

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

IE Inspection Report No: 50-286 /75-05

Docket No: 50-286

Licensee: Consolidated Edison Company

License No: CPPR-62

4 Irving Place

Priority: \_\_\_\_\_

New York, New York

Category: B1

Location: Indian Point 3, Buchanan, N.Y.

Safeguards Group: \_\_\_\_\_

Type of Licensee: PWR 3025 MWt (W)

Type of Inspection: Routine, Announced

Dates of Inspection: Jan. 28, 31, Feb. 3-4, 10-11, 1975

Dates of Previous Inspection: January 11-15, 1975

Reporting Inspector: *A. N. Fasano*  
A. N. Fasano, Reactor Inspector

2/23/75  
Date

Accompanying Inspectors: \_\_\_\_\_

\_\_\_\_\_ Date

\_\_\_\_\_

\_\_\_\_\_ Date

\_\_\_\_\_

\_\_\_\_\_ Date

\_\_\_\_\_

\_\_\_\_\_ Date

Other Accompanying Personnel: \_\_\_\_\_

\_\_\_\_\_ Date

Reviewed By: *A. B. Davis*  
A. B. Davis, Sr. Reactor Inspector  
Reactor Operations Branch

2/23/75  
Date

## SUMMARY OF FINDINGS

### Enforcement Action

None

### Licensee Action on Previously Identified Enforcement Items

Not inspected

### Other Significant Findings

#### A. Current Findings

##### 1. Four Loop Plant Torque Tube

Reference Dwg. 113 E 492, W, for Four Loop Torque Tube Details and Assembly Lifting Rig-Internals.

One of three torque tube studs became bound in the upper support assembly. The torque tube stud was removed. The threads in the upper support assembly required retapping. The corrections were made. This event caused a delay in the removal of the core internals. The internals were successfully removed on February 1, 1975. This item is closed.

##### 2. Status of Facility Procedures

Reference RO:I Report 50-286/75-02, Current Findings.

<u>Title</u>	<u>% Written</u>	<u>% Approved</u>
System Operating Procedures, SOP	100	60
Preventive Maintenance Procedures	100	*
Emergency Operating Procedures	100	70
Alarm Procedures	100	*
Surveillance Procedures	88	0

The status of the Facility Procedures remain a review item for subsequent inspections.

\* Expected to be all approved by early March 1975

3. Status of Crucial Reactor Program Completion

Reference RO:I Report 50-286/75-02, Current Findings.

<u>Title</u>	<u>Status as of Feb. 10, 1975</u>
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Power Ascension Test Program Procedures	28%
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The status of Crucial Facility Programs will be reviewed during subsequent inspections.

4. Integrated Hot Functional Test (Vibration & Flush)

The reactor internals were removed and inspected against the vibrations checklist. Also, the assembly of clean rooms and the final removal of water from the reactor vessel was performed.

Procedures were available and in use. The prerequisites for performing the vibration inspection appeared to be complete. Special test equipment and facilities were being used. The inspection was being performed as required by the vibration program. The personnel appeared to be performing with appropriate coordination. The dye penetrant testing was being performed by a qualified individual. The observations were being noted for final analysis and materials were collected for final review and analysis. (Details, Paragraph 2, 3)

The conduct of the efforts observed by the inspector appeared to satisfy program requirements.

B. Status of Previously Unresolved Items

1. Containment Air Recirculation Fans

Reference RO:I Report 50-286/75-01

The evaluation study on the fans remains to be performed. These fans are designed to operate during normal and post accident conditions. The licensee will forward the evaluation to IE:I. (Management Interview)

This item is unresolved.\*

\* The word Unresolved as used here means that it is an item that requires to be reinspected or finalized when the item is completed even though there is an agreed understanding of what is to be completed.

2. Turbine Generator Over Speed

Reference RO:I Report 50-286/75-03

The licensee plans to conduct a 100% (design) trip when the additional dump valves have been installed. (Ref Technical Specification, Rev. 8, 9, Section 3). A test will be performed at the highest power allowable if valves have not been installed and testing is at a point where "full power" as defined by Technical Specifications is allowed.

Management Interview

A management interview was held on February 11, 1975 at the Indian Point Site, Buchanan, New York.

The following persons were present:

Consolidated Edison Personnel

Mr. V. Perry, Superintendent, Field Operations  
Mr. S. Zulla, Operations Engineer Unit 3  
Mr. H. Cairns, Superintendent, Construction Inspection

USNRC

Mr. A. Fasano, Reactor Inspector

The following items were discussed:

A. Scope of Inspection

The licensee representatives were informed that there were no Items of Noncompliance found during this inspection.

