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

October 28, 2002

EA-02-180

Carolina Power & Light Company
ATTN: Mr. James Scarola
Vice President - Harris Plant
Shearon Harris Nuclear Power Plant
P. O. Box 165, Mail Code: Zone 1
New Hill, North Carolina 27562-0165

SUBJECT: SHEARON HARRIS NUCLEAR POWER PLANT - NRC INTEGRATED INSPECTION REPORT 50-400/02-04

Dear Mr. Scarola:

On September 28, 2002, the Nuclear Regulatory Commission (NRC) completed an inspection at your Shearon Harris reactor facility. The enclosed integrated inspection report documents the inspection findings which were discussed on September 30, 2002, with you 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 3 issues of very low safety significance (Green). All of these issues were determined to involve violations of NRC requirements. However, because of their very low safety significance and because they have been entered into your corrective action program, the NRC is treating these issues as non-cited violations, in accordance with Section VI.A.1 of the NRC's Enforcement Policy. A licensee-identified violation of very low safety significance is listed in section 4OA7 of the report.
If you deny these non-cited violations, you should provide a response with the basis for your denial, within 30 days of the date of this inspection report 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 Shearon Harris 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/ (G. MacDonald) for

Brian R. Bonser, Chief
Reactor Projects Branch 4
Division of Reactor Projects

Docket No.: 50-400
License No.: NPF-63

Enclosure: Inspection Report 50-400/02-04
w/Attachment

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U. S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket No:	50-400
License No:	NPF-63
Report No:	50-400/02-04
Licensee:	Carolina Power & Light (CP&L)
Facility:	Shearon Harris Nuclear Power Plant, Unit 1
Location:	5413 Shearon Harris Road New Hill, NC 27562
Dates:	June 30, 2002 - September 28, 2002
Inspectors:	J. Brady, Senior Resident Inspector R. Hagar, Resident Inspector G. MacDonald, Senior Project Engineer (1R15, 1R17, 4OA1) W. Crowley, Senior Reactor Inspector (1R12 and 40A7) G. Kuzo, Team Leader (2OS1, 2OS3, 2PS3, 40A1) D. Forbes, Radiation Specialist (2PS1) J. Kreh, Radiation Specialist (2PS3) W. Rogers, Senior Reactor Analyst (1RO6)
Approved by:	B. Bonser, Chief Reactor Projects Branch 4 Division of Reactor Projects

Enclosure

SUMMARY OF FINDINGS

IR 05000400-02-04; Carolina Power & Light; on June 30, 2002 - September 28, 2002; Shearon Harris Nuclear Power Plant, Unit 1. Flood Protection Measures, Radioactive Gaseous and Liquid Effluent Treatment and Monitoring Systems, Radiological Environmental Monitoring Program.

The inspection was conducted by resident inspectors, a reactor inspector, a project engineer, and three radiation specialists. The inspection identified 3 green findings, all of which were non-cited violations. The significance of most findings is indicated by their color (green, white, yellow, red) using IMC 0609 Significance Determination Process (SDP). 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. Inspector Identified Findings

Cornerstone: Mitigating Systems, Barrier Integrity

- Green. A non-cited violation (NCV) of 10 CFR 50 Appendix B Criterion XVI was identified for failing to identify that the 4 refueling water storage tank level transmitters did not meet General Design Criteria 2 for protection from flooding when, on two occasions (July and August 2001), 1 of 4 transmitters was affected by rain water accumulation and declared inoperable.

  This issue was of very low risk significance because of the low probability of the flooding condition that would cause Refueling Water Storage Tank (RWST) transmitter failure coinciding with the need for the RWST contents, and because operator action in the mitigating system cornerstone would negate any equipment damage, and because another multi-train containment heat removal system was available in the barrier integrity cornerstone. (Section 1R06)

Cornerstone: Public Radiation Safety

- Green. An NCV of Technical Specification (TS) 6.8.1 was identified for the failure to properly implement calibration procedures used to ensure accurate radionuclide analyses of airborne effluent particulate samples required by the Offsite Dose Calculation Manual (ODCM) Table 4.11-2.

  The finding was of very low safety significance because it involved the failure to meet a regulatory requirement but did not significantly impair the licensee's ability to assess results of gaseous effluent particulate releases to the offsite environs. (Section 2PS1)

- Green. An NCV of TS 6.8.1 was identified for the failure to properly implement Radiological Environmental Monitoring Program continuous airborne monitoring activities specified in the ODCM Table 3.12-1.

The finding was of very low safety significance because it involved the failure to meet a regulatory requirement but did not significantly impair the licensee's ability to corroborate results of effluent releases to the offsite environs. (Section 2PS3)

B. Licensee Identified Violations

Violations of very low safety significance, which were identified by the licensee have been reviewed by the inspectors. Corrective actions taken or planned by the licensee have been entered into the licensee's corrective action program. These violations and corrective action tracking numbers are listed in Section 40A7 of this report.

Table of Contents **Page**

4. OTHER ACTIVITIES

SUPPLEMENTARY INFORMATION **Attachment Page**

Report Details

Summary of Plant Status

The unit operated at 100% of rated thermal power until July 13 when a manual reactor trip was inserted due to a problem with digital electro-hydraulic control of the turbine generator. The unit was restarted on July 13 and reached 100% power on July 18. An automatic reactor trip on August 15 was caused by reactor coolant pump bus under-voltage due to a severe grid disturbance. The unit was restarted on August 16 and reached 100% power on August 18. The unit remained at 100% power for the remainder of the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

1R04 Equipment Alignment

a. Inspection Scope

Partial Walkdown

For the systems identified below, the inspectors reviewed the identified plant documents to determine the correct system lineup, and observed equipment to verify that the system was correctly aligned:

1) C charging/safety injection pump (B train) with A charging/safety injection pump out-of-service on July 30.

- Procedure OP-107, Chemical and Volume Control System
- Procedure OP-110, Safety Injection System
- Drawing 2165-S-1305, Simplified Flow Diagram Chemical & Volume Control System
- Drawing 2165-S-1308, Simplified Flow Diagram Safety Injection System

2) A Essential Services Chilled Water System with B Essential Services Chilled Water out-of-service on August 14.

- Procedure OP-148, Essential Services Chilled Water System
- Drawing 2165-S-0998, Simplified Flow Diagram Essential Services Chilled Water System

3) B motor-driven auxiliary feedwater pump and the turbine-driven auxiliary feedwater pump with the A motor-driven auxiliary feedwater pump out-of-service on September 25.

- Procedure OP-137, Auxiliary Feedwater System
- Drawing 2165-S-544, Simplified Flow Diagram Feedwater System

Complete Walkdown

The inspectors performed a complete system review of the Main Feedwater system. To determine the correct system lineup, the inspectors reviewed the plant procedures, drawings, and the Final Safety Analysis Report (FSAR) sections identified below:

- Procedure OP-134, Feedwater System
- Procedure OP-136, Feedwater Heaters, Vents, and Drains
- Drawing 2165-S-0544, Simplified Flow Diagram Feedwater System
- System Description 134, Condensate and Feedwater
- Design Basis Document -134, Condensate and Feedwater
- FSAR section 10.4.7, Condensate and Feedwater Systems

The inspectors examined system components and their configuration to identify any discrepancies between the existing system equipment lineup and the correct lineup. In addition, the inspectors reviewed the following outstanding maintenance work requests on the system to determine whether any condition described in those work requests could affect the ability of the system to perform its functions:

Work Request #	Title/Description
205408	Permanently repair the leak from the pressure seal on valve 1FW-30
284326	Adjust nitrogen pressure to the accumulator on valve 1FW-217
237042	Repair the leak from a differential-pressure switch on the discharge of the 1A main feedwater pump
188935, 271142, & 271140	Replace obsolete current-to-pressure converters.

