

U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-461/88003(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, IL

Inspection Conducted: January 11 through February 17, 1988

Inspectors: P. Hiland
S. Ray
M. McCormick-Barger
J. Schapker

Approved By: *R C Knop*
R. C. Knop, Chief
Reactor Projects Branch 3

2/26/88
Date

Inspection Summary

Inspection on January 11 through February 17, 1988 (Report No. 50-461/88003(DRP))

Areas Inspected: Routine, unannounced safety inspection by the resident inspectors of licensee action on previous inspection findings; information notice followup; generic letter followup; onsite followup of written reports of nonroutine events at power reactor facilities; operational safety verification; engineered safety feature system walkdown; monthly maintenance observation; monthly surveillance observation; training effectiveness; onsite followup of events at operating reactors; regional requests; and management meetings.

Results: Of the 12 areas inspected, one violation was identified in the area of Engineered Safety Feature system walkdown. This violation was receiving licensee management attention. In addition, one unresolved item was identified in the area of Engineered Safety Feature system walkdown. The unresolved item concerned incorrect procedural changes and was receiving licensee management attention.

1. Personnel Contacted

Illinois Power Company (IP)

- #W. Gerstner, Executive Vice President
- * D. Hall, Vice President, Nuclear
- * K. Baker, Supervisor I&E Interface
- * R. Campbell, Manager - Quality Assurance
- *#J. Cook, Manager, Nuclear Planning and Support
- #E. Corrigan, Director Quality Engineering and Verification
- *#R. Freeman, Manager, Nuclear Support Engineering Department
- D. Holesinger, Assistant Plant Manager
- *#A. MacDonald, Director - Nuclear Program Assessment
- *#J. Miller, Manager, Scheduling & Outage Management
- #J. Perry, Manager - Nuclear Program Coordination
- *#F. Spangenberg, Manager - Licensing & Safety
- *#J. Weaver, Director - Licensing
- *#J. Wilson, Manager - Clinton Power Station
- #R. Wyatt, Director - Nuclear Training Department

Soyland/WIPCO

- #J. Greenwood, Manager Power Supply

Nuclear Regulatory Commission

- *#P. Hiland, Senior Resident Inspector, Clinton
- #S. Ray, Resident Inspector, Clinton
- #R. Knop, Chief, Section 1B, Region III
- #H. Miller, Director, Division of Reactor Safety, Region III
- M. McCormick-Barger, Project Inspector, Region III
- J. Schapker, Specialist Inspector, Region III

Denotes those attending the management meeting on January 21, 1988.

* Denotes those attending the monthly exit meeting on February 17, 1988.

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

2. Previously Identified Items (92701)(92702)

- a. (Closed) Open Item (461/86060-01): The licensee was to perform two assessments of control room activities following initial criticality. These assessments were performed by the licensee prior to a Region III Operational Readiness Team Inspection documented in Inspection Report 50-461/87010. At the conclusion of that inspection, this item remained open pending completion of the licensee's planned monitored evolutions to be performed at the conclusion of Test Condition 2.

As previously documented in Inspection Report 50-461/87031, paragraph 12, the results of those monitored evolutions were the subject of a Management Meeting between the licensee and Region III. Based on the results of the licensee's monitored evolutions, Region III management was in agreement with the licensee's decision to continue their power ascension program. Based on completion of the evaluations performed after initial criticality and the monitored evolutions performed after Test Condition 2, this item is closed.

- b. (Closed) Open Item (461/87032-02): Material Control Conditions in Containment.

Interim inspection of this item was documented in Inspection Report 50-461/87036, paragraph 2.d. At that time the item remained open pending additional observations of containment conditions during power operations. During this inspection period the inspector conducted several tours of the containment to verify implementation of procedure CPS No. 1050.02, "Foreign Material Exclusion in the Containment and Drywell". The inspector noted that CPS No. 1050.02 contained no provisions to audit material being left in the containment for extended periods. Material which must be left in the containment on a long term basis must be considered as a change in the facility and analyzed for safety impacts in accordance with 10 CFR 50.59. The inspector pointed out items such as equipment used for chemical analysis and portable ladders used for routine operations on the control rod hydraulic control units which should be considered as plant modifications. The Manager - Clinton Power Station took timely corrective actions to improve procedural compliance and added an audit function to the procedure. The inspector reviewed CPS No. 1050.02, revision 1, dated January 14, 1988, which made the Technical Advisor - Maintenance responsible for weekly audits of containment and drywell material control. Because of the design of the BWR Mark 3 containment with its easy personnel access and exposed suppression pool, containment material control will be closely monitored by the resident inspector. Strict compliance with CPS No. 1050.02 should maintain adequate controls. This item is closed.

- c. (Closed) Open Item (461/87034-01): Response to Generic Letter (GL) 84-11.

The licensee had not submitted a response to GL 84-11 at the time of the Inspection Report 50-461/87034. The licensee committed to submit their reply in November of 1987. Subsequently, the licensee submitted their reply on November 12, 1987. The inspector's review of the licensee's response to GL 84-11 is discussed below in paragraph 4.a. This item is closed.

- d. (Closed) Unresolved Item (461/86065-01): Three questions concerning correct event reporting requirements were identified. (1) LER 86-005-00 was reported referencing the wrong reporting requirement, (2) the licensee did not have a clear definition of

"preplanned events", and (3) the licensee reported an organizational change via the ENS.

The licensee prepared Licensing Document Interpretations (LDIs) for the three items identified by this item. The inspector reviewed LDI 86-01 (Preplanned Events), LDI 86-02 (24 Hour ENS Notification), and LDI 86-04 (Reporting Fire Protection System Noncompliances). That review indicated that the licensee had taken action to correctly define event reporting requirements. The inspector noted that the items above occurred shortly after the licensee had received their low power license and the licensee was relatively unaccustomed to the administrative process for reporting events.

