provide better guidance on the control of transient materials. Based on the licensee's actions, the inspectors had no further concerns, and this matter was considered closed.
- e. (Closed) Unresolved Item (461/90019-02(DRP)): Adequacy of the licensee's root cause analysis following failure of the Division III Shutdown Service Water (SX) pump. On May 14, 1990, the Division III SX pump failed to start during a routine surveillance. The thermal overloads for the pump's breaker were found tripped. Upon investigation, the licensee found that the pump shaft could not be turned by hand. When a strap wrench was applied, no flexing of the shaft was observed below the packing gland and the licensee believed the packing gland was too tight and that the packing had dried out. The licensee was able to use the strap wrench to break free the shaft which could then be turned by hand. The packing gland was loosened and the pump started. The packing was run-in (adjusted) again and the pump was tested for adequate pressure, flow, and vibration; and was declared operable.

The pump was not run again until August 17, 1990, when again it would not start, during performance of its quarterly surveillance.

The licensee found that the shaft again could not be turned by hand and an operator was unable to turn the shaft with a strap wrench. When the strap wrench was applied initially, by an auxiliary operator, he could see flexing below the packing gland; however, the shaft could not be turned. This led the licensee to believe that the packing gland was not frozen and that torque applied to the shaft was

being transmitted down into the pump. A very strong mechanic was able to finally break the shaft loose, using the strap wrench; however, the shaft could not subsequently be turned by hand, but could now be started with the motor. When the motor was secured the shaft stopped rotating immediately and the coast down time was estimated at 1.5 revolutions of the shaft. The pump was restarted and left running until it could be repaired. When the pump was removed and opened for inspection, evidence of significant silting was found around the shaft bearings and lantern ring. This caused the pump shaft to become heavily scored. The results of the inspection were discussed further in inspection report 461/90019(DRP). The licensee replaced the worn and damaged parts, reassembled and reinstalled the pump, and the pump was then tested for flow, pressure, and vibration. The coast down time was also measured at 10 seconds. Based on the results of the inspection and the differences when the pump was first inspected during each event (shaft movement/flexing and the ability to turn the shaft by hand) the licensee believes that the two events were dissimilar and that while the silting problem may have existed at the time of the first event, it was masked by the dried out packing gland; consequently, the second failure could not have been prevented by the corrective actions performed in response to the first failure. The inspectors have reviewed this information and agree with its conclusions and this item is considered closed.

- f. (Closed) Unresolved Item (461/90019-03(DRP)): Questions with the seismic operability of the control room chillers. On September 4, 1990, during preparations for the refueling outage, a licensee engineer was walking down the control room chillers (VC) to obtain information on the torque values for the chiller motor terminal boxes studs. The engineer identified that the installed configuration of the chillers and the vendor's design drawings did not match the seismic qualification document (SQ-CL314). This discrepancy was not reported to the shift supervisor immediately because the engineer believed that the SQ package was incomplete. The next day, engineering contacted the vendor, Carrier Corporation, to resolve the discrepancy. The discrepancy involved the absence of two braces which would support the chiller motor terminal box.

On September 25, 1990, after the vendor was unable to resolve the omission of the support braces, the licensee declared both trains of VC inoperable and entered Technical Specification 3.0.3 at 3:30 p.m. By 7:27 p.m., the terminal box for the "A" chiller had been removed and the "A" train of VC was declared operable. At 10:42 p.m., on September 28, 1990, the "B" train of VC was declared operable when the braces were installed. The braces were installed on the "A" chiller by 11:15 a.m. on October 5, 1990.

The licensee initiated an investigation to determine the cause for the missing braces and their impact on the seismic operability of the chillers.

By October 19, 1990, the licensee had received an analysis from its Architect/Engineer that the chillers would have withstood a design basis seismic event without the presence of the support braces. This was contained in a letter from I. A. Garza (Sargent and Lunby) to



J. A. Miller (Illinois Power), dated October 19, 1990, (SLMI-23906). The inspectors reviewed this letter and agreed with its conclusions. The root cause of this event was still under investigation by the licensee at the end of the report period. The licensee forwarded this information to the NRC in a letter from F. A. Spangenberg, III (IP) to A. B. Davis (NRC), dated November 8, 1990, (U-601757). Based on this review, the inspectors considered this item closed.