The inspectors reviewed the following Action Requests (ARs) and Action Item Assignments (AIAs) to determine whether any uncompleted or unaddressed issues could affect the ability of the system to perform its functions:

AR or AIA	Title/Description
AIA 58681-05	Auxiliary lube oil pump 1B-NNS pressure indicator does not have isolation valves; review condition and address adding valve
AR 65482	Flow indicator FI-01CE-1920 not operating properly; investigate the adverse condition

Also, the inspectors examined the following Operating Experience reports that were related to the main feedwater system, to verify that the licensee had properly assessed those reports and, where applicable, had initiated appropriate actions to incorporate the lessons learned from those reports:

Type of Report	Reference #	Title/Description
NRC Information Notice	01-09	Wall Thinning in Feedwater Systems
Operations & Maintenance Reminder	435	Wall Thinning from Flow-Accelerated Corrosion
Nuclear Safety Advisory Letter	02-03	Steam Generator Water Level Setpoint at Diablo Canyon
Nuclear Safety Advisory Letter	02-04	Steam Generator Water Level Setpoint Analysis
Nuclear Safety Advisory Letter	02-05	Steam Generator Water Level Setpoint Analysis

Furthermore, the inspectors reviewed the 7/12/02 baseline report of Main Feed & Condensate system health, compiled for the periodic system review program, to determine whether any identified conditions could adversely impact system operability and, if so, whether the licensee was appropriately addressing those conditions.

The inspectors reviewed the following ARs associated with this area to determine whether the licensee identified and implemented appropriate corrective actions:

AR Number	Title/Description
58485	1FW-279 failed stroke shut time
53443	Severe cavitation on main feedwater pump recirculation line
52235	K641 output to 8 other valves disabled with 1BD-1 fuse removed
53386	Manual reactor trip following failure of the C feedwater regulating valve bypass valve to open

b. Findings

No findings of significance were identified.

1R05 Fire Protection

a. Inspection Scope

For the areas identified below, the inspectors reviewed a set of fire-protection-related attributes, to determine whether any conditions adversely affected fire protection defense-in-depth features. The inspected areas included:

- B switchgear room (1-A-SWGRB)
- Computer/PIC/Rod (12-A-CRC1)
- 261 North Isleway MCCs 1A-35SA&SB, (1-A-4-COME)
- B Vital battery Rm(1-A-BATB)
- Cable Spreading Room B, (1-A-CSRB)
- 236 AFW & CCW pump area (1-A-3-PB)

For these areas and for the attributes listed below, the inspectors either observed the attribute in the plant and/or reviewed results from performance of the identified plant procedure(s). The inspected attributes and procedures included:

- transient combustible materials;
- any welding or cutting being performed in the area;
- the physical condition of the fire detection devices, and/or results from:
  - FPT-3205, Fire Detector Functional Test Local Fire Detector Panel 5 12 Month Interval, Revision 9, performed September 5, 2001,
  - FPT-3206, Fire Detector Functional Test Local Fire Detector Panel 6 12 Month interval, Revision 12, performed August 16, 2001, and
  - FPT-3207, Fire Detector Functional Test Local Fire Detector Panel 7 12 Month Interval, Revision 10, performed March 6, 2002;
- the physical condition of the automatic suppression system (where used);
- the availability and general condition of portable fire extinguishers, and/or results from FPT-3151, Fire Extinguisher Inspection: Auxiliary Building Monthly Interval, Revision 0, performed March 26, 2002 and May 16, 2002;
- the physical condition of manual suppression systems, including fire hoses and hose stations, and/or results from OPT-3010, Fire Hose Service Test Various Intervals, Revision 10, performed January 17, 2000 (required every three years);

- the material condition of electrical raceway fire barrier systems;
- the material condition of the fire door(s);
- the condition of ventilation fire dampers, and/or results from:
  - FPT-3425, Fire Damper Inspection 18 Month Interval RAB 286 Elevation, Revision 9, performed August 29, 2001, and;
  - FPT-3426, Fire Damper Inspection 18 Month Interval RAB 236 Elevation and 261 Elevation Modes: All, Revision 9, performed January 15, 2002;
- the material condition of the structural steel fire-proofing (where used);
- the physical condition of seals in accessible electrical and piping penetrations, and/or results from FPT-3550, Fire Penetration Seal Visual Inspection 18 Month Interval, Revision 13, performed May 30, 2002; and
- the adequacy of compensatory measures, where degraded features were identified.

b. Findings

No findings of significance were identified.

1R06 Flood Protection Measures

a. Inspection Scope

The inspectors reviewed the licensee's internal flooding analysis, and selected the reactor auxiliary building 236-foot elevation for detailed review. That elevation includes the auxiliary feedwater pumps, the component cooling water pumps, and the charging/safety injection pumps. For that elevation, the inspectors reviewed the licensee's analysis of the effects of flooding resulting from postulated piping failures, as described in the following documents, to determine whether that analysis contained reasonable assumptions and conclusions based on the current plant configuration:

- FSAR section 3.6A.6, Flooding Analysis,
- Appendix I to the HNP Probabilistic Safety Assessment, Internal Flooding Analysis,
- Calculation #PRA-F/E-5, RAB Unit 1Elevation 236 Compartment Flood Analysis,
- Drawing CAR 2165-M578-S02, Flood Analysis Reactor Auxiliary Building Elevation 236.

To verify that the procedures for coping with flooding can reasonably be used to achieve the desired actions, the inspectors reviewed procedures AOP-022, Loss of Service Water, OP-139, Service Water System, and APP-ALB-02, Main Control Board.

The inspectors performed a field walk-down of the selected area, to determine whether the physical configuration of the area was consistent with the assumptions in the documents.

The inspectors reviewed the licensee's analysis of the effects of external flooding, as described in FSAR section 2.4.10, Flooding Protection Requirements. The inspectors reviewed the following ARs associated with this area to determine whether the licensee identified and implemented appropriate corrective actions:

AR Number	Title/Description
64077	Refueling Water Storage Tank (RWST) Level transmitter flooding

b. Findings

Introduction

Green. A non-cited violation of 10 CFR 50 Appendix B Criterion XVI was identified for failing to identify that the 4 refueling water storage tank level transmitters did not meet General Design Criteria 2 for protection from flooding when, on two occasions (July and August 2001), 1 of 4 transmitters was affected by rain water accumulation and declared inoperable.

Description

On two occasions (July 4 and August 11, 2001), one of four RWST level transmitter were affected by rainwater collection in the RWST pit. The external flooding analysis in FSAR section 3.4 does not take into consideration that the RWST pit does not runoff to other areas and does not have an open drain. Although a drain is installed in the pit, the drain isolation valve is shut and must be opened by operators to pump the pit. Consequently, the RWST level transmitters, located approximately 18 inches off the floor, are susceptible to submergence from rain water during probable maximum precipitation situations. Since the RWST is designed with only a half-height wall for protection against tornado missiles, a missile hit that punctured the tank at least 20 inches below the water line would also flood out the level transmitters. The inspectors found that the 4 RWST level transmitters, including the associated conduit and junction box, were not qualified for submergence. This is a common-cause failure vulnerability for all 4 RWST level transmitters that would cause the transmitters to fail low.

