U.S. NUCLEAR REGULATORY COMMISSION
OFFICE OF NUCLEAR REACTOR REGULATION (NRR)
AUDIT REPORT ON IMPLEMENTATION OF GENERIC LETTER (GL) 98-01,
"YEAR 2000 READINESS OF COMPUTER SYSTEMS AT NUCLEAR POWER PLANTS"

Docket No.:	50-247
License No.:	DPR-26
Licensee:	Consolidated Edison Company of New York, Inc
Facility:	Indian Point Nuclear Generating Unit No. 2
Location:	Buchanan, New York
Dates:	May 18-20, 1999
Audit Team Members:	Deirdre W. Spaulding, NRR Hukam C. Garg, NRR
Approved by:	José A. Calvo, Chief Electrical & Instrumentation and Controls Branch Division of Engineering Office of Nuclear Reactor Regulation

EXECUTIVE SUMMARY

On May 18-20, 1999, the NRC staff audited the Indian Point Nuclear Generating Unit No. 2 (IP2), Year 2000 (Y2K) contingency plan activities. The purpose of the audit is to address the contingency planning activities for six classes of plant systems, internal facility risks, external risks, and activities that integrated these contingency plans into a single overall plan. The basis for this audit was provided in two nuclear industry guidelines that were promulgated by the Nuclear Energy Institute (NEI) and the Nuclear Utilities Software Management Group (NUSMG). The guidelines were titled NEI/NUSMG 97-07, "Nuclear Utility Year 2000 Readiness," and NEI/NUSMG 98-07, "Nuclear Utility Year 2000 Readiness Contingency Planning." The audit guidelines were provided in a checklist format, "Y2K Review Checklist for Contingency Planning," which was based on the two reports. Additionally, the audit addressed emergency diesel generator availability and equipment issues. The audit team reviewed the available licensee documentation regarding the IP2 Y2K readiness program and conducted interviews with the cognizant licensee personnel. The results of this audit and subsequent audits at other selected plants will be used by the staff to determine the need for additional action, if any, on Y2K readiness for nuclear power plants.

On the basis of the staff's assessment and evaluation of the IP2 Y2K readiness contingency planning program, the following observations were made:

1. The Y2K contingency planning incorporates the major elements of the nuclear power industry Y2K guidance contained in NEI/NUSMG 97-07, and NEI/NUSMG 98-07.

2. The IP2 Y2K program is receiving appropriate management support and oversight.

REPORT DETAILS

1.0 INTRODUCTION

On May 18-20, 1999, the NRC staff audited the IP2 Y2K contingency plan activities. The purpose of this audit was to address the contingency planning activities for six classes of plant systems, internal facility risks, external risks, and activities that integrated these contingency plans into a single overall plan. The basis for this audit was provided in two nuclear industry guidelines, NEI/NUSMG 97-07, "Nuclear Utility Year 2000 Readiness," and NEI/NUSMG 98-07, "Nuclear Utility Year 2000 Readiness Contingency Planning." The audit guidelines were provided in a checklist format, "Y2K Review Checklist for Contingency Planning," which was based on the two NEI/NUSMG reports. Additionally, the audit addressed emergency diesel generator availability and equipment issues. The audit team reviewed the available licensee documentation regarding the IP2 Y2K readiness program and conducted interviews with the cognizant licensee personnel.

The staff reviewed the limited number of contingency planning packages that the licensee made available. It was found that the licensee had very few systems/components that had Y2K problems. Those systems/components that do have Y2K problems are discussed below.

The results of this audit and subsequent audits at other selected plants will be used by the staff to determine the need for additional action, if any, on Y2K readiness for nuclear power plants.

2.0 PLANT SYSTEMS CONTINGENCY AUDITS

The staff reviewed contingency plans addressing specific software applications and embedded components (SAEC) in six classes of plant systems: reactor protection system (RPS) and engineered safety features (ESF), feedwater systems (FWS) and balance of plant (BOP) systems, radiation monitoring systems (RMS), emergency notification systems (ENS), the plant process computer (PPC), and plant security systems (PSS). The results of the reviews are discussed in the following sections.

2.1 RPS/ESF SAEC Contingency Plans

The licensee's RPS/ESF is an analog system. Since the system is analog, the licensee made the determination that the Y2K readiness of the system did not need to be evaluated.

2.2 FWS/BOP SAEC Contingency Plans

The staff reviewed the following contingency plans: Containment Building Dew Point Recorder (CP-IP2Y2K-17), Reactor Coolant Pump Stator Winding Recorder (CP-IP2Y2K-12), Gas Turbine Computer (CP-IP2Y2K-41), Spent Fuel Pit Level Monitor (CP-IP2Y2K-48), and Spent Fuel Pool Level Instrument (CP-IP2Y2K-49).

