



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION II  
SAM NUNN ATLANTA FEDERAL CENTER  
61 FORSYTH STREET SW SUITE 23T85  
ATLANTA, GEORGIA 30303-8931**

January 12, 2004

Carolina Power and Light Company  
ATTN: Mr. John Moyer  
Vice President - Robinson Plant  
H. B. Robinson Steam Electric Plant  
Unit 2  
3851 West Entrance Road  
Hartsville, SC 29550

**SUBJECT: H.B. ROBINSON NUCLEAR POWER PLANT - NRC INTEGRATED  
INSPECTION REPORT 05000261/2003006**

Dear Mr. Moyer:

On December 13, 2003, the US Nuclear Regulatory Commission (NRC) completed an inspection at your H. B. Robinson reactor facility. The enclosed integrated inspection report documents the inspection findings, which were discussed on December 12, with Mr. Chris Burton and other members of your staff.

The inspection examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel.

Based on the results of this inspection, the inspectors identified one issue of very low safety significance (Green). This issue was determined to involve a violation of NRC requirements. However, because of its very low safety significance and because it has been entered into your corrective action program, the NRC is treating this issue as a non-cited violation, in accordance with Section VI.A of the NRC Enforcement Policy. If you contest this non-cited violation, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington DC 20555-0001; with copies to the Regional Administrator, Region II; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at the H.B. Robinson facility.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) components of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

***/RA/***

Paul E. Fredrickson, Chief  
Reactor Projects Branch 4  
Division of Reactor Projects

Docket No.: 50-261  
License No.: DPR-23

Enclosure: NRC Inspection Report 05000261/2003006  
w/Attachment: Supplemental Information

cc w/encl: (See page 3)

cc w/encl:

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U. S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket No: 50-261

License No: DPR-23

Report No: 05000261/2003006

Licensee: Carolina Power and Light Company

Facility: H. B. Robinson Steam Electric Plant, Unit 2

Location: 3581 West Entrance Road  
Hartsville, SC 29550

Dates: September 14 - December 13, 2003

Inspectors: R. Hagar, Senior Resident Inspector  
D. Jones, Resident Inspector  
L. Mellen, Senior Emergency Preparedness Inspector  
(Sections 1EP1, 1EP4 & 4OA1)  
J. Kreh, Emergency Preparedness Inspector  
(Sections 1EP1, 1EP4 & 4OA1)  
A. Nielsen, Health Physicist  
(Sections 2PS1 & 4OA1)

Approved by: P. Fredrickson, Chief  
Reactor Projects Branch 4  
Division of Reactor Projects

Enclosure

## SUMMARY OF FINDINGS

IR 05000261/2003-006; 09/14/2003 - 12/13/2003; H.B. Robinson Steam Electric Plant, Unit 2; Emergency Preparedness.

The report covered a three-month period of inspection by resident inspectors and announced inspections by emergency preparedness and health physicist inspectors. One Green violation was identified. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using IMC 0609, "Significance Determination Process" (SDP). Findings for which the SDP does not apply may be Green or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 3, dated July 2000.

### A. NRC-Identified and Self-Revealing Findings

Cornerstone: Emergency Preparedness

Green. The inspectors identified a non-cited violation of 10 CFR 50.47(b)(2), "Emergency Plans", for failure to maintain, at all times, adequate on-site staffing to provide initial facility accident response in the Emergency Action Levels following a seismic event.

This finding is greater than minor because it is associated with the Emergency Preparedness Cornerstone attribute of Emergency Response Organization Readiness to ensure that the licensee is capable of implementing adequate measures to protect the health and safety of the public in the event of a radiological emergency. The finding was evaluated using the Emergency Preparedness SDP and was determined to be of very low safety significance because it did not result in a complete loss of any planning standard function required by 10 CFR 50.47 (b)(2). (Section 1EP4)

### B. Licensee-Identified Violations

None.

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## REPORT DETAILS

Summary of Plant Status: The unit operated at full rated thermal power from the beginning of this inspection period until the morning of November 16, when power was reduced to 52 percent to enable secondary-plant maintenance work. The unit was returned to full power during the evening of November 16, and operated at full power for the remainder of the inspection period.

### 1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

#### 1R01 Adverse Weather Protection

##### a. Inspection Scope

After the licensee completed preparations for seasonal low temperature, the inspectors walked down the auxiliary feedwater system and the refueling water storage tank to verify that their safety related functions would not be affected by adverse weather. The inspectors reviewed documents listed in the Attachment, observed plant conditions, and evaluated those conditions using criteria documented in Procedure AP-008, "Cold Weather Preparations."

##### b. Findings

No findings of significance were identified.

#### 1R04 Equipment Alignment

##### a. Inspection Scope

##### Partial System Walkdowns

The inspectors performed the following three partial system walkdowns, while the indicated systems, structures, and/or components (SSCs) were out-of-service for maintenance and testing:

<u>System Walked Down</u>	<u>SSC Out-of-Service</u>	<u>Date Inspected</u>
A Emergency Diesel Generator	B Emergency Diesel Generator	October 15
Primary Air Compressor; A and B Instrument Air Compressors	D Instrument Air Compressor	November 17
Residual Heat Removal, Train B	Residual Heat Removal, Train A	December 3

Enclosure

To verify the operability of the selected trains or systems under these conditions, the inspectors compared observed positions of valves, switches, and electrical power breakers to the procedures and drawings listed in the Attachment.

#### Complete System Walkdown

The inspectors conducted a detailed review of the alignment and condition of the component cooling water system. To determine the proper system alignment, the inspectors reviewed the procedures, drawings, and FSAR sections listed in the Attachment.

The inspectors walked down the system to verify that the existing alignment of the system was consistent with the correct alignment. Items reviewed during the walkdown included the following:

- Valves are correctly positioned and do not exhibit leakage that would impact the function(s) of any given valve.
- Electrical power is available as required.
- Major system components are correctly labeled, lubricated, and cooled or ventilated.
- Hangers and supports are correctly installed and functional.
- Essential support systems are operational.
- Ancillary equipment or debris does not interfere with system performance.
- Tagging clearances are appropriate.
- Valves are locked as required by the licensee's locked valve program.

The inspectors reviewed the documents listed in the Attachment to verify that the ability of the system to perform its functions could not be affected by outstanding design issues, temporary modifications, operator workarounds, adverse conditions, and other system-related issues tracked by the engineering department.

#### b. Findings

No findings of significance were identified.

#### 1R05 Fire Protection

##### a. Inspection Scope

For the six areas identified below, the inspectors reviewed the licensee's control of transient combustible material and ignition sources, fire detection and suppression capabilities, fire barriers, and any related compensatory measures, to verify that those items were consistent with FSAR Section 9.5.1, Fire Protection System, and FSAR Appendix 9.5.A, Fire Hazards Analysis. The inspectors walked down accessible portions of each area and reviewed results from related surveillance tests, to verify that conditions in these areas were consistent with descriptions of the areas in the FSAR.

