

SUPPLEMENT NO. 2  
TO  
AEC REGULATORY STAFF SAFETY EVALUATION  
IN THE MATTER OF  
CONSOLIDATED EDISON COMPANY  
INDIAN POINT NUCLEAR GENERATING PLANT UNIT 2  
DOCKET NO. 50-247

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Prepared by

Division of Compliance  
U. S. Atomic Energy Commission

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I. INTRODUCTION

This supplement updates the Division of Compliance Supplement No. 1, dated November 20, 1970, to the Safety Evaluation dated November 16, 1970, prepared by the Division of Reactor Licensing of the Atomic Energy Commission in connection with its review of the application of the Consolidated Edison Company for an operating license for Unit 2 of the Indian Point Nuclear Generating Station located in Buchanan, New York.

The paragraph titles and numbers used in this supplement correspond to those in Supplement No. 1. The page references in parenthesis identify the page in Supplement No. 1 where the updated information supersedes that stated in Supplement No. 1.

II. RESULTS OF CONSTRUCTION INSPECTIONS

A. Reactor Coolant System

1. Reactor Coolant Pressure Piping (page 8)

Certain cast valve discs (7) had not been radiographed. The necessity for radiographing these valve discs was evaluated by Compliance Headquarters and the Division of Reactor Licensing. This review resulted in an agreement that none of the subject valves is contained within the reactor coolant pressure boundary and therefore the discs do not require radiographic examination.

3. Steam Generators

Ultrasonic examination of the steam generator cladding revealed evidence of tube sheet cladding separation in the vicinity of the divider plate.

Completion Status: The steam generator cladding problem is presently being evaluated by the applicant. Satisfactory resolution, including any required repairs, is necessary before an operating license is issued.

5. Pressurizer (Page 11 and 12)

Pre-service ultrasonic examination of the pressurizer welds revealed the presence of non-metallic inclusions in the base plate material. The applicant submitted a report to the Division of Reactor Licensing on this subject. The condition was evaluated and considered to be acceptable. The in-service ultrasonic examination requirements were expanded for the area in question, and the item is considered satisfactorily resolved.

Completion Status: Construction of the pressurizer has been completed.

Conclusions: (page 12) Based on the results of previous inspection and corrective actions taken by the applicant and contractor to date, we conclude that there is reasonable

assurance that the reactor coolant system will have been completed in accordance with AEC regulatory requirements.

**B. Containment and Class I Structure**

**1. Primary Containment (Pages 13 and 14)**

Problems identified by the applicant during construction included lack of full traceability of documentation on pipe penetration materials. The applicant reviewed the available documentation and performed additional field testing to verify that the penetrations did meet the intent of the requirements described in the application. The penetrations are continuously pressurized by the penetration and weld channel pressurization system and if leaks should develop the leakage could be detected. Based on the results of the applicant's evaluations and testing, Compliance considers the subject to be resolved.

The containment leak rate test has been performed and preliminary calculations indicate that the leak rate is within the proposed Technical Specifications limit.

Completion Status: The concrete placement has been completed, the penetration bellows question has been resolved, and the containment leak rate test has been performed. This system will be considered complete following the installation of the reactor coolant system

leak detection equipment and upon a determination from the final calculations that the integrated leak rate is within Technical Specifications limits.

C. Engineered Safety Features

1. Emergency Core Cooling System (ECCS) (Pages 15-18)

Results of our inspection included the following:

- a. Welding quality control records were incomplete.
- b. Visual inspection indicated a weakness in first line quality control; i.e., weld splatter, arc strikes, and excessive grinding.
- c. Accumulator check valves were not manufactured to specifications.

The applicant initiated a program for verification of proper record keeping. Our review of independent record checks which were performed by the licensee satisfied our concerns in this area and item a. above is considered satisfactorily resolved.

The applicant similarly initiated a final mechanical surface cleanup program. The inspection and cleaning were performed just prior to application of insulation. Our review in the field did not identify additional deficiencies. This program is considered to resolve weakness in first line quality control as indicated in item b. above.

