

U. S. ATOMIC ENERGY COMMISSION

DIRECTORATE OF REGULATORY OPERATIONS

REGION I

RO Inspection Report No.: 50-286/73-10

Docket No.: 50-286

Licensee: Consolidated Edison Company

License No.: CPPR-62

4 Irving Place

Priority: _____

New York, New York

Category: B

Location: Indian Point-3, Buchanan, New York

Type of Licensee: PWR 1050 MWe (Westinghouse)

Type of Inspection: Routine

Dates of Inspection: September 19-21, 28, 1973

Dates of Previous Inspection: September 19-21, 1973

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

Date

Accompanying Inspectors: NONE

Date

Other Accompanying Personnel: NONE

Date

Reviewed By: *E. J. Brunner*
E. J. Brunner, Chief, Facility Test and
Startup Branch

10/15/73
Date

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SUMMARY OF FINDINGS

Enforcement Action

None

Design Changes

None

Unusual Occurrences

None

Current Findings

1. Flush & Hydro Program*

The licensee has conducted an initial walk through in preparation for the start of flush procedure performance.

2. Core Loading, Post Loading, Low Power Testing and Power Escalation Program**

The licensee has received a letter from the Directorate of Licensing, September 14, 1973, requesting that the licensee amend their FSAR by October 5, 1973 with regard to conducting the shut down from outside the control room test and the loss of off-site power test.

Management Interview

An exit interview was conducted at the Indian Point-3 site on September 27, 1973. Persons in attendance at the exit interview were as follows:

Consolidated Edison Company:

Mr. V. Perry, Superintendent of Field Operations
Mr. D. Whittier, Test Engineer Unit-3
Mr. P. Hartsfield, Superintendent Nuclear Inspector

* RO Inspection Report 50-286/73-07 Page 1, Paragraph A.2

** RO Inspection Report 50-286/73-08, Management Interview, Paragraph C.1, C.2

Regulatory Operations:

Mr. A. Fasano, Reactor Inspector

A. Scope and Findings of the Inspection

The RO Inspector stated that the intent of this inspection was to determine if there exists documentations that address to the interface of construction to operation and an overall pre-operational test program.

The licensee's representatives were informed that no violations or safety items were found during the inspection.

B. Testing Program

Approximately 26 documents were reviewed. The content of these documents were discussed. The content of the review and comments are contained in the Details Section, Paragraph 2.

DETAILS

1. Persons Contacted

Mr. A. Kohler, Jr., Resident Construction Manager
Dr. G. I. Coulbourn, Manager, Indian Point-3 Construction
Mr. S. Salay, Chief Engineer Unit-3
Mr. V. Perry, Superintendent of Field Operations
Mr. D. Whittier, Test Engineer Unit-3
Mr. S. Cantone, Operations Engineer Unit-3
Mr. F. Hertrich, Chief Construction Inspector
Mr. D. Hartsfield, Superintendent Nuclear Inspector

2. Testing Program

a. Administrative Guide INT-ADM-1.0

The RO Inspector reviewed this document with respect to the establishing the basis for the control and implementation of the IP-3 test program.

The document addresses the establishment of a Joint Test Group, JTG. The JTG is made up of one WEDCO and one Con Edison Member. Sub groups in support of the JTG are addressed for the functions of test procedure and results review and for test procedure review and data analysis.

It was noted that the current organizational changes pending will require a change to the JTG membership.

The licensee stated that changes are pending.

The JTG chairman is designated as the WEDCO Operations Manager. The Unit-3 Chief Engineer is the Senior Con Edison member. Both members can appoint an alternate member or a designated representative.

The licensee stated that the names of the persons that are substitutes for the JTG members are specified in a Con Edison memorandum and is on file.

The guide addresses the test phases to be conducted, ie:

- (1) Phase I - General Tests such as flushes & hydros. These tests are under the direction of WEDCO Supervisors.
- (2) Phase II - Functional Tests, that is systems and subsystems operation. These tests are under the direction of WEDCO Supervisors.
- (3) Phase III - Integrated Plant Tests, that is integrated system tests and overall plant operations. These tests are under the direction of Con Edison.