The following areas were inspected:

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<u>Fire Zone</u>	<u>Description</u>
2	Diesel Generator Room - A
7	Auxiliary Building Hallway
9	Battery room
19	Unit 2 Cable Spreading Room
20	E-1 / E-2 Electrical Switchgear Room
26	Switchyard Transformers

Also, to evaluate the readiness of the licensee's personnel to prevent and fight fires, the inspectors observed fire brigade performance during an announced fire drill in the turbine building. This drill simulated a fire in the "A" main feedwater pump. Documents reviewed are listed in the Attachment.

The inspectors also reviewed Action Request (AR) 102750, Testing of Heat Actuated Devices, to verify that the licensee identified and implemented appropriate corrective actions.

b. Findings

No findings of significance were identified.

1R06 Flood Protection Measures

a. Inspection Scope

Internal Flooding

Because the 226' elevation of the reactor auxiliary building contains risk-significant SSCs which are susceptible to flooding from postulated pipe breaks, the inspectors walked down that elevation to verify that the area configuration, features, and equipment functions were consistent with the descriptions and assumptions used in FSAR Sections 3.6.2, Postulated Piping Failures in Fluid Systems Outside of Containment, and 9.5.1.4.4.4.3, Fire Suppression Water Damage Control Features. The inspectors also reviewed the operator actions credited in the analysis, to verify that the desired results could be achieved using the plant procedures listed in the Attachment.

b. Findings

No findings of significance were identified.

## 1R11 Licensed Operator Requalification

### a. Inspection Scope

The inspectors observed licensed-operator performance during requalification simulator training for crew 2, to verify that actual operator performance was consistent with expected operator performance, as described in Full Scope Scenario LOCT-05-02, Revision 2. During this training, which tested the operators' ability to correctly respond to an unisolable, stuck-open, power-operated relief valve on the reactor coolant system pressurizer, the inspectors focused on clarity and formality of communication, use of procedures, alarm response, control board manipulations, group dynamics, and supervisory oversight.

The inspectors also observed the post-training critique to verify that the licensee identified deficiencies and discrepancies that occurred during the simulator training.

### b. Findings

No findings of significance were identified.

## 1R12 Maintenance Effectiveness

### a. Inspection Scope

The inspectors reviewed the two degraded SSC performance problems listed below to verify the licensee's appropriate handling of these performance problems or condition in accordance with 10CFR50, Appendix B, Criterion XVI, Corrective Action, and 10CFR50.65, Maintenance Rule.

- Multiple functional failures of the steam generator power-operated relief valves, as described in AR 77823
- Damage to diesel generator fuel transfer pump power cables during installation, as described in AR 76171.

In their reviews, the inspectors focused on the following:

- Appropriate work practices,
- Identifying and addressing common cause failures,
- Scoping in accordance with 10 CFR 50.65(b),
- Characterizing reliability issues (performance),
- Charging unavailability (performance),
- Trending key parameters (condition monitoring),
- 10 CFR 50.65(a)(1) or (a)(2) classification and reclassification, and
- Appropriateness of performance criteria for SSCs/functions classified (a)(2) and/or appropriateness and adequacy of goals and corrective actions for SSCs/functions classified (a)(1).

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessments and Emergent Work Evaluationa. Inspection Scope

For the five time periods listed below, the inspectors verified that the licensee performed adequate risk assessments and implemented appropriate risk management actions when required by 10CFR50.65(a)(4). For emergent work, the inspectors also verified that any increase in risk was promptly assessed, and that appropriate risk management actions were promptly implemented. Those periods included the weeks that began on the following days:

- September 14 Including emergent work associated with signal spiking on a power range instrumentation channel (NI-42),
- October 6 Including emergent work associated with NI-42 and reactor coolant system loop 2 temperature instrumentation,
- October 20 Including emergent work associated with the failure of the dedicated shutdown diesel generator during a surveillance test,
- November 16 Including emergent work associated with replacing a seal on the C component cooling water pump, and
- November 30

b. Findings

No findings of significance were identified.

1R14 Personnel Performance During Nonroutine Plant Evolutionsa. Inspection Scope

During the non-routine evolutions identified below, the inspectors observed plant instruments and operator performance to verify that the operators performed in accordance with the associated procedures and training.

- The planned downpower from full power to 52 percent power during the morning of November 16, to enable the licensee to perform maintenance on some secondary-plant components, and
- The return to full power during the evening of November 16.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations

a. Inspection Scope

The inspectors reviewed the operability determination associated with AR 110115, which described the licensee's discovery of an error in the calculation that demonstrated the operability of the control room emergency filtration system. The inspectors assessed the adequacy of the evaluation, the need for any necessary compensatory measures, and compliance with the TS. The inspectors also verified that the operability determination was completed as described in Procedure PLP-102, "Operability Determinations." In addition, the inspectors compared the justifications made in the determination to the requirements from the TS and the descriptions in the FSAR to verify that operability was properly justified, and that the control room emergency filtration system remained available, such that no unrecognized increase in risk occurred.

b. Findings

No findings of significance were identified.

1R16 Operator Work-Arounds

a. Inspection Scope

The inspectors reviewed the following two operator workarounds, to verify that they did not affect either the functional capability of the related system in responding to an initiating event, or the operators' ability to implement abnormal or emergency operating procedures:

<u>Number</u>	<u>Description</u>
03-009	Manual operation of control room ventilation to prevent exceeding design air flow during emergency pressurization
03-010	Manual turbine control is required due to failure of automatic control

b. Findings

No findings of significance were identified.

1R19 Post Maintenance Testinga. Inspection Scope

For each of the six post-maintenance tests listed below, the inspectors witnessed testing and/or reviewed the test data, to verify that test results adequately demonstrated restoration of the affected safety function(s) described in the FSAR and TS. The tests included the following:

<u>Test Procedure</u>	<u>Title</u>	<u>Related Maintenance Activity</u>	<u>Date Inspected</u>
OST-352-3	Comprehensive Flow Test for Containment Spray Pump A	Breaker and Limitorque grease inspection for MOV-880A (spray pump A discharge valve)	October 1
OST-252-2	Residual Heat Removal System Valve Test - Train B	Test the thermal overload and inspect Limitorque operator lubrication for two motor-operated valves	October 21
OST-402-1	Emergency Diesel Generator A Diesel Fuel Oil System Flow Test	Replace the diesel fuel oil transfer pump A motor cable	October 29
OST-201-1	Motor-Driven Auxiliary Feedwater System Component Test - Train A	Calibrate the pump discharge pressure gauges, inspect Limitorque operator lubrication for a motor-operated valve	November 4
MST-012	Maintenance and Testing of Reactor Trip and Bypass Breakers (Annually)	Replacement of undervoltage trip and shunt trip attachment	November 13
OST-101-1	[Chemical & Volume Control System] Component Test Charging Pump A	Valve replacement on charging pump A	November 13

b. Findings

No findings of significance were identified.

