

U. S. NUCLEAR REGULATORY COMMISSION  
OFFICE OF INSPECTION AND ENFORCEMENT  
REGION I

Inspection Report No: 50-219/75-28 Docket No: 50-219  
Licensee: Jersey Central Power and Light Co. License No: DPR-16  
Madison Ave. Priority: \_\_\_\_\_  
Morristown, N. J. 07960 Category: C  
Location: Oyster Creek Station, Forked River, N. J. Safeguards Group: \_\_\_\_\_  
Type of Licensee: BWR, 1930 Mwt (G.E.)  
Type of Inspection: Routine, Unannounced  
Dates of Inspection: December 22-24, 1975  
Dates of Previous Inspection: December 16, 1975  
Reporting Inspector: T.T. Martin DATE: 1/14/76  
T. Martin, Reactor Inspector DATE: \_\_\_\_\_  
Accompanying Inspectors: L. Sjostrom DATE: 1/14/76  
L. Sjostrom, Reactor Inspector DATE: \_\_\_\_\_  
DATE: \_\_\_\_\_  
DATE: \_\_\_\_\_  
Other Accompanying Personnel: None DATE: \_\_\_\_\_  
Reviewed By: E.C. McCabe, Jr. DATE: 1/14/76  
E. C. McCabe, Nuclear Support Section Leader  
Reactor Operations Branch DATE: \_\_\_\_\_

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## SUMMARY OF FINDINGS

### Enforcement Action

#### A. Items of Noncompliance

##### 1. Violations

None

##### 2. Infractions

None

##### 3. Deficiencies

None

#### B. Deviations

None

### Other Significant Findings

#### A. Current Findings

##### 1. Acceptable Items

(These are areas which were inspected on a sampling basis and findings did not involve an Item of Noncompliance, Deviation or Unresolved Item (except as noted).)

- a. Startup Testing-Shutdown Margin. (Detail 3.a)
- b. Startup Testing-Cycle 5 Reactivity Follow. (Detail 3.c)
- c. Startup Testing-Core Safety Limits. (Detail 3.d)
- d. Startup Testing-CRD Friction Testing. (Detail 3.e)
- e. Cycle 6 Refueling Safety Evaluation. (Detail 5)
- f. Core Verification. (Detail 8)
- g. Fuel Inspection. (Detail 9)
- h. Incore Sipping. (Detail 10)
- i. Fuel Inventory and Control. (Detail 11)

##### 2. Unresolved Items

(These are items for which more information is required in order to determine whether the items are acceptable or Items of Non-compliance.)

- a. Startup Testing-Scram Insertion Time. (Detail 3.b)
- b. Estimated Critical Position. (Detail 4)
- c. Maintenance Procedures. (Detail 6)
- d. Refueling Procedures. (Detail 7)
- e. Secondary Containment Leak Rate. (Detail 12)

B. Status of Previously Unresolved Items

Not inspected.

Management Interview

An exit interview was held at the site on December 24, 1975.

Personnel Attending

Mr. J. Carroll, Station Superintendent  
Mr. E. Growney, Technical Engineer  
Mr. D. Reeves, Chief Engineer  
\*Mr. D. Ross, Manager, Nuclear Generating Station  
Mr. J. Sullivan, Operating Engineer

The following summarizes the items discussed.

1. Cycle 6 Refueling per 10 CFR 50.59. (Detail 5)
2. Estimated Critical Position Procedure. (Detail 4)
3. Startup Testing. (Detail 3)
4. Secondary Containment Leak Rate Test. (Detail 12)
5. Refueling Maintenance. (Detail 6)
6. Refueling Procedures. (Detail 7)

\* Attendance via telephone link.

## DETAILS

### 1. Persons Contacted

Mr. B. Blair, Exxon Nuclear Engineer  
Mr. J. Carroll, Station Superintendent  
Mr. K. Fickeissen, Technical Supervisor  
Mr. E. Growney, Technical Engineer  
Mr. J. Maloney, Operating Supervisor  
Mr. D. Reeves, Chief Engineer  
Mr. D. Ross, Manager, Nuclear Generating Station  
Mr. J. Sullivan, Operating Engineer  
Mr. B. Swift, Maintenance Engineer

### 2. Inspection Purpose

The purpose of this inspection was to review the licensee's records and procedures as they relate to the following items.