The guide addresses to the general content and format structure of a procedure. The following is presented:

- (1) Cover Sheet, which should contain:
 - (a) Title
 - (b) Revision No.
 - (c) Author
 - (d) Reviewer
 - (e) JTG Approval
 - (f) JTG Acceptance
 - (g) Remarks (to note anomalous events or occurrences)
 - (h) Date and list of page numbers
 - (i) Signature of Test Director and Witness
- (2) Objective
- (3) References
- (4) Enclosures (Attachments as required)
- (5) Prerequisites (conditions) including accomplishments, support systems completed and operational prior to commencement of test.
- (6) Instructions (Procedure)
To be step by step listing of actions.
- (7) Acceptance Criteria (Reflect the design objective)
- (8) Data Sheets and Check Lists
- (9) Record of Changes

RO Inspector's Comment:

Are provisions for recording of deficiencies addressed:

Licensee's Response:

A record of deficiencies found prior to the initiation of the tests are recorded and maintained as part of the record in the Quality Control file.

RO Inspector's Comment:

What provisions do you have for recording the status of the component or system following test completion?

Licensee's Response:

The requirements for use of jumpers, pipes, special equipment will be included in the test procedure instructions. The removal of the ancillary equipment will also be included in the test procedure instructions.

RO Inspector's Comment:

The guide does not address to the listing of special test equipment and to the calibration requirements.

Licensee's Comment:

The test equipment will be listed and included as enclosures. This is addressed in Readiness for Testing check list WEDCO Form 77263.

The guide addresses to the responsibility for preparation of test procedures. WEDCO prepares the test procedures. Con Edison reviews the prepared test procedures.

Test procedure revisions, method and control is described.

Revisions consist of complete pages with revision number noted on the side of the page of the test procedure. The cover sheet is reissued with page number changes. The WEDCO test index contains latest issue.

Test Changes are designated as minor and more than minor. Minor changes can be changed on the spot and agreed to by WEDCO and Con Edison Test Supervisors. The changes are initialed by both parties. An explanation of changes is noted on the "Record of Change".

Changes more than minor require prior approval by JTG.

The performance of testing will be under the direction of Test Directors, WEDCO or Test Supervisors, Con Edison. Tests will be conducted in accordance with a test sequence which is prepared by WEDCO and designated as a Test Sequence Chart.

Licensee's Comment:

The Test Sequence Chart is available.

RO Inspector's Comment:

A mechanism is required to identify plant oriented shift test supervisors during testing.

Licensee's Comment:

A test program of the day, TPOD, is made out which specifies supervisors and the Readiness for Testing form will specify who is assigned. The TPOD is made out by the Test Engineer.

The Test Supervisors are to be briefed, by the Test Engineer. The licensee referenced a memo relating to duties and responsibilities of Test Supervisors, June 25, 1973 and AD-8.

The interface between Con Edison and WEDCO for the Test Program is described in the Administrative Guide INT ADM-1.0.

The guide does address to a mechanism for obtaining prerequisites.

A Readiness for Testing Notice - WEDCO Form 77264 is noted and included in a readiness for testing check list - WEDCO Form 77263. Form 77265, discrepancies found on walk through was also noted.

Test results evaluation will be performed on the spot and be based on test criteria included in each test procedure. The Test Director, WEDCO, and the Con Edison Test Representative Witness/Test Supervisor make the initial evaluation.

Where the results of the test are out of acceptance criteria specifications the results are brought to the attention of the JTG.

The guide addresses to the dating and initialing by WEDCO and Con Edison of each procedure step, initial conditions, and prerequisites.

Data record retention is described in the guide, reference Paragraph 5.1.3 and Paragraph 6.1.

b. Administrative Guidelines for the Test Program INT ADM 1-0, Addendum 1

The purpose of this addendum is to define the general test philosophy; outline the general test areas of the major disciplines and describe the documentation of test results for Unit-3 (sometimes referred to as IP-3)

The testing by crafts is under the control of WEDCO during the Phase I testing.

Tagging mechanisms are described in this addendum.

It was stated that WEDCO would provide maintenance procedures during Blue Tag phase. Once the system is accepted there would be Con Edison approved procedures for maintenance.

RO Inspector's Comment:

It appears that much of Addendum 1 relates to Con Edison maintenance. Maintenance becomes involved early as an interface group on components and systems (including electrical and instrumentation and control).

Does the program address to a "key" maintenance position as a focal point for this interface.

Licensee's Response:

The current plan, being considered, includes a maintenance Foreman.

c. WEDCO IPP-2 and 3 Tagging Procedure 3AD-8/Rev 2

The tagging procedure specifies the kinds of tags to be used at the various stages of construction and for specific reasons.

d. Flushing Documentation Guidelines, September 11, 1973 WEDCO.

This is to be included in Addendum 1.0 of INT-TP-1.0.

The documentation addresses readiness for testing requirements, prerequisites, deficiencies, and records.