Analysis

The initiator of the common-cause failure of the RWST level transmitters would be either a rainfall of approximately 10 inches in 24 hours, or a missile impacting the tank from a

tornado. For this initiator to have a safety consequence, a safety injection and containment spray start signal must also be present during the time of transmitter failure. This issue was greater than minor because it affected the reliability of a mitigating system cornerstone safety function and the performance of a barrier integrity safety system. The safety function of the RWST level transmitters was to provide a signal at 23.4% level in the RWST that coincident with a safety injection signal, for the low head safety injection (LHSI) system, or a containment spray pump running signal, for the containment spray system, would open each system's containment sump suction valves providing a suction path to the pumps from the containment sump. The failure due to flooding of at least 2 of 4 RWST level transmitters, in the previously described scenario, would prematurely open the containment sump suction valves to the pumps without adequate water inventory in the sump to ensure adequate net positive suction head. The RWST isolation valves to the LHSI pumps are controlled manually. Consequently, the Emergency Operating Procedures (EOP-Path 1, EOP-EPP-10, and EOP-EPP-12) provide for keeping the RWST isolation valve to the LHSI pump open (in addition to the containment sump valves), preventing damage to the LHSI pumps. However, the RWST isolation valves to the containment spray system are controlled automatically and will shut following sump valve opening, after a short time delay. For those situations where containment spray is needed, the pressure in containment would be such that the RWST would not substantially drain to the containment sump. The result is that the containment spray pumps would be aligned to an almost-empty sump with the RWST isolated. This would damage both containment spray pumps. Shutting off the containment spray pumps is not specified by the procedures. A phase 3 significance determination process evaluation found that this issue was of very low safety significance because of the low probability of the flooding condition that would cause RWST transmitter failure coincident with the need for the RWST contents. Core damage would require not only the occurrence of a tornado or heavy rainfall but also a total loss of secondary side heat removal and the failure of control room operators to perform an easy proceduralized recovery action. Loss of containment spray would have no impact on core damage, and since another multi-train system was available to remove containment heat, there would be very little impact on containment pressure control. Consequently, because barrier integrity would not be challenged, the performance deficiency was GREEN.

Enforcement

10CFR50, Appendix B, Criterion XVI, Corrective Action, requires that conditions adverse to quality, such as deficiencies and nonconformances, are promptly identified and corrected. 10CFR50, Appendix A, Criterion 2, Design Bases for Protection Against Natural Phenomena requires that structures, systems, and components important to safety shall be designed to withstand the effects of natural phenomena such as tornadoes, hurricanes, and floods without loss of capability to perform their safety functions. The design bases shall reflect appropriate consideration of the most severe of the natural phenomena, appropriate combinations of the effects of normal and accident conditions with the effects of the natural phenomena, and, the importance of the safety functions to be performed. Contrary to the above, from July 4, 2001 until June 18, 2002, the licensee failed to identify a condition adverse to quality for the refueling water storage tank level transmitter location in that the transmitters were not designed to withstand the effects of flooding and perform their design safety function,

but were installed in a location where they could be submerged from severe rain or from water leakage due to a hole in the RWST from a tornado missile. This issue is in the licensee's corrective action program as Action Request 64290 and has been designated a Non-cited Violation (NCV) consistent with Section VI.A.1 of the NRC Enforcement Policy. It is identified as NCV 50-400/02-04-01, Failure to identify that the RWST level transmitters were susceptible to flooding. Before the end of the inspection period the licensee completed a design change to install transmitters that will function while submerged.

1R07 Heat Sink Performance

a. Inspection Scope

To determine the licensee's approach to heat exchanger performance monitoring, the inspectors reviewed the following documents:

- PLP-620, Service Water Program (Generic Letter 89-13)
- EPT-163, Generic Letter 89-13 Inspections
- Licensee Generic Letter 89-13 responses

The inspectors reviewed results of the 1B-SB Component Cooling Water heat exchanger performance inspection conducted on November 6, 2001 using procedure EPT-163, to verify that:

- potential fouling situations were identified and corrected,
- inspection results were appropriately categorized against pre-established acceptance criteria and the results from the previous inspection in refueling outage 8,
- the frequency of inspection was sufficient to detect degradation prior to loss of heat removal capability below design basis values, and
- the licensee had developed acceptance criteria for its bio-fouling controls.

The inspectors reviewed photographs of the service water side of the heat exchanger taken during the inspection and compared the current condition to that shown in pictures from the previous inspection, but did not physically observe the inside of the heat exchanger.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification

a. Inspection Scope

The inspectors reviewed licensed operator requalification simulator training for crew D on August 22. This observation included emergency operating procedure (EOP) and abnormal operating procedure (AOP) scenarios. The scenarios tested the operators' ability to respond to a loss of a safety electrical bus and small break loss of coolant accident. The inspectors focused on clarity and formality of communication, use of procedures, alarm response, control board manipulations, group dynamics and supervisory oversight. The training used Exercise Guide DSS-005.

b. Findings

No findings of significance were identified.

1R12 Maintenance Rule Implementation

.1 Quarterly Evaluation

a. Inspection Scope

The inspectors selected the two equipment issues described below, by reviewing a list of significant corrective action documents for the last two years and by reviewing the licensee's maintenance rule a(1) list. The inspectors reviewed the licensee's evaluation/corrective actions from corrective action program documents and the maintenance rule data base. The inspectors independently evaluated the licensee's handling of the issues in relation to the following:

- the work practices involved,
- whether common cause was involved,
- whether corrective actions were adequate to correct the problem, and
- whether the issues were appropriately addressed in the Maintenance Rule (10 CFR 50.65) with respect to the characterization of failures, whether performance criteria were exceeded (reliability and unavailability), and if so, the appropriateness of either the associated a(2) performance criteria or the associated a(1) goals

AR Number	Subject/Description.
62606	EDG B overspeed trip valve failure
55256	Pre-entry purge containment isolation valve (1CP-1) repetitive functional failure.

b. Findings

No findings of significance were identified.

.2 Periodic Evaluation

a. Inspection Scope

The inspectors reviewed the licensee's Maintenance Rule periodic assessment, "Harris Nuclear Plant Maintenance Rule Cycle 10, Periodic (a)(3) Assessment," dated May 28, 2002. The assessment was issued to satisfy paragraph (a)(3) of 10 CFR 50.65, and covered the period of May 12, 2000 through January 3, 2002. The inspection was to determine if the assessment was issued in accordance with the time requirement of the Maintenance Rule, and included evaluation of: balancing reliability and unavailability, (a)(1) activities, (a)(2) activities, and use of industry operating experience. To verify compliance with 10 CFR 50.65, the inspectors reviewed selected Maintenance Rule activities covered by the assessment period for the following risk significant systems: Residual Heat Removal (RHR), Auxiliary Feedwater (AFW), Emergency Service Water (ESW), and 6.9 kilovolt (KV) AC Distribution. A list of documents reviewed is included in the attachment.

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessments and Emergent Work Evaluation

a. Inspection Scope

The inspectors reviewed the licensee's risk assessments and the risk management actions used by the licensee to manage risk for the plant configurations associated with the following planned activities:

- Safety System outage for the A train Emergency Diesel Generator and A train Emergency Service Water Pump performed on July 23 and 24.

- Safety System outage for the B train Emergency Services Chilled Water, preventive maintenance on charging pump suction cross-connect valve (1CS-171), and emergent work on the RWST level transmitters on August 14.

- RWST level transmitter L-990 out for modification from August 26 to 29, A ESW screen wash out for maintenance on August 29 (causes inoperability of A ESW and A EDG), and EDG exhaust fan E-86B on August 30.

- A motor-driven auxiliary feedwater pump out of service on September 25 with RWST level transmitter L-993 out for modification.

b. Findings

No findings of significance were identified.

1R14 Personnel Performance During Non-routine Plant Evolutions

a. Inspection Scope

During the non-routine evolutions identified below, the inspectors reviewed the operating crew's performance and plant indications, to verify that operator response was in accordance with the associated procedures and training:

Non-routine evolution	Date	Associated procedure(s)
Reactor startup	July 13	GP-5, Power Operation (Mode 2 to Mode 1)
Synchronization to Grid	July 14	GP-5, Power Operation (Mode 2 to Mode 1)
Reactor startup	August 16	GP-5, Power Operation (Mode 2 to Mode 1)
Synchronization to Grid	August 16	GP-5, Power Operation (Mode 2 to Mode 1)

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations

a. Inspection Scope

For the operability evaluations described in the ARs listed below, the inspectors evaluated the technical adequacy of the evaluations, to ensure that operability was properly justified and the subject component or system remained available, such that no unrecognized increase in risk occurred:

AR Number	Title/Description
64721	Containment Hydrogen Analyzers Sample Valve Sequencing
63355	EDG air admission valve flange thread engagement
69907	½ inch pipe cap dropped into B emergency service water pump bay.
70744	Rosemount transmitter model 1154 part 21 notification
71176	Rosemount transmitter model 1153 part 21 notification

b. Findings

No findings of significance were identified.