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1R22 Surveillance Testing

a. Inspection Scope

For the six surveillance tests identified below, the inspectors witnessed testing and/or reviewed the test data, to verify that the SSCs involved in these tests satisfied the requirements described in the TS, the FSAR, and applicable licensee procedures, and that the tests demonstrated that the SSCs were capable of performing their intended safety functions.

<u>Test Procedure</u>	<u>Title</u>	<u>Date Inspected</u>
OST-201-2	Motor-Driven Auxiliary Feedwater System Component Test - Train B	September 18
OST-701-8*	V12-10 and V12-11 Inservice Valve Test	October 1
OST-409-2	Emergency Diesel Generator B Fast Speed Start	October 15
PIC-302	Pressure and Vacuum Gauges	October 20
OST-910	Dedicated Shutdown Diesel Generator (Monthly)	October 23
OST-401-2	Emergency Diesel Generator B Slow Speed Start	November 12

\*This procedure included inservice testing requirements.

b. Findings

No findings of significance were identified.

1R23 Temporary Plant Modifications

a. Inspection Scope

The inspectors reviewed the temporary modification described in Engineering Change 53641, Temporary Modification for Jumpering Out Cell(s) on the [Dedicated Shutdown - Uninterruptible Power Supply] Battery, to verify that the modification did not affect the safety functions of important safety systems, and to verify that the modification satisfied the requirements of Procedure EGR-NGGC-005, Engineering Change, and 10CFR50, Appendix B, Criterion III, Design Control.

b. Findings

No findings of significance were identified.

## Cornerstone: Emergency Preparedness

1EP1 Exercise Evaluationa. Inspection Scope

Prior to an emergency preparedness exercise conducted on October 7, the inspectors reviewed the exercise objectives and scenario, to verify that they were designed to test major elements of the licensee's emergency plan. On October 7, the inspectors observed and evaluated the licensee's performance during the exercise, as well as selected proceedings related to the licensee's conduct of the exercise. Licensee activities inspected during the exercise included those occurring in the control room simulator, technical support center, operational support center, and emergency operations facility. The inspectors focused on the risk-significant activities of event classification, notification of governmental authorities, onsite protective actions, offsite protective action recommendations, and accident mitigation. The inspectors also evaluated command and control, the transfer of emergency responsibilities between facilities, communications, and adherence to emergency plan implementing procedures. The performance of the emergency response organization was evaluated against applicable licensee procedures and regulatory requirements. To evaluate the licensee's self-assessment process, the inspectors attended the post-exercise critique and the presentation of critique results to plant management.

b. Findings

No findings of significance were identified.

1EP4 Emergency Action Level (EAL) and Emergency Plan Changesa. Inspection Scope

The inspectors reviewed changes to the Radiological Emergency Plan (REP), as contained in Revisions 53 and 54, against the requirements of 10 CFR 50.54(q), to verify that the changes did not decrease REP effectiveness. The changes were also reviewed to verify that changed EALs and emergency plans continued to meet the requirements of 10 CFR 50.47(b).

b. Findings

Introduction. A Green non-cited violation (NCV) was identified for failure to meet 10 CFR 50.47(b)(2), which required the licensee to maintain, at all times, adequate on-site staffing to provide initial facility accident response in key functional areas.

Description. Revision 54 of the REP implemented Engineering Change 47088, which replaced the strong-motion SMA-2 recorders with more-modern version ETNA strong-motion accelerographs (recorders). The inspectors noted that the amount of time required to retrieve and analyze the data was changed from 30 minutes to 60 minutes. This change could potentially delay the declaration of a Site Area Emergency (SAE) or an Alert resulting

from seismic motion by an additional 30 minutes. The original EAL wording (in Revision 17) stated:

“NOTE: There will be approximately 30 minutes delay between seismic alarm at 0.01g and results from the seismic instruments.”

The revised EAL wording (in Revision 18) stated:

“NOTE: Retrieval and analysis of data from seismic instruments will be approximately 60 minutes.”

In both REP revisions, the data must be retrieved prior to determining any classification greater than an Notification of Unusual Event (NOUE). The wording of the EALs indicated that there would be a 30 or 60 minute delay before the determination of an Alert or SAE following a seismic event. Further investigation revealed that the delay could be significantly longer because the licensee failed to maintain adequate continual on-shift staffing to provide initial analysis of this seismic data. This could further delay the determination of an Alert or SAE by approximately 1 hour, thereby delaying the appropriate notification of offsite authorities by up to 1 hour and 30 minutes before the plan change or approximately two hours with the implemented plan change. Additionally, this delay could result in the notification of the NRC at 2 hours and 30 minutes to 3 hours following the seismic event vice the required 1 hour. Although the regulations do not provide an explicit time limit for classifying emergencies, they do imply that classification should be made without delay. A 15-minute guideline was established as a reasonable amount of time to classify an event.

The original plan did not meet this timeliness goal, and the revised plan further exacerbated the inadequacy. 10 CFR 50, Appendix E, Section IV.D requires licensees to have the capability to notify offsite authorities within 15 minutes of the declaration of an emergency. 10 CFR 50.72 also requires that the licensee notify the NRC immediately after notification of the appropriate State or local agencies and not later than one hour after the time the licensee declares one of the emergency classes.

Licensees are expected to have adequate personnel available at all times to assist the shift supervisor/emergency director in implementing the licensee's emergency plan. Information Notice 85-50, “Timely Declaration of an Emergency Class, Implementation of an Emergency Plan, and Emergency Notifications,” states that “it is the licensee's responsibility to ensure that adequate personnel, knowledgeable about plant conditions and emergency plan implementing procedures, are available on shift to assist the shift supervisor to classify an emergency and activate the emergency plan, including making appropriate notifications, without interfering with plant operation.” Thus, it is expected that staff resources are readily available to focus on the evaluation of conditions against the plant's EALs. Furthermore, during periods when the Emergency Operations Facility and/or Technical Support Center are activated, the additional personnel available in these facilities allows flexibility for the designation of one or more individuals to support emergency classification.

Analysis. The inspectors determined that the licensee's failure to maintain adequate on-site staffing to provide initial facility accident response following a seismic event is a



performance deficiency because the licensee is expected to meet the requirements of 10 CFR 50.47(b)(2) and maintain adequate staffing to provide initial accident response capabilities. This finding is greater than minor because it is associated with the Emergency Preparedness Cornerstone attribute of ERO Readiness to ensure that the licensee is capable of implementing adequate measures to protect the health and safety of the public in the event of a radiological emergency. The finding was evaluated using the Emergency Preparedness SDP and was determined to be of very low safety significance because it did not result in a complete loss of any planning standard function required by 10 CFR 50.47 (b)(2).