Based on the inspector's review of the licensee's actions, this item is closed.

- e. (Closed) Violation (461/87002-03): Failure to provide adequate instructions while operating the Reactor Recirculation system in Mode 4.

The licensee responded to this violation via IP letter U-600876 dated March 12, 1987, in a timely manner. In addition, the licensee presented the results of their investigation into the root cause for this violation at a Management Meeting between Region III and IP conducted January 30, 1987, at the Region III office. The results of that presentation were documented in Inspection Report 50-461/87007, paragraph 10.a.

The inspector reviewed Plant Manager Standing Order (PMSO)-041 that detailed the procedural requirements to follow when a shift supervisor needed to consider overriding a system interlock. PMSO-041 clearly directed shift supervision to use the administrative controls in place (e.g. Temporary Modification, Modification, Maintenance Work Request) when overriding a system interlock. Based on completion of the corrective action as stated in IP letter U-600876, this item is closed.

- f. (Open) Open Item (461/87036-03): Use of the verb "should" in the staff approved emergency procedure guideline.

In response to this item, the licensee stated that they considered the verb "should" to be the necessary statement for entry into an Emergency Operating Procedure (EOP). The licensee stated that use of the verb "shall" instead of the existing language, would require entry into an EOP anytime an entry level parameter was reached and they provided an example where an entry level parameter was obtained during a non-emergency evolution. This item will remain open pending further review by a Region III specialist inspector.

- g. (Closed) Open Item (461/87030-01): Interpretation of a Closed Loop Outside Containment (CLOC) as an acceptable alternative for satisfying Technical Specification 3.6.4, ACTION a.3.

This item concerned the licensee's suggested interpretation that a CLOC design was adequate to satisfy ACTION a.3. of Technical Specification (TS) 3.6.4 which stated: "Isolate each affected penetration by use of at least one closed manual valve or blind flange".

As written, TS 3.6.4 assumed that the operable barrier was an automatic valve. When the remaining barrier is a closed system, the staff recognized the passive nature of the barrier. As a result, ACTION a.2. ("Isolate each affected penetration by use of at least one deactivated automatic valve secured in the isolated position") required some degree of interpretation to properly comply with the requirements. The staff focused on the need to deactivate the penetration as the key to meeting the action statement. ACTION Statement a.2 indicated what was meant by the term "deactivate the penetration" for the typical penetration having two automatic isolation valves. It certainly did not mean that if the penetration had a closed system no further action was necessary to comply with the requirement. Rather, the TS did not directly address what was needed for a penetration with a closed system as one of the two barriers.

The staff interpreted deactivating the penetration to mean that an existing system valve not normally considered as a containment isolation valve be put into the locked closed position. Where more than one valve was available, the valve closest to the containment wall should be selected. However, the staff noted that no leak testing of the alternate valve was necessary to satisfy the action statement. The "do nothing" approach clearly would not meet the intent of the technical specification and would be considered a violation. If an alternate approach was selected by the licensee, justification should be provided to show how the penetration had been deactivated.

In addition, the staff commented on the acceptability of a closed system serving as one of the two containment isolation barriers for a penetration. The staff had consistently recognized a closed system to be an acceptable alternative to an automatic valve. Based on the interpretation provided by the staff, this item is closed.

No violations or deviations were identified.

3. Information Notices (92701)

For the Information Notice discussed below, the inspector verified that the licensee had received the Information Notice, had distributed the Notice to appropriate personnel, and had completed appropriate actions.

(Open) Information Notice No. 86-01, (461/86001-NN): Failure of Main Feedwater Check Valves Causes Loss of Feedwater System Integrity and Water-Hammer Damage.

This Information Notice was received by the licensee on January 10, 1986. Following receipt, the licensee assigned review responsibility in accordance with Licensing and Safety Procedure L.i, "Feedback Program". IP Review Sheet Y-32848, dated January 14, 1986, assigned responsibility for review to the Clinton Plant Staff, the Nuclear Station Engineering Department (NSED), and the Nuclear Training Department (NTD).

IP memorandum, J. F. Palchak to F. A. Spangenberg, dated November 13, 1986, documented the review performed by the Clinton Plant Staff. That review concluded that the events reported in Information Notice 86-01 are not applicable to Clinton. However, a recommendation was made to add a caution to procedure CPS No. 3103.01 "Feedwater", pertaining to a situation in which a reactor feedwater pump discharge check valve is suspected of binding. As documented in a memo from F. Worrell to Jeff Skov, dated March 12, 1986, the licensee evaluated this recommendation and decided not to add the caution statement to CPS No. 3103.01.

NTD Review #40468, dated February 6, 1986, documented NTD's review of Information Notice 86-01. This review recommended that Information Notice 86-01 be addressed in operator requalification briefings. IP memorandum EAT-005-87, E. A. Till to F. A. Spangenberg, dated January 8, 1987, documented that plant operators were briefed on Information Notice 86-01 between the dates of April 15 and May 19, 1986.

Completion of the licensee's review was documented in IP memorandum Y-204235, from F. A. Spangenberg to File, dated February 16, 1987. Information Notice 86-01 did not require a written response to the NRC.

IP memorandum Y-80165, dated April 2, 1986, documented the review performed by the NSED which concluded that the events reported in Information Notice 86-01 were not expected to occur at Clinton Power Station. Nevertheless, the NSED review recommended to the Plant Staff that the six feedwater pump discharge check valves (2 for each feedwater pump) be periodically leak tested. At the close of the inspection, it was not clear whether or not this recommendation had been dispositioned by the Plant Staff. Information Notice 86-01 will remain open pending NRC followup to determine if the Plant Staff received and dispositioned the above recommendation.

4. Generic Letters (92703, 25589)

For the Generic Letters discussed below the inspector verified that the licensee had received the Generic Letter, had distributed the letter to appropriate personnel, and had completed appropriate actions.

