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

Region I

Report No. 77-12; 77-13

Docket No. 50-247; 50-286

License No. DPR-26; DPR-64 Priority -- Category C

Licensee: Consolidated Edison Company of New York, Inc.
4 Irving Place
New York, New York 10003

Facility Name: Indian Point 2 and 3

Inspection at: Indian Point Station, Buchanan, New York

Inspection conducted: April 24-28, May 5, 9-13, 1977

Inspectors: A B Davis 6/1/77
for J. F. Streeter, Reactor Inspector date signed

J. J. Kottan 6/3/77
J. J. Kottan, Radiation Specialist date signed

date signed

Approved by: A B Davis 6/1/77
A. B. Davis, Chief, Reactor Projects Section No. 1, RO&NS Branch date signed

Inspection Summary:

Inspection on April 24-28, May 5, 9-13, 1977 (Report No. 50-247/77-12, 50-286/77-13)
Areas Inspected: Routine, unannounced inspection of radioactive waste systems; licensee plans for coping with strikes; facility tours; and previously identified Items of Noncompliance and Unresolved Items. The inspection involved 113 inspector hours on site by two NRC inspectors.
Results: No Items of Noncompliance were found in 3 of the 4 areas inspected: one apparent Item of Noncompliance was found in one area (Infraction - releasing liquid radwaste from Unit 3 to the environs without continuously recording the flow rate - Paragraph 2).

Region I Form 12
(Rev. April 77)

DETAILS

1. Persons Contacted

Consolidated Edison Company

Mr. R. Bozek, Instrument and Control Engineer
Mr. H. Broeckel, Senior Reactor Operator - Unit 3
Mr. C. Caputo, Test Engineer - Unit 3
Mr. W. Carson, Test Engineer - Unit 2
Mr. J. Cullen, General Health Physics Supervisor
Mr. A. Decker, Engineer
Mr. P. Gaudio, Health Physics Records Supervisor
Mr. W. Grassi, Acting General Labor Supervisor
*Mr. J. Higgins, General Chemistry Supervisor
Mr. W. Josiger, Engineer - Unit 3
Mr. L. Kawula, Test and Performance Engineer
Mr. T. Keith, General Watch Supervisor
Mr. E. Kessig, Assistant Vice President - Power Generation Operations
Mr. T. Law, Plant Manager
Mr. G. Liebler, Radiological Engineer
Mr. C. Limuges, Reactor Engineer
Mr. R. Long, Maintenance Engineer
*Mr. J. Makepeace, Technical Engineering Director
Mr. N. McElroy, Engineering Assistant - Unit 3
*Mr. E. McGrath, Assistant Manager - Nuclear Power Generation Department
Mr. W. Manti, Refueling Engineer
Mr. J. Mooney, Senior I&C Engineer
Mr. C. Meyer, Senior Reactor Operator - Unit 3
Mr. B. Moroney, Chief Operations Engineer
Mr. A. Nespoli, Operations Engineer - Unit 2
Mr. R. Noah, Chemistry Supervisor
Mr. R. Orzo, Watch Supervisor - Unit 2
Mr. S. Profeta, Chemistry Nuclear Supervisor
Mr. M. Shatkowski, Nuclear Training Director
Mr. R. Sporbert, Watch Supervisor - Unit 3
Mr. E. Tagliamonte, Operations Engineer - Unit 3
Mr. T. Walsh, I&C Engineer
Mr. R. Warren, Security Supervisor
Mr. S. Wisla, Chemistry and Radiation Safety Director

Power Authority of the State of New York

*Mr. J. Bayne, Resident Manager
*Mr. J. Gillen, Chemical Supervisor
*Mr. J. Kelly, Radiological and Environmental Services Superintendent

The inspector also interviewed six other licensee employees during the course of the inspection. They included test and performance technicians, reactor operators, and health physics technicians.

* denotes those present at the exit interview.

2. Action on Previous Inspection Findings - Units 2 and 3

(Closed) Noncompliance 286/77-01-07: Failure to have a written safety evaluation for using containment radiogas monitor (R-12) reading in lieu of a sample analysis prior to making containment pressure relieving operations. The inspector reviewed safety evaluation NS-3-77-011, "Use of R-12 Radiogas Monitor Reading in Lieu of Sampling and Analysis of Containment Air Prior to Pressure Relieving Operations," completed on March 21, 1977, which documented the licensee's conclusion that the practice of using R-12 instead of sampling containment prior to containment pressure reliefs did not represent an unreviewed safety question. The inspector also determined that plant personnel responsible for review and approval of procedures have been reminded of the safety evaluation requirements of 10 CFR 50.59(b).