Enforcement. 10 CFR50.47(b)(2) states that “On-shift facility licensee responsibilities for emergency response are unambiguously defined, adequate staffing to provide initial facility accident response in key functional areas is maintained at all times, timely augmentation of response capabilities is available and the interfaces among various onsite response activities and offsite support and response activities are specified.” Contrary to the above, the licensee did not maintain onsite, at all times, adequate staffing to evaluate the effects of a seismic event, as described in EAL-2. Additionally, the licensee failed to provide adequate means for the timely classification of an Alert or a SAE following a seismic event. Because the failure to maintain adequate on-site staffing for Emergency Plan implementation is of very low safety significance and has been entered into the corrective action program as NCR 112813, it is being treated as an NCV consistent with Section VI.A. of the NRC Enforcement Policy. NCV 05000261/2003006-01, Failure to Maintain Adequate On-site Staff for Emergency Plan Implementation.

#### 1EP6 Drill Evaluation

##### a. Inspection Scope

The inspectors observed a planned licensee emergency preparedness drill to verify licensee self-assessment of classification, notification, and protective action recommendation development in accordance with 10CFR50, Appendix E. The inspectors also attended the post-drill critique to verify that the licensee properly identified failures in classification, notification and protective action recommendation development activities.

##### b. Findings

No findings of significance were identified.

## 2. RADIATION SAFETY

Cornerstone: Public Radiation Safety (PS)

### 2PS1 Radioactive Gaseous and Liquid Effluent Treatment and Monitoring Systems

#### a. Inspection Scope

Effluent Processing Equipment. The inspectors reviewed and evaluated the operability, availability, and reliability of selected radioactive effluent process sampling and detection equipment used for routine and accident monitoring activities. Inspection activities consisted of direct observation of installed equipment configurations and operations, and review of calibration and performance data for the liquid and gaseous effluent process systems.

The inspectors directly observed equipment material condition and assessed selected gaseous and liquid effluent processing and monitoring components against design configuration documents and operating specifications. During walk-downs, accessible sections of the liquid waste system including waste condensate tanks, waste monitor tanks, system piping, and waste disposal system liquid effluent monitor (R-18) equipment were assessed for material condition and conformance with current system design diagrams. Inspected components of the main gaseous effluent process and release system included the waste gas decay tanks, piping leading to the plant vent, and the plant vent radiation monitoring system (R-14) equipment and associated sample lines. The inspectors interviewed chemistry supervision regarding liquid and gaseous radwaste system configurations, system modifications, and effluent monitor operation. In addition, the inspectors compared plant vent flow rates to flow rates in the R-14 sample lines to evaluate system operation for isokinetic sampling conditions.

The inspectors reviewed applicable sections of licensee effluent monitor calibration procedures and evaluated results of calibration and/or performance surveillances for selected process monitors and high efficiency particulate airborne (HEPA) filter systems. Reviewed data included the two most recent calibration records for the R-18 and R-14 monitors and associated flowmeter instruments; the most recent HEPA surveillance record for the plant vent flowpath; recent source check results for the R-18 and R-14 detectors; and out-of-service data for the past two years for all effluent monitors.

Installed configuration, material condition, operability, and reliability for selected effluent sampling and monitoring equipment were reviewed against details documented in the following:

- 10 CFR Part 20;
- RG 1.21, Measuring, Evaluating and Reporting Radioactivity in Solid Wastes and Releases of Radioactive Materials in Liquid and Gaseous Effluents from Light-Water Cooled Nuclear Power Plants, June 1974;
- ANSI-N13.1-1969, Guide to Sampling Airborne Radioactive Materials in Nuclear Facilities;

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- ANSI-N13.10-1974, ANS Specification and Performance of On-Site Instrumentation for Continuously Monitoring Radioactivity in Effluents;
- NUREG-0737, Clarification of TMI Action Plan Requirements, 1980;
- Technical Specification (TS) Section 5;
- the Offsite Dose Calculation Manual (ODCM), Rev. 22; and
- Updated Final Safety Analysis Report (UFSAR) Chapter 11.

Procedures and records reviewed during the inspection are listed in the Attachment.

Effluent Release Processing and Quality Control Activities. The inspectors evaluated licensee performance in conducting effluent release processing and Quality Control (QC) activities, including implementation of program guidance and chemistry staff proficiency. The inspectors directly observed sampling and release operations, examined count room equipment and daily QC activities, and reviewed effluent release procedural guidance and documentation.

The inspectors directly observed the weekly collection of airborne effluent samples from the fuel handling building basement exhaust monitor (R-20) conducted as part of continuous gaseous release surveillance tests. The collection of a liquid sample from waste condensate tank D in preparation for a batch liquid effluent release also was observed. The inspectors evaluated chemistry technician proficiency in collecting, processing, and counting the samples, as well as preparing the applicable release permits.

QC activities regarding gamma spectroscopy and liquid scintillation counting instrumentation were discussed with count room technicians and health physics supervision. The inspectors reviewed records of daily QC check and trending data for all gamma spectroscopy detectors and for both liquid scintillation detectors. The inspectors reviewed calibration records for germanium detectors 1 and 2, and both liquid scintillation detectors for the past two years and evaluated the data against procedural guidance. In addition, results of the radiochemistry cross-check program were reviewed for calendar year (CY) 2002 and third quarter 2003.

Six procedures for effluent sampling, processing, and release were evaluated for consistency with licensee actions. Permits for a liquid and a gaseous release were reviewed against procedural guidance and ODCM specifications. For the gaseous effluent release, the inspectors performed independent dose calculations for comparison with the doses reported by the licensee. Changes to the ODCM were evaluated for technical adequacy and proper documentation. The inspectors also reviewed the CY 2001 and 2002 annual effluent reports for effluent release data trends and for followup of any reported anomalous releases.

Observed task evolutions, count room activities, and offsite dose results were evaluated against details and guidance documented in the following:

- 10 CFR Part 20 and Appendix I to 10 CFR Part 50;
- ODCM;
- RG 1.21,
- RG 4.15, Quality Assurance for Radiological Monitoring Programs (Normal Operation) - Effluent Streams and the Environment, December 1977;
- RG 1.109, Calculation of Annual Doses to Man from Routine Releases of Reactor Effluents for the Purpose of Evaluating Compliance with 10 CFR Part 50 Appendix I, October 1977;
- NUREG-0133, Preparation of Radiological Effluent Technical Specifications for Nuclear Power Plants, 1987;
- TS Section 5; and
- UFSAR Chapter 12.

Procedures and records reviewed during the inspection are listed in the Attachment.

Problem Identification and Resolution. Three licensee ARs and two self-assessments associated with effluent release activities were reviewed and assessed. The inspectors evaluated the licensee's ability to identify, characterize, prioritize, and resolve the identified issues in accordance with Procedure CAP-NGGC-0200, Corrective Action Program, Rev. 8. Documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator (PI) Verification

a. Inspection Scope

To verify the accuracy of the PI data, the inspectors compared the licensee's basis in reporting each data element to the PI definitions and guidance contained in NEI 99-02, "Regulatory Assessment Indicator Guideline," Rev. 2.