- a. (Closed) Generic Letter 84-11, (461/84011-HH): Inspection of Boiling Water Reactor (BWR) Stainless Steel Piping.

(Closed) TI 2515/89: Inspection of BWR Stainless Steel Piping in Accordance with Generic Letter 84-11.

The inspector reviewed the licensee's response and concurred with their response as adequate with the exception of GL 84-11 ACTION Item Number 4, Leakage Detection and Leakage Limits. GL 84-11, Action Item Number 4, Attachment 1 states:

- A. The leakage detection system shall be sufficiently sensitive to detect and measure small leaks in a timely manner and to identify the leakage sources within practical limits. Particular attention should be given to upgrading and calibrating those leak detection systems that will provide prompt indication of an increase in leakage rates.

Other equivalent and/or local leakage detection and collection systems will be reviewed on a case-by-case basis.

- B. Plant shutdown shall be initiated for inspection and corrective action when any leakage detection system indicates, within any period of 24 hours, an increase in rate of unidentified leakage in excess of 2 gpm or its equivalent, whichever occurs first. For sump level monitoring systems with a fixed-measurement interval method, the level shall be monitored at 4-hour intervals or less.
- C. At least one of the leakage measurement instruments associated with each sump shall be operable, and the outage time for inoperable instruments shall be limited to 24 hours or immediately initiate an orderly shutdown.
- D. Unidentified leakage should include all leakage other than:
- (1) leakage into closed systems, such as pump seal or valve packing leaks that are captured, flow metered, and conducted to a sump or collecting tank, or
 - (2) leakage into the containment atmosphere from sources that are both specifically located and known either not to interfere with the operations of unidentified leakage monitoring systems, or not to be from a through crack in the piping within the reactor coolant pressure boundary.
- E. A visual examination for leakage of the reactor coolant piping shall be performed during each plant outage in which the containment is deinerted. The examination will be performed consistent with the requirements of IWA-5241 and IWA-5242 of the 1980 Edition of Section XI of the ASME Boiler and Vessel Code. The system boundary subject to this examination shall be in accordance with IWA-5221.

The licensee's response to Item 4 of GL 84-11 stated:

Clinton Power Station's Code Class 1, 2, and 3 pressure boundary piping meets the guidelines of Part III of

NUREG 0313, Rev. 1. CPS technical specification limits on unidentified leakage are sufficiently restrictive to ensure timely investigation of unidentified leakage.

The licensee's technical specification required:

Leak Detection and Leakage Limits

The licensee's technical specifications required reactor coolant system leakage be limited to:

- (1) No Pressure Boundary Leakage
- (2) 5 gpm Unidentified Leakage
- (3) 25 gpm Identified Leakage (averaged over any 24-hour period)
- (4) 0.5 gpm leakage per nominal inch of valve size up to a maximum of 5 gpm from any reactor coolant system pressure isolation valve specified in Table 3.4.3.2-1, at rated reactor pressure.

ACTION required:

- (1) With any PRESSURE BOUNDARY LEAKAGE, be in at least HOT SHUTDOWN within 12 hours and in COLD SHUTDOWN within the next 24 hours.
- (2) With any reactor coolant system leakage greater than the limits in (2) and/or (3), above, reduce the leakage rate to within the limits within 4 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.
- (3) With any reactor coolant system pressure isolation valve leakage greater than the above limit, isolate the high pressure portion of the affected system from the low pressure portion within 4 hours by use of at least two other closed manual or deactivated automatic valves, or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

Surveillance requirements:

The reactor coolant system leakage shall be demonstrated to be within each of the above limits by:

- (1) Monitoring the drywell atmospheric particulate and gaseous radioactivity at least once per 12 hours,

- (2) Monitoring the drywell floor and equipment drain sump level and sump flow rate at least once per 12 hours,
- (3) Monitoring the drywell air coolers condensate flow rate at least once per 12 hours, and
- (4) Monitoring the reactor vessel head flange leak detection system at least once per 24 hours.

The inspector informed the licensee that the licensee's technical specification requirements did not fulfill the requirements addressed in GL 84-11, ACTION Item No. 4. The licensee concurred with this finding and committed to submit a revision to the technical specification which reflects the GL 84-11 requirements. The inspector informed the licensee that the response to GL 84-11 was inadequate and was considered an open item (461/88003-01(DRS)) pending submittal of the technical specification revision to the NRC.

- b. (Closed) Generic Letter 86-07, (461/86007-HH): Transmittal of NUREG-1190 Regarding the San Onofre Unit 1 Loss of Power and Water Hammer Event.

This Generic Letter was received by the licensee on April 2, 1986. Following receipt, the licensee assigned review responsibility in accordance with Licensing and Safety Procedure L.1, "Feedback Program". Illinois Power Review Sheet Y-20269 assigned responsibility for review to the Clinton Plant Staff, the Nuclear Station Engineering Department (NSED), and the Nuclear Training Department (NTD).

Illinois Power memorandum Y-204458, from F. A. Spangenberg to File, dated March 17, 1987, which documented the completion of the licensee's review, stated that Generic Letter 86-07 was reviewed by the Clinton Plant Staff, NSED and NTD, that the material in Generic Letter 86-07 was reviewed as part of the review of Information Notice 86-01, and that no actions in addition to those identified as part of the 86-01 review were identified. Generic Letter 86-07 did not require a written response to the NRC.

Generic Letter 86-07 is considered closed; however, the inspection of Information Notice 86-01 which addressed the same subject as this generic letter remains open as discussed in paragraph 3.

- c. (Closed) Generic Letter 87-06, (461/87006-HH): Periodic Verification of Pressure Isolation Valves.