### 3. Plant Operations

The unit operated at power levels up to 84% until October 14 when it was shutdown for its second refueling outage. The unit remained shutdown for the rest of the report period.

#### Operational Safety (71707)

The inspectors observed control room operation, reviewed applicable logs and conducted discussions with control room operators during October and November 1990. During these discussions and observations, the inspectors ascertained that the operators were alert, cognizant of plant conditions, and attentive to changes in those conditions, and that they took prompt action when appropriate. The inspectors verified the operability of selected emergency systems, reviewed tagout records, and verified the proper return to service of affected components. Tours of the containment, drywell, auxiliary, fuel-handling, diesel and control, radwaste, and turbine buildings were conducted to observe overall plant equipment conditions, including potential fire hazards, fluid leaks, and excessive vibrations. Maintenance requests were verified to have been initiated for equipment in need of maintenance.

The inspectors verified by observation and direct interviews that the physical security plan is being implemented in accordance with the station security plan.

The inspectors observed plant housekeeping/cleanliness conditions and verified implementation of radiation protection controls. The inspectors also witnessed portions of the radioactive waste system controls associated with rad-waste shipments and processing.

The observed facility operations were verified to be in accordance with the requirements established under Technical Specifications, 10 CFR, and administrative procedures.

#### a. Loose Parts in the Reactor Vessel

On October 29, 1990, licensee personnel discovered a 1/2-inch flat washer lying on the separator flange inside the reactor vessel. The licensee developed a plan to retrieve the washer. The inspectors' observed the licensee successfully retrieve the washer on October 30, 1990. The washer was determined to be stainless steel, sized for a 1/4-inch bolt, and had never been irradiated (brand new). The licensee was unsure where the washer had come from and was performing

additional underwater examinations using a video camera, when a 1/2-inch nylon bushing was seen. After finding this second item, the licensee decided to remove and inspect the underwater lights to determine if they were the source of the loose parts. Upon inspection of the lights, the licensee determined that 6-nuts, 2-bolts (1/4 - 20 by 3/4-inch), 5-flat washers, and 6-nylon bushings were all missing from the four underwater lights which had been inside the reactor vessel, for a total of 19 missing items. The licensee assumed that all of the missing parts were in the reactor vessel as a conservatism.

The underwater lights were all brand new and had just been installed on October 25, 1990, after the separator was removed. By the end of the report period the licensee had completed an underwater survey of the top of the reactor core and the annulus space between the core shroud and the reactor vessel wall. Only two of the parts were found and retrieved. The licensee suspended looking for the remaining parts until after the refueling was completed. The licensee obtained a "lost parts analysis" from General Electric which assessed the impact of leaving the other 17 pieces inside the reactor vessel, should they be unrecoverable. The licensee has stopped looking for the parts and commenced the fuel shuffle on November 21. The licensee has not yet made a decision if additional searches would be performed after the fuel shuffle is completed. The licensee's intentions were to remove as many pieces as were recoverable. Should some of the pieces be unrecoverable the inspectors will review the licensee's safety evaluation of this "lost parts analysis" before the reactor vessel is reassembled and this issue will be tracked as open item (461/90021-01(DRP)).

b. Improperly Installed Temporary Modification

During inspection of the cubicle for the breaker for valve 1SX020A, the licensee found two "Startup Field Alterations" SX50-21 and SX50-22 installed. These field alterations were installed in 1984 and were lifted leads. The affect of these lifted leads was to cause the Division I SX - Service Not Available status light to come on continuously. The licensee had been treating this status light as a control room distraction, but had been unable to resolve it since initial plant operation. All "Startup Field Alterations" were supposed to have been cleared before the operating license was issued or converted to "Temporary Modifications" in accordance with licensee procedures. The licensee relanded the lifted leads and removed the "Startup Field Alterations" tags. The licensee was in the process of inspecting all of the other components from tagout SX50 to ensure that they were in their proper configuration. These temporary modifications did not affect the ability of valve 1SX020A to perform its design function. The inspectors will review the results of the licensee's inspection in a subsequent report.