Initiating Events Cornerstone

For the Unplanned Power Changes PI, the inspectors compared the reported data to recorded plant performance data to verify that the licensee had accurately identified the number of unplanned power changes greater than 20 percent that occurred during the period that included the fourth quarter of 2002 through the third quarter of 2003.

### Mitigating Systems Cornerstone

- Safety System Unavailability, Residual Heat Removal
- Safety System Functional Failures

For these PIs, the inspectors reviewed licensee event reports (LERS), records of inoperable equipment, and Maintenance Rule records, to verify that the licensee had adequately accounted for unavailability hours and functional failures that the subject systems had experienced during the period that included the fourth quarter of 2002 through the third quarter of 2003. The inspectors also reviewed both the number of hours those systems were required to be available and the licensee's basis for identifying unavailability hours. In addition, the inspectors interviewed licensee personnel associated with the PI data collection, evaluation, and distribution.

### Emergency Preparedness Cornerstone

- Emergency Response Organization (ERO) Drill/Exercise Performance
- ERO Drill Participation
- Alert and Notification System Reliability

Emergency Preparedness PI values submitted from October 2002 through the second quarter of 2003 were reviewed. The inspectors assessed the accuracy of the PI for ERO drill and exercise performance through a review of a sample of drill records. The inspectors reviewed training records to assess the accuracy of the PI for ERO drill participation for personnel assigned to key positions in the ERO. For the Alert and Notification System Reliability PI, the inspectors assessed the licensee's ability to notify members of the public within the 10-mile Emergency Planning Zone.

### Public Radiation Safety Cornerstone

The inspectors sampled licensee submittals for the Radiological Control Effluent Release Occurrence PI for the period of November 2002 through August 2003. The inspectors reviewed data reported to the NRC, procedural guidance for reporting PI information, and three ARs documented in the Attachment. In addition, the inspectors reviewed quarterly effluent dose results and chemistry key performance indicator data for the first 2 quarters of 2003.

b. Findings

No findings of significance were identified.

#### 4OA2 Identification and Resolution of Problems

##### .1 Annual Sample Review

###### a. Inspection Scope

The inspectors reviewed the ARs identified below, to verify that the licensee identified the full extent of the issues, performed appropriate evaluations, and specified and prioritized appropriate corrective actions.

- AR 89711, concerning a spurious turbine runback that was experienced on April 5, 2003
- AR 74191, concerning personnel errors associated with clearance tagging
- AR 61544, concerning the failure of the B emergency diesel generator output breaker to close on May 30, 2002.

The inspectors evaluated each report against the requirements of the licensee's corrective action program, as described in Procedure CAP-NGGC-0200, Corrective Action Program, and 10 CFR 50, Appendix B.

###### b. Observations and Findings

No findings of significance were identified.

#### 4OA3 Event Follow-up

- .1 (Closed) LER 2003001-00, Failure to Complete Technical Specification Required Action Within the Allowed Completion Time. This LER was submitted after the licensee failed on February 24, 2003, to meet the required actions of TS 3.1.7. The licensee did not verify the position of control rod H-10 within 8 hours while its analog rod position indication system was inoperable, as described in Action A.1 of TS 3.1.7. Furthermore, the licensee also failed to place the unit in operational mode 3 within 6 hours after the required action and associated completion time were not met, as described in Action D of the same TS. The inspectors' review of the associated circumstances found that control rod H-10 did not move during this period, and that the licensee restored compliance with TS 3.1.7 immediately after discovering the noncompliance, which was within 45 minutes after the noncompliance occurred. The licensee determined the causes of the noncompliance, and identified and implemented corrective actions to address those causes. No new findings were identified in the inspector's review. This finding constitutes a violation of minor significance that is not subject to enforcement action, in accordance with Section IV of the NRC's Enforcement Policy. The licensee documented the problem in AR 85523. This LER is closed. Documents reviewed by the inspectors are listed in the Attachment.
- .2 (Closed) LER 2003002-00, Failure of Automatic Containment Isolation Ventilation Isolation During Containment Pressure Relief. This LER was submitted after two containment pressure relief isolation valves failed to close in response to a signal for them to close during a planned and monitored gaseous release from containment, on June 5, 2003. The inspectors' review of the associated circumstances found that release limits had not been

exceeded as a result of these failures, and that the licensee's ability to manually isolate the affected penetration had not been affected. The licensee determined that these failures had been caused by a combination of a control switch failure and an earlier modification of the containment isolation circuitry which had inadvertently made that circuitry vulnerable to such a failure. The licensee identified and implemented corrective actions to address those causes. No new findings were identified in the inspector's review. This finding constitutes a violation of minor significance that is not subject to enforcement action, in accordance with Section IV of the NRC's Enforcement Policy. The licensee documented the problem in AR 95470. This LER is closed. Documents reviewed by the inspectors are listed in the Attachment.

4OA6 Meetings, Including Exit

On December 12, the resident inspectors presented the inspection results to Mr. Chris Burton and other members of his staff. The inspectors confirmed that proprietary information was not provided or examined during the inspection.

ATTACHMENT: SUPPLEMENTAL INFORMATION

Enclosure

## SUPPLEMENTAL INFORMATION

### KEY POINTS OF CONTACT

#### Licensee personnel

J. Adams, Supervisor, On-Line Scheduling  
M. Arnold, Superintendent, Shift Operations  
R. Bach, Supervisor, Environmental & Chemistry  
C. Baucom, Supervisor, Regulatory Support  
L. Bladel, Senior Nuclear Work Management Specialist  
W. Brand, Supervisor, Health Physics Operations  
C. Burton, Director of Site Operations  
E. Caba, Superintendent, Design Engineering  
G. Cappuccio, Lead Engineer, Systems Engineering  
G. Cheatham, Radiation Protection Superintendent  
C. Church, Engineering Manager  
B. Clark, Manager - Training  
T. Cleary, Plant General Manager  
M. Clouse, Lead Engineer, Technical Services  
W. Farmer, Superintendent, Systems Engineering  
S. George, Senior Engineer, Systems Engineering  
W. Grantham, Configuration Management Specialist  
T. Halker, Lead Engineer, Systems Engineering  
E. Harris, Lead Engineer, Systems Engineering  
R. Howell, Supervisor, Emergency Preparedness  
R. Ivey, Operations Manager  
E. Kapopoulos, Outage Management Manager  
D. Knight, Superintendent, Shift Operations  
V. Leeth, Control Operator, Nuclear  
J. Little, Lead Engineer, Systems Engineering  
J. Lucas, Manager, Support Services - Nuclear  
G. Ludlum, Superintendent, Operations Training  
D. McCaskill, Lead Nuclear Procedure Writer  
S. Moore, Supervisor, Electrical/I&C Maintenance  
A. Musselwhite, Lead Nuclear Operations Training Instructor  
R. Norris, Lead Engineer, Systems Engineering  
G. Pizzuti, Senior Engineer, Technical Services  
L. Smith, Superintendent, Shift Operations  
V. Smith, Senior Nuclear Procedure Writer  
J. Stanley, Superintendent, Technical Services  
D. Stoddard, Maintenance Manager  
J. Thompson, Senior Nuclear Technical Project Management Specialist  
J. Valentino, Senior Engineer, Licensing/Regulatory Programs  
J. Warren, Lead Engineer, Systems Engineering