1R16 Operator Work-Arounds

a. Inspection Scope

The inspectors reviewed the workarounds listed below, to determine whether they affected functional capability of the related system or human reliability in responding to an initiating event. The inspectors specifically considered whether the workaround affected the operators' ability to implement abnormal or emergency operating procedures.

Number	Description
280	Turbine drain valves will not open in Auto requiring operator action after a turbine trip.
281	Containment fire header sprinkler header containment isolation valve inoperable causing manual actions to be taken in case of a fire in containment.

The inspectors reviewed the cumulative effects of the operator workarounds listed below, to determine whether those effects could increase an initiating event frequency, affect multiple mitigating systems, or affect the ability of operators to respond in a correct and timely manner to plant transients and accidents.

Number	Description
253	6.9kv motors generate trouble alarms when started
264	1A-SA ground fault test causes alarms
269	Containment purge trips off in auto
274	Auto fill for reactor coolant pump standpipe inoperative
277	Pressurizer Relief Tank will not maintain pressure
278	Gross failed fuel detector will not maintain set flow
279	Hydrogen seal oil temperature control valve will not maintain temperature
280	Turbine drain valves will not operate in auto
281	1FP-347, containment sprinkler isolation, Inoperable
283	Repetitive loss of Harris construction feeder

b. Findings

No findings of significance were identified.

1R17 Permanent Plant Modifications

a. Inspection Scope

Modification to the RWST Level Transmitters

This modification was performed as corrective action for the Non-Cited Violation described in section 1R06. The inspectors determined that the following parameters were affected by this modification:

- RWST to containment sump transfer
- RWST inventory

The inspectors reviewed the following documents to determine the design adequacy of the modification (submergence qualification of the RWST level transmitters) with respect to the above parameters:

- Harris Safety Evaluation Report section 2.4.2.2
- 10 CFR 50 Appendix A, General Design Criterion 2
- FSAR section 3.4.1.1, Flood Protection Measures for Seismic Category 1 Structures
- Design Basis Document 106, Containment Spray System
- Engineering Change (E/C) 49445, RWST Level Transmitter LT 0992 Flood Protection/Replacement
- Rosemount Report D8400323, part of E/C 49445
- Rosemount Report D9900158, part of E/C 49445
- Calculation HNP-C/EQ-1128, Replacement of RWST Level Transmitter
- Sketch/Drawing SK-49945-Z-7006 sheet 1, Certified Installation Drawing for Model 1153 B Pressure Transmitters
- Sketch/Drawing SK-49945-Z-7008 sheet 1, Safety Class 1E Differential Pressure Electrical Transmitter Qualification Group B
- Drawing 1364-96431-S01, Certified Installation Drawing Model 1153B Pressure Transmitter
- Drawing1364-11923-S12, Level System Installation Schematic RWST

The inspectors reviewed licensee activities to verify that modification preparation, staging, and implementation did not impair technical specification compliance, emergency/abnormal operating procedures, key safety functions and operator response to key safety functions. Modification design sealing and torque value details specified were reviewed to determine if they met qualification requirements. The inspectors reviewed the following planned post-modification testing to verify that the testing maintained the plant in a safe condition, that no unintended system interaction will occur, and that the structures, systems, and component performance affected by the modification meets the design basis:

- Maintenance Surveillance Test (MST) I0042, RWST Level Calibration
- MST I0620, Response Time Test RWST level LT-01LT-00992

b. Findings

No findings of significance were identified.

1R19 Post Maintenance Testing

a. Inspection Scope

For the post-maintenance tests listed below, the inspectors reviewed the test procedure and either witnessed the testing and/or reviewed test records to determine whether the test was adequate for the scope of the maintenance work performed and demonstrated that the affected equipment was functional and operable:

Test Procedure		
Number	Title	Related maintenance task
OST-1013	1A-SA Emergency Diesel Generator Operability Test Monthly Interval Modes 1-2-3-4-5-6	Calibrate various instruments & troubleshoot lube oil heaters.
PM-M14	Motor Operated Valve Actuator Preventive Maintenance	Perform preventive maintenance on valve 1CS-171, charging pump suction cross-connect.
OST-1191	Steam Generator PORV and Block Valve Operability Test Quarterly Interval	Repair hydraulic leaks on A steam generator PORV actuator.
OST-1847 *and* OST1131	Safety Injection Actuation: Control Room Ventilation Isolation Train A 18 month Interval Control Room Area HVAC ISI Test Quarterly Interval	Preventive maintenance on the actuator for damper 1CZ-25, the A train normal supply fan discharge.
OST-1104 *and* OST-1068 *and* OST-1044	Containment Isolation Inservice Inspection Valve Test Quarterly Interval Containment Isolation valve Remote Position Indication Test Two Year Interval ESFAS Train A Slave Relay Test Quarterly Interval	Corrective maintenance to resolve stroke time and indication problems for the fire protection sprinkler containment isolation valve 1FP-347.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing

a. Inspection Scope

For the surveillance tests listed below, the inspectors examined the test procedure and either witnessed the testing and/or reviewed test records to determine whether the scope of testing adequately demonstrated that the affected equipment was functional and operable:

Number	Title
OST-1095	Sequencer Block Circuit and Containment Fan Cooler Testing Train B Quarterly Interval All Modes
MST-I0154	Reactor Coolant Flow instrument (F-0416) Operational Test
OST-1119*	Containment Spray Operability Train B Quarterly Interval Modes 1-4
MST-I0165	Nuclear Instrumentation System Power Range N43 Operational Test
OST-1411	Auxiliary Feedwater Pump 1X-SAB Operability Test Quarterly Interval

*This procedure included inservice testing requirements.

b. Findings

No findings of significance were identified.

Cornerstone: Emergency Preparedness

1EP6 Drill Evaluation

a. Inspection Scope

The inspectors observed an emergency preparedness drill conducted on September 5 to verify licensee self-assessment of classification, notification, and protective action recommendation development.

b. Findings

No findings of significance were identified.

2. RADIATION SAFETY

Cornerstone: Occupational Radiation Safety

2OS1 Access Control To Radiologically Significant Areas

.1 Access Controls

a. Inspection Scope

Licensee program activities for monitoring workers and controlling access to radiologically significant areas and tasks were inspected. The inspectors evaluated procedural guidance; directly observed implementation of administrative and established physical controls; assessed worker exposures to radiation and radioactive material; and appraised radiation worker and technician knowledge of, and proficiency in implementing radiation protection program activities.

During the onsite inspection, radiological controls for maintenance activities requiring breach of the 'B' waste monitor tank, a contaminated radioactive waste system located in close proximity to a high radiation area, were observed and discussed. In addition, access controls and monitoring for five radiologically significant tasks conducted since October 1, 2001, were evaluated. The evaluations included, as applicable, Radiation Work Permit (RWP) details; use and placement of dosimetry to monitor occupational exposures involving significant dose gradients; and electronic alarming dosimetry (EAD) set-points and use in loud noise areas. Effectiveness of established controls were assessed against area radiation and contamination survey results, potential for transient elevated dose rates, and occupational doses received. Physical and administrative controls and their implementation for locked-high radiation area (LHRA) keys and for storage of highly activated material within the spent fuel pools were evaluated through direct observation and record reviews.