This generic letter was received by the licensee on March 26, 1987. Following receipt, the licensee assigned review responsibility in accordance with Licensing and Safety Procedure L.1, "Feedback Program". Illinois Power Review Sheet Y-204576, dated April 3, 1987, assigned responsibility for review to the Clinton Plant Staff

and the NSED. The generic letter stated that all plants licensed since 1979 (which would include the Clinton Power Station) have all pressure isolation valves listed in the technical specifications along with testing intervals, acceptance criteria, and limiting conditions for operation. It further stated that if current plant technical specifications require leak rate testing of all of the pressure isolation valves in the plant, a reply to that effect would be sufficient.

NSED and Plant Staff concluded that the technical specifications required leak rate testing of all pressure isolation valves. Illinois Power's (IP) response to the NRC for Generic Letter 87-06 was documented in IP letter U-600939, dated June 8, 1987. This item is closed.

No violations or deficiencies were identified.

5. Onsite Followup Of Written Reports Of Nonroutine Events At Power Reactor Facilities (92700)

For the Licensee Event Reports (LERs) listed below, the inspector performed an onsite followup inspection to determine whether responses to the events were adequate and met regulatory requirements, license conditions, and commitments and to determine whether the licensee had taken corrective actions as stated in the LERs.

- a. (Open) LER No. 87-006-00 (461/87006-LL): Partial Group I Containment Isolation Due to Blown Fuse on Circuit Card in Containment Isolation Logic.

This event was previously documented in Inspection Report 50-461/87007, paragraph 8.b.(8), and Inspection Report 50-461/87015, paragraph 7.a.(2). The inspector reviewed General Electric (GE) Company's response to Clinton DTF-JK1400, in which GE recommended certain modifications to logic cards to allow the self-test system to identify fuse failures. These modifications were recommended to the Modification Review Committee (MRC) but were disapproved as documented in report RDF-00276-NSED of October 7, 1987, with the commitment that NSED was to issue an evaluation letter to CPS on the consequences of taking no action on the proposed modification. This commitment (CCT No. 047299) was due on June 30, 1988. This item will remain open pending the inspector's review of the NSED evaluation.

- b. (Open) LER No. 87-021-00 (461/87021-LL): Automatic Isolation of Reactor Core Isolation Cooling System Due to Utility Personnel Error.

This event was previously documented in Inspection Report 50-461/87011, paragraph 11.b.(15), at which time it was determined to be one example of a violation (461/87011-03c). The response to the violation was reviewed and closed in Inspection Report

50-461/87031, paragraph 2.d.(3). The LER was reviewed in Inspection Report 50-461/87015, paragraph 7.a.(11), at which time the LER remained open pending completion of the licensee's review of other surveillance procedures to preclude similar actuations of ESF systems in which only one channel was required to cause actuation.

In response to this LER, NSED prepared a list of all instrumentation in which a single channel could cause an ESF actuation. Operations, Control and Instrumentation, and Radiation Protection Departments used the list and reviewed/revised their surveillance procedures to insure they had steps to prevent such actuations. This action was completed by the end of June 1987.

On November 2, 1987, an actuation of the Division III Diesel Generator occurred when an undervoltage relay was removed from the normal supply breaker to the Division III 4160 volt bus during the performance of a surveillance by Electrical Maintenance Department personnel. This event was documented in Inspection Report 50-461/87036, paragraph 11.b.(4), and reported by the licensee in LER 87-064-00 (461/87064-LL).

The corrective action for LER 87-064-00 included reviewing all infrequently performed electrical maintenance procedures for similar potential actuations. Since the cause for LER 87-021-00 and LER 87-064-00 are related, LER 87-021-00 will remain open pending completion of the corrective action on LER 87-064-00.

- c. (Closed) LER 87-022-00 (461/87022-LL) and LER 87-026-00 (461/87026-LL): Automatic Actuation of the High Pressure Core Spray System Due to Utility Personnel Error When Venting Instrument Process Lines; and Automatic Actuation of the High Pressure Core Spray System Due to Utility Personnel Error Resulting from a Procedural Deficiency.

These events were previously documented in Inspection Report 50-461/87015, paragraphs 13.b.(3) and 13.b.(11). As a result of these two events and two previous similar events (LER 87-004-00 and LER 87-014-00), the licensee had taken several actions to prevent ESF actuations while venting instrument lines. The inspector reviewed these actions and noted that they included training of instrument maintenance technicians, revisions to the surveillance impact matrix, improvements in communications procedures, evaluations of modifications to replace instrument valves with ones providing finer control, and revisions to maintenance procedures which required that instruments be repressurized to existing system pressure prior to valving the instrument back into service. Since the completion of these corrective actions, there have been no additional LERs involving hydraulic transients while venting or refilling instrument lines. These items are closed.

- d. (Closed) LER 87-024-00 (461/87024-LL) and LER 87-030-00 (461/87030-LL): Automatic Isolation of the Reactor Water Cleanup System Due to High Differential Flow Signal Caused by System Flow

Perturbations and Utility Personnel Error; and Automatic Isolation of the Reactor Water Cleanup System Due to High Differential Flow Signal Caused by Feedwater Flow/Pressure Perturbations.

These events were previously documented in Inspection Report 50-461/87015, paragraph 13.b.(8) and Inspection Report 50-461/87020, paragraph 10.b.(2), and were reviewed in Inspection Report 50-461/87019, paragraph 6.d. The events were similar to several other isolations of the Reactor Water Cleanup (RWCU) System due to flow/pressure perturbations while letting down to the condenser at low powers. Five of these isolations were reported in LER 87-013-00 (461/87013-LL) which was closed in Inspection Report 50-461/87015, paragraph 7.a.(7). The inspector reviewed several short term maintenance, procedural, and training actions undertaken by the licensee to help prevent similar isolations. Although these actions have had some effect in reducing the problem, the potential still exists for additional isolations until the system is modified to prevent them. The licensee was investigating several modifications, the most significant of which was the possibility of deleting the differential flow RWCU system isolation feature. Completion dates for investigating the possible modifications are projected for mid 1988 but all actions were being tracked under the licensee's Commitment Tracking System (CCT). No RWCU isolations due to differential flow have occurred since the event described in LER 87-030-00. Based on the inspector's verification that all short term corrective actions discussed in the LERs have been completed and all long term corrective actions will be tracked to completion, these items are closed.