- a. Cycle 5 Refueling Startup Testing.
- b. December 1, 1975 Reactor Criticality.
- c. Cycle 6 Refueling Safety Evaluation.
- d. Refueling Plans and Procedures.
- e. Maintenance Plans and Procedures.

### 3. Cycle 5 Refueling Startup Testing

The inspector reviewed various records and procedures to ascertain whether the licensee's startup testing program, following the Cycle 5 Refueling, was in conformance with regulatory requirements and licensee approved procedures and administrative controls.

#### a. Shutdown Margin

The inspector reviewed the following executed procedures.

- (1) Shutdown Margin Measurement Test Procedure, #1001.27, Rev. 0.
- (2) Shutdown Margin Demonstration Procedure, #1001.26, Rev. 0.

The procedures demonstrated a Shutdown Margin in excess of 0.5% delta K per K, and the inspector had no further questions on this item.

b. Scram Insertion Time

The inspector reviewed Control Rod Scram Insertion Time Testing records. A memorandum from Mr. Quintenz to Mr. Sullivan, dated May 19, 1975 certified that all rods had satisfied Technical Specification requirements. The inspector requested supportive documentation.

Due to the holiday season, manpower was not available for record retrieval. The following items remain unresolved .

- (1) Substantiation of the May 19, 1975 memo based on raw data record review.
- (2) Verification of Brush Recorder monitoring of rod 34-27 during Cycle 5.

c. Cycle 5 Reactivity Follow

The inspector reviewed the Reactivity Anomaly Check Procedure, #1001.17, Rev. 1, and its executed table and graph. All data points fell within the required  $\pm 0.5\%$  delta K per K envelope around the predicted behavior. The inspector had no further questions on this item.

d. Core Safety Limits

The inspector reviewed computer records and executed procedures, for the week following the Cycle 5 Refueling, to determine if Technical Specification Safety Limits had been met; and verified as such, by the licensee. The following procedures and their associated records were examined.

- (1) Average Planar Linear Heat Generation Rate, Local Linear Heat Generation Rate, and Total Peaking Factor Check Procedure, #1001.17, Rev. 2.
- (2) Single Tip Cell Power Distribution Procedure, #1001.11, Rev. 0.
- (3) Core Limit Analysis Procedure, #1001.13, Rev. 0.

No Technical Specification violations were detected and the inspector had no further questions on this item.

e. CRD Friction Testing

The inspector reviewed the executed procedure records, including oscilloscope photographs, associated with the Control Rod Drive (CRD) Differential Pressure Friction Test Procedure, #717.3.011, Rev. 1. The inspector utilized the General Electric "CRD Hydraulic System Performance Anomalies" document as reference for the review. The inspector discussed several erratic or abnormal differential pressure traces with the licensee. No safety problems were identified and the inspector had no further questions on this item.

4. Estimated Critical Position (ECP)

On December 1, 1975 the reactor attained criticality, during a Xenon free startup, some 24 rods prior to the estimated critical position. Since this difference would constitute an unaccounted excess reactivity of nearly 2.4% delta K per K, a concern existed that a Technical Specification (T.S.) on difference between observed and predicted control rod inventory, equivalent to 1.0% delta K per K, might have been exceeded.

The inspector reviewed the Control Room Log Book, the Shift Supervisor Log, the Estimated Critical Position procedure, #1001.2, Rev. 2, and associated records and computation sheets. The inspector discussed the event with a licensee representative. Based on this review and discussion, the following is noted.

- a. The ECP procedure is meant to be an operator aid only. The operator is required by procedure to proceed with his approach to criticality as if the reactor could go critical at any moment.
- b. The ECP procedure is not, nor was it ever intended as a surveillance test for Technical Specification 3.2.d; the Reactivity Anomaly Check Procedure #1001.17 is used for this purpose.
- c. This was the first use of the ECP procedure by shift operators; and the particular operator who performed the calculations made several errors.
- d. A corrected ECP calculation within hours of the criticality coincided exactly with the actual critical position.
- e. The ECP procedure is well written and, with one minor exception, did not contribute to the calculational errors.

The inspector noted the following procedure weaknesses.

- a. The choice of arithmetic sign for the temperature correction is not obvious.
- b. The non-applicability of the procedure to T.S. 3.2.d is not obvious.
- c. The form has no signature slot for the operator performing the calculations.
- d. A second check of the ECP is not required.

The licensee informed the inspector that a revision is planned to the ECP procedure. No additional training is planned for the operators in use of the procedure, other than that normally associated with a revision.

These items are unresolved.