The flush log sheets on completion will go to Con Edison.

e. Valve and Pump Disassembly/Reassembly Instruction and Checklist, WCM-0-19, Rev 0

The purpose of this document is to assure that WEDCO Quality Control will monitor assembly and disassembly of class 1 valves with Quality Assurance check lists.

RO Inspector's Comment:

When does the Con Edison Quality Control take over the Quality Control function?

Licensee's Comment:

When Con Edison accepts the system. This is subsequent to the blue tag phase.

f. Calibration of Test Instruments WQA-5-0-2 Rev 1, July 6, 1973

The purpose of this procedure is to provide instructions for the calibration and inspection of instruments used during the construction and testing of Indian Point-3. It covers disciplines for periodic testing or calibrations.

The procedure contains listings of equipment and frequency requirements for checks and calibrations.

g. Interfacing Responsibilities/Startup Procedures WCO-0-2 Rev 0, April 5, 1973

This procedure relates to WEDCO/Westinghouse interface for the preparation, review, implementation and revision of test

procedures and the approval of test results during all phases of the Indian Point-3 construction and preoperational startup test program.

The phase II and III responsibilities with the JTG are addressed.

- h. Operations Department Procedure, WCO-0-8, Rev 0, System Cleaning, May 23, 1973

This procedure addresses to the method to be employed to achieve and maintain cleanliness in systems and subsystem components.

- i. Instrument Calibration, WCO-0-9, Rev 0, May 10, 1973

This procedure provides instruction for the calibration of instrumentation for IP-3.

- j. Guidelines for System Turnover

This procedure provides instructions for an orderly and timely turnover of systems for testing. Follow up references require a review of OP No. 437 May 8, 1970, Systems/Area Acceptance Procedure, WQA 4-1 and WQA 4-3.

- k. Turnover for Testing Form

This addresses the mechanical and the construction validation for Phase I testing. Enclosures include all outstanding work items, including valves, instrument requirements and flushes.

- l. QAI-1, Rev 1 - Quality Assurance Instructions System Turnover Audit, July 31, 1973

This procedure provides instructions for the validation of required quality documentation for items contained within specified test boundaries to assure that no outstanding or unresolved items remain.

Future reference for additional review is made to WED 1077 and appropriate check lists.

- m. QAI-2 System Turnover Package - Flush and Hydro, July 31, 1973

This quality assurance instruction provides instruction for the handling of system turnover packages.

n. Readiness for Testing Check List, Form 77263
Instructions for Use

The purpose of this form is to document what is needed to perform a specific test.

The check list covers: motors, valves, instruments (calibrated), special equipment (calibrated), prior procedures required, support systems required, etc.

o. Red Lining of Schematic Drawings, September 1, 1973

Applies to all electrical and control circuits and devices as contained on Westinghouse 500B-971 series and UE&C 9321-LL series.

The testing performed consists of continuity checks that device is wired and functions. The jumpers are clearly identified and will not be red lined.

Copies of completed drawings are sent to Con Edison.

p. Audit Check List for WEDCO Turnover for Testing

The check items cover program requirements.

q. Con Edison Release for Testing Procedures

The purpose is to establish procedures to be followed by Con Edison IP-3 Construction Staff to verify IP-3 readiness for Phase I and II testing and to maintain a record of discrepancies found during test.

The construction inspection staff has responsibility for the verification of readiness. Selected independent audits are to be performed. Record retention on deficiencies is addressed.

The Field Operations Staff is responsible for the line walk to verify readiness.

r. Readiness for Testing - RFT-3, Rev 0 - Consolidated Edison
Field Operations Line Walk Checklist

The RFT-3 Check List is filled out by Field Operations.

There is a RFT-1, Rev 1 which is a release for testing form which is a construction inspection sign off. This form is

used by Con Edison Construction Inspection Department and Field Operations.

There is a RFT-4, Indian Point Test Deficiency Report.

s. Duties and Responsibilities of Con Edison Supervisors During Phase I and II Testing on Unit-3

This document specifies duties and responsibilities of Con Edison Test Supervisors during Phase I and II testing.

t. Guidelines for Consolidated Edison Organization for and Conduct of Preoperational Testing

This guide outlines the responsibilities of the organizations within Con Edison during the preoperational testing of IP-3.

u. Con Edison System/Area Acceptance Procedure

The purpose of this procedure is to establish the procedure to be followed by Con Edison in accepting a system and/or area of IP-3 from WEDCO.

v. Daily Test Log (3AD-8/Rev 2)

This establishes and provides instructions for maintaining the "Daily Test Log".

w. Lifted Wires and Jumper Wires Log Book (3AD-8/Rev 2)

This establishes a lifted wire and jumper log.

x. Watch Relief Guidelines (3AD-8/Rev 2)

This provides guidance for watch relief to be used by Unit-3 during preoperational test/startup program.

y. Con Edison's Quality Assurance Program for Indian Point Unit No. 3 - Construction Phase, November 4, 1973

Reference Section 2.12.1 Con Edison/WEDCO- Test Control Program.