The main purpose of the inspection was the witnessing of activities related to the removal and inspection of the reactor internals for vibration checks and cleanliness. (Details, Paragraph 2,3)

B. Containment Air Recirculation Fan Evaluation

Reference RO:I Report 50-286/75-01, Details 5.b(2)

The inspector requested that a report be sent to the NRC on the validation of the operability of the Fans under accident conditions.

The licensee stated that the evaluation will be made available to the NRC.

C. Vibration Check List

The inspector stated that a report on the results from the internal check vibration program confirming correlation to the prototype is expected to be sent to the NRC.

The licensee has taken this request as subject for further consideration.

This is an unresolved item.

D. Turbine Generator Overspeed

Reference B.2/ Status of Previously Unresolved Items.

E. Instrument Air Modification

The licensee stated that the notice for proceeding with this modification, as was made on Unit 2, has been approved. The intent is to complete this modification prior to criticality

Unresolved\* item.

F. Feedwater Flow Control Valve

The licensee intends to have completed the modification of the main feedwater flow valves, similar to that done on Unit 2, prior to criticality.

Unresolved\* item.

G. Steam Generator "J" Tube Modification

This modification, similar to Unit 2, is scheduled to start February 21, 1975.

Unresolved\* item.

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\* The word Unresolved as used here means that it is an item that requires to be reinspected or finalized when the item is completed even though there is an agreed understanding of what is to be completed.

H. Hydraulic Snubbers

Material changes are being made; no completion date was given.

Unresolved\* item.

I. Personnel Air Lock Modifications

Modifications including design change to the pillow block bearing and vent relief valve are expected to be complete by the time of core loading. The modification would be similar to those completed on Unit 2. The pillow block bearing strengthening is intended to better assure mechanical interlock. The vent is to protect weld channel leakage, if it occurs, from over pressurizing the airlock.

Unresolved\* item.

## DETAILS

### 1. Persons Contacted

#### Consolidated Edison Company

V. Perry, Superintendent Field Operations  
A. Kohler, Resident Construction Manager  
H. Cairns, Superintendent, Construction Inspection  
S. Zulla, Operations Engineer, Unit 3  
E. Erichson, Construction Inspector

#### WEDCO

J. Murtaugh, Field Engineer  
H. Robinson, Quality Engineer  
J. Cambel, Quality Control Manager  
J. Moorehead, Lead Mechanical Engineer

#### Branch Radiographic Laboratory, Inc.

W. Branch, VP Branch Labs.

### 2. Integrated Hot Functional Test (Vibration & Flush)

Reference Vol. II, Nuclear Construction Department CT - Mechanical Equipment Service Technical Manual, Westinghouse, Procedure PE 12-11-001 Rev. 3.

Reference Westinghouse drawing and checklist 686J470.

The procedure applies to site surveillance for 2, 3 and 4 loop reactor internals. It designates responsibility for the witnessing, verifying, checking and/or recording of results of specified upper and lower internals assembly parts.

The procedure addresses the use of field discrepancy reports for the recording of noted discrepancies in the performance of the procedure.

The results of all inspections are documented on check sheets, reference W 686J470. This checklist contains features to be examined and observation to be noted by the QC inspector before hot functional testing and comments and observations after hot functional testing.

The IE inspector noted the documentation of comments for pre-hot functional testing and those taken post hot functional testing. In particular he witnessed the conduct of dye penetrant tests on the thermal shield flexure arm attachments.

The following features are checked:

1. Thermocouple conduit clamps inside the thermocouple column.
2. Clamp arrangements at the mounting bracket locations.
3. Plug to conduit weld at the five support columns adjacent to the thermocouple columns.
4. Accessible angle conduit clamps inside the upper support column.
5. The accessible weld joints at thermocouple stop for the self instrumented column.
6. Weld joints on the access support column and mixing device gussets (Thermocouple support hardware).
7. Rigidity of exposed portion of thermocouple runs at access locations (inside support column - lower end).
8. Rigidity of accessible protruding thermocouple tips.
9. Thermocouple column and guide tube screw locking devices.
10. Accessible support column mixing device, orifice plate and core plate insert screw locking devices.
11. Upper core plate insert.
12. Conduit connector fittings and cross run clamp arrangements.
13. Deep beam welds at the skirt and at hollow rounds.
14. Accessible guide tube welds.  
(upper internals 1-14)
15. Upper barrel to flange girth weld.
16. Upper barrel to lower girth weld.
17. Lower barrel to core support girth weld.