c. Damaged Hydraulic Snubber

On October 31, 1990, during a routine tour of the 799' elevation of the drywell, the inspector identified oil leaking from hydraulic snubber 1S102B. The licensee investigated and found the oil reservoir empty, the fill plug loose and the appearance of a fresh leak. The snubber had successfully completed a VT-3 visual inspection on October 24, 1990. The snubber was scheduled to be removed and functionally tested later in the outage. The licensee investigated this event and believed that workers stepped on the snubber while climbing up and down to temporary scaffolding in the drywell. The licensee reiterated to all workers in the drywell the need to be careful and not to step on snubbers, struts, or mirror insulation. The design torque of the fill plug was little more than finger tight and the plugs were not sealed or secured. The licensee's evaluation of additional corrective actions following this event were continuing and will be evaluated by the inspector in a subsequent report.

d. Spent Fuel Pool Overflows

On October 17, 1990, the spent fuel pool in the fuel building overflowed. The fuel pool cooling system (FC), which normally controls water level in the spent fuel pool, was shutdown for maintenance. In parallel, the blank flange was removed from the Inclined Fuel Transfer System (IFTS) to prepare for moving fuel. The upper IFTS valve was open and the lower IFTS valve leaked, which allowed approximately 600 gallons of water to drain from the containment pool to the spent fuel pool. This caused the spent fuel pool level to rise and the pool overflowed into the fuel building ventilation system and subsequently leaked out of the ventilation ducts in several areas of the bottom of the fuel handling building. The condition was discovered by operations personnel who noticed that it was "raining" inside the fuel building. The licensee shut the upper IFTS valve and restarted the FC system which restored level to its normal band in the spent fuel pool. The contaminated areas were roped off and cleaned up.

e. Electrical Shock Received Due To Incorrectly Tagged Circuit Breaker

On November 3, 1990, an electrician working on containment electrical penetration 1EE18E, received a small electrical shock. Breaker 9 left (9L) of motor control center (MCC) 1A1, cubicle 11C, 120V distribution panel was found shut; vice, danger (red) tagged open. Tag #180, which was supposed to be on breaker 9L was found on breaker 12R. On October 27, 1990, tagout 90-0412 was issued for work on penetration 1EE18E and was verified as correct. Subsequently MCC 1A1 was tagged out for maintenance. Included in this maintenance was testing of molded case 120V circuit breakers.

Clinton procedure CPS No. 1014.01, "Safety Tagging," paragraph 4.2, required that a component with a red tag attached shall not be altered or removed from its physical location with the exception of a racked-out breaker which may be removed with the tag on the breaker compartment. To allow both jobs, the penetration work and the testing of the breakers, the operations department should have added the feeder breaker to MCC 1A1 to the tagout for penetration 1EE18E



and then cleared the tags on breakers 9L and 12L, reversing this process when the work on the breakers was done. Instead, operations personnel removed the tag from the breaker and hung it on the load side wire. The 9L breaker was reinstalled on October 31, the same shift that it was removed and the tag was rehung on the 9L breaker; however, breaker 9R had a stripped screw hole and could not be reinstalled. Since this panel powered circuits which feed through containment penetrations, the breakers were wired in series. The standard practice was to tag only the left breaker, as tagging both would have been superfluous. The 9R breaker was reinstalled on November 1 and was left open.

The licensee was unable to establish how the tag got from breaker 9L to 12R and how breaker 9L and 9R got closed. The licensee suspected that the tag on 9L was bumped by parties unknown or fell off and was rehung by an unknown individual on breaker 12R, rather than contacting the operations department.