Occupational workers' adherence to selected RWPs and Health Physics technician (HPT) proficiency in providing job coverage were evaluated through direct observations, review of selected exposure records and investigations, and interviews with licensee Health Physics (HP) staff. Occupational exposure data associated with direct radiation, potential radioactive material intakes, and from discrete radioactive particle (DRP) or dispersed skin contamination events identified from October 1, 2001 through June 17, 2002, were reviewed and assessed independently.

During the week of July 8, 2002, radiological postings and physical controls for access to designated HRA or LHRA locations within the Waste Processing Building (WPB) and Reactor Auxiliary Building (RAB) were examined during facility tours. In addition, the inspectors independently measured radiation dose rates and evaluated established posting and access controls for the following areas and equipment:

- WPB 236 foot (') elevation, A Waste Monitor Tank Room,
- WPB 261' elevation, Radioactive Waste Storage Area and Truck Bay,
- WPB 261' elevation, Demineralizer Skid and Filter Backwash Areas,

- RAB 236 ‘ elevation, Mechanical Penetration and Mezzanine Areas,
- RAB 236 ‘ elevation, Moderating and Letdown Heat Exchanger Area,
- RAB 261' elevation, Lower and Upper Filter House Areas,

Radiation protection program activities were evaluated against Title 10 Code of Federal Regulations (10 CFR) 19.12; 10 CFR 20, Subparts B, C, F, G, H, and J; Final Safety Analysis Report (FSAR) details in Section (§) 11, Radioactive Waste Management and § 12, Radiation Protection; Technical Specification (TS) § 6.8 1, Procedures and § 6.12, High Radiation Area; and approved licensee procedures. Licensee guidance documents, records, and data reviewed within this inspection area are listed in the attachment to this report.

b. Findings

No findings of significance were identified.

.2 Problem Identification and Resolution

a. Inspection Scope

Licensee Corrective Action Program (CAP) Nuclear Condition Report (NCR) documents associated with radiological controls, personnel monitoring, and exposure assessments were reviewed and discussed with responsible licensee representatives. The inspectors assessed the licensee’s ability to identify, characterize, prioritize, and resolve the identified issues. Specific NCRs reviewed and evaluated in detail for these program areas are identified in the attachment to this report.

b. Findings

No findings of significance were identified.

2OS3 Radiation Monitoring Instrumentation

.1 Area Radiation Monitoring and Post-Accident Sampling Systems

a. Inspection Scope

The operability, availability, and reliability of selected direct area radiation monitor (ARM) and continuous air monitor (CAM) equipment used for routine and accident monitoring activities were reviewed and evaluated. During the week of July 8, 2002, the inspectors directly observed ARM equipment material condition, installed configurations (where accessible), and results of performance checks for selected monitors. Current calibration data for the following radiation monitoring equipment was reviewed and discussed with responsible staff.

- Containment Leak Detection System Radiation Monitor (REM)-01LT-3502A-SA, 11/5/01

- Area Radiation Monitor, Containment Building Incore Instrument Controls, (RM-01CR-3577), 04/29/00
- Containment High Range Accident Monitor (RE-01-CR-3589SA), 10/03/01
- Containment High Range Accident Monitor (RE-01-CR-3590SB), 10/04/01
- Emergency Outside Air Intake Monitor (RM-01CZ-3505A2-SA), 6/6/02

Recent changes to the Post Accident Sampling System (PASS) program activities were evaluated. The evaluation included review of current program guidance, evaluation of completed and planned training, and identification of PASS equipment/instrumentation abandoned in place.

Program guidance, performance activities, and equipment material condition for the direct radiation detection instrumentation and continuous air sampling equipment were reviewed against details documented in TS, 10 CFR Parts 20 and 50, FSAR §11, and associated procedures. Radiation detection and sampling equipment required for use in accident monitoring also were reviewed against applicable sections of NUREG 0737, Clarification of TMI Action Plan Requirements, and RG 1.97, Instrumentation for Light-Water-Cooled Nuclear Power Plants to Assess Plant and Environs Conditions During and Following an Accident, Rev. 3. Licensee guidance documents, records, and data reviewed within this inspection area are listed in the attachment to this report.

b. Findings

No findings of significance were identified.

.2 Personnel Survey Instrumentation

a. Inspection Scope

Current program guidance, including calibration and operation procedures, and its implementation to maintain operability and accuracy of selected portable survey instruments was reviewed and evaluated. During the week of July 8, 2002, the inspectors reviewed current calibration data for selected personnel survey instruments and assessed operability of various portable survey instruments staged, or in use by the Health Physics (HP) staff. Responsible staff's knowledge and proficiency regarding portable survey instrumentation calibration activities were evaluated through interviews, record reviews, and direct observation of an RO-2 portable survey instrument calibration. Instrument selection and operability determinations conducted by HP technicians prior to performing selected radiological surveys and monitoring were reviewed. The accuracy and operability determinations for instrumentation used to perform surveys in high radiation or greater areas were assessed.

Operability and analysis capabilities of the whole body counting (WBC) equipment for monitoring internally deposited radionuclides and Individual Personnel Monitor (IPM) equipment utilized for surveys of individuals exiting the radiologically controlled area (RCA) were evaluated. For both WBC and IPM equipment, the inspectors examined current calibration and selected daily/ monthly performance check data, as applicable; and directly observed IMP monthly performance surveillances. Selected WBC data analysis sheets results were reviewed and discussed with responsible staff to assess

knowledge and proficiency in evaluating WBC results. The licensee's capabilities to expand the routinely used WBC radionuclide library data was assessed.

Licensee activities associated personnel radiation monitoring instrumentation were reviewed against TS, 10 CFR 20.1204 and 20.1501, and applicable licensee procedures listed in the attachment to this report .

b. Findings

No findings of significance were identified.

.3 Respiratory Protection - Self Contained Breathing Apparatus (SCBA)

a. Inspection Scope

The licensee's respiratory protection program guidance and its implementation for Self-Contained Breathing Apparatus (SCBA) equipment use was evaluated. The number of staged SCBA units and their general material and operating condition were observed during tours of the Control Room, Technical Support Center, and Operations Support Center. The inspectors reviewed and evaluated current records associated with supplied air quality, and maintenance of staged SCBA equipment. Proficiency and knowledge of staff responsible for maintaining SCBA equipment were evaluated through discussions and demonstration of a SCBA quarterly functional test. During the week of July 8, 2002, the inspectors reviewed records and evaluated status of medical qualification determinations, fit test results, and training status for eight on-shift Emergency Response Organization personnel. In addition, staff members were interviewed to determine their level of knowledge of available SCBA equipment locations, proper use, and availability of prescription lens inserts, if required.

Licensee activities associated with maintenance and use of SCBA equipment were reviewed against TS; 10 CFR Part 20.1703; FSAR §11; Emergency Plan Details; RG 8.15, Acceptable Programs for Respiratory Protection, Rev. 1, October 1999; ANSI-Z88.2-1992, American National Standard Practices for Respiratory Protection; and applicable procedures listed in the attachment to this report.

b. Findings

No findings of significance were identified.

.4 Problem Identification and Resolution

a. Inspection Scope

Selected licensee NCR documents associated with area radiation monitoring equipment, portable radiation detection instrumentation, and respiratory protective program activities were reviewed and assessed. The inspectors evaluated the licensee's ability to identify, characterize, prioritize, and resolve the identified issues. Specific CAP documents reviewed and evaluated are listed in the attachment to this report.

b. Findings

No findings of significance were identified.