The applicant initiated a program for evaluation of the acceptability of the accumulator check valves and concluded that the valves were adequate for the intended use. Our subsequent evaluations of this subject provided a satisfactory resolution for the item c. above.

Completion Status: (Page 16) Construction of the ECCS system is essentially complete. Remaining work to be accomplished includes: (1) finish surface cleanup, (2) completion of hanger and support installation.

2. Containment Spray and Fan Cooling Systems (Page 17)

Containment spray pump #21 was returned to the vendor shop due to excessive vibrations noted during the performance of preoperational testing.

Completion Status: Construction of the containment spray and fan cooling systems is nearing completion. Work remaining includes filter testing, satisfactory repair of containment spray pump No. 21 and functional testing.

3. Post Accident Hydrogen Control System (Page 17)

The post accident hydrogen control system has been installed.

Completion Status: Installation of the required hydrogen control system has been completed.

D. Instrumentation, Control and Power Systems (Pages 18-20)

2. Our initial observation was that independent quality control of cable installation was lacking. Subsequently, the applicant performed an audit program relating to cable installation conformance to pulling schedules. This audit included about 80 percent of the protection and safeguards cabling. This audit provided confidence that the cable installation conformed to the pulling schedule. Our review of this audit resolved our previous concerns.

4. Our inspection program revealed items which required additional design consideration. Each of these items has been reviewed, corrective actions identified, and the necessary revisions are nearing completion.

Completion Status: Redundant cables for the tunnel fans have been installed and the cable surveillance program is considered to be complete. Items remaining to be completed include:

1. Installation of remainder of separation barriers and fire stops.
3. Installation of transite barriers at the single penetration area.

E. Radioactive Waste Control (Page 20)

A further review of the radioactive waste control system revealed that the radiation monitoring installation was essentially complete; however, the following items require resolution:

1. Adequacy of the stack monitoring sample probe location.
2. Lack of continuous monitoring for stack halogens and particulates.
3. Adequacy of the liquid waste disposal system capacity.
4. Adequacy of liquid sampling probes.
5. Need for charcoal filters in the containment building purge line.

Completion Status: The radioactive waste control system is essentially complete with the exception of the satisfactory resolution of items 1 through 5 above.

Conclusion: Based on inspections to date and the applicant's planned actions, we conclude that there is reasonable assurance that the radioactive waste disposal system will be completed in accordance with AEC regulatory requirements.

G. Conduct of Operation (Pages 21-22)

Conduct of operation as used here includes organization and staffing, preparation and review of procedures, and the administrative directives which the applicant has developed



to conduct the functional testing program and subsequent operation of the Unit 2 facility. We have verified that the applicant has established operational review and audit committees which are actively engaged in activities relating to plant startup. We have verified that the applicant has developed a program for functional testing of equipment and systems.

1. Procedure Preparation

The proposed functional test procedures have been approved for use by the applicant. We have examined these procedures on a selective basis. We have completed an examination of the program and procedures associated with fuel loading and have initiated our review of power ascension testing outlines and available procedures.

We have reviewed the index for proposed plant operating procedures and a selected number of key procedures.

Completion Status: The proposed functional testing procedures have been approved for use by the applicant.

Items have been identified to the applicant for additional test coverage consideration.

The fuel loading procedures have been completed.

Eighty percent of the proposed power ascension test procedures have been approved by the applicant. The remaining procedures are receiving a final review by the applicant.

The review of the plant operating procedures index indicated that it was not broad enough in scope and the selected procedures examined did not contain an acceptable degree of detail. Specifically, the index did not contain surveillance, response to alarms, or maintenance procedures, and operating procedures were not provided for all systems involved in nuclear safety. The individual procedures contained nonspecific terms such as "normal," "appropriate," "as necessary," and "as required." The applicant subsequently initiated a program for expanding and upgrading the operating procedure scope and detail coverage. Compliance will reexamine these areas.

Preparation of functional testing, power ascension and operating procedures is scheduled to be completed prior to licensing.