(Closed) Noncompliance 286/76-28-03: Failure to update the instrument air system flow diagram and checkoff list. The licensee updated flow diagram 9321-F-20363 and checkoff list COL-IA-1 to reflect a completed modification which consisted of installing an automatic bypass valve around the refrigerant dryers. The inspector verified that valve numbers on the diagram and checkoff list agree.

(Closed) Unresolved Item 247/76-18, Paragraph 14; 286/76-20, Paragraph 14: Plant vent continuous flow rate monitoring. The inspector reviewed calibration data for the differential pressure devices used to give continuous indication of flow rates through the plant vent.

(Open) Unresolved Item 286/77-01-04: Formal notification of NRR of waste system modifications. The inspector determined from his review that a further licensee submission to NRR concerning the Integrated Liquid Waste Handling System installation is not required by 10 CFR 50.59(a)(1). However, this item remains open pending completion of the inspector's review to determine if the ILWHS should have been reported to NRR in accordance with 10 CFR 50.55(d).

(Closed) Unresolved Item 247/77-08-02; 286/77-09-03: Revision of liquid radwaste flow diagram. The inspector verified that the licensee had revised flow diagrams 9321-F-2724; -27243, -2719, -27193, -2729, and -27293 to reflect the liquid radwaste transfer piping between Units 2 and 3 and Unit 1 and to reflect the primary make-up water system seal supply to the transfer pumps.

(Closed) Unresolved Item 286/77-09-01: Startup test report corrections/additions. The inspector reviewed the supplemental startup test report submitted by the licensee to Region I on April 15, 1977, and determined that Section 3.2 and Table 3.2 had been corrected.

(Closed) Unresolved Item 247/77-08-01; 286/77-09-02: Revision of pre-startup checkoff list. The inspector reviewed revised checkoff lists COL-46, Rev. 3 (Unit 2) and COL-RPC-1, Rev. 3 (Unit 3) and determined that steps had been added to require the verification of operability of Technical Specification required shock suppressors.

(Closed) Unresolved Item 286/77-01-06: Review of liquid release documentation. This item has been elevated to an Item of Noncompliance (286/77-13-01) as follows:

> ETSR 3.4.1.e, which has been in effect since the licensing of Unit 3 on December 12, 1975, requires that the flow rate of liquid radioactive waste effluents be continuously measured and recorded. The ETSR do not allow an alternative to the continuous recording requirement for Unit 3.
>
> Plant records indicate that numerous batch releases were made from Unit 3, including 67 separate liquid radwaste batch releases in 1977, prior to the recorder installation.
>
> The expected provisions of the ETSR were recognized by the licensee before their issuance and an Engineering Service Request was generated by the Chemistry Subsection on July 25, 1975, to install a flow recorder to supplement the flow gauge. However, the recorder was not installed and calibrated until April 1, 1977, and the installation was not expedited until the inspector questioned the matter in January, 1977.

(Open) Unresolved Item 50-286/77-01-01: Compliance with licensee administrative controls concerning weekly ARM and PRM checklists. The inspector reviewed licensee efforts to (1) establish new check source strengths, (2) evaluate and correct any check source slide positioning problems, (3) electronically calibrate monitors and (4) improve management review of weekly test results (checklists). The licensee had completed his actions with the exception of replacing three Co^{60} check sources. (Electronic calibration of the monitors was not necessary and only one ARM had a slide positioning problem). The three Co^{60} check sources are on order and are expected to be installed by June 1, 1977. The inspector also determined from a review of checklists completed during the interval February 23-May 5, 1977, and discussions with the Operations Engineer that the Operations Engineer and Health Physics Supervisor are routinely reviewing the weekly ARM and PRM checklists required by procedure HP-7 and are assuring prompt corrective actions are taken on out-of-tolerance readings. This item remains open pending installation of the three Co^{60} check sources.

(Open) Unresolved Item 286/77-01-02: Verification of monitor calibration factors and establishment of a mechanism for periodically verifying the factors. The inspector determined that the licensee had verified (by laboratory analysis of samples of the monitored media) the calibration factors for R-12 and R-14 and found the manufacturer supplied factors to be factor of 5 conservative for R-12 and factor of 2 unconservative for R-14. The licensee will verify calibration factors for R-18 by June 1, 1977 and for R-11 and R-13 by July 1, 1977. The licensee will also implement by September 30, 1977, a quarterly program to reverify calibration factors of R-11, R-12, R-13, R-14, and R-18. The inspector reviewed a licensee memorandum dated May 13, 1977, which contained sufficient information to demonstrate that gaseous effluent releases monitored by R-14 (which had an unconservative calibration factor) did not exceed the ETSR release limits. Similarly, the licensee presented a memorandum dated October 5, 1973, to demonstrate the liquid releases monitored by R-18 (preliminary results indicated R-18 to be reading $\sim$ 32% low) did not exceed the ETSR release limits. This item is open pending completion of the licensee's calibration factor verification efforts.

