U. S. ATOMIC ENERGY COMMISSION
REGION I
DIVISION OF COMPLIANCE

Report of Inspection

CO Report No. 247/70-6

Licensee:	Consolidated Edison Company Indian Point No. 2 (IP-2) License No. CPPR-21 Category B
Dates of Inspections:	May 22, 25 and 26, 1970 and June 3, 11, 12, 15 and 16, 1970
Date of Previous Inspections:	May 6, 7, and 8, 1970

Inspected By: G. L. Madsen 7/7/70
G. L. Madsen, Reactor Inspector (Responsible Inspector) Date

G. L. Madsen for 7/7/70
L. B. Higginbotham, Radiation Specialist Date

Reviewed By: N. C. Moseley 7/7/70
N. C. Moseley, Senior Reactor Inspector Date

Proprietary Information: None

SCOPE

Announced inspections were made at the Indian Point No. 2 (IP-2) construction site on May 25 and 26 and June 11, 12, 15 and 16, 1970. In addition, inspections were conducted at the Con Ed engineering offices in New York, N. Y., on May 22 and June 3, 1970. Major items inspected included preoperational testing, electrical installation, mechanical surface cleanup, containment closure, status of compliance to Table A, resolution of previously identified problems, and initial inspection of radiation monitoring systems.

SUMMARY

Preparation of flushing and hydrostatic test procedures has been completed. Twenty-six of 82 Phase II preoperational procedures have been issued by Wedco for Con Ed's review. Hydrostatic testing of the feedwater system and secondary side of the steam generators has been completed. Hydrostatic testing of the reactor coolant system is presently scheduled for June 29, 1970. (Section II, A. 1 and 2)

Con Ed has performed a 100 percent design audit relative to separation of redundant safeguards power and control electrical cabling. A design review of instrument cabling was performed on a sample basis. (Section II. B. 1) Placement of electrical cables inside and outside of containment is 75 and 95 percent complete, respectively. Con Ed and Wedco are involved in surveillance programs for determination of conformance to cable pulling schedules. The proposed program, for power and control cables, should provide adequate coverage; however, the surveillance of the instrumentation cabling is considered minimal. (Section II. B. 2)

Con Ed and Wedco have continued their mechanical system cleanup program. A spot audit, by the inspector, raised questions relating to weldments of stainless steel pipe supports and discolorations on the stainless pipe surfaces. (Section II. C.)

Con Ed's review of installed insulation on main steam and feedwater piping resulted in the removal of some insulation prior to system hydrostatic testing. This item is considered resolved. (Section II. D.)

Con Ed is nearly prepared to take a position with respect to pipe and fittings within the pressure boundary and the requirement of Table A. Con Ed continues to await information from Westinghouse relative to reactor pressure boundary valves. (Section II. E.)

UST performed a review of piping penetrations for the containment building and observed excess rust and some welds of crude quality. (Section II. F.)

The carpenters' union was on strike from May 8 to 25, 1970. (Section II. G.)

An initial inspection of the waste disposal and radiation monitoring systems was performed. (Section II. I.)

Circulating water pump failures were encountered during service checkouts. (Section II. H.)

DETAILS

I. Persons Contacted

A. Con Ed

Dr. A. Flynn, Mechanical Plant Engineer
Mr. G. Waselinko, Assistant Division Engineer, Mechanical Department
Mr. W. Dumper, Division Engineer, Electrical Department
Mr. P. Sabodas, Electrical Engineer, Electrical Department
Mr. F. McElwee, Resident Construction Manager

Mr. A. Corcoran, Construction Project Superintendent
Mr. E. Dadson, Quality Assurance Supervisor
Mr. B. Cosgrove, Mechanical Engineer
Mr. R. Schuster, Quality Control Inspector
Mr. O. Buesse, Electrical Startup
Mr. T. Houlihan, Electrical Inspector
Mr. G. Liebler, Health Physics Supervisor
Mr. J. Mooney, Health Physics Supervisor
Mr. W. Crouch, Engineer, Construction Department

B. Wedco

Mr. E. Staffel, Executive Vice President
Mr. M. Snow, Manager, Reliability
Mr. M. Griffin, Electrical Construction Manager
Mr. F. DiLorenzo, Electrical Quality Control
Mr. T. Lawson, Manager, Site Quality Control
Mr. R. Matheny, Manager, Startup Operations
Mr. R. Danielson, Assistant Superintendent, Electrical Construction
Mr. R. Grisbaum, " " " "

II. Results of Inspection

A. Preoperational Testing

1. Status of Procedure Preparations

Preparation of Phase I, flushing and hydrostatic testing procedures, has been completed. In addition, 26 of 82 Phase II systems pre-operational procedures have been issued by Wedco and are presently being reviewed by Con Ed. To date, only four Phase II procedures have been approved for use, as compared to Wedco's previous schedule*, dated April 29, 1970, which called for a completion of 26 procedures.