The few inconsistencies found were discussed with Consolidated Edison Company of New York, Inc (Con Ed) for follow-up: (1) Con Ed identified the system engineer only and did not identify the individual person (Con Ed agreed to identify the individual person), (2) Con Ed

identified the priority as "2" instead of using the applicable terms in the range from "critical" to "low," for identification, and (3) Con Ed did not identify the existing procedure number or step.

With the exception of these inconsistencies discussed above, the staff found the majority of the aspects of this contingency plan to be consistent with NEI/NUSMG 98-07. Those aspects of the plan that were not consistent will be changed to follow the guidelines.

2.3 RMS SAEC Contingency Plans

No contingency plans were available for review.

2.4 ENS SAEC Contingency Plans

The staff reviewed the following contingency plans: Emergency Planning (CP-EP), and Emergency Response Data System (CP-ERDS).

The staff found the majority of the aspects of these contingency plans to be consistent with NEI/NUSMG 98-07. Those aspects that were not consistent either were minor or will be changed to follow the guidelines.

2.5 PPC SAEC Contingency Plans

The staff reviewed the following contingency plans: Safety Assessment System (SAS) (CP-SAS), Digital Radiation Monitor (DRMS) (CP-DRMS), NPNTLAN, VAX and NT Servers (CP-LAN), Condition Reporting System (CRS) (CP-CRS), and Leak Rate (CP-Leakrate).

In regard to the DRMS, there initially appeared to be contradicting information. The risk mitigation strategy requires additional personnel but resource requirements state "none." This issue was discussed with Con Ed and will be addressed in the final plan.

Aspects of the CRS were discussed and Con Ed indicated that actions associated with risk mitigation strategies do not need to be addressed during key rollover dates and that any problems that arise can be addressed during the normal working hours.

Aspects of the Leak Rate contingency plan were discussed and Con Ed indicated that no resources are required; however, calculations would need to be performed by hand by the designated responsible person. Con Ed was advised to plan for additional resources that are needed to accomplish this task.

2.6 PSS SAEC Contingency Plans

The staff reviewed the contingency plan for the Indian Point Security System (CP-IPSRS), and found the majority of the aspects of this contingency plan to be consistent with the guidance in NEI/NUSMG 97-07 and NEI/NUSMG 98-07. Those aspects that were not consistent either were minor or will be changed to follow the guidelines.

2.7 Contingency Planning Management

In the area of Contingency Planning Management, the staff determined that licensee Y2K activities were consistent with NEI/NUSMG 98-07.

2.8 Internal Facility Risk Contingency Plans

The staff reviewed the following areas: contingency planning for internal facility risks, risk identification for internal facility risks, event analysis for internal facility risks, risk management for internal facility risks, and verification for internal facility risks.

In the area of contingency planning for internal facility risks, the integrated contingency plan is being developed and will address multiple failures of components. In the areas of Contingency Planning for Internal Facility Risks, Event Analyses for Internal Facility Risks, Risk Management for Internal Facility Risks, and Verification for Internal Facility Risks, the staff determined that the majority of the activities were consistent with NEI/NUSMG 98-07. After discussion with Con Ed, it was determined that when the contingency plan is completed, the applicable internal facility risks will be addressed.

2.9 External Risk Contingency Plans

The staff reviewed the following areas of Contingency Planning for External Risks: risk identification for external risks, event analysis for external risks, risk management for external risks, risk notification, mitigation strategy selection, and verification for external risks.

In the area of Risk Identification for External Risk, information was obtained verbally; nothing in writing was available for review. The staff determined that one licensee Y2K activity may be inconsistent with NEI/NUSMG 98-07. This question pertained to the possible loss of the ultimate heat sink and was discussed with Con Ed. The Hudson River is the ultimate heat sink for IP2, and the continued existence of the Hudson River is not an issue for IP2.

The staff discussed the area of Event Analysis for External Risks and Con Ed indicated that its letter to its vendors incorporates wording which asks the vendors if they have analyzed their supply chain.

The staff discussed the area of Risk Management for External Risks and Con Ed indicated that it had engaged in a dialogue with external organizations. From its discussion with the phone company, Con Ed learned that it should receive a letter of compliance by June 30, 1999. Additionally, Con Ed participated in the April 9, 1999, North American Electric Reliability Council (NERC) drill which focused on communications.

Although there were aspects of Con Ed's contingency plan which initially appeared questionable, after discussion with Con Ed, the staff found the majority of the aspects of the contingency plan for external risk to be consistent with the guidance in NEI/NUSMG 98-07.