(Open) Unresolved Item 286/77-01-03: Cross-check during liquid releases between sample analysis and R-18 reading. The inspector determined that operators were checking the R-18 reading for response during releases of liquid radwaste to the environment. However, the monitor becomes contaminated over time due to deposition of effluent material on the detector assembly and the R-18 reading cannot then be quantitatively compared with sample analysis results unless the detector assembly is decontaminated. Since frequent cleaning of the assembly would involve significant manpower and personnel exposures, the licensee is processing a request for an engineering evaluation of the R-18 installation to determine the feasibility of a system design change to allow in-place cleaning (flushing) of R-18. Until the design change is evaluated and modifications completed, the licensee will periodically remove and decontaminate the detector housing. This item remains open pending the licensee developing a routine method for maintaining the monitor decontaminated.

(Open) Unresolved Item 286/77-01-05: Setpoint checks of R-11 and R-12 prior to making gaseous releases. The inspector determined that the licensee was always documenting the R-12 reading and setpoint prior to purging or pressure relieving containment. The licensee was not always documenting the R-11 reading and setpoint. On May 11, 1977, the General Chemistry Supervisor recommended in a memorandum to the Chief Operations Engineer that (1) the readings and setpoints of R-11, R-12, R-13, and R-14 be documented on the release permits for releases (purges and pressure reliefs) from containment and (2) the readings and setpoints of R-13 and R-14 be documented on the release permits for waste gas decay tank releases. The Chief Operations Engineer indicated his intent to implement the recommendations. This item remains open pending further review by the inspector of release documentation.

(Open) Unresolved Item 286/77-01-08: Review of waste system requirements in FSAR, SAO-107, and ETSR. The licensee had not yet completed his review of the FSAR, SAO-107, and ETSR to assure all inconsistencies are identified and resolved. The licensee will complete his review and the associated safety evaluation by June 15, 1977. This item remains open pending completion of the licensee's efforts.

3. Radioactive Effluent Releases - Liquid and Gaseous - Unit 3

The inspectors reviewed raw data for liquid and gaseous releases made during the interval January-March, 1977 and verified that (1) Environmental Technical Specification Requirement (ETSR) limits were not exceeded for the rate and quantity of radioactive effluent releases, (2) the points of release to the environment listed in the ETSR were being monitored, (3) isotopic analyses of grab samples were being conducted as required by the ETSR, and (4) limits on maximum curie content of gas decay tanks and liquid waste tanks were not exceeded. The raw data reviewed included computer summaries of liquid releases, recorder charts, effluent release permits, monthly memoranda from the General Chemistry Supervisor to the Chief Operations Engineer, and computerized isotopic analyses of grab samples.

No Items of Noncompliance were identified.

4. Records and Reports of Radioactive Effluents - Units 2 and 3

The inspectors reviewed semiannual effluent release reports for calendar year 1976 dated August, 27, 1976, and February 28, 1977. The inspectors reviewed the reports to determine if the reports (1) were submitted in a timely manner, (2) contained anomalous results or trends, (3) contained mistakes, and (4) were complete.

No Items of Noncompliance were identified.

5. Effluent Control Instrumentation - Unit 2

The inspectors reviewed the licensee's effluent control instrumentation in the following areas:

a. Calibration and Functional Tests

The inspector reviewed (1) quarterly calibration tests for the fourth quarter 1976 and the first quarter 1977, (2) monthly functional tests and daily checks for the first quarter 1977, and (3) release permit documentation of instrument checks prior to making releases.

No Items of Noncompliance were identified.

b. Monitor Readings versus Laboratory Measurements

As discussed under Unresolved Item 286/77-01-06 in Paragraph 2 above, the licensee is now in the process of (1) verifying instrument calibration factors by comparing monitor readings to laboratory analysis results and (2) establishing a quarterly program to reverify the factors.

c. Settings for Trips and Alarms

The licensee is currently using R-12 and R-14 (radiogas monitors for containment and the plant stack) to assure that both particulate and gaseous ETSR release limits are not exceeded. (These monitors perform automatic trip functions for gaseous releases.) This approach is based on data developed by the licensee which indicates that the mix of nuclides (radiogas and particulates) in gaseous releases is such that the radiogas limits will always be reached before the particulate limits. The inspector will review this matter further during his followup of Unresolved Item 286/77-01-02.

