U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-461 License No. NPF-62

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

Facility Name: Clinton Power Station

Inspection At: Clinton, IL 61727

Inspection Conducted: October 2 through 26, 1989, and November 8, 1989

Inspector: M. P. Huber Date 11/17/89

Approved By: D. H. Danielson, Chief Date 11/17/89
Materials and Processes Section

Inspection Summary

Inspection on October 2 through 26, 1989 and November 8, 1989 (Report No. 50-341/89036(DRS))
Areas Inspected: Routine safety inspection of the licensee's activities with respect to the Inservice Testing of selected Standby Liquid Control System (SLCS) components.
Results: No violations or other items were identified.

DETAILS

1. Persons Contacted

Illinois Power Company (IP)

S. Bell, Supervisor, Inservice Inspection
D. Parchem, Project Engineer - IST
*J. D. Weaver, Licensing Director

*Denotes those present for telephone exit interview on November 8, 1989.

2. Review of Inservice Testing (IST) of Select Standby Liquid Control System (SLCS) Components

The NRC inspector reviewed SLCS functional descriptions including the design basis and testing outlined in the CPS Updated Safety Analysis Report (USAR) and the licensee's IST Program to determine if functional testing requirements for various SLCS components were met by the licensee. Functional testing requirements were reviewed for the injection check valves, squib valves, pump discharge check valves and the motor operated discharge isolation valves (1C41F001A and B).

The SLCS is a redundant backup system for the control rod drive system and is initiated by a control room operator in the event of a failure of the control rod drive system.

a. Component Testing

SLCS Injection Check Valves 1C41F336 and 1C41F006

Check valves 1C41F336 and 1C41F006 are drywell isolation valves. These valves are Category A/C check valves and require testing in accordance with the ASME Boiler and Pressure Vessel Code, Section XI. The required testing includes a full-stroke exercise test, which strokes the valves to the position required to fulfill a safety function and a leak rate test that demonstrates adequate seat tightness when the valve is in the closed position.

The leak rate test is conducted during the drywell bypass leakage testing conducted in order to satisfy Technical Specification (TS) 3/4.6.2.2, "Drywell Bypass Leakage," but the valves are not individually leak tested during this test as required by ASME Code Subarticle IWV-3420. The licensee requested relief from the testing requirements of IWV-3420 through a March 8, 1988 submittal to the NRC. This submittal has yet to be approved by NRR; however, the NRC policy regarding relief requests has been to allow licensees to take the relief until such time as staff review for determination of acceptability is completed.

During a SLCS spill event which occurred on March 16, 1989, the SLCS was vented, the vent and test valves, 1C41F027 and 1C41F026, were left open and the isolation valves for the two discharge lines, valves 1C41F334 and 1C41F008, were opened to allow repressurizing of the drywell portion of the SLCS (see attached figure for actual valve location). As a result, reactor water spilled out of the test and vent valves into containment. During normal operations, the discharge line to the lower vessel is isolated with valve 1C41F008 which is in turn locked closed. Since the normal flow path is through check valve 1C41F336, the concern for leakage through this valve exists. The leakage path during the spill event may or may not have been through check valve 1C41F336 and the quantity of leakage through this valve was not quantified. Therefore, the leakage could be attributed to either one of the discharge check valves, or both. From this scenario, it is possible that leakage might occur and the current method (the Drywell Bypass Leakage Test) of measuring the leak rate through valve 1C41F336 may not demonstrate adequate leak tightness.

The licensee requested relief from the testing requirements of the ASME Code Subarticle IWV-3420, which specifies the leak test requirements for Category A valves. Based on a review of the system configuration, a review of the CPS-USAR, Section 9.3.5.4, "Testing and Inspection Requirements," and the March 16, 1989 spill event previously discussed, the NRC concluded that relief from testing as requested by CPS was unacceptable and should be withdrawn for SLCS check valve (1C41F336) and individual leak testing of the valve be conducted. The current method of testing the SLCS check valve leakage rates, using the Drywell Bypass Leakage testing, conducted to satisfy TS 3/4.6.2.2 is not an acceptable method to satisfy the testing requirements of ASME Code Subarticle IWV-3420. The licensee has discussed several possible alternatives for testing of the SLCS check valves and has begun to take actions to address what type of testing will be conducted in the future. Licensee action in response to these findings will be reviewed during future inspections.

SLCS Pump Discharge Check Valves

Valves 1C41F033A and B are the SLCS pump discharge check valves. The licensee stated that these valves will be added to the IST Program in response to Generic Letter (GL) 89-10 to test these valves to verify that they perform their closure function. Review of this testing will be conducted during future inspections.