Subsequently, breakers 9L and 9R were closed by other operations personnel during restoration from the breaker work and/or re-energization of the MCC. Contributing problems were the fact that the tag was only attached with tape to the breaker and was not tied to it, the load list on the panel was out of date, and an unapproved operator aid was written on the panel next to breaker 12R of "SLC". The label on tag #180 said it was for a valve in the Standby Liquid Control (SLC) system.

The inspectors identified several concerns to operations department management following this event: (1) The practice of attaching tags to breakers using tape, instead of using strings through the breaker handle, (2) the out of date load lists on 120V panels, and (3) operations department personnel taking shortcuts rather than following what the inspectors believed to be the clear and unambiguous policy of CPS No. 1014.01.

As corrective actions, operations department management reiterated the policy to all personnel and made changes to the outage schedule on when work will be done on 120V molded case circuit breakers. Policy was clarified to state that only 6.9KV, 4.16KV, and 440V breakers can be racked-out and removed with red tags on the cubicles. The licensee was evaluating methods for attaching red tags to breakers. The inspectors will review the results of the licensee's corrective actions in a subsequent report.

No violations or deviations were identified.

#### 4. Radiological Controls (71707)

On November 3, 1990, an event occurred where eight workers were exposed to airborne radioactivity without the appropriate respiratory protection. Work was in progress on the "A" Residual Heat Removal (RHR) pump and the "A" RHR heat exchanger. These components were in separate rooms, but the atmosphere in the two rooms communicated freely. The workers in the

pump room were wire brushing the internals of a highly contaminated valve and were wearing respirators. The workers in the heat exchanger room were working on the outside of the heat exchanger and were not wearing any respiratory equipment. Additionally, the normal ventilation for the auxiliary building was secured; consequently, the air flow patterns were not normal.

At 1:00 p.m., two individuals exited the heat exchanger room and alarmed the PCM-1B whole body friskers. With no obvious surface contamination, the licensee's radiological protection (RP) office evacuated the other six workers and they also had indications of contamination. All eight workers were given a whole body count which indicated the presence of Co-60 and Mn-54, in two of the workers. The licensee's calculations indicate the maximum uptake by the workers was 40 nano Curies (nCi). This would equate to a 50 year equivalent dose of 51 mrem to the lungs and 9 mrem to the whole body. The licensee contacted their medical consultant to evaluate the body burden and provide any advice to the workers. After three days the workers were recounted to determine the permanent body burden (some of the uptake rapidly passes out of the body via the gastrointestinal tract). The recount indicated a body burden of 4 nCi. This equated to an equivalent dose of less than 1 mrem to the whole body and less than 5 mrem to the lungs. The licensee initiated an investigation of this event and disseminated word of this event to all workers onsite. This event will be reviewed in a subsequent report by regional specialist inspectors.

No violations or deviations were identified.

5. Maintenance/Surveillance (61726, 62703, & 73756)

a. Monthly Maintenance and Surveillance Observations

Station maintenance and surveillance activities of the safety-related systems and components listed below were observed or reviewed to ascertain that they were conducted in accordance with approved procedures, regulatory guides, industry codes or standards, and in conformance with Technical Specifications.

- CPS 9080.03, DG 1A Operability - 24 Hour and Loss Of Offsite Power Test
- Division I and III diesel generator 18 month inspection
- Replacement of Local Power Range Monitors (LPRMs)
- Replacement of containment penetration 1EE18E and 1EE28E terminal strips with Raychem splices
- Division I RHR heat exchanger inspection
- Removal of safety relief valves
- Disassembly of the 1E12f028A Main Steam Isolation Valve

- Inspection of High Pressure and Low Pressure Core Spray testable check valves
- Functional testing of mechanical snubbers
- Inspection and adjustment of the Reactor Core Isolation Cooling turbine governor

The following items were considered during this review: the limiting conditions for operation were met while affected components or systems were removed from and restored to service, approvals were obtained prior to initiating work or testing, quality control records were maintained, parts and materials used were properly certified, radiological and fire prevention controls were accomplished in accordance with approved procedures, maintenance and testing were accomplished by qualified personnel, test instrumentation was within its calibration interval, functional testing and/or calibrations were performed prior to returning components or systems to service, test results conformed with Technical Specifications and procedural requirements and were reviewed by personnel other than the individual directing the test, any deficiencies identified during the testing were properly documented, reviewed, and resolved by appropriate management personnel, work requests were reviewed to determine the status of outstanding jobs and to assure that priority was assigned to safety-related equipment maintenance which may affect system performance.