#### NRC personnel

P. Fredrickson, Chief, Reactor Projects Branch 4



**LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED**Opened

05000261/2003006-01	NCV	Failure to Maintain Adequate On-site Staff for Emergency Plan Implementation. (Section 1EP4)
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Closed

05000261/2003006-01	NCV	Failure to Maintain Adequate On-site Staff for Emergency Plan Implementation. (Section 1EP4)
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05000261/2003001-00	LER	Failure to Complete Technical Specification Required Action Within the Allowed Completion Time (Section 4OA3.1)
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05000261/2003002-00	LER	Failure of Automatic Containment Isolation Ventilation Isolation During Containment Pressure Relief (Section 4OA3.2)
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## LIST OF DOCUMENTS REVIEWED

### 1R01 Adverse Weather Protection

#### Procedures:

- AP-008, Cold Weather Preparations, Rev. 9
- AP-015, Portable Heaters/Heating Devices, Rev. 10
- EDP-009, Freeze Protection Panels, Rev. 24
- OP-925, Cold Weather Operation, Rev. 27

#### Work Orders:

- 00326233, Verify operability of freeze protection thermostats (Turbine Bldg)
- 00328873, Verify operability of freeze protection thermostats (Near RWST)
- 00344373, Cold weather preparations (Temporary power for portable heaters)
- 00344374, Freeze protection (Plant equipment)
- 00394899, Freeze protection circuits related to safety of fire protection
- 00439138, Engineering reference AP-008 (Cold weather preparations)
- 00439916, Freeze protection channel check
- 00439917, Freeze protection channel check
- 00439918, Freeze protection circuits related to safety of fire protection
- 00446470, Freeze protection channel check
- 00446471, Freeze protection channel check
- 00472598, Insulator (Review plant areas exposed to the weather)
- 00472656, Freeze protection circuits related to safety of fire protection

### 1R04 Equipment Alignment

#### Procedures

- AOP-017, Loss of Instrument Air, Rev. 31
- OP-604, Diesel Generators "A" and "B", Rev. 55
- OP-905, Instrument and Station Air System, Rev. 78
- OP-306, Component Cooling Water System, Revision 36
- OP-201, Residual Heat Removal System, Revision 45
- OST-252-1, RHR System Valve Test - Train A, Revision 10

#### System Descriptions

- SD-005, Emergency Diesel Generators, Rev. 7
- SD-013, Component Cooling Water System, Revision 5
- SD-017, Instrument and Station Air System, Rev. 8
- SD-003, Residual Heat Removal System, Revision 11

#### Work Orders

- 00132457, Remove/inspect valve CC-748A, adjustment did not stop leak
- 00134032, Remove/inspect valve CC-748B
- 00201596, Perform static testing on valve CC-730-MO
- 00266619, Valve CC-748A leaks by the seat approx 1300 GPM when closed
- 00287232, B CCW pump seals leak, inboard seal is leaking
- 00395003, Valve CC-877B leaks past its seat
- 00396845, Valve C CCW pump has seal leak of approx. 13 DPM
- 00425105, Inspect actuator wiring/lugs for damage/degradation, repair

- 00425696, Open and inspect motor-operated valve CC-730-MO
- 00428540, Missing needle on pressure guage for air regulator for temperature-control valve TCV-144
- 00431901, Obtain motor-monitoring data for A CCW pump motor
- 00445573, Implement EC 47164 for valve CC-730 (improve MOV margins)
- 00455459, Valve has an oil leak at the gear box
- 00458908, CCW-PMP-A inboard seal leak about 10 drops per minute

#### Action Requests

- AR 80990, Operability checks for dedicated shutdown/station blackout
- AR 89819, Concrete chips found in the B component cooling water heat exchanger
- AR 92949, Review NCR 31337, loss of component cooling water during OST-946

#### Operating Experience Reports

- OE 15548 - Component Cooling Water Pump Unavailable Due to Handmade Gasket Error at Indian Point
- OE 15618 - Component Cooling Water Pump Fails Due to Loss of Lubrication at Indian Point Unit 2
- OE 16106 - Hot Tap Lessons Learned
- OE 16296 - Failure of the Component Cooling Water Heat Exchanger High Capacity Service Water Outlet Valve to Open

#### Other Documents

- Drawing 5379-376, Component Cooling Water System Flow Diagram, Rev. 34
- Drawing G-190200, Instrument and Station Air System Flow Diagram, Sheet 2 of 10, Rev. 29
- Drawing G-190200, Instrument and Station Air System Flow Diagram, Sheet 4 of 10, Rev. 19
- Drawing 5379-1082, Safety Injection System Flow Diagram, Sheet 5 of 5, Rev. 38
- Drawing 5379-1484, Residual Heat Removal System Flow Diagram, Sheet 1 of 1, Rev. 39
- FSAR section 9.2.2, Component Cooling System
- FSAR section 9.3.1, Station and Instrument Air Systems
- System health report for the component cooling water system, dated 1/15/03

### 1R05 Fire Protection

#### FSAR Fire Hazards Anaysis (Appendix 9.5.1A) Sections

- 3.1.2, Appendix R Fire Area A2 (Fire Zone 2), Diesel Generator "A" Room
- 3.1.3.2, Fire Zone 7, Auxiliary Building Hallway (Ground Floor)
- 3.1.5.5, Fire Zone 19 - Unit 2 Cable Spreading Room
- 3.1.5.6, Fire Zone 20 - Emergency Switchgear Room and Electrical Equipment Area
- 3.7.8, Fire Zone 26 - Yard Transformers

#### Procedures

- FP-013, Fire Protection Systems Surveillance Requirements, Rev. 9
- OMM-002, Fire Protection Manual, Rev. 35
- OMM-003, Fire Protection Pre-Plans/Unit No. 2, Revision 40
- OST-611-3, Low Voltage Fire Detection and Actuation System Zones 6&7, Rev. 2
- OST-611-11, Low Voltage Fire Detection and Actuation System Zones 1&2 (Semi

- Annual), Rev. 3
- OST-624, Fire Damper Inspection (18 Month), Rev. 18
- OST-625, Fire Door Inspection (Semi-Annually), Rev. 23
- OST-626, Functional Test of the Cable Vault CO2 Suppression System (Annual), Rev. 19
- OST-628, Functional Test of the Halon 1301 System (Annual), Rev. 19
- OST-630, Halon 1301 Suppression System Weight Test (Semi-Annual), Rev. 22
- OST-642, Main Transformer Deluge System Flow Test (Annually), Rev. 14
- OST-643, Start-Up/Auxiliary Transformer Deluge System Flow Test (Annually), Rev. 18

