

U. S. ATOMIC ENERGY COMMISSION
DIRECTORATE OF REGULATORY OPERATIONS

REGION I

RO Inspection Report No.: 50-286/73-7

Docket No.: 50-286

Licensee: Consolidated Edison Company

License No.: CPPR-62

4 Irving Place

Priority: _____

New York, New York

Category: B

Location: Buchanan, New York IP-3

Type of Licensee: PWR (1050 MWe) Westinghouse

Type of Inspection: Routine Unannounced

Dates of Inspection: July 23-27, 1973

Dates of Previous Inspection: July 16-18, 1973

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

2/16/73
DATE

Accompanying Inspectors: *T. Rebelowski*
T. Rebelowski, Reactor Inspector

8/23/73
DATE

Other Accompanying Personnel: _____

DATE

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

8/22/73
DATE

811190070 730823
PDR ADDCK 05000286
Q PDR

SUMMARY OF FINDINGS

Enforcement Action

None

Licensee Action on Previously Identified Enforcement Action

None

Design Changes

Not Inspected

Unusual Occurances

None

Other Significant Findings

None

Management Interview

A management interview was conducted with Mr. Kohler and staff on July 27, 1973 at the conclusion of the inspection.

Persons Present

Consolidated Edison

Mr. A. Kohler, Jr., Resident Construction Manager
Mr. G. I. Coulbourn, Manager, Indian Point 3 Construction
Mr. S. Zulla, Acting Chief Engineer, Unit 3
Mr. V. Perry, Superintendent of Field Operations
Mr. D. Whittier, Test Engineer Unit 3

WEDCO

Mr. R. E. Barclay, Operations Manager

The following items were discussed:

A. Scope and Findings of the Inspection

The licensee representatives were informed that there were no violations or safety items found during this inspection.

The inspector stated that ten (10) procedures were reviewed. It was stated that this initial review was generally directed toward the finding and commenting on generic-type deficiencies that should have overall applicability to other test procedures. It was found that the procedures reviewed included categories of information that were lacking in more than one of the reviewed procedures.

B. General Findings

The inspector stated that the following items appeared generally to be lacking in the test procedures reviewed:

1. Consistency in content categories found in the procedure
2. Prerequisite documentation to assure readiness for testing
3. Special equipment required to perform the test
4. Acceptance criteria
5. Valve lineup enclosures or operations procedure references

DETAILS

1. Persons Contacted

Consolidated Edison

Mr. A. Kohler, Jr., Resident Construction Manager
Mr. 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. Zulla, Engineer Unit 3

WEDCO

Mr. R. E. Barclay, Operations Manager
Mr. L. Waldschmidt, WEDCO Operations

2. General Flushing Procedure INT-TP-1.0

The inspector reviewed the current revised general flush procedure.*

The procedure contained coverage in the areas of cleanliness criteria, effluent sampling, and acceptance criteria. There are no further questions in these areas as contained in the procedure at this time.

The inspector expressed concern on the following items:

a. Prerequisites: Documentation Assurance for Readiness to Test

Inspector's Comment:

It is not apparent from the procedure what WEDCO will document, to assure system readiness, prior to flushing. (Reference Paragraph 3.1 of INT-TP-1.0)

Licensee's Comment:

This item is currently being reviewed for resolution between Consolidated Edison and WEDCO.

This item remains open.

* RO Inspection Report No. 50-286/73-02

b. Reference 5.2, Flushing Addendum

Inspector's Comment:

The procedure does not address certain areas that will require general procedural guidelines, i.e.:

- (1) Special chemical cleaning and layup consideration following flush, such as chemical treatment if left filled, circulation requirements of fluids, drying, etc.
- (2) Strainer delta P for closed system flushes.

Licensee's Comment:

When need for special chemical cleaning is determined, a separate procedure will be written.

Licensee's Comment:

The Delta P requirement will be included and covered in the separate procedures for each system.

Inspector's Comment:

Procedures will be reviewed for coverage in the above specified areas during subsequent inspections. The areas addressed above should exist as part of the overall flush program.

This item remains open.

c. Maintenance of a Clean System

Inspector's Comment:

The procedure does not provide adequate guidance to assure the maintenance of a clean system.