The setpoint of R-14 is controlled by Procedure SAO-107 to assure an alarm is received for any discharge of gaseous wastes before ETSR release limits are exceeded. On May 13, 1977, the General Chemistry Supervisor in a memorandum to the Chief Operations Engineer established the maximum setpoints for R-14 and R-12. This was supplemental information for operating personnel.

The licensee uses R-18 (liquid radwaste monitor) to assure via an automatic trip/isolation feature that ETSR liquid release limits are not exceeded. Based on an analysis by the licensee in a memorandum dated October 5, 1973, the licensee sets the trip setpoint at the maximum range on the meter face (10^6 cpm). This matter will be reviewed further during the inspector's followup of Unresolved Item 286/77-01-02.

6. Procedures for Controlling the Release of Effluents - Unit 3

The inspector reviewed the following procedures to verify that (1) the changes had been made in accordance with the Technical Specifications and (2) the changes did not degrade the level of control of effluents:

-- SAO-107, "Radioactive Waste Releases", Revision 3, March 19, 1976.

-- SOP-WDS-6, "Liquid Waste Discharge Procedure," Revision 1, February 7, 1977.

-- SOP-WDS-7, "Gaseous Waste Discharge", February 7, 1977.

-- SOP-CB-3, "Containment Pressure Relief and Purge Systems Operation", Revision 0, May 16, 1975.

No Items of Noncompliance were identified.

The inspector inquired as to how the licensee maintained cumulative totals of liquid effluent releases. The licensee stated that the cumulative totals were obtained on a monthly basis from data of each release utilizing a computer program for printout of the data. The licensee began keeping cumulative totals of the amount of radioactivity in liquid discharges on a daily basis on May 1, 1977. The inspector had no further questions concerning this matter.

7. Testing of Air Cleaning Systems

The inspector reviewed the results of surveillance tests 3PT-SA8, "Containment Air Filtration Inspection," and 3PT-SA7, "CCR Air Filtration Visual Inspection", conducted from April 15, 1976 to April 7, 1977. The inspector determined from test personnel interviews and documented test results that the tests were run at the frequency required by the Technical Specifications, that the results were satisfactory, and that acceptable test methods were used. Procedures 3PT-SA8 and 3PT-SA7 did not contain sufficient documentation to indicate the provisions of ANSI N510 (1975) were being met. The licensee revised the procedures on May 17, 1977, to provide the documentation.

No items of Noncompliance were identified.

8. Tests of Reactor Coolant Water Quality - Unit 3

The inspector reviewed the licensee's plant water quality tests for chemical control, radioactivity control and periodic tests. The licensee's records for these tests were reviewed for January, February and March 1977. The following analyses were reviewed: reactor coolant chloride, fluoride, dissolved oxygen, and boron; boron injection tank boron and chloride; accumulator boron; steam generator iodine-131 and gross radioactivity; reactor coolant radioiodine, iodine dose equivalent, tritium, and gross radioactivity; and component cooling water gross radioactivity. The inspector noted that the tests were made at the required frequencies and the water quality was maintained within required limits.

No Items of Noncompliance were identified.

9. Solid Radioactive Wastes - Units 2 and 3

The inspector reviewed solid radioactive waste calculations, isotopic sample analyses of wastes and waste shipment records for the first quarter of 1977. The inspector verified that the licensee was periodically measuring the major nuclide composition of solid wastes, was reporting solid waste shipments in his semiannual effluent reports, was verifying the licenses of shippers, and was maintaining records of shipments in accordance with the Technical Specifications. The inspector independently calculated the curie content of one solidified evaporator bottoms drum and determined the licensees calculations to be approximately 25% conservative (higher).

No Items of Noncompliance were identified.

10. Radioiodine Monitoring System - Unit 3

Prior to the licensing of Unit 3, the licensee voluntarily installed a four channel system for the detection of radiodine in the plant vent, containment purge duct, primary auxiliary building, and steam generator blowdown tank room. The licensee recognizes the benefit of this system which is not required by the Technical Specifications and intends to develop operational and calibrations controls so that monitor indications are representative and are properly responded to.

On May 2, 1977, the licensee performed a comparison between a Known sample (analyzed in laboratory) and monitor response using the manufacturers calibration factor. The results revealed that 3 of the 4 channels were indicating 7% or less of the Known activity. The licensee also determined that the plant vent channel was not isokinetically sampling the vent effluent due to piping crossties at the valving manifold in the fan house.