The program as established and stated in this Section assures that:

- (1) Written test procedures are to be prepared and contain acceptance criteria.
- (2) Preoperational tests are to include prerequisites.
- (3) Test results are to be documented and requirements satisfied.

Test control for the construction phase and the preoperation phase is addressed.

Responsibilities for Con Edison include:

Test procedure review
Test procedure approval
Test evaluation

The Con Edison Construction Manager is responsible for; procedure review, initial plant conditions and prerequisites being met.

Prior to plant performance testing there will be test programs developed to demonstrate that equipment and systems are properly installed and operate in accordance with design and operating criteria.

RO Inspector's Comment:

What does plant performance testing correlate to as to testing phases?

Licensee's Response:

The plant performance tests correspond to Phase III testing.

The document requires that the test programs include safety procedures for initial fuel loading. Safety procedures are understood to mean approved facility procedures.

RO Inspector's Comment:

Paragraph 2.12.1 appears to require a total startup program in existence prior to plant performance testing.

Licensee's Response:

The programs will exist prior to core loading.

The QA Program designates that procedures will contain as required:

Test purpose
Conditions
Prerequisites
Precautions
Limitations
Acceptance Criteria
Data sheets
Calculation Sheets

The document further outlines the responsibilities for Test Control.

WEDCO is responsible for writing test procedures, approving test procedures for implementation (JTG) and technical direction.

The WEDCO and Con Edision Test Supervisors are responsible for:

The conditions and availability of:

Test equipment - - - - Calibration Status
Instrumentation - - -
Related Support Accessories
Test conditions - - - - Satisfactory prior
Prerequisites - - - - to performance
Test completion
Test Data Review - - - Verified before released
Review Data
Review Performance of equipment
Review performance of systems
Record test record for deficiencies

The Resident Construction Manager and the NPG Manager or their representatives are responsible for:

Review of all pertinent information
Acceptance of results
Forwarding of deficiencies on appropriate report forms for further review and disposition.

RO Inspector's Comment

Where in your program is the forwarding of deficiencies described?
How and to whom for retention?

Licensee's Response:

The deficiencies are kept by the "Superintendent Nuclear Inspector". The deficiencies are put into the nonconformance file.

RO Inspector's Comment:

The information presented indicates that a system with performance or design inconsistencies may be accepted by the Resident Construction Manager and the Manager, NPG, or will be placed in a "hold" status pending resolution of the problem. Where in your program do you address actions required on the "hold" for resolution?

Licensee's Comment

This item is probably not covered specifically.

The QA Program addresses the function of reporting test performance

Reporting will be performed by use of a formal test report having the signature of the Test Supervisor or the signature of the Test Engineer.

The final sign off is performed after review and approval of the test results by Con Edison Engineering, Construction and Nuclear Power Generation NPG.

The final acceptance is by the Resident Construction Manager and Manager, NPG.

- z. "Quality Standards and Reliability Consolidated Edison Company" QA-7330, Rev 0, "Independent Audit Program for Construction of Indian Point 3", Draft 3

The purpose of this document is to provide guidance for audit and to provide an independent evaluation of QA Programs individually administered by Prime Contractor and Designer, Architect Engineer, Constructor and Con Edison during construction and preoperational testing of IP-3.

The document addresses to the evaluating of the adequacy of the preoperational testing, the startup testing and system acceptance functions.

Audit Check Lists are addressed in this document.

The Quarterly Audit Schedule for Construction Phase IP-3, Appendix A to QA-7330, Rev 0 reflects the following for audit in the 4th quarter:

Review Preoperational Test Procedures

- O - Design Control
 - O - Procurement Document Control
 - X - Instructions, Procedures and Drawings
 - X - Document Control
 - X - Identification and control of material, parts and components
 - O - Inspection
 - X - Handling, Storage and Shipping
 - O - Inspection and Test status
 - O - Nonconforming items
 - O - Corrective Action
 - O - Quality Records
 - O - Audits
- X - Designates the prime quality activity being audited
- O - Designates the other interrelated quality activities which will be partially audited.