2.10 Integrated Contingency Plans

The areas of the integrated contingency plan that were reviewed by the staff were the Integrated Y2K Contingency Plan Development and the Integrated Y2K Contingency Plan Content.

Con Ed has a "Contingency Implementation Plan" which outlines the topics that should be addressed in the "Integrated Contingency Plan." As of the date of the audit, Con Ed had not completed its integrated contingency plan. In the areas of the Integrated Contingency Plan that were reviewed, the staff found that Con Ed's activities were consistent with NEI/NUSMG 98-07. The plan was completed June 30, 1999.

3.0 ADDITIONAL ISSUES

In addition to the contingency planning areas addressed by the Y2K contingency planning checklist, the staff reviewed the issues discussed in the following sections.

3.1 Assumed Duration of Loss of Offsite Power

Con Ed's plant technical specifications require a 7-day minimum supply of oil for the emergency diesel generators. Con Ed plans to top off the oil tanks in the middle of December 1999 so that slightly more than 7 days of fuel oil will be available.

3.2 Switchyard Battery and Circuit Breaker Auxiliaries

The switchyard battery and circuit breaker auxiliaries' availability without offsite power is 8 hours. Additionally, the Buchanan substation has available diesel generators.

3.3 Staffing During Rollover

As of the date of the audit, Con Ed had not finalized the staffing for the rollover; however, each plant area of responsibility had provided an estimate of the staffing levels to corporate entities.

3.4 Y2K Procedures

Con Ed makes use of as many of the existing plant procedures as possible. One example of this usage is the existing condition report process. The condition report is a listing of the corrective actions that will take place to address Y2K. For example, one condition report indicates that a checklist is to be developed that will guide a technician in manually rolling the clock forward on the chart recorders.

3.5 Internal and External Communications Contingencies

Con Ed has internal lines that are solely owned and maintained by Con Ed. These lines are Y2K inert.

The following external contingencies planned are: The local government radio, referred to as LGR, is used in the normal emergency plan, and is a ring-down system. Additionally, Con Ed

referenced radiology emergency communications (RECs), which allows Con Ed to meet the 15-minute notification requirement.

Con Ed plans to install a satellite phone system to act as a backup system.

3.6 Use of AR Relays in the Emergency Power System

At the time of the audit, Con Ed was not able to provide information on the type of relays used.

3.7 Participation in the September 9, 1999 NERC Drill

Con Ed has plans to participate in the September 9, 1999 NERC drill.

3.8 NRC Communications Contingency Plan for the Year 2000 Rollover

When this topic was discussed with Con Ed, Con Ed indicated that it was not familiar with the NRC communications contingency plan. The staff stated that this information was on the NRC web site. Con Ed indicated that it plans to obtain this information from the website.

3.9 Security Systems

Con Ed's security system is not included in its contingency plan. According to Con Ed, plant security has existing procedures that address any security problems that the Y2K problem may present.

3.10 Remediated Systems Classification

Each system that has been remediated is not assumed to be a critical system; therefore, each of these systems is not in the contingency plan.

Con Ed has one embedded system that needs to be remediated, and this system will have a contingency plan.

Con Ed has 39 systems that need to be remediated. There are 27 systems (out of the total of 39) that are in the "low/none category" and thus do not need a contingency plan. The other 12 computer systems (out of the total of 39) require a contingency plan.

As part of its existing plant procedures, Con Ed had categories for its computer systems, as defined in the plant administrative procedure, "Computer System Quality Assurance Program." Category B items are important to plant operation and personnel safety; in view of this, these items will have a contingency plan. Category C items have the potential to impact plant operation and personnel safety; in view of this, Con Ed then makes a determination as to which items need a contingency plan.

3.11 Training

The contingency plan refers to training, but no specific Y2K training had been developed or approved at the time of the audit. However, there is existing ongoing training that meets some of the needs for Y2K issues. Additionally, Con Ed's Y2K Contingency Program Plan,

Revision 1, signed May 17, 1999, states, "Activities that will be performed using existing plant procedures may not require any specific training, if the personnel assigned the role to perform the procedure are familiar with it. New procedures shall be implemented with training, as required, to familiarize assigned individuals with the procedure and how it is performed." Furthermore, Con Ed's Y2K Contingency Implementation Plan, Revision 0, signed May 19, 1999, states, "Training will be required for the execution of the integrated contingency plan. As part of the normal operator training prior to a period of vulnerability, the 'Blue Book' and its contents will be presented to the crews who will be on shift during those periods. The goal of this training is to ensure that the crews, senior watch supervisor (SWS), and Y2K watch advisor (YWS) all understand their respective roles, interactions, and responsibilities, as defined in the Blue Book."