Licensee's Comment:

This area is covered in the WEDCO Quality Control Procedure No. WCM-0-20. Also, use will be made of a WEDCO tagging system that Consolidated Edison has agreed to have in use.

Inspector's Comment:

The licensee's referenced methods of control will be reviewed during subsequent inspections.

This item remains open.

d. Inspector's Comment:

What training will be provided for persons involved in the performance of the flush program? Does it include a review of the general procedures and appropriate referenced material and assurance of understanding the program?

Licensee's Comment:

Training will be provided in accordance with the Indian Point 3 Administrative Directive on pre-operational testing.

Inspector's Comment:

The referenced directive will be reviewed during a subsequent inspection.

This item remains open.

3. Water Chemistry Requirements for Fill, Flushing, Hydrostatic Testing and Hot Functional Testing, INT-TP-2.0

a. Inspector's Comment:

The procedure was reviewed and found adequate with one exception. The procedure lacked a specified sampling frequency.

Licensee's Comment:

The sampling frequency will be included prior to hot functional testing.

This item remains open.

4. General Strength and Tightness Test Procedure INT-TP-3.0

The purpose of this test procedure is to specify the testing requirements used to verify the integrity and leak tightness of the piping and components of IP-3.

a. General Guidelines and Criteria

Inspector's Comment:

Reference Paragraph 4.2.2 what action is taken during testing when leaky boundary valves are found. How is the retest of these valves identified and retest accomplished?

Licensee's Comment:

Leaks will be recorded per instructions given in Administrative Directive No. 3 AD-8, Revision 0, which requires listing of anomalous events or occurrences in the remarks section of the Cover Sheet. The repairs will be scheduled for corrective action. The repaired valves will be retested.

Inspector's Comment:

There are no further questions on this item at this time.

b. Partial System - Hydrostatic Test

Inspector's Comment:

It is not apparent as to what method will be used to document a partial hydrostatic test of the system.

Licensee's Comment:

The hydrostatic test of a partial system will require a change of lineup from the original test and will be recorded in an addendum. A new addendum will be issued to complete the untested portion.

This item is subject to review during subsequent inspections.

c. Vacuum Testing, Reference Paragraph 7.4

Inspector's Comment:

There is insufficient information in the procedure to assure a satisfactory vacuum test.

Licensee's Comment:

The information in INT-TP-3.0 on vacuum testing will be deleted. There will be a separate procedure written for each vacuum test to be performed.

This item is subject to review during subsequent inspections.

5. Nuclear Gas System, INT-TP-3.0, Addendum 21

a. Test Pressure, Reference INT-TP-3.0 and Addendum 21

Licensee's Comment:

Revision numbers will be included.

c. Control Over Performance of Test, Paragraph 4.17

Inspector's Comment:

It appears that control over the performance of the test may be temporarily taken away from the Test Supervisor. If changes are instituted by ALCO (diesel generator vendor representative) representative, they should be documented.

Licensee's Comment:

The test document will show all changes in accordance with INT Administrative Procedure 1.0. The notations will be included in the procedure where it occurs and extracted onto the "Record of Changes". The ALCO representative will have the authority of making suggestions only. The test will remain under the control of the Test Director or the Test Supervisor.

d. Data Sheets

Inspector's Comment:

Data sheets are lacking. The unloaded parameters and the 3-hour load test require documentation to insure proper review of diesel operations for each diesel.

Licensee's Comment:

The procedure will be reviewed for the need of recording this data. If found to be required, the procedure will be augmented.

This item remains open.

e. Inconsistency of Sign Off Designations

Inspector's Comment:

The procedure in steps has sign off for each generator and in other steps only one signature block. Examples are Paragraph Nos 5.12, 5.13, and 5.14.

Licensee's Comment:

Each step will be noted for sign off for each generator being tested.

f. Testing of Support Systems

Inspector's Comment:

It is not apparent from the procedure that the following diesel support systems are tested:

- (1) Local and control room multiple starts
- (2) Measurement of fuel use from day tank during one-hour load run
- (3) Check on the number of starts from the air source
- (4) Check of a simulated failure of one (1) air starting solenoid
- (5) Demonstration of load shedding and on line sequencing

Licensee's Comment:

The procedure and associated procedure will be given further review. The items mentioned will be given consideration for possible inclusion into this test or covered in other follow on tests.

g. Valve Line Up

Inspector's Comment:

Valve line ups do not appear to be included in the procedure.