(1) Containment Penetration and Junction Box Wire Splicing

Approximately 300 terminations were changed from terminal board connections to parallel splices during Planned Outage 3 (PO-3) in early 1990. Approximately 4000 terminations were scheduled to be replaced during the present refueling outage. The first eight terminations that were completed during the present outage had to be reworked when a craft electrician determined that he had used the wrong die in the crimping tool and reported his mistake to management. The inspectors considered this a positive indication of craft workers identifying problems to management and management evaluation and disposition of problems. Additional concerns were identified by inspectors on the sizing of lugs to be used to make these splices. These issues were reviewed by a region based inspector and will be discussed in inspection report 461/90024(DRS).

(2) Overtorquing of RHR Heat Exchanger Studs

On November 4, 1990, workers resumed torquing of studs on the manway of the 1A Residual Heat Removal (RHR) heat exchanger (HX) which had been removed to allow the inspection of the HX for microbiologically influenced corrosion (MIC). The torquing had been interrupted by the events described in paragraph 4. At the same time the workers were having problems with the hydraulic torque wrench, as it appeared to be losing efficiency.

Consequently, after the work was resumed the workers were using a different head on the torque wrench. The torque wrench read out in psi and this value was calibrated to equate to torque in foot-pounds.

When workers checked the stud stretch to determine the torque which had been applied, they found that 15 studs had been overtorqued. The licensee performed an engineering analysis on the studs, the manway, and the HX flange. The manway and flange were not exposed to excessive stress levels; however, the affected studs were replaced. The licensee successfully completed the torquing of the studs.

(3) RHR Snubbers Over Extended

On November 14, 1990, licensee personnel discovered that several snubbers on a section of RHR piping had bottomed out after temporary rigging had been removed from the pipe the snubbers were connected to. Valve 1E12F055A was a safety valve in the RHR system, which was removed for testing. During the removal, licensee personnel had determined that it was necessary to provide temporary support for pipe 1RH30BA-12. This pipe runs from the discharge of the valve to the suppression pool and was 12-inches in diameter. The temporary rigging was accomplished with nylon slings and a 1.5 ton "come-a-long", secured to a rigging beam on November 10 when the valve was removed. The licensee was performing a stress analysis on the piping and intended to remove and test any snubbers which may have been over extended. The licensee had initiated an investigation to determine how the temporary rigging was removed. The inspectors will review the results of the licensee's analysis, testing, and investigation in a subsequent report.

b. Review of Check Valve Monitoring Program (73756)

The inspectors commenced a review of the licensee's program for monitoring the performance of check valves in safety-related applications. The licensee's program for monitoring check valves was defined in Nuclear Station Engineering Department (NSED) document RDF-02217-NSED. The inspectors began a review of the licensee's program and check valve records. The inspectors observed the disassembly and inspection of some check valves, including the Low Pressure Core Spray (LPCS) and High Pressure Core Spray (HPCS) testable check valves. These valves had failed their initial Local Leak Rate Test (LLRT). The valves passed their LLRT after the valve seats were reworked. The inspectors expressed a concern with licensee management over the fact that these valves had been reworked in the first refueling outage, successfully passed a LLRT, had no flow through them during the last operating cycle (no emergency core cooling system actuations occurred) and then could not pass a LLRT during the current (second) outage. Licensee management believed that this condition was not abnormal, as these valves were exposed to



thermal cyclic transients and pressure transients as the reactor was heated up and cooled down and pressure went from 0 to 1000 psig. Additionally, three of the main feedwater check valves also failed their LLRTs. They were scheduled to be inspected later in the refueling outage. The inspectors were continuing their review of the licensee's check valve program.

