

U.S. ATOMIC ENERGY COMMISSION
DIRECTORATE OF REGULATORY OPERATIONS
REGION I

RO Inspection Report No: 50-219/74-05 Docket No: 50-219
Licensee: Jersey Central Power and Light Company License No: DPR-16
Madison Avenue at Punch Bowl Road Priority: _____
Morristown, New Jersey 07960 Category: C
Location: Oyster Creek, Forked River, New Jersey

Type of Licensee: 1930 Mwt, BWR(GE)

Type of Inspection: Special, Announced

Dates of Inspection: March 27-28, 1974

Dates of Previous Inspection: March 20, 1974

Reporting Inspector: *D.H. Johnson*
T. Rebelowski, Reactor Inspector
Nuclear Support Section

4/12/74
Date

Accompanying Inspectors: NONE

Date

Date

Date

Date

Other Accompanying Personnel: _____

Date

Reviewed By: *E.C. McCabe, Jr.*

4/17/74
Date

E. C. McCabe, Senior Reactor Inspector, Reactor Operations
Branch

B/572

SUMMARY OF FINDINGS

Enforcement Action

A. Violations

1. Directorate of Licensing letter to licensee dated January 30, 1974 - Failure of more than 25% of the torus to drywell vacuum breakers to demonstrate operability during weekly surveillance testing as reported by licensee AO 50-219:74/11 dated February 25, 1974 and AO 50-219:74/16 dated March 15, 1974. (Detail 3)
2. Technical Specification 3.5.A.1 - Inability to isolate the reactor coolant cleanup system due to inoperative A.C. isolation valve V-16-1 and D.C. isolation valve V-16-14 as reported by licensee AO 50-219:74/13 dated February 27, 1974. (Detail 5)
3. Technical Specification 3.7.B - SB Startup Transformer unavailable for service for a time period greater than 7 days during a 30 day period as reported by licensee AO 50-219:74/17 dated March 15, 1974. (Detail 6)
4. Technical Specification 3.5.A.1 - Failure to maintain primary containment integrity with reactor temperature above 212°F as reported by licensee AO 50-219:74/19 dated March 18, 1974. (Detail 8)
5. Technical Specification 4.5.F.1.d - Failure of main steam isolation valves to meet the allowable leakage requirements as reported by licensee AO 50-219:74/20 dated March 18, 1974. (Detail 9)
6. Technical Specification - Table 3.1.1.B.2 - Inability of steam flow sensor to actuate upon main steam line flow of \leq 120% of rated steam flow as reported by licensee AO 50-219:74/21 dated March 22, 1974. (Detail 10)

Licensee Action on Previously Identified Enforcement Action

Not Inspected

Unusual Occurrences

- A. Technical Specification 2.3.7 the Low Pressure Main Steam Line MSIV closure pressure switches were found to trip at pressures less than the specified value. (Licensee reports dated

1. February 14, 1974 (AO 50-219:74/10);
 2. February 25, 1974 (AO 50-219:74/12); and
 3. March 22, 1974 (AO 50-219:74/22)). (Detail 4)
- B. Technical Specification 3.1.A.3 - The high flow isolation setpoint for the isolation condenser condensate line break sensors were found to actuate at a differential pressure greater than stated in specifications. (Licensee report dated March 25, 1974 (AO 50-219:74/23)). Detail 11)

Other Significant Findings

A. Unresolved Items

A licensee inspection of drywell snubbers identified three inoperable units. (Licensee report dated March 18, 1974 (AO 50-219:74/18)). (Detail 7)

B. Current Findings

The inspector reviewed the status of licensee action documented in the below Abnormal Occurrence reports.

1. AO 50-219:74/10 (Detail 4)
2. AO 50-219:74/11 (Detail 3)
3. AO 50-219:74/12 (Detail 4)
4. AO 50-219:74/13 (Detail 5)
5. AO 50-219:74/14 (Detail 3)
6. AO 50-219:74/15 (Detail 3)
7. AO 50-219:74/16 (Detail 3)
8. AO 50-219:74/17 (Detail 6)
9. AO 50-219:74/18 (Detail 7)
10. AO 50-219:74/19 (Detail 8)
11. AO 50-219:74/20 (Detail 9)
12. AO 50-219:74/21 (Detail 10)
13. AO 50-219:74/22 (Detail 4)
14. AO 50-219:74/23 (Detail 11)

The licensee has a outage for refueling scheduled to commence April 15, 1974. The inspector informed the licensee of the RO policy of issuing press releases for prolonged outages in cases where the licensee does not issue an appropriate press release. The licensee acknowledged this information. (Detail 2)

Management Interview

The management interview was held at the site on March 28, 1974 with the following attendees.