2. System Hydrostatic Testing

The general status of systems hydrostatic testing is as follows:

a. The feedwater system and the secondary side of the steam generators have been tested.

b. Testing of the main steam system is about 50% complete.

c. The reactor coolant system hydrostatic test is presently scheduled to begin on June 29, 1970.

d. The safety injection accumulators and attachment pipes have been hydrostatic tested.

*CO Report No. 247/70-5, paragraph II. A. 1.

B. Electrical

1. Design Review

Con Ed has performed a 100 percent design review relative to separation of redundant safeguards power and control cabling. The design review was conducted with the use of electrical schematics, detailed drawings, and the cable installation schedules. One possible problem was identified during the review in conjunction with the existence of a common manhole for the six service water power cables. A field survey of this condition has been made and resolutions are pending. A spot audit by the inspector of the master drawings and specified references indicated that an acceptable independent design review has been accomplished for the power and control cables.

The design review of the instrument cabling associated with the safeguards and protection systems has been performed on less than one percent of the associated cables. Upon inquiry, the inspector was informed that Con Ed was not aware of any electrical design review which had been performed by Westinghouse. The inspector indicated that the acceptability of the instrumentation design review is questionable. Mr. Sabodas indicated that consideration would be given to performance of additional surveillance on this item.

The inspector asked if changes or additions to the cable installation schedules are being reviewed. Mr. Sabados stated that all changes to the safeguards cabling is being evaluated in the same manner as has been performed for existing cabling.

2. Electrical Cable Installation

Placement and termination of electrical cables is 75 and 95 per cent complete, respectively. Con Ed and Wedco are involved in surveillance programs for determining installation conformance to cable pulling schedules*. The programs in effect, for power and control cables, should provide adequate coverage for the previously discussed lack of first line quality control involvement of Westinghouse or Con Ed**. The surveillance of the safeguards and protection instrument cabling is limited to planned surveillance by Wedco*, which involves pressurized level and pressure signals only.

*CO Report No. 247/70-5, paragraph II. B.
**CO Report No. 247/70-1, Appendix A, Item D. 3.

C. Mechanical Systems Review

Con Ed and Wedco have continued their mechanical systems cleanup program, as previously described*. Cleanup activities have been completed for the main steam and feedwater systems. Work on the systems or portions of systems to be included in the forthcoming reactor coolant system hydrostatic test is about 95 percent complete. Inspection and cleanup of all other systems is in varying degrees of completion.

The inspector made spot audits of the surface conditions for which records indicated that the mechanical cleanup had been completed. This audit revealed the following questionable conditions:

1. Weldments of supports to stainless pipe is of questionable quality.

2. Some discoloration was noticed on recently cleaned surfaces of stainless pipe.

Mr. Dadson indicated to the inspector that Con Ed would initiate appropriate actions on both of these items. In addition, he stated that the present cleanup program was not meant to include total coverage and signoff relative to pipe clearances and systems supports. He indicated that adequacy and acceptability of pipe supports is scheduled to be handled at a later date, as a separate item.

The above cleanup program is considered to be responsive to previous inquiries* . The inspector considers the surface conditions of the main steam and feedwater systems to be acceptable. The inspector will audit the progress relating to other systems during future inspections.

D. Insulation

As previously reported, some insulation had been applied to main steam and feedwater pipe, whereas the hydrostatic test had not been completed** . Con Ed's review of the main steam lines revealed that the fittings and circumferential welds were exposed, that the shop fabrication history for this piping was traceable, and that the individual systems had received a shop hydrostatic test*** . Con Ed performed

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*CO Report No. 247/70-5, paragraph II. E.
**CO Report No. 247/70-3, paragraph II. H.
***CO Report No. 247/70-4, paragraph II. H.

a similar review for all feedwater pipe. Traceability of shop hydrostatic testing of some pipe sections was not immediately available. As a result, insulation was removed to expose all circumferential and longitudinal weldments for which documentation of shop hydrostatic testing was not available. The actions are considered responsive and this item is considered resolved.

E. Reactor Pressure Boundary

Con Ed continues to await notification from Westinghouse with relation to code compliance and/or Table A "Nondestructive Testing" for the reactor pressure boundary components. The present status for the pipe, fittings, and valves involved follows:

1. Pipe and Fittings

Mr. Dadson indicated that with a limited number of exceptions, Con Ed is prepared to take the position that all pipe and fittings within the reactor pressure boundary meets the requirements of the appropriate specification or Table A. The inspector previously reviewed isometric drawings for reactor pressure boundary piping* and determined that some 50 spools of piping were not included in the pipe allegation investigation**. Con Ed and Wedco performed field inspections and verified that all but 22 of these pipe spools were fabricated by the seamless technique, contained no weldments, and therefore meet the RT and PT requirements of Table A. The inspector reviewed documentation which indicates that the welds in the remaining 22 spool pieces were RT and PT in the field and were found to be acceptable. Linear indications were noted on the radiographic film for several of these spool pieces. These linear indications or lines are considered characteristic of A-312 pipe fabricated by the fusion process with no addition of filler metal. The inspector plans to spot audit mill certificates, that are now available at the site, during the next inspection and will await Con Ed's final position on this subject. At that time the subject will be handled as outlined previously*.