#### Drawings

- HBR2-8255, Fire Protection System Flow Diagram, Sheet 2 of 6, Rev. 27
- HBR2-8255, Fire Protection System Deluge and Pre-Action Control Valve Flow Diagram, Sheet 5 of 6, Rev. 13
- HBR2-9717, Fire Area/Zone Locations, Rev. 2

#### Other documents

- Fire Drill Scenario 51, Turbine Bldg., Ground Floor, West End, "A" MFW Pump, Revision 0
- AR 102750, Testing of Heat-Actuated Devices

### 1R06 Flood Protection Measures

#### Procedures

- AOP-014, Component Cooling Water System Malfunction, Rev. 20
- AOP-022, Loss of Service Water, Rev. 25
- AOP-032, Response to Flooding from the Fire Protection System, Rev. 5

#### Other Documents

- FSAR Section 2 3.6, Protection Against Dynamic Effects Associated With the Postulated Rupture of Piping
- FSAR Section 9.5.1.4.4.4.3, Fire Suppression Water Damage Control
- FSAR Figure 1.2.2-5, General Arrangement Reactor Auxiliary Building Plans, Rev. 14
- Calculation RNP-F/PSA-0009, Assessment of Internally Initiated Flooding Events

### 1R11 Licensed Operator Requalification

- Operations Training Full Scope Scenario LOCT-05-02, Rev. 0

### 1R12 Maintenance Effectiveness

#### Action Requests

- AR 31777, Steam line [Power-operated Relief Valves] failed steam dump logic testing
- AR 32108, "C" [Steam Generator] [Power-operated Relief Valve] opened slightly at startup
- AR 58980, Non-EQ splice on the "B" RHR pump motor
- AR 59138, Incorrect planning instructions for the RHR motor
- AR 61160, Effectiveness review identified additional solenoids
- AR 71592, The setpoint on the controller for the "B" [Steam Generator] [Power-operated Relief Valve] is >30 psig off

- AR 76171, Diesel fuel oil transfer pump motor fault
- AR 77823, Number of failures of [Steam Generator] [Power-operated Relief Valve] controls exceeded Maintenance Rule goal

Maintenance Rule Documents for System 3020 (Main Steam)

- Scoping & Performance Criteria
- Performance Summary
- Event Log
- Expert Panel Meeting Minutes

Procedures

- TMM-036, Environmentally Qualified Electrical Equipment Required Maintenance, Rev. 16
- CM-303, Installation of Environmentally Qualified or Safety Related Taped Splices, Rev. 19

1R13 Maintenance Risk Assessments and Emergent Work Evaluation

- Procedure OMM-048, Work Coordination and Risk Assessment, Rev. 18
- Procedure ADM-NGGC-0006, Online [Equipment Out Of Service] Models for Risk Assessment, Rev. 2

1R14 Personnel Performance During Nonroutine Plant Evolutions

- Procedure OP-105, Maneuvering the Plant When Greater than 25% Power, Rev. 27
- 11/12/03 Memo from Scott Jackson to Randy Ivey, Guidance for November 16, 2003 Power Maneuver

1R15 Operability Evaluations

- AR 110115, Error Found in [Alternate Source Term] [Loss of Coolant Accident] Dose Consequence Analysis
- Procedure EGR-NGGC-0019, Engineering Operability Assessment, Rev. 2
- Procedure PLP-102, Operability Determinations, Rev. 8
- FSAR Section 9.4.2, Control Room Air Conditioning System
- Drawing G-190304, Flow Diagram [Heating, Ventilation, & Air Conditioning], Turbine, Fuel, Auxiliary, Radwaste & Reactor Building, Sheet 4, Rev. 15
- System Description SD-036, [Heating, Ventilation, & Air Conditioning]

1R16 Operator Work-Arounds

- AR 10085, HVE 19B Operation During SI or R1 Signal
- Drawing G-190304, HVAC, Turbine, Fuel, Auxiliary, Reactor and Radwaste Building, Sheet 4 of 4, Rev. 6
- Procedure OMM-001-9, Equipment Tagging, Rev. 12
- Procedure OMM-001-8, Control of Equipment and System Status, Rev. 23
- Procedure APP-036, Auxiliary Annunciator, Rev 41

1R19 Post Maintenance Testing

Procedures

- MST-012, Maintenance and Testing of Reactor Trip and Bypass Breakers (Annually), Rev. 20
- OST-101-1, CVCS Component Test Charging Pump A, Rev. 35
- OST-352-1, Containment Spray Component Test - Train A, Rev. 19
- OST-352-3, Comprehensive Flow Test For Containment Spray Pump A, Rev. 1
- OST-401-1, EDG A Slow Speed Start, Rev. 21
- OST-402-1, EDG A Diesel Fuel Oil System Flow Test, Rev. 18

Drawings

- G-190204D, Fuel Oil System Flow Diagram, Sheet 2 of 3, Rev. 21
- 5379-2753, Logic Diagrams, Reactor Trip Signals, Sheet 2 of 18, Rev. 9
- 5379-685, Chemical and Volume Control System Purification and Make-Up Flow Diagram, Sheet 1 of 3, Rev. 47
- 5379-685, Chemical and Volume Control System Purification and Make-Up Flow Diagram, Sheet 2 of 3, Rev. 57

Work Orders

- 414564-01, Termination of replacement cable
- 306945-01, Perform MST-012 on A Reactor Trip Bypass Breaker (Annually)
- 215668-01, Replace UV Trip and Shunt Trip Attachment on A Reactor Trip Bypass Breaker
- 316680-01, Perform MST-012 on B Reactor Trip Breaker (Annually)
- 483457, Valve Maintenance on A Charging Pump

Other Documents

- Engineering Change 51005, Replacement of motor cables on Diesel Fuel Oil Transfer Pump A and B

1R22 Surveillance TestingProcedures

- OST-201-2, MDAFW System Component Test - Train B, Rev. 20
- OST-401-2, EDG "B" Slow Speed Start, Rev. 24
- OST-402-2, EDG "B" Diesel Fuel Oil System Flow Test, Rev. 21
- OST-409-2, EDG "B" Fast Speed Start, Rev. 20
- OP-604, Diesel Generators "A" and "B", Rev. 55

Drawings

- G-190197, Feedwater Condensate and Air Evacuation System Flow Diagram, Sheet 1 of 4, Rev. 73
- G-190197, Feedwater Condensate and Air Evacuation System Flow Diagram, Sheet 4 of 4, Rev. 51
- G-190199, Service and Cooling Water System Flow Diagram, Sheet 9 of 13, Rev. 52