- e. (Closed) LER 87-027-00 (461/87027-LL): Automatic Isolation of the Reactor Water Cleanup System Due to Heat Exchanger Room High Temperature Isolation Signal Caused By Flow Control Valve Malfunction.

This event was previously documented in Inspection Report 50-461/87015, paragraph 13.b.(12), and reviewed in Inspection Report 50-461/87019, paragraph 6.d. The cause of this event was failure of the room cooler outlet flow control valve (1W0283K) to open as required to maintain temperature in the room and the closure by an unknown person (or persons) of the bypass valve around the flow control valve. The inspector reviewed corrective actions including repair of the flow control valve in accordance with completed Maintenance Work Request (MWR) C-50558, training of each shift crew on the lessons learned from this event, completion of Plant Modification RT-27 to clarify the labeling on the leak detection panel, and issuing of field alteration WOF-006 under MWR C-50328 which limited the flow control valve from closing to less than 30% of full open. Since completion of these corrective actions, no additional RWCU system isolations have occurred due to similar causes. Based on the inspector's verification that corrective actions discussed in the LER have been implemented, this item is closed.

- f. (Closed) LER 87-031-00 (461/87031-LL): Automatic Isolation of the Reactor Water Cleanup System Due to Spurious Trip of the Heat Exchanger Room High Differential Temperature Channel.

This event was previously documented in Inspection Report 50-461/87020, paragraph 10.b.(4). The licensee's investigation determined that the cause of the isolation was intermittent failure of a differential temperature point module. The inspector reviewed completed MWR C-49259 which replaced and tested the module. Since that event there have been no further RWCU system isolations due to the same module. Based on the inspector's verification that corrective actions discussed in the LER have been completed, this item is closed.

- g. (Closed) LER No. 87-055-00 (461/87055-LL): Reactor Trip on High Water Level Due to Faulty Function Generator Card in Feedwater System.

This event was previously documented in Inspection Report 50-461/87032, paragraph 10.b.(7). The event was determined to be caused by a combination of increased feedwater flow during a startup test and the unexpected start of the standby condensate (CD) and condensate booster (DB) pumps due to a failure of the "B" reactor feed pump net positive suction head function generator card. The inspector reviewed completed MWR C-37997 which replaced the faulty card. The startup test was later performed successfully with the standby start feature of the CD and CB pumps locked out. The inspector also reviewed records which verified that operations personnel had been made aware of the lessons learned from this LER through the required reading program. The inspector also reviewed the post trip review report associated with the trip and noted no discrepancies. Based on the inspector's verification that the licensee conducted an adequate review of the trip and had completed the corrective actions described in the LER, this item is closed.

- h. (Closed) LER No. 87-056-00 (461/87056-LL): Technical Specification Violation Due to Utility Licensed Operator Failure to Recognize the Requirement to Enter An ACTION Statement.

This event was previously documented in Inspection Report 50-461/87032, paragraph 10.b.(9). The event was considered one of six examples of violations (461/87032-01D(DRP)) involving failure to track short term LCO ACTION and surveillance requirements. The generic corrective actions for the violation will be reviewed separately. The inspector reviewed records of the corrective actions discussed in the LER as well as additional corrective actions proposed in the licensee's critique of the event. The Senior Reactor Operator who made the personnel error in the event was counselled and all operators received training on the lessons learned through the required reading program. The inspector also reviewed revision 23 to CPS No. 9032.48, "Offgas Hydrogen Analyzer Channel Functional", which made the surveillance easier to perform.

Based on the inspector's verification that corrective actions discussed in the LER had been completed, this item is closed.

- i. (Closed) LER No. 87-061-00 (461/87061-LL): Channel Check of Containment Pressure - High Trip Function for Containment Spray Missed Due to Incorrect Requirement Removal from Procedure by Utility Licensed Operator.

This event was previously documented in Inspection Report 50-461/87036, paragraph 11.b.(1). The event was caused by licensed operator error in that an inadequate review of a temporary procedure change was conducted and the temporary change system was used in a situation not authorized by plant procedures. Corrective actions included restoring the deleted surveillance requirement to the procedure, training of all management personnel involved in approving temporary procedure changes, and a revision to CPS No. 1005.07C001, "Temporary Change Checklist", to prevent improper use of the temporary change system. Based on the inspector's verification that all corrective actions discussed in the LER had been completed, this item is closed.

No violations or deviations were identified.

6. Operational Safety Verification (71707)

The inspector observed control room operations, attended selected pre-shift briefings, reviewed applicable logs, and conducted discussions with control room operators during the inspection period. The inspector verified the operability of selected emergency systems and verified tracking of LCOs. Routine tours of the auxiliary, fuel, containment, control, diesel generator, turbine buildings and the greenhouse were conducted to observe plant equipment conditions including potential for fire hazards, fluid leaks, and operating conditions (i.e., vibration, process parameters, operating temperatures, etc). The inspector verified that maintenance requests had been initiated for discrepant conditions observed. The inspector verified by direct observation and discussion with plant personnel that security procedures and radiation protection (RP) controls were being properly implemented.

Inspections were routinely performed to ensure that the licensee conducts activities at the facility safely and in conformance with regulatory requirements. The inspections focused on the implementation and overall effectiveness of licensee's control of operating activities, and the performance of licensed and nonlicensed operators and shift technical advisors. The following items were considered during these inspections:

- Adequacy of plant staffing and supervision.
- Control room professionalism including procedure adherence, operator attentiveness and response to alarms, events, and off normal conditions.