Licensee's Comment:

The procedure will be reviewed for the need of valve line up lists.

8. Auxiliary Boiler Feed Pump (Electrical) Run-In INT-TP-1.41

a. Revision Notation, Paragraph B, References

Inspector's Comment:

The revision number does not appear in the reference section for various references listed.

Licensee's Comment:

Agree. They are lacking. Similar consideration will be given to this comment as for comment given for INT-TP-1.40.

b. Test Equipment, Paragraph C.1

Inspector's Comment:

The procedure calls for "Equipment required to perform this procedure has been installed in accordance with plans and specifications". What documents will be provided, referenced, to cover this area?

Licensee's Comment:

This item is under review and will be clarified.

c. Sign Off Provisions, Prerequisites Paragraph C

Inspector's Comment:

Sign off blocks appear to be lacking for the prerequisites.

Licensee's Comment:

That is correct. Sign off will be in accordance with administrative procedures.

d. Chemical Cleaning, Paragraph C.5

Inspector's Comment:

Reference is made to chemical cleaning of secondary plant. The general procedure INT-TP-1.0 does not address to chemical cleaning. What procedure must the Test Supervisor address to satisfy the prerequisites?

Licensee's Comment:

The need for a procedure on chemical cleaning is currently being reviewed. If it is found required, it will be covered in TP-2.1.

e. Consistency Within the Procedure

Inspector's Comment:

The procedure is written for two (2) pumps in some paragraphs and only for one (1) in other paragraphs. Also, data from test of both pumps cannot be recorded in space provided in the test procedure. Do you intend to use two (2) copies of the test procedure?

Licensee's Comment:

This problem will be reviewed. Space will be available for adequate data recording.

f. Acceptance Criteria, Paragraph F.4

The temperature stabilization of the bearing housing might not occur in one (1) hour. A monitored bearing should meet a criteria of less than 1° F rise in fifteen (15) minutes or some measurable value, such as this, is usually required to establish temperature stabilization.

Licensee's Comment:

A specific value in this test is not required.

Inspector's Comment:

A temperature record should be taken. An additional data sheet should be included in the procedure for this purpose to make available base data for future comparisons on this equipment.

9. Radiation Monitoring, INT-TP-4.7.1

a. Clarification of Terminology, Reference Paragraph 3.1

Inspector's Comment:

It is stated that all radiation monitoring system components have been installed and each component is functionally complete. What is meant by functionally complete? Does a listing exist with validation and check off for installed radiation monitor system installed components?

Licensee's Comment:

The term functionally complete will be clarified.

This item remains open.

Inspector's Comment:

The pneumatic test pressure is not in agreement with guidelines of INT-TP 3.0.

Licensee's Comment:

INT-TP-3.0, Addendum 21, will be modified to allow initial service testing at operational pressure.

This item is resolved.

6. Diesel Generator Run-In, INT-TP-1.40

a. Revision Notation, Paragraph B, References

Inspector's Comment:

The revision number does not appear in the reference section for drawings.

Licensee's Comment:

A revision number will be recorded at the time of writing the procedure and updated prior to performance of the test.

b. Test Equipment

Inspector's Comment:

The procedure appears to lack a listing of test equipment required to perform this test.

Licensee's Comment:

The inclusion of equipment required for test will be considered on procedure by procedure requirement.

This item remains open.

c. Prerequisites, Paragraph C.1, Readiness for Test

Inspector's Comment:

The statement does not include what equipment has been installed prior to the Test.

Does this paragraph refer to test equipment such as temporary strainers, or to system components?

Licensee's Comment:

This paragraph will be reviewed for clarity.

This item remains open.

d. Prerequisites, Paragraph C.2, Pre-Operational Test and Record Forms

Inspector's Comment:

The pre-operational test and record forms are not enumerated.

Licensee's Comment:

This will be reviewed for possible expansion of information as to what is required prior to the performance of the test.