Cornerstone: Public Radiation Safety

2PS1 Radioactive Gaseous and Liquid Effluent Treatment and Monitoring Systems

.1 Radioactive Gaseous and Liquid Effluent Treatment and Monitoring Systems

a. Inspection Scope

The operability, availability, and reliability of selected effluent process sampling and detection equipment used for routine and accident monitoring activities were reviewed and evaluated. Inspection activities included record reviews and direct observation of equipment installation and operation. The following effluent monitoring equipment was included in the inspection:

- Condensate Vacuum Pump Effluent Treatment System Radiation Monitor (REM-01TV-3534)
- Turbine Building Vent Stack Accident Radiation Monitor (RM-01TV-3536-1)
- Plant Vent Stack Accident Radiation Monitor (RM-21AV-3509-1SA)
- Waste Processing Building Stack 5 Radiation Monitor (REM-1WV-3546)

During the week of July 8, 2002, the inspectors directly observed process effluent sampling and monitoring equipment material condition, installed configurations (where accessible), and operability; evaluated local and control room data regarding flow rates and weekly channel response checks; and reviewed and evaluated established release set-points. In addition, five effluent release permits completed and documented since October 1, 2001, were reviewed, discussed, and evaluated. The evaluation assessed sample representativeness, radionuclide concentration sensitivities, achieved analyses accuracies; pre-release dose calculation completeness, and adequacy of effluent radiation monitor set-point determinations.

Both the licensee and vendor laboratories' quality control (QC) program activities for liquid and airborne sample radionuclide analyses were evaluated. The inspectors discussed and reviewed, as applicable, laboratory QC activities including current gamma spectroscopy and liquid scintillation detection equipment calibrations and daily system performance results; preparation, processing and storage of composite samples; radionuclide lower limit of detection (LLD) capabilities and achieved accuracies; and results of the quarterly cross-check spiked radionuclide samples analyzed during calendar year (CY) 2001.

The inspectors directly observed and evaluated chemistry staff proficiency in conducting weekly plant vent surveillance activities, including particulate filter and charcoal cartridge change-out. Also, technician proficiency in conducting pre-release processing,

sampling, and gamma spectroscopy analyses was observed and evaluated. Interviews were conducted with two chemistry technicians to evaluate staff proficiency and knowledge of effluent release requirements, equipment capabilities, and procedural details.

Program guidance, equipment configuration and material condition for the effluent sampling and monitoring equipment were reviewed against details documented in TS, 10 CFR Part 20, FSAR §11, Offsite Dose Calculation Manual (ODCM), ANSI-N13.1-1969, Guide to Sampling Airborne Radioactive Materials in Nuclear Facilities; ANSI-N13.10-1974, ANS Specification and Performance of On-Site Instrumentation for Continuously Monitoring Radioactivity in Effluents, and approved procedures listed in the Attachment to this report.

In-place liquid effluent release equipment, observed task evolutions, and offsite dose results were evaluated against 10 CFR Part 20 requirements, Appendix I to 10 CFR Part 50 design criteria, TS, FSAR details, ODCM, and applicable procedures listed in Attachment to this report. Laboratory QC activities were evaluated against 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 Plant, June 1974; and RG 4.15, Quality Assurance for Radiological Monitoring Programs (Normal Operation) - Effluent Streams and the Environment, December 1977.

b. Findings

Introduction

Green. A non-cited violation (NCV) of Technical Specification (TS) 6.8.1 was identified for the failure to properly implement calibration procedures used in monitoring airborne effluent particulate samples required by the Offsite Dose Calculation Manual (ODCM) Table 4.11-2.

Description

During observation and evaluation of chemistry staff proficiency in conducting weekly plant vent particulate filter and charcoal cartridge change-out surveillances, the inspectors identified a gasket in airborne effluent process particulate and charcoal sample holders that covered a large portion of the outer edge of the 47 millimeter (mm) diameter filter. This gasket effectively reduced the diameter of the particulate filter's active surface area to approximately 35 mm. The inspectors noted that the 35 mm diameter of the collection surface was inconsistent with the 47 mm diameter counting geometry used to calibrate the gamma spectroscopy analysis equipment and did not meet guidance specified in licensee Radiation and Chemistry Procedure (RCP)-703, Calibration and Quality Control Set-up of the Genie Spectroscopy System, Revision (Rev) 7, which specified that physical calibration source geometries be as close as practicable to the actual sample geometries.

At the time of the onsite inspection, the magnitude of the effect of the identified geometry differences on the accuracy of airborne effluent radionuclide particulate concentration measurements could not be evaluated. Subsequently, the licensee

evaluated the affect of the observed geometry differences on particulate filter energy calibration efficiencies for each of their four gamma spectroscopy systems and for those shelf heights which could have potentially been used for analyses. From review of the licensee evaluation data provided to the NRC on August 9, 2002, the inspectors noted that for the majority of gamma spectroscopy systems and available system shelf heights used for analyses, the efficiency differences would have resulted in a positive bias in reporting any particulate radionuclide concentrations in airborne effluents. Reported differences in the calculated energy efficiencies ranged from a slight bias, less than plus or minus five percent, for analyses conducted using shelf three on gamma spectroscopy system Number (No.) 1 to a positive bias exceeding 21 percent for analyses of low energy gamma emitters analyzed on the detector face of system No. 4. From discussions with responsible licensee representatives and review of RCP-703 procedure guidance, the inspectors noted that during performance of actual calibrations or calibration checks of gamma spectroscopy systems, identified differences in energy efficiencies exceeding five percent require further review and/or re-analysis.

Analysis

The inspectors noted that the failure to use proper airborne particulate source geometry to calibrate gamma spectroscopy system affected programs and equipment used to monitor effluent releases used to ensure adequate protection of public health and safety from exposure to radioactive materials released into the public domain as a result of routine civilian reactor operations. This finding was evaluated using the Public Radiation Significance Determination Process (SDP) and determined to be of very low safety significance because it involved the failure to meet a regulatory requirement but did not significantly affect assessment of particulate radionuclide concentrations in airborne effluents. From review of annual effluent reports and discussion of recent operational history with cognizant licensee representatives, release of radionuclide particulates in airborne effluents was negligible.

Enforcement

The inspectors noted that 10 CFR 20.1501(2)(ii) requires each licensee to make or cause to be made, surveys that are reasonable under the circumstances to evaluate concentrations and quantities of radioactive material in effluents. TS 6.8.1 requires written procedures to be established, implemented, and maintained covering the applicable procedures recommended in Appendix A of Regulatory Guide 1.33, Rev. 2, February 1978, which includes procedures for control of radioactivity released to the environment and process radiation monitoring systems. Licensee RCP-703, Calibration and Quality Control Set-up of the Genie Spectroscopy System, Rev. 7, specified that calibration source geometries be as close as practicable to actual sample geometries to establish acceptable measurement accuracy. The finding is entered into the licensee's corrective action program as NCR 65704. The failure to maintain calibration source geometries as close as practicable to actual sample geometries resulting in energy efficiency differences exceeding five percent for periods of time preceding July 8, 2002, is identified as a violation of TS 6.8.1. This violation is being treated as a non-cited

violation, consistent with Section VI.A.1 of the NRC Enforcement Policy, and is identified as NCV 50-400/02-04-02, Failure to properly implement calibration procedures used to ensure accurate radionuclide analyses of airborne effluent particulate samples in accordance with ODCM requirements.

.2 Problem Identification and Resolution

a. Inspection Scope

Licensee NCR documents associated with effluent processing and monitoring activities were reviewed. Five NCRs documented in the attachment to this report were reviewed and evaluated in detail. The inspectors assessed the licensee's ability to identify, characterize, prioritize, and resolve the identified issues.

b. Findings

No findings of significance were identified.

2PS3 Radiological Environmental Monitoring Program (REMP)

.1 Radiological Environmental Monitoring Program (REMP) Implementation

a. Inspection Scope

The licensee's 2001 Annual Radiological Environmental Operating Report was reviewed and discussed with licensee representatives. The inspectors assessed data analyses, surveillance results, and land-use census assessment. Report details were assessed for required sample types, sampling locations, and monitoring frequencies.