2. Valves

Mr. Waselinko indicated that Con Ed is still awaiting information from Westinghouse relative to reactor pressure boundary valves. The definition of reactor pressure boundary, as it applies to IP-2, was discussed. The inspector's review of sys-

*CO Report No. 247/70-2, paragraph II. C. 2.
**CO Report No. 247/70-2, paragraph II. A.

tem drawings which had been specifically marked to define the reactor boundary, indicated that the boundaries included the 26 valves that were selected as the outermost valves*. Mr. Waselinko indicated that Con Ed and Westinghouse had problems understanding the criteria for selection of some of the outermost valves in that they were 150, 600, and 1500 psig valves, whereas the reactor coolant pressure will be about 2500 psig. The inspector pointed out that the 26 valves were jointly selected by DRL, Westinghouse and Con Ed on November 23, 1969 and, hence, would be used by Compliance for the purpose of definition of the outermost boundary. The inspector also stated that if Westinghouse or Con Ed felt strongly enough about the subject, it should be resolved between DRL, Con Ed, and Westinghouse. In short, the inspector indicated the conformance to the November 23, 1969 agreement would be expected unless the criteria was mutually redefined.

The inspector was informed that the basic problems are lack of RT of valve discs and lack of specific certification for some individual valves (representative records for a group of valves without serial numbers).

Mr. Waselinko asked the inspector for an indication as to the type of response Compliance expects from Con Ed. The inspector indicated that the answer to Table A should include summaries relating to Compliance to Table A, disposition reports for each item that does not meet Table A, and a method of retaining the information, as previously reported*..

Mr. Waselinko indicated a desire to resolve this item at an early date in that the reactor coolant system hydrostatic test is about to be performed. The inspector concurred that a prompt resolution of this item would be beneficial to all parties involved.

F. Containment

United States Testing performed a review of the installation of pipe expansion bellows for the pipe penetrations to the containment building. During the review, the collar between the bellows sleeve and the pipe was observed to have excess rust on most of the penetrations. In addition, some of the welds were found to be crude. A document search was performed and revealed the following:

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*CO Report No. 247/70-2, paragraph II. C. 2.

1. The bellows expansion joints were purchased from Hyde Industries, Bath, Maine. The firm has since gone out of business.

2. With the exception of two bellows, the material was specified to be austenitic stainless steel and the sleeve material was to be carbon steel pipe. The neck end material and end preparation of the bellows was specified to be compatible with the sleeve material (carbon steel).

3. A question exists relative to whether the carbon to stainless weld interface is compatible and whether the neck end materials should have been stainless steel.

4. To date, only partial fabrication documentation has been available for review.

Mr. Dadson stated that additional investigations are planned to determine the acceptability of the installation and materials.

G. Labor Strike

The carpenters' union was on strike from May 8 to 25, 1970. The establishment of picket lines was only partially effective, in that several crafts continued to report for work. The potential effect of the strike, relative to project completion, has not been established.

H. Circulating Water Pumps

During the service checkout of the circulating water pumps, the first two pumps showed evidence of failure of the upper shaft bearing sleeve. A third pump was rotated successfully by hand. The failed pumps are being disassembled for the purpose of defining the problem and taking corrective actions.

I. Radiation Monitoring

An initial inspection of IP-2 waste disposal and radiation monitoring systems was conducted by Mr. L. Higginbotham. The details of this review are included as Appendix A of this report.

J. Fuel Storage

As previously reported*, the fuel storage rack spacing and capacity was not in conformance with the FSAR**. Supplement 9 to the FSAR reflects spacing and capacity numbers that are in agreement with existing as-built conditions. This item is therefore considered to be resolved.

*CO Report No. 247/69-9, paragraph II. G. 2.
**Table 9.5-1

K. Punch List

The inspector reviewed Con Ed's punch lists for unresolved questions. The listings were found to include the items pending review by the inspector. The tabulation includes information relative to responsibility and status of resolution.

L. Schedules

Upon inquiry, Mr. Corcoran stated that the official core loading scheduled date continues to be September 7, 1970. The inspector indicated that the date seemed optimistic when related to construction remaining, items to be resolved, and preoperational test coverage. Mr. Corcoran agreed with the inspector's observations.