- Operability of selected safety-related systems including attendant alarms, instrumentation, and controls.
- Maintenance of quality records and reports.

The inspector noted a decline in the control room professionalism during the report period. While no single event or response by control room operators was deficient, it appeared that newly licensed operators and a large number of new trainees had not developed the same level of professional conduct in routine plant operations that had been performed by the plant staff. This observation was discussed with the Manager - CPS. The inspector will closely monitor the control room activities to assure professional conduct during all plant operations continues to be at an acceptable level.

- a. On January 12, 1988, the licensee experienced of failure in the Rod Control and Information System (RCIS) resulting in insertion of one control rod (16-29) from notch position 48 (full out) to position 14. The licensee determined the cause of the rod movement to be a failed transponder circuit card associated with control rod 16-29.

The inspector attended the critique of this unexpected rod motion and discussed the "lessons learned" with licensee management. Licensee Critique Report OP-88-0003 detailed the licensee's review of this event and provided corrective actions for problems identified. One specific problem identified was that the Inadvertent Rod Motion Off Normal Procedure did not address shutting down the RCIS. The inspector's review of the licensee's corrective action indicated that appropriate actions were being taken for the identified problems.

- b. On January 21, 1988, the licensee identified that Preventative Maintenance (PM) was not performed on two radiation monitors. The PMs were required to satisfy the Environmental Qualifications (EQ) of the radiation monitors.

Upon notification of the missed EQ-PMs, the shift supervisor declared the radiation monitors inoperable and followed the associated technical specification ACTION statements. Concurrent with declaring the radiation monitors inoperable, the shift supervisor directed that testing being performed on the Division II Diesel Generator be stopped and that the Diesel be returned to an operable status. The inspector noted that the Division II Diesel Generator was returned to an operable status prior to the licensee having to declare the Division I Hydrogen and Oxygen (H2O2) monitor inoperable due to the radiation monitor inoperability declaration.

The EQ-PM (checking of 500 mr sensitivity) was successfully performed on January 23, 1988. Both detectors met the EQ requirements. Based on the inspector's review of the licensee's actions and the successful completion of the EQ-PM, the inspector concluded that the licensee had complied with the technical specification's Limiting Condition for Operation and associated ACTION statements.

No violations or deviations were identified.

7. Engineered Safety Feature System Walkdown (71710)

The inspector performed a walkdown of the Containment Combustible Gas Control System (CGS) and the Standby Gas Control (SGCS) System during the report period to verify the system status. At the time the walkdown was performed, the licensee had identified the CGS and SGCS as operable Engineered Safety Feature systems meeting all the requirements of the plant's technical specification.

For the purpose of this walkdown, the inspector utilized the following system drawings and checklists contained in the system operating and surveillance procedures.

- CPS No. 3316.01V001, "Containment Combustible Gas Control Valve Lineup", revision 3
- CPS No. 3316.01V002, "Containment Combustible Gas Control Instrument Valve Lineup", revision 1
- CPS No. 3316.01E001, "Containment Combustible Gas Control Electrical Lineup", revision 4
- CPS No. 3316.01E002, "Containment Combustible Gas Control 120VAC Electrical Lineup", revision 1
- CPS No. 3319.01V001, "Standby Gas Treatment Valve Lineup", revision 3
- CPS No. 3319.01V002, "Standby Gas Treatment Instrument Valve Lineup", revision 2
- CPS No. 3319.01E001, "Standby Gas Treatment Electrical Lineup", revision 4
- CPS No. 9067.01, "Standby Gas Treatment System Train Flow/Heater Operability", revision 23
- CPS No. 9068.01, "Hydrogen Mixing System Operability Test", revision 23
- CPS No. 9068.03, "Primary Containment Recombiner and Valve Operability", revision 24
- CPS No. 9367.04, "Hydrogen Igniter Current Test", revision 20
- P&ID M05-1063, sheet 1, "Combustible Gas Control System (HG)", revision K
- P&ID M05-1105, sheet 1, "Standby Gas Treatment System (HG)", revision N

- P&ID M05-2063, sheet 1, "Combustible Gas Control System (HG)", revision C

- a. During the walkdown, the following discrepancies not affecting system operability were noted:
- (1) The fourth item on page 2 of CPS No. 3316.01V001 was described as "H2 Recomb A Discharge Test Connection Plug" but should be "H2 Recomb B Discharge Test Connection Plug".
 - (2) In CPS No. 3316.01E001, 1HS-HG031 and 1HS-HG032 were described as "HG Sys Div 1 and 2 In Test" switches but were labelled "CGS Sys Div 1 and 2 In Test" on Control Room Panel P800-63.
 - (3) On page 2 of CPS No. 3316.01E002, there were three position and initial lines for recording the status of circuit #2, but circuit #2 contains only two breakers, the same as the rest of the circuits on the page. This fact was noted in the remarks section of the lineup which was accomplished on August 12, 1986, and was on file in the assistant shift supervisor's office, but had not been corrected.
 - (4) The location given for valves OVG035A through OVG036B in CPS No. 3319.01V001 was misleading. They were not located on the south wall of the control building.
 - (5) Valves OFT-VG004HSLR through OFT-VG004EV were Train B valves not Train A as described in CPS No. 3319.01V002.
 - (6) The High Side and Low Side Drain Valves on 1PDT-VG149 through 1PDT-VG152 were not located inside metal boxes as indicated by the asterisks on page 6 of CPS No. 3319.01V02.
 - (7) Dampers OVG034A and OVG03YB are labelled as "Aux Building Isolation Dampers" on Control Room Panel 1H13-P801 and in most applicable procedures. The dampers were actually control building dampers not associated with the aux building in any way.
- b. The following discrepancies affecting system operability were noted during the walkdown.
- (1) Process Radiation Monitor OPR03 was inoperable. This fact had been noted by the shift supervisor and the proper technical specification ACTION requirements had been taken.
 - (2) On February 5, 1988, during the system walkdown, the inspector observed that the Train A Hydrogen Recombiner was inoperable due to the reaction chamber gas temperature controller being improperly set at 500 degrees Fahrenheit rather than the required 1325 degrees. With reaction chamber temperature maintained at 500 degrees Fahrenheit, the hydrogen/oxygen