During the week of June 17, 2002, REMP program activities conducted by Harris Energy and Environmental Center (HEEC) laboratory were reviewed and evaluated. The inspectors reviewed and evaluated procedural guidance and its implementation; instrument calibration and performance checks for gamma spectroscopy, liquid scintillation counting, and gross beta analysis instrumentation; and assessed knowledge and proficiency of responsible staff. In addition, laboratory analysis QC activities were reviewed and evaluated including inter-laboratory sample comparison results; analytical measurement instrumentation performance checks and background determinations; analysis sensitivities and LLD capabilities for gamma spectroscopy analyses and gross beta analyses; and review of flow calibrations for pumps used in REMP airborne sampling systems. The inspectors also reviewed and discussed 19 NCRs documented between June 1, 2001, and June 17, 2002, for inoperable airborne monitoring equipment to determine if the issues were appropriately reviewed and resolved.

On July 9, 2002, the inspectors toured and evaluated selected sampling stations for location and material condition of REMP equipment. Collection of air particulate filters and charcoal cartridges, and flow rate determinations were observed at air sampling stations 4, 26, and 47. The placement and condition of TLDs were evaluated at monitoring locations 3, 4, 16, 49, and 56. Using global positioning system equipment, the inspectors independently evaluated selected TLD locations. Proficiency and

knowledge of technicians collecting the samples and the adequacy of collection techniques were assessed.

Program guidance, procedural implementation, and environmental monitoring results were reviewed against TS; 10 CFR Parts 20 and Appendix I to 10 CFR Part 50 design criteria requirements; FSAR details; ODCM guidance; and applicable procedures listed in § 2PS3 of the Attachment to this report. Specific laboratory QC activities were evaluated against 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 Plant, June 1974; and RG 4.15, Quality Assurance for Radiological Monitoring Programs (Normal Operation) - Effluent Streams and the Environment, December 1977.

b. Findings

Introduction

Green. An NCV of TS 6.8.1 was identified for inadequate implementation of REMP continuous airborne monitoring activities as required by the Offsite Dose Calculation Manual (ODCM), Table 3.12-1.

Description

During review of NCRs documented by the HEEC staff between June 1, 2001, and June 17, 2002, the inspectors noted more than 19 occurrences of inoperable pumps associated with the REMP airborne sampling equipment at six locations specified by the ODCM. Causes of the malfunctions indicated blown fuses and mechanical degradation of pumps. Subsequently, for the six operating REMP airborne sampling stations, the inspectors requested the licensee to determine operating flow rates and vendor specified charcoal cartridge collection efficiencies, and to calculate the availability of airborne monitoring station equipment since January 1, 2000. For the collected data, the inspectors reviewed and evaluated pump calibrations, operational procedure guidance, and flow rate data; assessed pump and charcoal filter operating characteristics relative to vendor specifications and operating recommendations; and determined the annual air sampling station availability based on individual and all airborne sampling stations from January 1, 2000 through June 30, 2002. The inspectors determined that for the period reviewed, the pumps were calibrated properly; however, the licensee incorrectly assumed 100 percent charcoal cartridge iodine collection efficiency for pump flow rates which varied between 1.70 and 3.07 standard cubic feet per minute (SCFM). Vendor specifications indicated charcoal cartridge iodine collection efficiencies between 92 and 97 percent for the observed flow rates.

The inspectors also noted a significant decrease in REMP airborne monitoring station availability for the period reviewed. Calculated annual availability for all REMP airborne monitoring stations collectively ranged from 100 percent in CY 2000 to 96 percent between January 1, 2002, through June 30, 2002. The inspectors noted that based on six monitoring stations, the 96 percent availability represented approximately 43 days out of 1045 operational days that continuous airborne sampling stations were out of service during the first half of CY 2002. For analyses based on each individual REMP

airborne monitoring station, the calculated minimum availability was approximately 91 percent for equipment at location Number (No.) 1, i.e., inoperable for approximately 10 of 119 days between July 16, 2001, through November 12, 2001. The minimal availability value was identified for a shorter evaluation period associated with a non-routine pump change-out at location No. 4, i.e., 78 percent availability indicating the equipment to be out of service for approximately 8 out of 35 days between December 10, 2001, and January 14, 2002. The inspectors noted that the identified issues indicated that the REMP airborne sampling stations exceeded expected out-of-service conditions based on routine maintenance requirements and activities.

Analysis

The inspectors noted that improper assumption of 100 percent iodine collection efficiencies and reduced availability of the REMP airborne samplers affected programs and equipment used to corroborate effluent releases required to ensure adequate protection of public health and safety from exposure to radioactive materials released into the public domain as a result of routine civilian reactor operations. This finding was evaluated using the Public Radiation SDP and determined to be of very low safety significance because it involved the failure to meet a regulatory requirement but did not significantly affect assessment of airborne effluent releases. Specifically, between January 1, 2001, and June 30, 2002, licensee's onsite effluent monitoring systems were operable, and operating histories and effluent release data did not identify any actual operating events which required corroborating environmental monitoring data .

Enforcement

TS 6.8.1 requires written procedures to be established, implemented, and maintained covering the Offsite Dose Calculation Manual Implementation. The licensee's ODCM Table 3.12-1 requires continuous airborne particulate and iodine sampling to be conducted at specified locations in the environs outside the plant. Contrary to the above, from January 1, 2002, through June 30, 2002, the licensee failed to properly implement their REMP continuous airborne sampling activities in that iodine collection efficiencies were incorrectly assumed to be 100 percent. Further, the operational availability of selected continuous airborne sampling equipment was reduced between January 1, 2001, and June 30, 2002. This finding is entered into the licensee's corrective action program as NCR 63233. These issues are identified as a violation of TS 6.8.1. This violation is being treated as a non-cited violation, consistent with Section VI.A.1 of the NRC Enforcement Policy, and is identified as NCV 50-400/02-04-03, Failure to properly implement the REMP airborne monitoring program in accordance with the ODCM requirements.

.2 Meteorological Monitoring Program

a. Inspection Scope

Licensee program activities to assure accuracy and availability of meteorological data were evaluated. The inspectors reviewed and evaluated data associated with Replacement of the Meteorological Tower equipment documented in Work Order Package, 00089376 01, completed August 9, 2001. On July 9-11, the inspectors toured

meteorological facilities and assessed equipment material condition, observed conduct of a quarterly general inspection performance test, and reviewed instrument operability and current meteorological data accuracy within the Control Room. In addition, the inspectors compared the most recent meteorological monitoring data against licensee assumptions used for effluent releases and assessments.

The meteorological program implementation and activities were reviewed against 10 CFR Part 20, TS, FSAR §2.3.3, ODCM, and applicable procedures documented in the attachment to this report.

b. Findings

No findings of significance were identified.

.3 Unrestricted Release of Materials from the Radiologically Controlled Area (RCA)

a. Inspection Scope

Radiation protection program activities associated with the unconditional release of materials from the RCA were reviewed and evaluated. During the week of July 8, 2002, the inspectors directly observed surveys of potentially contaminated materials released from the RCA using the Small Article Monitor (SAM)-9 equipment. In addition, SAM-9 equipment sensitivity was assessed using a low level radioactive source, i.e. activity approximately 5000 disintegrations per minute. To evaluate the appropriateness and accuracy of release survey instrumentation, radionuclides identified within recent waste stream analyses were compared against current calibration and performance check source radionuclide types. Current calibration and performance check data were reviewed and discussed. In addition, licensee guidance to evaluate survey requirements for hard-to-detect radionuclides were reviewed and discussed.

The licensee practices and implementation of monitoring for unconditional release of materials from the RCA were evaluated against 10 CFR Part 20, TS, FSAR §12, and applicable procedures. The applicable licensee guidance, calibration records, and performance data are documented in the attachment to this report.

b. Findings

No findings of significance were identified.

.4 Problem Identification and Resolution

a. Inspection Scope

Licensee NCRs associated with REMP operations and with program activities associated with unrestricted release of materials from the RCA were reviewed and evaluated. Specific NCRs reviewed and evaluated in detail are identified in the attachment to this report. The inspectors assessed the licensee's ability to identify, characterize, prioritize, and resolve the identified issues.

b. Findings

No findings of significance were identified.