Other Documents

- System Description SD-005, Emergency Diesel Generators, Rev. 7

1R23 Temporary Plant Modifications

- Engineering Change EC 53641, Temporary Modification for Jumpering Out Cell(s) on the DS-UPS Battery, Rev. 1
- Procedure OP-602, Dedicated Shutdown System, Rev. 35
- Procedure MST-801, Dedicated Shutdown Diesel, DS Uninterruptable Power Supply and AMSAC UPS Batteries (Weekly), Rev. 16

#### 1EP4 Emergency Action Level (EAL) and Emergency Plan Changes

- EAL-2, Revision 17 and 18

#### 2PS1 Radioactive Gaseous and Liquid Effluent Treatment and Monitoring Systems

##### Procedures and Guidance Documents

- Environmental Procedure (EMP)-022, Gaseous Waste Release Permits, Rev. 37
- EMP-023, Liquid Waste Release and Sampling, Rev. 35
- EMP-025, Gaseous Effluent Sampling and Analysis Requirements, Rev. 35
- EMP-028, Process Monitor Setpoint Determination, Rev. 21
- OP-705, Waste Liquid Release and Recirculation, Rev. 28
- OP-706, Waste Disposal - Gaseous Rad. Waste Release, Rev. 14
- Environmental & RadCon Surveillance Test (RST)-012, Calibration of Radiation Monitoring System Monitor R-14, Rev. 20
- RST-016, Calibration of Radiation Monitor System, Monitor R-18, Rev. 18
- Environmental & RadCon Calibration Procedure (RCP)-121, Calibration of the Packard Model 2750TR/LL Liquid Scintillation Spectrometer, Rev. 16
- RCP-125, Calibration of the Packard Model 1900TR Liquid Scintillation Spectrometer, Rev. 7
- RCP-141, Gamma Spectroscopy Analysis on the GENIE Gamma Spectroscopy System, Rev. 4
- RCP-142, Calibration of the GENIE Gamma Spectroscopy System, Rev. 9
- Corrective Action Program-Nuclear Generation Group Corporate (CAP-NGGC)-0200, Corrective Action Program, Rev. 8

##### Records

- Radiation Monitor R-18, Waste Disposal System Liquid Effluent Monitor, Calibrations, 04/28/00 and 05/12/01; Functional Tests, 03/27/03 and 06/21/03; Flow Instrument Calibrations, 12/06/01 and 04/17/03
- Radiation Monitor R-14, Plant Vent Radiation Monitoring System, Channel A, B, C Calibrations, 01/08/01 and 06/18/02; Channel D and E Calibrations, 07/20/01, 01/23/02, 01/09/03, 03/14/03, and 05/05/03; Functional Tests, 03/05/03 and 05/07/03; Flow Monitor Calibrations, 01/19/01 and 05/09/02
- Packard 1900TR Liquid Scintillation Detector Calibrations, 09/16/02 and 07/03/03
- Packard 2750TR/LL Liquid Scintillation Detector Calibrations, 09/16/02 and 06/27/03
- Germanium Detector Number (No.) 1 Calibrations, January 2002 - September 2003
- Germanium Detector No. 2 Calibrations, January 2002 - September 2003
- Gaseous Radioactive Waste Release Permit No. 30191.017.073.G, 09/05/03
- Liquid Radioactive Waste Release Permit No. 30161.001.012.L, 08/29/03
- Results of Radiochemistry Cross-Check Program, Summary Report for 2002 and Detailed Comparison Report for 3<sup>rd</sup> quarter 2003
- Germanium Detectors Nos. 1 - 4, Daily Source Checks and FWHM (resolution) Trends, 08/09/03 - 09/09/03

- Liquid Scintillation Detectors (1900TR and 2750TR/LL) , Daily Source Checks, 09/01/03 - 09/17/03, and Response Trends, 01/01/03 - 09/17/03
- Auxiliary Building Ventilation System (Plant Vent) HEPA Filter Surveillance, 07/17/03
- Out Of Service and Maintenance Rule Data for all Effluent Monitors, 01/01/02 - 09/01/03
- Radiological Effluent Technical Specifications (RETS) Surveillance Logs (compensatory actions), 01/26/02 - 02/01/02 and 05/18/02 - 05/24/02

#### Corrective Action Program Documents

- Self-Assessment Report 77831, Radiochemistry, 07/14/03 - 07/17/03
- Self-Assessment Report 54763, Radiation Monitoring System, 05/06/02 - 05/10/02
- AR 00072151, New ODCM Requirements for Outage Warehouse Exhaust not Implemented, 09/21/02
- AR 00103786, Gamma Spectroscopy Equipment Failed Calibration Check, 09/04/03
- AR 00104819, Error Found in ODCM Diagram for Gaseous Radwaste Processing System, 09/16/03

#### 4OA1 Performance Indicator Verification

- LER 2002-001-00, Four Main Steam Safety Valves Fail to Meet Acceptance Criteria During Lift Pressure Testing
- LER 2003-001-00, Failure to Complete Technical Specification Required Action Within the Allowed Completion Time
- LER 2003-002-00, Failure of Automatic Containment Isolation Ventilation Isolation During Containment Pressure Relief
- Procedure REG-NGGC-0009, NRC Performance Indicators, Rev. 2
- Procedure OMM-007, Equipment Inoperable Record, Rev. 58
- Unit #2 Shift Logs, October 2002 - September 2003
- Maintenance Rule Documents for System 3020 (Main Steam)
  - Scoping & Performance Criteria
  - Performance Summary
  - Event Log
- Quarterly Dose Reports for Gaseous and Liquid Effluents, 1<sup>st</sup> and 2<sup>nd</sup> quarters, 2003
- Key Performance Indicators - Chemistry, January - July, 2003
- AR 00079690, Unanticipated ODCM Entry: R-14 Tripped, 12/16/02
- AR 00087114, Failure of R-14 Input/Output Processing System, 03/11/03
- AR 00101237, Error Found in ODCM Projected Dose Equations, 08/07/03

#### 4OA2 Identification and Resolution of Problems

- Procedure PRO-NGGC-0200, Procedure Use and Adherence, Rev. 5
- Procedure OP-603-1, Electrical Breaker Operation, Rev. 5

#### 4OA3 Event Follow-up

- Licensee Event Report 2003-001-00, Failure to Complete Technical Specification Required Action Within the Allowed Completion Time
- AR 85523, [Technical Specification] 3.0.3 entry due to missed H-10 monitoring
- Control-room operator logs for April 24, 2002
- Licensee Event Report 2003-002-00, Failure of Automatic Containment Isolation Ventilation Isolation During Containment Pressure Relief



- AR 95470, Unplanned [Limiting Condition for Operation] – V12-10 & 11 fail to close on high R-11 signal
- Generic Issue Document GID/90-181/00/RCI, Reactor Containment Isolation, Rev. 0
- Generic Issue Document GID/R87038/0013, Single Failure, Rev. 0
- Engineering Change EC 54381, Containment Pressure Relief and Vacuum Valve Open Signal Modification, Rev. 0