recombination reaction would not have taken place and the recombiner would not have fulfilled its safety function without operator intervention. The inspector also noted that the gas return temperature setpoint controller was also improperly set at 1325 degrees rather than the required 150 degrees Fahrenheit, but this setpoint did not affect operability. The inspector informed the shift supervisor who took immediate action to return the system to an operable status. An investigation by the licensee determined that the most probable cause of the improper settings was procedural violations during the last performance of surveillance CPS No. 9068.03 on January 15, 1988. During the period between January 15 and February 5, 1988, the Division II Emergency Diesel Generator was taken out of service on two occasions, specifically from 6:15 a.m. to 9:04 a.m. on January 21, 1988, and from 5:54 a.m. on January 29, 1988, to 6:54 p.m. on January 31, 1988. Technical Specification 3.8.1.1, ACTION e., required that with the 1A or 1B diesel generator inoperable, all required systems, subsystems, trains, components and devices that depend on the remaining OPERABLE diesel generator as a source of emergency power must be verified to be OPERABLE within 2 hours. Failure to verify that the Division I Hydrogen Recombiner was operable within 2 hours of the Division II Diesel Generator becoming inoperable is a violation of Technical Specification 3.8.1.1.e. (461/88003-02(DRP)).

- c. In conjunction with the above, the inspector reviewed the results of current surveillance tests on the HG and VG systems to verify technical specification requirements were met. The following surveillance test results were reviewed.

<u>Surveillance No.</u>	<u>Frequency</u>	<u>Test Date</u>
CPS No. 9067.01	Monthly	01/10/88 (Train A)
CPS No. 9067.01	Monthly	01/07/88 (Train B)
CPS No. 9068.01	Quarterly	01/16/88 (Train A)
CPS No. 9068.01	Quarterly	12/24/87 (Train B)
CPS No. 9068.03	6 Months	01/15/88 (Train A)
CPS No. 9068.03	6 Months	12/24/87 (Train B)
CPS No. 9367.04	6 Months	10/23/87

All past performances of CPS No. 9068.03 were also reviewed.

- d. During the critique of the events leading to the Division I Hydrogen Recombiner becoming inoperable, as discussed in paragraph 7.b.(2) above, the inspector and licensee noted that surveillance CPS No. 9068.03 could not be performed on Train A as written. At one point in the procedure the operator was directed to reset the reaction chamber temperature controller down to 225 degrees Fahrenheit. On Train A the controller physically could not be set below 500 degrees Fahrenheit. The surveillance completed on January 15, 1988 indicated that the

step was performed even though it could not have been. The inspector reviewed past performances of CPS No 9068.03 and noted that when the surveillance was performed on Train A on July 22, 1987, the operator noted that the step in question could not be done as written and Procedure Deviation for Revision (PDR) 87-1209 was approved to correct the step. PDR 87-1209 was incorporated in revision 23 of CPS No. 9068.03 on August 23, 1987. On September 12, 1987, PDR 87-1419 was written to authorize another unrelated change to the procedure. PDR 87-1419 was incorporated in revision 24 of CPS No. 9068.03 on October 16, 1987. However, revision 24 did not contain the procedure correction that had been in revision 23. Thus the procedure again became impossible to perform as written. The licensee was investigating the cause of the administrative error which allowed an approved procedure change to be dropped in a subsequent revision. This item is unresolved (461/88003-03) pending the inspector's review of that investigation.

One violation and one unresolved item were identified.

8. Monthly Maintenance Observation (62703)

Selected portions of the plant maintenance activities on safety-related systems and components were observed or reviewed to ascertain that the activities were performed in accordance with approved procedures, regulatory guides, industry codes and standards, and that the performance of the activities conformed to the Technical Specifications. The inspection included activities associated with preventive or corrective maintenance of electrical, instrumentation and control, mechanical equipment, and systems. The following items were considered during these inspections: the limiting conditions for operation were met while components or systems were removed from service; approvals were obtained prior to initiating the work; activities were accomplished using approved procedures and were inspected as applicable; functional testing and/or calibration was performed prior to returning the components or systems to service; parts and materials that were used were properly certified; and maintenance of appropriate fire prevention, radiological, and housekeeping conditions.

The inspector observed/reviewed the following work activities:

<u>Maintenance Work Request No.</u>	<u>Activity</u>
C-19129	Control Room Panel Deficiencies
PEMCDA001	Condensate Pump PM
C-39558	Annunciator Field Alt ANF009

No violations or deviations were identified.

9. Monthly Surveillance Observation (61726)

An inspection of inservice and testing activities was performed to ascertain that the activities were accomplished in accordance with applicable regulatory guides, industry codes and standards, and in conformance with regulatory requirements.

Items which were considered during the inspection included whether adequate procedures were used to perform the testing, test instrumentation was calibrated, test results conformed with technical specifications and procedural requirements, and that tests were performed within the required time limits. The inspector determined that the test results were reviewed by someone other than the personnel involved with the performance of the test, and that any deficiencies identified during the testing were reviewed and resolved by appropriate management personnel.

The inspector observed/reviewed the following activities.

Surveillance/Test
Procedure No.