III. Management Interviews

Management interviews were conducted at the conclusion of each visit. Items discussed included:

A. Preoperational Testing

The status of the preoperational testing program was discussed. The inspector related concern with the slow progress in preparation of test procedures. Mr. Corcoran agreed that recent output has not coincided with recent Wedco schedules; however, he contends that preoperational test programs continue to be ahead of construction schedules.

B. Electrical

The inspector indicated satisfactory findings with respect to the design review for power and control cables; but, related some doubt with regard to the instrumentation design review. Mr. Sabodas stated that additional consideration would be given this subject.

The status of the cable installation surveillance programs was reviewed. The inspector indicated that the programs in effect for the power and control cables should provide adequate coverage; however, the surveillance program for safeguard instrument cabling is considered minimal. Mr. Buesse indicated agreement and stated that additional work will be performed.

C. Mechanical Systems Review

The inspector indicated that the mechanical systems cleanup program is considered responsive to previous questions. In addition, he pointed out concerns relative to weldments on pipe supports and discolorations on stainless pipes. Mr. Dadson indicated that corrective actions had been initiated. The inspector stated that progress will be monitored during the next inspection.

D. Insulation

The Con Ed review of installed insulation and subsequent removal actions prior to the hydrostatic testing of the feedwater and main steam system was discussed. The inspector indicated that this item is considered to be resolved.

E. Reactor Pressure Boundary

The inspector indicated evidence of progress relative to available information in answering to Table A. Mr. Dadson stated that final information on the pipe and fittings should be available within a month. The inspector indicated that a spot audit of pipe mill certifications would be performed during the next inspection.

F. Containment

The findings relative to the pipe expansion bellows was discussed. The inspector indicated that this item would require additional followup. Mr. Dadson indicated that UST is performing additional surveillance.

G. Circulating Water Pumps

The inspector indicated an interest in the cause for the circulating water pumps failures. Mr. Dadson stated that the information will be available.

H. Radiation Monitoring

The inspector indicated satisfactory findings and stated that a followup inspection would be performed following installation of the monitoring components.

I. Schedules

The projected core loading date of September 7, 1970 was discussed. The inspector indicated that the proposed date seems overly optimistic and raises concern when related to efforts remaining to be accomplished. Mr. Staffel agreed that September 7, 1970 is an optimistic date but was not prepared to say that it was unattainable. The inspector pointed out that, based on the Compliance activities yet to be performed, the slow progress with respect to resolution of outstanding items, and the lateness of formulating preoperational test procedures, the work would not be completed by the proposed core loading date. Mr. Staffel indicated that he was aware of the problem and recognizes that activities will have to be expedited.

CONSOLIDATED EDISON COMPANY
(Indian Point No. 2)

CO Report No. 247/70-6

APPENDIX A

A. Summary

This initial inspection was a summary review of status of construction and installation of the licensee's waste disposal and radiation monitoring systems. Visual examination verified that the major components of the gaseous, liquid, and solid waste handling and disposal systems are installed and the systems appeared to be near completion. Radiation monitoring systems have not been installed. Mr. R. Grisbaum stated that the remaining portions of the monitoring system would be installed following completion of hot functional testing. He anticipated no problems or delays in the installation and said that all equipment was on hand and in storage. From discussions with personnel and visual inspection of installed and available equipment and systems the indications are that FSAR commitments will be met; no problems were identified at this time.

B. Organization and Administration

Mr. G. Leibler stated that continuous health physics coverage will be afforded using the present staff of Indian Point No. 1. One watch, or shift, health physics technician will provide coverage for both plants. Mr. Leibler said that this one-man coverage was an initial plan which would be changed if it was found that adequate coverage could not be afforded by one individual. The organization will be discussed further in the final report.

C. Procedures

The licensee intends to use essentially the same health physics and chemistry procedures as used in Indian Point No. 1. The same staff personnel will be performing the duties with the workload simply extended to include the routines and schedules for both plants. Mr. Leibler said that, again, this is the initial plan which may be altered once experience is gained during operation of both facilities. A detailed review of procedures will be made and comment furnished in the final report.

D. Radioactive Waste Systems

Systems installation appeared to be essentially complete; effluent monitors had not been installed. Review and comment will be made in the final report. Design and installation appear to be in accordance with the FSAR. Discussion with personnel indicates that controls to be exercised over releases will be the same as for Indian Point No. 1. The controls appear to be adequate.

E. Radiation-Process Monitoring Systems

Installation of the systems has not been completed. Equipment and functions are similar to the RG&E Ginna facility. The inspector reviewed a draft copy of the preoperational test procedure for the monitoring systems and found that it included adequate checks and testing of radiation detectors, monitoring system components, alarm and alert devices, and testing of automatic isolation or diversion functions of system monitors. The final report will include discussion of the results of this testing along with a review of calibration procedures and techniques used for the test.