4.0 CONCLUSIONS

The audit team offered the following suggestions to Con Ed for its consideration:

1. Add a brief discussion in the contingency program plan which addresses staff resource needs for (a) performing any necessary calculations by hand, and (b) handling situations that may arise during the leap year rollover dates.

2. Refer to a specific section of the procedure in the documentation that is provided to the technicians (as opposed to just referring to a voluminous procedure with no clear direction on what portion of the procedure is applicable).

3. For embedded systems only, (a) identify the system engineer and the individual by name; (b) clarify the instances in which Con Ed has identified the priority as "2" instead of using the literal terms which range from "critical" to "low"; (c) identify the procedures referenced by number and step (so that the technician will know which procedure to use and which portion of the procedure to use).

The Y2K contingency planning incorporates the major elements of the nuclear power industry Y2K guidance contained in NEI/NUSMG 97-07, "Nuclear Utility Year 2000 Readiness," and NEI/NUSMG 98-07, "Nuclear Utility Year 2000 Readiness Contingency Planning." Although the audit team found that many of the contingency plans had not received final approval by management, the staff concluded that the IP2 Y2K program is receiving appropriate management support.

Attachments: 1. Control Center Meeting Attendees — 5/17/99
2. Entrance Meeting Attendees — 5/19/99
3. Exit Meeting Attendees — 5/20/99

CONTROL CENTER MEETING
May 17, 1999

NAME	AFFILIATION	PHONE NUMBER
Peter Zarakas	CONS-CON Edison	914-271-7229
Vid Varneckas	G.M. - Syst Operator	212-580-6781
Dom Giangrasso	Sr. Project Mgr - Syst Operator	212-580-6921
Ralph Mazzatto	Technical Specialist, Substation Engineer	212-460-6512
John Vasco	Section Manager, Substation Engineer	212-460-6176
Fehmi Aydin	Section Manager, IP	914-734-5599
Rosemarie Sheehy	Y2K Project Manager	212-460-2782
Joseph Bahr	Y2K - IP2 Project Manager	914-271-7233
Paul Eddy	NYS - PSC	518-486-2895
Dierdre Spaulding	US NRC	301-415-2928
Jennifer England	US NRC	914-739-9360
Hukam Garg	US NRC	301-415-2929
Paul E. Peloquin	NYPA - Y2K Project Manager	914-788-2882
Harlan R. Sager	Manager - NQA Audit & Surveillance	914-734-5636
James Doherty	Area Supervisor - Westchester S/S	914-271-7123
Perry Zand	Dept. Manager of Electronic Communications	(not listed)

ATTACHMENT 1

NRC Y2K CONTINGENCY PLAN ENTRANCE MEETING

May 19, 1999

NAME	AFFILIATION	PHONE NUMBER
R. Allen	NS&L	914-734-5129
Mary Ann Wilson	IP#3 EP	914-736-8404
John J. Hughes	IP2 EP	914-271-7102
Peter Zarakas	IP2 - Y2K	914-271-7229
Fehmi Aydin	IP2 - Y2K	914-734-5599
Joe Bahr	IP2 - Y2K	914-271-7233
Paul Eddy	NYS - PSC	518-486-2895
Hukam Garg	NRC - HQ	301-415-2929
Dierdre Spaulding	NRC - HQ	301-415-2928
Arnoldo Adorno	IP2 - Design Engineer	914-271-7197
Rosemarie Sheehy	Y2K Project Mgr - Corp.	212-460-2782
Bill Patrick	IP2 - Y2K	408-445-1057
John McCann	NS&L	914-734-5074
Harlan R. Sager	Con Ed NQA	914-734-5636
J.S. Baumstark	Con Ed, VP, NL	914-734-5354

ATTACHMENT 2

NRC Y2K CONTINGENCY PLAN EXIT MEETING
May 20, 1999

NAME	AFFILIATION	PHONE NUMBER
R. Allen	NS&L	914-734-5129
Mary Ann Wilson	IP#3 EP	914-736-8404
John J. Hughes	IP2 EP	914-271-7102
Peter Zarakas	IP2 - Y2K	914-271-7229
Fehmi Aydin	IP2 - Y2K	914-734-5599
Joe Bahr	IP2 - Y2K	914-271-7233
Paul Eddy	NYS - PSC	518-486-2895
Hukam Garg	NRC - HQ	301-415-2929
Dierdre Spaulding	NRC - HQ	301-415-2928
John McCann	NS&L	914-734-5074
Harlan R. Sager	Con Ed NQA	914-734-5636
J.S. Baumstark	Con Ed, VP, NL	914-734-5354
Jennifer England	US NRC	914-739-9360
A. Budnick	Con Ed GM QA	914-734-5789

ATTACHMENT 3