Activity

CPS No. 9031.12, revision 26

ARPM Channel Functional

a. The following discrepancies were noted during the surveillance performance:

- (1) Two typographical/editorial mistakes were noted in CPS No. 9031.12. In one case the error was discovered by the inspector and in the other it was discovered by the operator. In both cases the operator took the appropriate action to have the procedure corrected.
- (2) At one point in the procedure a jumper was installed, verified, and the appropriate initials were entered on the data sheet. Later in the same section of the procedure, when the expected system response was not observed, the operator thought that the jumper might have been faulty. After discussing the situation with the line assistant shift supervisor, the operator had the C&I technician remove the jumper and install another in its place. The same operator and technician verified the installation of the second jumper as had verified the first. The individuals had not indicated on the procedure checklist that they had verified a second jumper until questioned by the inspector.
- (3) As discussed in the paragraph above, at one point in the procedure, the expected response was not obtained. Upon further investigation, the problem was determined to be that test potentiometers, which CPS No. 9031.12 implied would be at the setpoint they were left in at the conclusion of the previous performance of the procedure, were left at a higher

setpoint in accordance with CPS No. 9431.60, APRM Gain Adjustment and Setpoint Verification. After discussing the problem with the line assistant shift supervisor, it was decided to return the potentiometers to the implied initial conditions and proceed. Action was also initiated to change the procedures to prevent recurrence of the problem.

No violations or deviations were identified.

10. Training and Qualification Effectiveness (41400 & 41701)

The effectiveness of training programs for licensed and nonlicensed personnel were reviewed by the inspector during the witnessing of the licensee's performance of routine surveillance, maintenance, and operational activities and during the review of the licensee's response to events which occurred during the months of January/February 1988. Personnel appeared to be knowledgeable of the tasks being performed.

No violations or deviations were identified.

11. Onsite Followup of Events at Operating Reactors (93702)

a. General

The inspector performed onsite followup activities for events which occurred during the inspection period. Followup inspection included one or more of the following: reviews of operating logs, procedures, condition reports; direct observation of licensee actions; and interviews of licensee personnel. For each event, the inspector reviewed one or more of the following: the sequence of actions; the functioning of safety systems required by plant conditions; licensee actions to verify consistency with plant procedures and license conditions; and attempted to verify the nature of the event. Additionally, in some cases, the inspector verified that licensee investigation had identified root causes of equipment malfunctions and/or personnel errors and were taking or had taken appropriate corrective actions. Details of the events and licensee corrective actions noted during the inspector's followup are provided in paragraph b. below.

b. Details

ESF Actuation - Automatic Isolation of Division I Hydrogen and Oxygen Monitor Containment Isolation Valves [ENS No.11231]

On January 14, 1988, after the performance of a channel functional test on Containment Atmosphere Radiation Monitor 1PRO01C, the licensee noted that the Hydrogen and Oxygen (H2O2) Monitor containment isolation valves had tripped shut. An investigation determined that the most probable cause for the isolation was that the check source cycle was still in progress when the signal leads were relanded at the completion of the

functional test. Relanding the leads enabled the containment isolation trip feature and, since the check source cycle ended with the insertion of a trip signal, this would have caused an isolation of the H2O2 monitor valves. During the critique, personnel errors on the part of the licensed control room operator performing the surveillance were revealed. The licensee was pursuing corrective actions for those errors. The corrective actions will be reviewed with the LER for this event. The licensee reported this event as LER 88-003-00, dated February 10, 1988.

No violations or deviations were identified.

12. Regional Request (92701)

a. Inadvertent Opening of Main Steam Isolation Valves.

On January 25, 1988, the inspector was informed of an event at the Perry Nuclear Power Plant in which Main Steam Isolation Valves (MSIV) opened unexpectedly during a surveillance. Preliminary information from Perry and General Electric (GE) indicated that the MSIV logic at Clinton and Perry may have been the same and that the Clinton MSIVs might have opened unexpectedly under certain logic combinations if power was lost to a Reactor Protection System (RPS) bus. The inspector immediately informed the Manager - Clinton Power Station who initiated actions to verify the Clinton design. Later the same day, NSED staff informed the inspector that CPS had a solid state protection system and used optical isolators for signal separation rather than a relay system like that at Perry. After discussions with Perry and GE personnel and detailed review of the CPS prints, NSED concluded that CPS would not be susceptible to the same type of unexpected opening of the MSIVs as experienced at Perry. The inspector reviewed NSED memo Y-87248 of January 31, 1988 which summarized the licensee's investigation of the incident and described the differences in Clinton's and Perry's MSIV control circuit designs.

No violations or deviations were identified.

13. Special/Management Meetings (30702)

On January 21, 1988, NRC management met with IP management at the Clinton Power Station to discuss the status of the facility, the licensee's Monthly Performance Monitoring Management Report and actions being taken to enhance the licensee's performance. Key personnel attending this meeting are identified by (#) in paragraph 1 of this report.

The licensee discussed plant operations to date and summarized significant events. The licensee presented the status of their Radiological Improvement Program, Maintenance Program, and actions being taken to modify/repair control room annunciators. The licensee then provided an update on their training accreditation progress. The

licensee concluded their presentation with a brief description of their outage plans for their spring outage scheduled to start March 19, 1988.

NRC (Region III) management acknowledged the licensee's status and plans. The meeting concluded with a tentative agreement to meet again at the Clinton Power Station with a similar agenda on March 11, 1988.

14. Open Items

Open items are matters which have been discussed with the licensee, which will be reviewed further by the inspector, and which will involve some action on the part of the NRC or licensee or both. One open item disclosed during the inspection was discussed above in paragraph 4.a.

15. Unresolved Items

Unresolved items are matters about which more information is required in order to ascertain whether they are acceptable items, violations, or deviations. One unresolved item disclosed during this inspection was discussed in Paragraph 7.d.

16. Exit Meetings (30703)

The inspector met with licensee representatives (denoted in paragraph 1) throughout the inspection and at the conclusion of the inspection on February 15, 1988. The inspector summarized the scope and findings of the inspection activities. The licensee acknowledged the inspection findings.

The inspector also discussed the likely informational content of the inspection report with regard to documents or processes reviewed by the inspector during the inspection. The licensee did not identify any documents/processes as proprietary.