This item remains open.

e. Prerequisites, Paragraph C.3, Reference Deficiency

Inspector's Comment:

The support systems listed are referred to various "operating instructions" and "water treatment" publications that do not appear in the reference section.

Licensee's Comment:

Reference 6, Instruction Manual for Diesel Generator Nos. 31, 32, and 33, is the operating instruction that contains all the reference material. Future procedures will indicate reference if portions of a manual are extracted as a reference.

This item is considered closed.

f. Precautions, Paragraph D.3, Inclusion of Known Values Into The Procedure

Inspector's Comment:

Numerical values are lacking for guidance to test operator in this precaution statement.

Licensee's Comment:

The operating instructions do contain values. Consideration will be given to include these values.

- g. Precautions, Paragraph D.4, Inclusion of Known Values Into The Procedure

Inspector's Comment:

This paragraph as written restricts makeup "cold" water addition. What is the minimum temperature of makeup water?

Licensee's Comment:

This item will be reviewed. There may be a need for qualitative criteria. Specific values may not exist.

- h. Sign Off in Procedure

Inspector's Comment:

The precautions section does not appear to require a sign off to assure that the statements have been read and precautions, where applicable, have been taken.

Licensee's Comment:

An administrative document that will describe shift turnover is presently in review. The document includes a guidance for the review of precautionary notes during test performance.

This item remains open.

- i. Generator Output Electrical Protection

Inspector's Comment:

The procedure prerequisites appear lacking in the area of generator output electrical protection to untested load centers.

Licensee's Comment:

The procedure will be reviewed for possible inclusion.

j. Procedure, Criteria Values

Inspector's Comment:

The criteria that would establish what constitutes a blocked or dirty strainer appear to be lacking from the procedure.

Licensee's Comment:

A review will be made as to when the strainer is to be changed, employing a delta P or a fixed time.

k. Alarms, Diesel Lube Oil Sump

Inspector's Comment:

Does the diesel lube oil sump have a high level alarm?

Licensee's Comment:

A review of alarms will be made and a comment will be forthcoming.

l. Acceptance Criteria

Inspector's Comment:

Does testing of lube oil for contaminants include checking for "fuel oil dilution" as well as for "water"?

Licensee's Comment:

The Operating Manual will be reviewed for chemistry and sampling requirements.

m. Final Conditions, Paragraph G, Need for Surveillance Procedure

Inspector's Comment:

Certain requirements are noted in Paragraph G, such as:

- (1) Lube oil circulated - weekly
- (2) Jacking over of engine - weekly, etc.

The items in Paragraph G suggest the need for surveillance procedures. The procedures should be referenced and available at the conclusion of this test.

Licensee's Comment:

This item will be reviewed and discussed during the next inspection.

n. Valve Line-up

Inspector's Comment:

The valve line-up sheets denote certain unnumbered valves, with the same name in two (2) different positions. (Example, on page 13, isolation valves to diesel starting motor.)

Licensee's Comment:

This item will be reviewed and the problem of ambiguity will be resolved.

7. Diesel Generator Functional Test INT-TP-4.13.1

The purpose of this test is to start the diesel generators, set operating controls, perform phasing checks, and operate generators under load to insure operational readiness.

a. Precautions, Paragraph 3.0, Numerical Values Lacking

This comment is similar to those denoted in Paragraph Nos. 6.f and 6.g for INT-TP-1.40.

Inspector's Comment:

The precautions listed do not define, to the test supervisors, parameters of load, rated speed, temperature of cooling water, etc.

Licensee's Comment:

This procedure will be reviewed for general terms and where specific values are known, these values will be inserted. Where qualitative descriptive terms or qualitative acceptance criteria is considered applicable, the qualitative term will be used.

b. Revision Notation, Paragraph 2.0 References

Inspector's Comment:

Test reference diagrams lack revision notation.

b. Validation of Initial Conditions, Paragraph Nos. 3.1 through 3.5

Inspector's Comment:

The procedure appears to lack documented verification that testing, as implied in Paragraph 3, has been completed satisfactorily.