No violations or deviations were identified.

## 6. Security

### Access to Protected and Vital Areas (71707)

On three separate occasions contract employees were granted access to the protected area, before the security screening process was completed. In one case, the contractor had access to vital areas. The causes of each event were different. In all three cases the background investigations were completed satisfactorily and the individuals access was restored. These events will be reviewed in a subsequent report by regional specialist inspectors.

Other examples of lack of attention to detail by the security force were identified by the licensee. These included: issuance of the wrong badge to an individual, an unlocked badge collection box, allowing an individual to pass through the metal detector three times, a semi-trailer that came onsite was not properly guarded until it was searched, and an ambulance crew that came on site was not promptly issued dosimetry. These issues will be reviewed by regional specialist inspectors in a subsequent report.

No violations or deviations were identified.

## 7. Engineering and Technical Support (92700 & 37700)

- a. On October 15, 1990, the licensee discovered that the Division I Shutdown Service Water (SX) pump room cooling coil outlet valve (1SX010A) failed its stroke time test. Procedure 9069.01, Shutdown Service Water Operability Test, stated that the acceptable stroke time for this valve was 4 seconds. The procedure was performed on September 10, 1990, and the valve stroked in 2.4 seconds. However, the Inservice Inspection (ISI) Program had changed the stroke time from 4 to 2 seconds on March 5, 1990. A Procedure Change/Justification from the Nuclear Station Engineering Department (NSED) was issued on March 2, 1990, but was not incorporated into CPS Procedure 9069.01 in a timely manner. The procedure change was given a Comment Control Form number and placed in the file with the other CCFs for that procedure. Procedure 9069.01 stated that if a valve does not meet its stroke time requirements it is inoperable. The licensee gagged open the valve, which was its post accident position, on October 15, 1990.

The valve was technically inoperable from September 10 to October 15, 1990, although it would have performed its safety function. The licensee had reduced the allowable stroke time from 4 seconds to 2 seconds to avoid having to trend the stroke time of the valve, as required by the American Society of Mechanical Engineers (ASME) code, Section XI, for all valves that have stroke times longer than 2 seconds. Previous to this event, the valve had typically stroked in approximately 1.8 seconds. The design basis stroke time for this valve had always remained at 4 seconds.

10 CFR Part 50, Appendix B, Criterion V, required in part, that instructions, procedures, or drawings shall include appropriate quantitative or qualitative acceptance criteria for determining that important activities have been satisfactorily accomplished. Contrary to the above, CPS No. 9069.01 did not contain the correct acceptance criteria for the referenced valve stroke time because of a failure to update it in a timely manner. The licensee revised this procedure and reviewed with the ISI and Procedure Writers Group the importance of correctly making changes to critical aspects of procedures. Since this violation met the criteria of Section V.G.1. of the Enforcement Policy of 10 CFR Part 2, Appendix C, a Notice of Violation was not issued, and this issue was considered closed (NCV 461/90021-02(DRP)).

b. Reactor Core Isolation Cooling (RCIC) Room Cooler

Inspection Report No. 50-461/90005(DRS) documented apparent violations of NRC requirements associated with the Shutdown Service Water (SX) System. In response to this report the licensee performed new calculations in modeling the effectiveness of room coolers. As a result of these efforts, the licensee has determined that the RCIC equipment room ambient temperature high trip isolation setpoint was non-conservative. The trip setpoint was based on a design basis leak of 25 gallons per minute (gpm) into the room. Based on the new computer modeling of the room cooler's efficiency, the licensee determined that the room cooler was sized such that it would have taken a leak larger than 25 gpm to raise the room's temperature to above the 222.5° F setpoint. The licensee declared RCIC inoperable until the setpoint was lowered to the new value of 190° F. Other isolation signals were always operable and available to isolate the RCIC system should a design basis steam line break have occurred. Since the original analysis was never incorrect, but the new analysis was more refined, the inspectors had no further concerns regarding this issue, and it was considered closed.

No deviations were identified; however, one violation was identified, for which a Notice of Violation was not issued.