Jersey Central Power and Light Company

Mr. J. T. Carroll, Station Superintendent
Mr. D. L. Reeves, Chief Engineer
Mr. J. Sullivan, Jr., Operations Engineer
Mr. E. Riggle, Maintenance Supervisor

The following summarizes items discussed.

- A. The inspector stated that the inspection was directed at, but not limited to, a review of the licensee's corrective action related to abnormal occurrences.
- B. The licensee's corrective action and commitments related to the following abnormal occurrences were discussed.
 1. AO 219-50:74/10 (Detail 4)
 2. AO 219-50:74/11 (Detail 3)
 3. AO 219-50:74/12 (Detail 4)
 4. AO 219-50:74/13 (Detail 5)
 5. AO 219-50:74/14 (Detail 3)
 6. AO 219-50:74/15 (Detail 3)
 7. AO 219-50:74/16 (Detail 3)
 8. AO 219-50:74/17 (Detail 6)
 9. AO 219-50:74/18 (Detail 7)
 10. AO 219-50:74/19 (Detail 8)
 11. AC 219-50:74/20 (Detail 9)
 12. AO 219-50:74/21 (Detail 10)
 13. AO 219-50:74/22 (Detail 4)
 14. AO 219-50:74/23 (Detail 11)
- C. The inspector stated that he had reviewed the Quality Assurance implementation in one area of abnormal occurrences and found no deficiencies. (Detail 3e)
- D. The licensee stated that he is presently preparing for a refueling outage tentatively scheduled for April 15, 1974. (Detail 2)

DETAILS

1. Persons Contacted

Mr. H. Callahan, Control Room Operator
Mr. J. Carroll, Station Superintendent
Mr. R. Dube, Q. A. Supervisor
Mr. J. Maloney, Operations Supervisor
Mr. B. Mays, Operations Foreman
Mr. R. McKeon, Shift Foreman
Mr. D. Reeves, Chief Engineer
Mr. E. Riggle, Maintenance Supervisor
Mr. C. Silvers, Control Room Operator
Mr. J. Sullivan, Jr., Operations Engineer

2. Refueling Outage

The licensee stated that a refueling outage was scheduled to commence April 15, 1974. The refueling and maintenance program is expected to last six weeks. The inspector encouraged the licensee to issue a press release concerning the outage.

3. Torus to Drywell Vacuum Breakers Valves (VBVs)

a. General

The licensee, in performance of the weekly surveillance test of vacuum breaker valves required in Directorate of Licensing letter dated January 30, 1974 (D. J. Skovholt to R. H. Sims), identified the failure to demonstrate operability of vacuum breaker valves as reported in Abnormal Occurrences 50-219: 74/11, 14, 15, and 16.

The licensee has tentatively identified valve design to be the main cause of repeated failures.

On March 7, 1974, plant shutdown was commenced and authorized repairs were performed.

b. Corrective Action

The excessive friction in the valve hinge pins of the VBVs was attributed to the "growing" characteristic of bushing material. The licensee's discussions with the Nuclear Steam System Supplier and the valve vendor determined the areas to be examined and repaired as indicated below.

- (1) New bushings were installed in 4 VBVs. The clearances between bushings and hinge pins were returned to original design, 15 to 20 mils.

(2) Repairs to installed bushings to remove excess material to bring clearance to 15-20 mils.

(3) New packing was installed in 3 VBVs.

c. Performance of VBVs Upon Completion of Repairs

Upon completion of repairs, the weekly surveillance program demonstrated valve operability for three consecutive weeks. The inspector witnessed, on March 27, 1974, the licensee's surveillance testing of VBVs V26-1, -2, -13, -14. The VBVs actuated normally, closing without additional assistance.

d. Future Action by Licensee

During the forthcoming refueling outage, the licensee has committed to the following.

- (1) Examination of all 14 VBVs for seating material, disc freedom, and general condition of valve internals.
- (2) VBV bushings not previously replaced will be replaced and new packing material will be installed in all VBVs, dependent on material availability. Additional licensee investigation is underway to determine if changes to component materials are necessary to increase reliability.
- (3) An alarm system, meeting single failure criteria, is to be installed to alert the operator in the control room if a suppression chamber to drywell vacuum breaker is open more than a specified allowable limit.
- (4) Limiting Conditions for Operation and Surveillance Requirement technical specifications will be revised for the suppression chamber to drywell and the reactor building to suppression chamber vacuum breaker systems.

e. Quality Assurance

The inspector reviewed the licensee's QA efforts in monitoring the vacuum breaker repairs. The licensee's program consisted of monitoring the disassembly, cleaning, reinstallation, material procurement, and review of the repair procedure. The inspector stated that a continuing effort in this area is necessary in order to prevent repetition of vacuum breaker valve abnormal occurrences.

f. Summary

- (1) The licensee's repairs to VBVs which returned the valve hinge bushings to original clearance has favorably affected system operability.
- (2) The continued investigation by licensee in areas of material compatibility and possible changes in hinge pin material will be subsequently reviewed.
- (3) Licensee action to meet Directorate of Licensing requirements will be subsequently reviewed.