## 2. Functional Testing

We have witnessed the performance of portions of the reactor coolant system hydrostatic, hot functional,

containment leak rate, containment overpressure and high pressure safety injection tests. We have also selectively examined the results of tests which have been completed.

Completion Status: Functional testing has progressed through the hot functional testing program and about 80 percent of the testing requirements for operating licensing have been completed.

Evaluation of functional test results by the applicant and our confirmation of the testing program completion is scheduled prior to licensing.

### 3. Plant Security

A review of plant security construction revealed that the following has not been completed.

- a. Erection of the restricted area fence.
- b. Construction of the controlled access passageways to the containment, fuel storage, primary auxiliary and emergency diesel buildings.
- c. Doors and associated alarm systems.

Completion Status: Plant security construction is scheduled to be completed prior to plant licensing.

Conclusions: Based on the results of our inspection to date and responsive action taken by the applicant previously, we conclude that the administrative organization is in conformance with the application and that testing will be completed in accordance with AEC regulatory requirements.

APPENDIX A

CHRONOLOGY OF COMPLIANCE DIVISION INSPECTIONS  
CONSOLIDATED EDISON COMPANY  
INDIAN POINT NUCLEAR GENERATING STATION UNIT 2

<u>Date</u>	<u>Type of Inspection</u>	<u>Scope of Inspection</u>
11/4, 5, 24, 25/70	Site	Continued inspections of preoperational test program, mechanical system cleanup, containment closure and pipe support installation. Resolved six previously identified items of concern.
12/2/70	Management meeting	Discussed views relating to a sample review of IP-2 preoperational procedures and reviewed the proposed guidance for preoperational testing programs.
12/16/70 & 1/6, 7/71	Site inspection	Continued inspections on preoperational testing and mechanical system cleanup. Reviewed core loading and the available portions of power ascension program. Obtained resolution for nine previously identified items of concern.
12/7 - 10/70	Site	Reviewed construction log books maintained by applicant and contractors. Eighty-five questions were presented to the applicant for resolution.
1/12 & 15/71	Corporate Management	Discussed apparent deficiencies in the preoperational testing, power ascension program, and operating procedures.
1/20 - 21/71	Site	Reviewed pipe design analysis and pipe support installation.

<u>Date</u>	<u>Type of Inspection</u>	<u>Scope of Inspection</u>
1/20, 21, 22, 28, 29 & 2/3/71	Site	Continued inspection activity relating to preoperational testing, and power ascension programs and operating procedures. Reviewed programs relating to operator involvement and check-out of operating procedures during hot functional testing. Inspected final results of field weld documentation verification program.
2/5/71	Corporate Management	Discussed resolution status relating to previously identified deficiencies in the preoperational test program.
2/10-11/71	Site and Engineering offices	Continued inspection efforts in the areas of preoperational testing, power ascension programs and operating procedures.
2/17/71	Engineering offices	Reviewed the results of evaluations relating to pressurizer base plate and discussed the need for an expanded inservice inspection.
2/23, 24/71	Site	Continued review of preoperational test, pipe support installation and resolution of outstanding items. Discussed reactor coolant pump repairs, circulating water pump testing, and loss of off-site power.
3/5, 6, 8/71		Witnessed portions of the containment overpressure and leak rate tests.
3/10-12/71		Continued inspection efforts relating to preoperational testing, operating procedures and pipe supports. Reviewed electrical jumper and termination control program.

<u>Date</u>	<u>Type of Inspection</u>	<u>Scope of Inspection</u>
3/15/71	Site	Review damage to polar crane pedestal and witness a portion of the high pressure safety injection testing.
3/16/71	Engineering Office	Review status and progress of operating procedure revisions.
3/19, 23, 25/71	Site	Review resolution of construction log book review questions.
4/6, 7, 8, 21, 22/71	Site	Review preoperational testing, power ascension program, pipe support installation, polar crane repairs, organizational coverage and resolution of previously identified items.
5/4, 5, 14, 26, 27/71	Site	Review preoperational testing, power ascension programs, operating procedure preparation, implementation of security and emergency plan and resolution of previously identified items.