SLCS Tank Discharge Isolation Valves

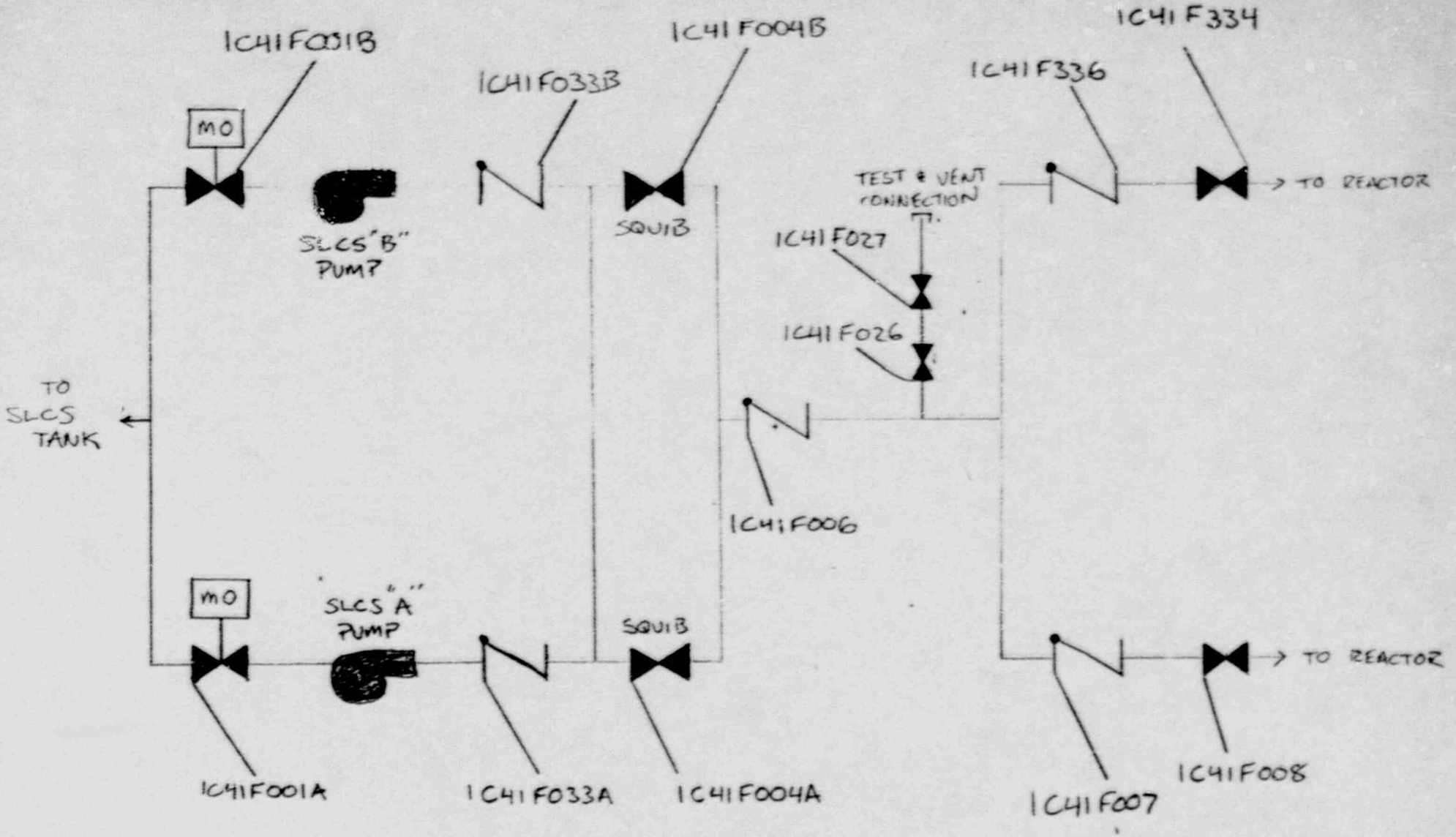
Valves 1C41F001A and B, the SLCS tank discharge isolation valves, serve a function in the closed direction to prevent demineralized water from the Makeup Condensate (MC) tank from entering the SLCS tank during normal system lineup. No safety-related closure functions for these valves were identified following a system initiation where the SLCS was required to shut down the reactor.

b. Conclusion

The licensee was responsive to the NRC inspector's concern and the licensee actions taken to address the testing of the SLCS discharge check valves 1C41F006 and 1C41F336 should continue to provide additional assurance that back leakage through the SLCS will not occur following a system initiation. Testing of the pump discharge check valves 1C41F033A and B to satisfy the requirements of GL 89-10 should ensure that adequate protection of the pumps is provided and will also provide additional assurance that there will be no back leakage through the SLCS pumps or their relief valves. No other problems with component testing were identified during this inspection.

3. Exit Interview

The Region III inspector held a telephone exit interview with licensee representatives (denoted in Paragraph 1) at the conclusion of the inspection on November 8, 1989. The inspector summarized the purpose and findings of the inspection. The licensee representatives acknowledged this information. The inspector also discussed the likely informational content of the inspection report with regard to documents or processes reviewed during the inspection. The licensee representatives did not identify any such documents/processes as proprietary.



SIMPLIFIED SLCS DRAWING