4. Low Pressure Main Steam Line Pressure Switch (MSPS)

a. General

The low pressure main steam line pressure switches which initiate MSIV closures have been found to trip at lower than specified pressures during surveillance testing. This instrument drift was reported to the Directorate of Licensing in Abnormal Occurrences 50-219:74/10, 12, 22.

b. Instrument Drift

The range of MSPS actuation is recorded in the Technical Specifications as ≥ 850 psig + 10 psig head correction factor. On the dates below, the following values were obtained during testing.

<u>Switch No.</u>	<u>February 8, 1974</u>	<u>February 15, 1974</u>	<u>March 18, 1974</u>
RE 23A	850 psig*	855 psig*	865 psig
RE 23B	860 psig	853 psig*	864 psig
RE 23C	856 psig*	860 psig	865 psig
RE 23D	855 psig*	861 psig	850 psig*

*Out of Specification

c. Corrective Action

The instruments were recalibrated and tested for repeatability by twice satisfactorily bringing each switch to trip point setting. These settings seem to remain within the prescribed range for only a short time.

d. Future Action by Licensee

- (1) The licensee's action to develop a Technical Specification change with the agreement of his Nuclear Steam System Supplier (NSSS) was not documented formally until March, 26, 1974. There was no indication that licensee telephone liaison with the NSSS vendor resulted in earlier NSSS vendor

awareness of the numerous abnormal occurrences resulting from repeated drifting of instruments.

- (2) The licensee has two additional switches under test. One of these appears to have characteristics which would reduce instrument drift. The results of the test will be used to evaluate the effect of replacement of malfunctioning switches.
- (3) The licensee is studying the possible relocation of pressure switch sensing points in order to reduce hydraulic surges which could be contributing to switch degradation.

e. Summary

Future abnormal occurrences in the area of instrument drift of low pressure MSPs are expected unless design change, component change, or specification change is accomplished. The licensee's action will be reviewed prior to startup after refueling.

5. Isolation Valve - Cleanup System

a. General

An inadvertent trip of V-16-1 resulted in a system pressure increase of > 140 psig, inducing a system isolation signal. Normally, V-16-1 and V-16-14 should have closed to isolate the cleanup system. Both valves remained open. This action was reported to the Directorate of Licensing in Abnormal Occurrence 50-219:74/13.

b. Corrective Action

Valve V-16-1 was found to have its associated breaker in the open position due to accidental operator action. Repositioning of the breaker closed valve V-16-1. Valve V-16-14 remained open until the system was returned to normal. It then closed with the automatic (open) position on its selector. A testing program was instituted and a circuit logic (closing of valve in auto and manual modes) check was made. The circuit was found to be wired correctly.

c. Summary

The licensee is unable to duplicate conditions to cause failure of V-16-14. Normal operation has been verified. Action has been initiated to provide a more accurate abnormal occurrence chronology (See Detail 12). The inspector had no further questions on this item.

6. SB Startup Transformer

a. General

During a routine plant shutdown the licensee was unable to transfer power from the 1B auxiliary transformer to the SB startup transformer. Since this condition was assumed to have existed for over seven days, it was reported to the Directorate of Licensing in Abnormal Occurrence 50-219:74/17.

b. Corrective Action

The fault was traced to failure of the cam switch to energize relay 52Y, leaving coil 52X with continuous current and burning it out and preventing the charging spring motor from positioning the SB breaker.

The licensee has replaced the 52X coil and the failed cam switch. The licensee checked all safeguard breakers for proper charging action and found them satisfactory.

c. Future Action by Licensee

The licensee stated that this occurrence is considered an isolated incident and has requested that his Generation Engineering Department review the feasibility of installation of a closed circuit breaker monitoring system.

d. Summary

Permanent corrective action or interim measures were not identified by the licensee. During the inspection, the inspector examined a spare breaker module and noted that an indicating flag indicates a charged breaker but is hidden from view when the breaker cabinet is closed. The licensee has not committed to modify the cabinet to enable administrative control of breaker position by means of a viewing window. The licensee contends that such action would be extreme due to the redundant power backups. This item is unresolved pending completion of the circuit breaker monitoring system review by the licensee.