To remedy these and other potential problems with this system, the licensee has completed or plans to do the following:

a. Electronic calibration was completed May 11, 1977.

b. Spike sample calibration will be completed by May 20, 1977.

c. Source strength of check sources (3) will be verified by laboratory analysis by May 20, 1977.

d. Calibration factors will be verified by August 1, 1977.

e. Valving manifold modications to assure isokenetic sampling of plant vent will be completed by August 1, 1977.

f. All channels will be placed on a quarterly calibration program, including calibration factor verification, by September 30, 1977.

g. The Chief Operations Engineer with input from the General Chemistry Supervisor will establish operational directives including alarm response, maximum alarm setpoints, and schedule for routine charcoal cartridge and filter changes.

The inspector will review these voluntary licensee actions during the inspector's followup of Unresolved Item 286/77-01-02.

11. Three Channel Fixed Gaseous and Particulate Monitors - Unit 3

As described in the licensee's response to FSAR Question 11.15, the licensee installed a three channel fixed gaseous and particulate monitoring system which monitors the Central Control Room, the Radwaste Area, and the Fuel Handling and Storage Area. The inspector reviewed quarterly surveillance test results from the performance of 3PT-QIO, "Gas and Particulate Monitors", since April, 1976 and verified that the test results were acceptable. However, other than the quarterly surveillance, the licensee had not established operational controls to govern maximum alarm setpoints and alarm response actions. The licensee will develop operational directives for this system.

This matter is an Unresolved Item (286/77-13-02) pending completion of the licensee's effort.

12. Sampling Line Losses and Heat Tracing Evaluation - Units 2 and 3

The licensee has conducted a particulate line loss test for the plant vent sampling line to R-13. The results of the test were questionable in that they indicated a higher concentration at the monitor than at the stack sampling point. The licensee intends to repeat the line loss test for R-13 by August 1, 1977, for both Units 2 and 3. In addition, the licensee intends to conduct line loss tests for the containment sampling line to R-11 at the next outages of sufficient duration ($\geq$ 3 days) to allow entry into containments for sample collection.

In addition to the line loss tests, the licensee will perform an engineering evaluation of the need to heat trace the portion of the plant vent sampling line exposed to the environment. The evaluation will review the potential for condensate formation inside the line which could lead to scrubbing of transported radioactive sample material.

This matter is an Unresolved Item (247/77-12-01); (286/77-13-03) pending completion of the licensee's efforts.

13. Facility Tours - Units 2 and 3

The inspectors conducted facility tours on April 25-26, May 8-11, 1977 to (1) inspect the installation of radiation monitors, (2) determine if personnel were abiding by Radiation Work Permits, (3) make independent radiation measurements and determine the adequacy of control and posting of radiation areas and high radiation areas.

No Items of Noncompliance were identified.

14. Strike Contingency Plans

The inspector reviewed the licensee's contingency plans covering a possible strike by union personnel. A strike by all union personnel would affect approximately 75% of plant personnel. However, contingency planning by the licensee indicates the licensee has sufficient qualified management personnel to fill licensed and nonlicensed plant position and thereby continue plant operations in the event of a strike. The licensee's plans assure that necessary preparations have been made in the refresher and indoctrination training, notification of off-site support agencies, arrangements for medical treatment and operable emergency communication.

No Items of Noncompliance were identified.

15. Unresolved Items

Unresolved items are matters which more information is required in order to ascertain whether they are acceptable items or Items of Noncompliance. Unresolved Items disclosed during the inspection are discussed in Paragraph 11 and 12.

16. Exit Interview

The inspector met with licensee representatives, denoted in Paragraph 1 by an asterisk, at the conclusion of the inspection on May 13, 1977. The inspector summarized the scope and the findings of the inspection.

The licensee representatives acknowledged the following:

-- The statement by the inspector with respect to the Item of Noncompliance (286/76-13-01) (Paragraph 2)

-- The statement by the inspector with respect to the new Unresolved Items (286/77-13-02) (Paragraph 11) and (247/77-12-01; 286/77-13-03) (Paragraph 12.)

-- The statement by the inspector that the licensee's efforts to resolve items on Unit 3 should also be applied to similar systems at Unit 2.

After the inspection and exit interview, on May 18 and 26, 1977, the inspector had telephone conversations with the licensee concerning (1) the licensee's approval of procedures 3PT-SA7 and 3PT-SA8 and (2) the fact that more information was necessary to close Unresolved Item 286/77-01-04.