5. Cycle 6 Refueling Safety Evaluation

The inspector reviewed the following documents to determine why a license amendment proposal had not been submitted to conduct the Cycle 6 Reload and Operation.

- a. Cycle 6 Safety Evaluation Report.
- b. Memorandum from Mr. R. Lee to Messrs. J. Carroll and R. Williams titled Oyster Creek-1, Cycle 6 Reload Licensing Data, dated November 21, 1975.
- c. Memorandum from Mr. R. Williams to Mr. J. Carroll titled Oyster Creek GORB Review of Cycle 6 Reload, dated December 22, 1975.
- d. Draft PORC Meeting Minutes for December 4, 1975.

The licensee has concluded that Cycle 6 operations involve no unre-viewed safety questions or needed Technical Specification changes; and that Cycle 6 Reload may be conducted in accordance with 10 CFR 50.59, without prior NRC approval.

The inspector did not identify any problems with this decision and had no further questions on this item.

6. Maintenance Procedures

The inspector reviewed the refueling outage plan to determine what maintenance items were planned. The inspector selected three safety related maintenance items for review for technical content and approval.

a. Inspection of Containment Spray HX

The maintenance procedure for inspection only of the Containment Spray Heat Exchangers has not been assembled and approved.

This item is unresolved.

b. Reactor Safety Valve Exchange

The inspector reviewed the following approved procedures and did not identify any inadequacies.

(1) Removal of Reactor Safety Valve procedure, #702.1.002, Rev. 2, dated 12/12/75.

(2) Reactor Safety Valve Installation Procedure, #702.1.005, Rev. 2, dated 12/12/75.

c. Drywell Airlock Electrical Penetration Modification

The inspector reviewed the PORC approved Drywell Airlock Electrical Penetration Proposal #52-74-1. The "Installation Specification" and "Installation Control Plan" had not been assembled or approved.

This item is unresolved.

7. Refueling Procedure

The inspector reviewed the Refueling Procedure, Section 212, Rev. 19 of the plant procedures, for technical content and format. The inspector had the following comments and these items are unresolved.

a. The current approved procedure does not follow the format as delineated in ANSI N18.7; however, the licensee stated that a new revised procedure is being drafted.



- b. There is no checkoff sheet, with the exception of a tool and equipment checklist, where significant prerequisites or steps can be initialed to verify completion of those items.
- c. The procedure calls for checking for correct fuel assembly orientation, but the methods for checking correct orientation are not addressed.
- d. The procedure does not address an audible annunciation for abnormal flux increases or the actions to be taken for such an alarm.
- d. The procedure does not discuss actions to be taken if the fuel should become damaged during fuel movements.

8. Core Verification

The inspector reviewed the Core Verification procedure, section 1001.24 of the plant procedures, for technical content and format. The inspector found no inadequacies in that review.

9. Fuel Inspection

The inspector reviewed the Examination of Irradiated Fuel Assemblies, Section 215, Rev. 2 of the plant procedures, for technical content and format. The procedure implements the Exxon procedure, Handling and Inspection Procedure for Exxon Nuclear Fuel Assemblies at Oyster Creek, XN-218, Rev. 2. This procedure calls for the inspection of four assemblies. The inspection includes gamma scanning of approximately 25 fuel rods from two assemblies, visual inspection of rods with a periscope, and measurements of spacer capture rod length, rod diameter, rod length and rod extraction force.

The inspector had no further questions on this item.

10. Incore Sipping

The inspector reviewed the Incore Sipping Procedure, Section 213 of the plant procedures, for technical content and format. The inspector found no inadequacies in the procedure.

11. Fuel Inventory and Control

The inspector reviewed the Fuel Inventory and Control Procedure, Section 1002 of the plant procedures, for technical content and format.

The procedure has two forms attached for use in controlling fuel movements. An MBA Transfer Form is utilized for moving fuel outside the fuel pool or Reactor Core area and each move is approved by the SNM custodian or his designated representative. An SNM Move Sheet is used for fuel movements within the Reactor Core or the fuel pool area and each move is approved by the Technical Supervisor or his designated representative.

The inspector had no additional questions on this item.

12. Secondary Containment Leak Rate

The inspector requested but did not receive results of the Secondary Containment Leak Rate Test that was performed following the Reactor Building leak repair discussed in inspection report 50-219/75-11.

Due to the unavailability of licensee clerical personnel during the holiday season, the results could not be retrieved at this time.

This item is unresolved.