7. Hydraulic Shock and Sway Arrestor Failures

a. General

The licensee reported three inoperable hydraulic shock and sway arrestors to the Directorate of Licensing in Abnormal Occurrence Report AO 50-219:74/18. One unit was associated with an engineered safeguard system, the "A" Isolation Condenser.

b. Corrective Action

The defective units were replaced with identical snubbers which were rebuilt with ethylene propylene seals. The defective units are undergoing tests. Present results show no seal failure due to seal material. Mechanical assembly problems appear to exist. A Quality Assurance program to monitor assemblies was instituted.

c. Summary

The licensee has committed to document test results by issuing a supplement to his abnormal occurrence report. This item is unresolved pending completion of that action.

8. Containment Integrity

a. General

The licensee is required to maintain containment integrity when reactor temperature is above 212°F with fuel in the core. Violation of this requirement was reported to the Directorate of Licensing in Abnormal Occurrence 50-219:74/19. The report documented loss of containment integrity due to a rise in reactor temperature while working on VBVs.

b. Corrective Action

The cause of the abnormal occurrence was attributed to operator error and to mechanical failure of the recording chart. Licensee corrective action consists of changes to shutdown log to require additional parameters to be monitored.

The licensee stated that he will reemphasize the use of more than one indicator to verify important parameters.

c. Summary

The inspector reviewed applicable temperature trace charts and viewed additional parameters required to be monitored. He questioned reactor operators as to their method of determining reactor temperatures during cooldown. The operators calculate, every 3 minutes, the cooldown parameters. A nomograph was not available to aid in monitoring parameters. The licensee stated that such a nomograph exists and would be made available to the operators.

The licensee is considering other methods of automatically monitoring and alarming when temperature parameters are approaching the higher levels. This item is unresolved pending completion of that review.

9. Main Steam Isolation Valve (MSIV) Leak Rate (NS04A and NS04B)

a. General

The main steam isolation valves were tested in the "as found" condition and leakage rates exceed the maximum allowable leakage rate of 9.945 SCFH. This abnormal occurrence was reported to the Directorate of Licensing in Abnormal Occurrence Report 50-219:74/20.

b. Corrective Action

Cause of the leakage was determined to be the lower packing rings around the valve shaft. The MSIV shaft packing leakoff valve was closed and a successful leak test was conducted. The licensee has committed to a complete preventive maintenance program, including repacking of valves and examination of shafts for pitting or out of round defects.

c. Summary

Further examination of valves should determine if the licensee has pinpointed the cause of failure. This item is unresolved.

10. Main Steam Line High Flow Sensor

a. General

The licensee, while recording the daily Technical Specification log readings, noted that the main steam line high flow sensor differential pressure indicator was reading 0 psid with the reactor at 595 MWe. The bypass valve at the sensor was found to be in the open position. Inability of the sensor to actuate at $\leq 120\%$ of rated steam flow due to a valve lineup error was reported to the Directorate of Licensing in Abnormal Occurrence report 50-219:74/21.

b. Corrective Action

The licensee has informed his instrument technicians of the details of this event. The licensee took additional administrative action to insure that, when a valve lineup is necessary to accomplish a work item, the lineup valve sheets are set aside for valve checks prior to reactor startup.

c. Summary

The licensee has demonstrated satisfactory response to this item. Retraining lectures will reemphasize this area of administrative controls. This item is unresolved pending completion of retraining.

11. Condensate-High Flow Sensors

a. General

The routine surveillance testing on the isolation condenser condensate high flow line break sensors determined that two of the four sensors had drifted out of technical specification requirements. The licensee reported this to the Directorate of Licensing in Abnormal Occurrence Report 50-219:74/23.

b. Corrective Action

The licensee has determined that lowering sensor setpoint to 24"H₂O and decreasing isolation condenser steam high flow line break sensor settings to 15 psig will not adversely affect the functions of these sensors.

c. Summary

The licensee has initiated corrective action to avoid additional occurrences. This item is unresolved pending completion of corrective action.

12. Abnormal Occurrence Critique

The licensee has encountered minor problems in duplicating the exact sequence of events that were encountered during abnormal occurrences. To resolve this problem the licensee is requiring all personnel involved in an abnormal occurrence to hold a critique at shift conclusion. All operators have been granted authorized compensation to remain on station until the abnormal occurrence event has been analyzed so that such occurrences are documented as soon as possible after they happen.