Licensee's Comment:

This need for validation is currently being reviewed.

c. Reference 5.9.3, "Time Event" and 5.9.4, "Check Speed"

Inspector's Comment:

The terms time event and checking of speed, require a measurement to be made by the operator. Values or criteria is not addressed.

Licensee's Comment:

The statement will be reviewed for the need of notation of values.

d. Data Recording, Paragraph Nos. 5.9.5.5 and 5.9.13

Inspector's Comment:

Where is data recorded for vacuum and what indicator is to be used?

Licensee's Comment:

This will be reviewed and space for data will be provided.

e. Valve Lists (Line Up), Paragraph 5.9.8.2

Inspector's Comment:

A valve line up appears to be lacking.

Licensee's Comment:

Valves will be identified.

f. Data Sheet References, Paragraph 5.10.4.3

Inspector's Comment:

The reference to the appropriate data sheet appears to be lacking.

Licensee's Comment:

This will be corrected.

g. Traceability of Items Under Test, Paragraph 5.15.3, Note

Inspector's Comment:

The instruction lacks a listing of pumps to be checked and notation of completed checking as specified. Also, reference 5.15.4 for similar review.

Licensee's Comment:

This item will be reviewed and consideration will be given to the need for changing the notation.

h. Acceptance Criteria, Paragraph 5.22.3

Inspector's Comment:

It appears that a definitive value should be stated and that clear reference to data sheets is needed.

Licensee's Comment:

This item is being reviewed and will be resolved.

i. Data Sheets - Acceptance Criteria

Inspector's Comment:

Comparative values for measured data appears to be lacking.

Licensee's Comment:

This item is currently being reviewed for addition of appropriate acceptance data.

This item remains open.

j. One Point Source Check

Inspector's Comment:

It appears that this procedure is directed to checking of monitors with one (1) source. This item will be reviewed during subsequent inspections. A two (2) source check is considered minimum for an acceptable test.

10. Reactor Coolant System Flow Determination, INT-TP-4.1.6

a. Special Equipment, Paragraph 3.1, Note 3

Inspector's Comment:

The procedure lacks a listing of special equipment required for performing the test.

Licensee's Comment:

The procedure will be reviewed for the need of documenting equipment required for the test.

This item remains open.

b. Acceptance Criteria, Paragraph 4.2

Inspector's Comment:

The acceptance criteria for loop temperature stabilization is lacking.

Licensee's Comment:

This item will be reviewed for adequate notation for determination of stabilized conditions.

c. Acceptance Criteria

Inspector's Comment:

The acceptance criteria for the test appears to be lacking.

Licensee's Comment:

The procedure will be reviewed for possible inclusion of expected values. In any event, the final acceptance will be based on data resulting from this test which will require computer analysis.

11. Safety Injection System, INT-TP-4.5.1 (8 Switch Sequence)

a. Readiness for Test, Enclosures, and Prerequisites

(1) Inspector's Comment:

The procedure appears to lack provision for the inclusion of construction items that remain to be completed.

Licensee's Comment:

Such items will be noted during the initial walk-through and recorded. These items will be considered for impact on the conduct of the test. The noted items would be transferred to the Punch List for final completion in the event it is not completed at the conclusion of the test. WEDCO has agreed to provide the licensee a list of deficiencies after the joint Consolidated Edison - WEDCO walk-through.

(2) Inspector's Comment:

There appears to be a lack of documented verification to assure that the system to be tested is ready for test. The prerequisite section does not reference construction readiness. That is that such items in the following areas have been checked, reviewed, and signed off:

- (a) Instrumentation and controls; calibration, valve settings, etc.
- (b) Electrical; wiring, motor operated valve limits, equipment rotation checks, etc.
- (c) Mechanical checks; lubrication, ventilation, packing, alignment, etc.
- (d) Piping and vessel; hydros, flushes, cleanliness, etc.

Documentation or referenced material for such verification is to be performed and should be traceable through the procedure.

Licensee's Comment:

The readiness requirement for testing is currently under review. A resolution of this item is in progress.

(3) Inspector's Comment:

A subsequent review of the resolution will be reviewed during subsequent inspections.

b. Sign Off Notation

Inspector's Comment:

The procedure lacks sign off and date designation at the steps in the procedure to assure the step was accomplished and the action is traceable to the operator.