8. Safety Assessment and Quality Verification

a. Licensee Event Report (LER) Follow-Up (90712 & 92700)

Through direct observation, discussions with licensee personnel, and review of records, the following LERs were reviewed to determine that

the reportability requirements were fulfilled, immediate corrective action was accomplished, and corrective action to prevent recurrence had been accomplished in accordance with Technical Specifications. Based on these reviews, these LERs are considered closed.

<u>LER No.</u>	<u>Title</u>
461/89037	Two Drywell Vacuum Relief Valves Opened Simultaneously Contrary To Technical Specifications During Troubleshooting
461/89034	A Process Radiation Monitor Was Not Verified As Operable Before Being Placed In Service As Required By Technical Specifications Due To Inadequate Training, Personnel Error, And Inadequate Communications

b. Evaluation of Licensee's Self Assessment Capability (40500)

The inspectors evaluated the licensee's self-assessment programs to determine their effectiveness at monitoring and evaluating plant and personnel performance, providing assessments and findings, and communicating and following up on corrective action recommendations. These activities can be described under four broad functions. The offsite review committee (Nuclear Review and Audit Group [NRAG]), the onsite review committee (Facility Review Group [FRG]), the Independent Safety Engineering Group (ISEG), and the Nuclear Programs and Assessment Group (NPAG).

(1) Offsite Review Committee

The NRAG fulfilled the licensee's requirement for an offsite review group. The inspectors received copies of all NRAG meeting minutes and reviewed them over the course of this Systematic Assessment of Licensee Performance (SALP) cycle. The inspectors reviewed the composition, meeting frequency, responsibilities of the NRAG against the requirements of Technical Specifications and determined that the requirements were exceeded in most cases and met in all cases.

The NRAG was composed of selected plant managers, and outside consultants, and members of academia. All of the outside consultants had many years experience in the various aspects of nuclear power, including reactor safety, design, radiation safety, quality assurance, maintenance, operations, and management and organization. The inspector did note that none of the outside NRAG members operate other nuclear power plants, but several of them do sit on the other plants NRAGs, so experiences at other facilities are brought to Clinton. The outside NRAG members are in charge of various subcommittees, depending on their area of expertise. The inspector observed that the subcommittees would visit the site periodically and would

investigate and evaluate various issues. The NRAG met in the Clinton Visitor Center which was adjacent to the plant.

The inspectors' observations of NRAG meetings is of a spirited discussion, with safety as the focus and no evidence of domination by management. Issues were discussed in depth. A tracking system was established to review outstanding NRAG items and they are discussed at each meeting. The inspectors' overall conclusion was that the NRAG was very effective and independent.

(2) Onsite Review Committee

The FRG fulfilled the licensee's requirement for an onsite review group. The inspectors received copies of all FRG meeting minutes and reviewed them over the course of this SALP cycle. The inspectors reviewed the composition, meeting frequency, and responsibilities of the NRAG against the requirements of Technical Specifications and determined that the requirements were exceeded in all cases.

The FRG was composed of selected plant directors and supervisors and reviewed safety evaluations, procedure changes, modifications, plant trips, and corrective actions for selected condition reports. All outstanding FRG items were tracked and assigned to an individual for resolution. Issues were discussed in depth and indicated a multidisciplinary understanding of the problems. The inspectors observed over the course of the SALP period that numerous modifications and procedure changes were returned to the originator to resolve questions and improve the product.

The inspectors did not observe any interference by plant management in the FRG meetings and in fact management had taken a "hands-off" approach to give the FRG the necessary independence. The inspectors' overall conclusion was that the FRG was very effective, independent, and served to improve plant safety.

(3) Independent Safety Review Group

The ISEG fulfilled the licensee's requirement for an independent technical review of activities at Clinton. The inspectors reviewed the composition, report frequency, and responsibilities of the NRAG against the requirements of Technical Specifications and determined that the requirements were exceeded in all cases. The inspectors reviewed nine reports of the approximately 23 issued during the current SALP period.