18. Upper core plate alignment pin welds and bearing surfaces.
19. Outlet nozzle interface surface condition.
20. Thermal shield flexure arm attachments to barrel, and weld to the thermal shield. (Dye Penetrant inspect all six).
21. Thermal shield interface (shim measurement) at the lunge off pads.
22. Irradiation specimen basket welds.
23. Baffle assembly screw locking arrangements at the two top and two bottom former elevations.
24. Core support column to lower core plate screw locking devices (24 random choices)
25. Core support column adjust sleeves.
26. Accessible (2) instrumentation guide column locking collars nearest the manway.
27. Locking devices of the secondary core support.
28. Accessible locking devices of the offset instrument column (upper & lower ends).
29. Radial support key locking arrangements and bearing surfaces.
30. Head and vessel alignment pins screw devices and bearing surfaces.
31. Contact and interface of the accessible instrumentation guide columns.
32. Contact at interface of the accessible core support column nuts.  
(15 through 33 lower internals)
33. Vessel clevis locking arrangements and bearing surfaces.
34. Vessel nozzle interface surface condition.  
(34-35 vessel)

See attached Diagram of Core and Internals.

The checklist approach was chosen in accordance with Safety Guide 20. The accepted vibration test for the four loop Westinghouse plant is Indian Point 2. Reference letter from Directorate of Licensing to Westinghouse, December 8, 1972, W Topical Report WCAP-7879 Review.

The inspector requested that a summary of the inspection program be submitted to the Commission after completion to confirm that observed vibration indications substantiate conclusions.

The approach taken in the conduct of the Hot Functional - Vibration-Test is in accordance with Unit 3, SAR, Reference page 13.1-14, Table 13.1-1; Hot Functional Tests: Vibration Measurements are performed at first of a kind plants with extensive instrumentation (Westinghouse Topical Report WCAP-7879, Four Loop PWR Internals Assurance and Test Program). After initial verification, vibration monitoring is accomplished by an internals inspection after hot functional testing. Question 3.14, January 1973, Supplement 10 of the Unit 3 SAR is referenced for confirmation of the use of Safety Guide 20.

3. Reactor Coolant Filter Installation Operation and Removal Procedure, INT 2.2.1, 5/24/74

The purpose of this procedure was to provide instructions for the installation of wire mesh filters in the reactor vessel before cold hydro and for hot functional operations and removal of the filters after hot functional.

The purpose of the screens is to remove particles that are over 1/16" in cross section.

This procedure was conducted to provide added assurance of cleanliness to avert rod drop problems encountered in the early testing phase of IP-2. The procedure is an added assurance that foreign materials inadvertently remaining in the system will be removed.

The recorded data in field report, 9/20/74, for period 9/3/74 to 9/20/74 was reviewed. The documentation contained signed check sheets for itemized parts and steps. The verification was also signed by QA representative; Reference, "Reactor Coolant Installation," Quality control checklist reference FJS-030174 shows items signed on a stepwise signoff with acceptance values noted.

The lower internals were inspected by the IE inspector. All wire mesh filters were removed. Outlines of the individual filter units were discernable on the lower core plate.

Discussion with the Westinghouse Field Engineer and the Westinghouse Quality Engineer and the Con Edison Construction Inspector indicated the following:

The debris consisted of what appears to be weld splatter, wire brush bristles, grinding particles and machine chips.

The debris was collected into plastic bags and noted as to where the debris was collected. The particles will be sent to Westinghouse for review and analysis.

Photos were taken and were reviewed by the IE inspector with the Westinghouse personnel. The following is noted:

a. Debris located beneath the lower core plate of the lower internals:

Weld splatter - Maximum size estimates to be  $\frac{1}{2}$  inch diameter.

Wire brush bristles

Grinding particles

Total amount estimated at a teaspoon full.

b. Debris trapped in filters:

Machine chips, biggest piece approximately  $\frac{3}{8}$  inch long and  $\frac{1}{8}$  inch wide

Grinding particles

Weld splatter

Wire brush bristles

c. Debris removed from core plate beneath screens:

Wire brush bristles

Weld splatter

Machine chips, largest piece approximately  $1\frac{1}{2}$  inch long, 1.8 inch wide

Grinding particles.

The inspection of the upper internals, (guide tubes) was in progress and is to be completed by Westinghouse and the licensee. Westinghouse intends to perform a 100% inspection for cleanliness and weld status. The licensee, Nuclear Power Generation Quality Control, will independently inspect 15% and Con Ed Quality Assurance will independently inspect 15%.

Reference Construction Department IP-3 Book Number 11, 1974 (Photos). The photos were reviewed that record the filter screens in place on the lower core plate.

Reference Construction Department Report No. 2-1-75 EWE, upper and lower internals (inspection) Removal Report, and Report No. 2-5-75 EWE Lower Internals and Reactor Vessel. The report agrees with WEDCO findings of chips and wire from brushing and notation of debris being packed in plastic bags for further analysis.