Licensee's Comment:

Sign off will be in accordance with INT, Addendum 1.

This item remains open.

c. Valve Line Up and Valve Nomenclature

Inspector's Comment:

The procedure contains valve numbers and in some instances, a large series of valves, reference Paragraph b.1. The valve nomenclature is missing. Also, initialing and dating of valve status does not appear to be required.

Licensee's Comment:

Valve numbers should suffice.

Inspector's Comment:

Valve nomenclature should be considered. The use of valve line up listings with appropriate status, sign off and date is a requirement of 10 CFR 50, Appendix B.

~~This item remains open.~~

d. Breaker Nomenclature, Paragraph 4.6

Inspector's Comment:

Breaker nomenclature or function is not always stated.

Licensee's Comment:

The breaker designations will be reviewed. Adding of nomenclature, where appropriate, will be considered.

e. Use of General Terms, Paragraph Nos. 4.8, 4.9, 5.4, 6.12.2

Inspector's Comment:

The procedure contains a number of statements with words as: as required, as necessary, extended periods, correct position, etc. Where such words are used, the licensee should review for substitution of specific directions.

Licensee Comment:

This procedure and other procedures under review will be given attention for the elimination of general statements. Where values are known, they will be put into the procedure.

f. Deficiency Documentation Provisions

Inspector's Comment:

The test procedure appears to lack provision for documenting deficiencies found while performing the test.

Licensee's Comment:

The remark section on the cover sheet will be used for this purpose. Additional "Remark" sheets, as required, will be added in accordance with INT Addendum 1.

Inspector's Comment:

Remarks are usually inclusive comments. A review of Indian Point Station Unit No. 3 Administrative Directive No. 3AD-8, Revision 0, Administrative Guidelines for Conduct of Startup Testing (Paragraph Nos. 4.9 and 5.1.5) directs that the remark section on the cover sheet be used during inspection and post-inspection for possibly different types of "remarks".

g. Caution and Precautionary Notes

Inspector's Comments:

Caution or precautionary notes, at the step of the procedure where the caution is operative, appears to be lacking.

Licensee's Comment:

This procedure and other procedures under review will be checked for appropriate inclusion of precaution or caution notes at the step where the caution becomes operative. This in most cases would be accomplished by use of references to the stated precaution in the precaution section.

h. Enclosure of Valve Line Up Check List, Paragraph Nos. 6.1, 6.2, 6.3, etc.

Inspector's Comments:

Where a large number of valves require a special line up, a separate listing of valves containing valve number, nomenclature, test position, actual position, operator initial or signature, and date should be included in procedure. Such listings should have a title, date, and approval signature. This enclosure would provide assurance of valve line up status for test and documentation and a check against as-is status of the system.

Licensee's Comment:

This change will be considered with possible adaptation of valve line ups as currently included in the hydro procedures.

i. Readiness for Test, Prerequisites

Inspector's Comment:

The prerequisites section lacks reference to satisfactorily completed pre-operational tests required for support systems for this test.

Licensee's Comment:

Consideration will be given to referencing appropriate procedures.

j. Operating Procedures

Inspector's Comment:

There appears to be a lack of referencing to operating procedures which should contain appropriate valve check lists. Tests that involve the operation of a support system and requiring valve line up changes, rely on use of operating procedures for the test and for plant status.

Licensee's Comment:

As previously stated, consideration will be given to the use of valve line up check lists.

k. Use of Letter Abbreviations, Paragraph 6.5

Inspector's Comment:

Where letter abbreviations are used in the procedure, the meaning should be stated in full at least the first time it is used in the procedure.

Licensee's Comment:

Abbreviations being used will be reviewed. Where abbreviations are not in common use, there will be added clarification.

l. Statement of Purpose for a Series of Procedural Steps, General

Inspector's Comment:

This procedure lacks statements of purpose at the initiation of a series of steps designed to prove the operation of the safety injection recirculation sequencing.

Licensee's Comment:

This procedure TP-4.5.1, is to be rewritten because of changes in the system to be tested. The inclusion of purpose statements will be considered during the rewrite of the procedure.