The ISEG reviewed all LERs from Clinton and from other BWR-6 reactors, plus Institute for Nuclear Power Operations (INPO) reports, plus other trending documents. The ISEG also conducts independent evaluations of problems and made recommendations for procedure or process changes. The ISEG reported through the Manager of Licensing and Safety, but did have the authority to go



directly to the vice-president of nuclear operations, should the need arise.

Some examples of where review of outside events had resulted in changes in Clinton procedures to reduce the likelihood of those same events occurring at Clinton, included the charcoal absorber fire at Perry and the loss of offsite power at Vogtle. The ISEG also evaluated the effect of light loads (less than 2000 pounds) being dropped in the open reactor vessel when secondary containment integrity was not established. The conclusions indicated that the release from this postulated accident could exceed design basis exposure limits at the site boundary.

The inspectors overall conclusion was that the ISEG was effective in performing an independent evaluation of engineering issues at Clinton. The inspectors did note in reviewing the qualification of the ISEG members that the weakest areas of expertise were in operations and electronics (i.e., instrumentation and control).

(4) Other Management Oversight Functions

The NPAG along with the Quality Assurance (QA) organization provided an additional tool for management assessment of performance at Clinton. This group assembles the monthly and weekly management status reports and performed trend analysis of the statistical information. This group also kept track of progress on licensee initiatives and improvement programs.

The licensee had recently hired two assessors to work in NPAG. The purpose of these assessors was to provide an experienced, independent evaluation of licensee performance in selected areas (radiation protection, chemistry, operations, and maintenance).

The licensee also obtained outside third party audits and evaluations, such as that performed on the quality assurance organization in September and October 1990. The inspectors' overall assessment of these activities was that they were a positive effect on improving plant safety.

Based on a review of each of these areas, the inspectors have concluded that the licensee's program was very effective and that in-depth evaluations of plant performance, review of licensee policies and procedures, assessment of operating experience and industry events, and generation of recommendations to improve the safety and performance of Clinton are made and submitted to management.

c. Follow-up on a Region III Request

A memorandum from Region III, dated September 26, 1990, requested

the inspectors to obtain information concerning the possibility of the nitrogen and breathing air systems being cross connected. The inspectors obtained information from the licensee who stated that these systems were completely separate and independent at Clinton. This information was forwarded to the region on October 12, 1990.

No violations or deviations were identified.

9. Commissioner Visit

On November 15, 1990, Commissioner Forest J. Remick, accompanied by A. B. Davis, Regional Administrator, E. Doolittle, Technical Assistant, and the resident staff toured Clinton station and met with licensee management and staff.

10. Open Items

Open items are matters which have been discussed with the licensee, which will be reviewed further by the inspector, and which involve some action on the part of the NRC or licensee or both. An open item disclosed during the inspection is discussed in paragraph 3.a.

11. Items For Which A "Notice Of Violation" Will Not Be Issued

The NRC uses the Notice of Violation as a standard method for formalizing the existence of a violation of a legally binding requirement. However, because the NRC wants to encourage and support licensee initiative in the self-identification and correction of problems, the NRC will not generally issue a Notice of Violation for an issue that meets the tests of 10 CFR 2, Appendix C, Section V.G.1. These tests are: 1) the issue was identified by the licensee; 2) the issue would be categorized as Severity Level IV or V violation; 3) the issue was reported to the NRC, if required; 4) the issue will be corrected, including measures to prevent recurrence, within a reasonable time period; and 5) it was not a issue that could reasonably be expected to have been prevented by the licensee's corrective action for a previous violation. An issue involving the failure to meet regulatory requirements, identified during the inspection, for which a Notice of Violation will not be issued is discussed in paragraph 7.a.

12. Exit Interview

The inspectors met with the licensee representatives denoted in paragraph 1 at the conclusion of the inspection on November 19, 1990. The inspectors summarized the purpose and scope of the inspection and the findings. The inspectors also discussed the likely informational content of the inspection report, with regard to documents or processes reviewed by the inspectors during the inspection. The licensee did not identify any such documents or processes as proprietary.