3. SAFEGUARDS

Cornerstone: Physical Protection

3PP3 Response to Contingency Events

The Office of Homeland Security (OHS) developed a Homeland Security Advisory System (HSAS) to disseminate information regarding the risk of terrorist attacks. The HSAS implements five color-coded threat conditions with a description of corresponding actions at each level. NRC Regulatory Information Summary (RIS) 2002-12a, dated August 19, 2002, "NRC Threat Advisory and Protective Measures System," discusses the HSAS and provides additional information on protective measures to licensees.

a. Inspection Scope

On September 10, 2002, the NRC issued a Safeguards Advisory to reactor licensees to implement the protective measures described in RIS 2002-12a in response to the Federal government declaration of threat level "orange." Subsequently, on September 24, 2002, the OHS downgraded the national security threat condition to “yellow” and a corresponding reduction in the risk of a terrorist threat.

The inspectors interviewed licensee personnel and security staff, observed the conduct of security operations, and assessed licensee implementation of the threat level “orange” protective measures. Inspection results were communicated to the region and headquarters security staff for further evaluation.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification

.1 Mitigating Systems Cornerstone Performance Indicator Verification

a. Inspection Scope

The inspectors verified the Performance Indicators listed in the table below to determine their accuracy and completeness against requirements in Nuclear Energy Institute (NEI) 99-02, Regulatory Assessment Performance Indicator Guideline, Revision 2.

Cornerstone: Mitigating Systems		
Performance Indicator	*Verification Period*	*Records Reviewed*
Safety System Unavailability, Emergency AC Power	3rd quarter 2001 through 2nd quarter 2002	• Maintenance Rule event logs • Control room logs
Safety System Unavailability, High Pressure Safety Injection	4th quarter 2000 through 2nd quarter 2002	• Maintenance Rule event logs • Control room logs • System engineer logs
Safety System Functional Failures	3rd quarter 2001 through 2nd quarter 2002	LERs

b. Findings

No findings of significance were identified.

.2 Occupational Radiation Safety Performance Indicator Verification

a. Inspection Scope

The Occupational Exposure Control Effectiveness performance indicator (PI) results for the Occupational Radiation Safety Cornerstone were reviewed for the period October 1, 2001, through June 30, 2002, against the requirements of NEI Guideline 99-02, Revision 2. For the review period, the inspectors reviewed data reported to the NRC, and subsequently sampled and evaluated applicable corrective action program records and selected Health Physics Program records. The reviewed records included selected health physics shift logs, contamination occurrence logs and assessments, internal exposure evaluations, and personnel exposure investigation reports. In addition, the NCRs listed in the attachment to this report were reviewed and evaluated.

b. Findings

No findings of significance were identified.

.3 Public Radiation Safety Performance Indicator Verification

a. Inspection Scope

The inspectors reviewed and discussed the Radiological Control Effluent Release Occurrence PI indicator results for the Public Radiation Safety Cornerstone from October 01, 2001, through June 30, 2002, against the requirements of NEI Guideline 99-02, Revision 2. For the review period, the inspectors reviewed data reported to the

NRC and evaluated selected radiological liquid and gaseous liquid and gaseous effluent release data, out-of-service process radiation monitor and compensatory sampling data, abnormal release results, and NCRs documented in the Attachment to this report.

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems

a. Inspection Scope

The inspectors performed an in-depth review of AR 44974 which described the inadequate acceptance testing for modification 97-0547, which replaced the essential services chilled water non-essential header isolation valve actuators. The licensee classified this issue as a Significant Adverse Condition. This issue affected the Mitigation Systems cornerstone.

During this review, the inspectors determined whether:

- identification of the problem was complete and accurate;
- the problem was identified in a timely manner;
- the licensee properly classified and prioritized resolution;
- the licensee evaluated and dispositioned operability and reportability issues;
- the licensee considered extent of condition, generic implications, common causes, and previous occurrences; and
- corrective actions were completed in a timely manner.

b. Findings

No findings of significance were identified.

4OA3 Event Follow-up

a. Inspection Scope

The inspectors reviewed the licensee's actions associated with the manual reactor trip that occurred on July 13. The manual trip was required because of a component failure in the digital electro-hydraulic control system for the main turbine. The inspectors observed plant parameters for mitigating systems and fission product barriers, evaluated performance of systems and operators, and confirmed proper classification and reporting of the event.

The inspectors reviewed the licensee's actions associated with an automatic reactor trip that occurred on August 15. The trip was caused by a grid disturbance that lowered voltage by 40% for greater than 500 milliseconds, which caused the reactor to trip on reactor coolant pump bus under-voltage. The inspectors observed plant parameters for mitigating systems and fission product barriers, evaluated performance of systems and operators, and confirmed proper classification and reporting of the event.

b. Findings

No findings of significance were identified.

4OA5 Other Activities

The Inspectors reviewed the field notes for the Institute of Nuclear Power Operations (INPO) evaluation completed in March 2002.

4OA6 Meetings, Including Exit

Exit Meeting Summary

The inspectors presented the inspection results to Mr. J. Scarola, Site Vice President, and other members of licensee management at the conclusion of the inspection on September 30.

The inspectors asked the licensee whether any of the material examined during the inspection should be considered proprietary. No proprietary information was identified.

4OA7 Licensee Identified Violations

The following violation of very low safety significance (Green) was identified by the licensee and is a violation of NRC requirements which meets the criteria of Section VI of the NRC Enforcement Policy, NUREG-1600, for being dispositioned as a non-cited violation (NCV).

10 CFR 50.65 (a)(2) requires, in part, that monitoring as specified in (a)(1) is not required where it has been demonstrated that the performance or condition of a Structure, System or Component (SSC) is being effectively controlled through the performance of appropriate preventive maintenance, such that the SSC remains capable of performing its intended function. As described in the licensee's AR 60144, functional failures in the RHR system and the pressurizer Power Operated Relief Valves (PORVs) were not identified and thus not considered in the demonstration for these SSCs. Monitoring and goal setting required as a result of these functional failures was not being accomplished. Since this licensee identified violation deals with maintenance rule documentation and performance monitoring, it is of very low safety significance, and is being treated as a non-cited violation.

SUPPLEMENTARY INFORMATION

A. Key Points of Contact

Licensee Personnel

D. Alexander, Nuclear Assessment Manager
A. Khanpour, Harris Engineering Support Services Manager
J. Briggs, HNP, Superintendent, Environmental and Chemistry
J. Caves, Licensing Supervisor
F. Diya, System Engineering Superintendent
R. Duncan, Director Site Operations
T. Hobbs, Operations Manager
J. Holt, Site Support Services Manager
J. Laque, Maintenance Manager
M. Munroe, Training Manager
T. Natale, Outage and Scheduling Manager
T. Pilo, Emergency Preparedness Supervisor
J. Scarola, Harris Plant Vice President
G. Simmons, Superintendent, Radiation Protection
B. Waldrep, Harris Plant General Manager

NRC Personnel

B. Bonser, Chief, Reactor Projects Branch 4
M. Shannon, Acting Chief, Reactor Projects Branch 4

B. Items Opened, Closed, and Discussed

Opened & Closed

50-400/02-04-01	NCV	Failure to identify that the RWST level transmitters were susceptible to flooding. (Section 1R06)
50-400/02-04-02	NCV	Failure to properly implement calibration procedures used to ensure accurate radionuclide analyses of airborne effluent particulate samples in accordance with ODCM requirements. (Section 2PS1)

50-400/02-04-03	NCV	Failure to properly implement the REMP airborne monitoring program in accordance with the ODCM requirements. (Section 2PS3)

C. List of Documents Reviewed

Section 1R12

Procedures, Instructions, Lesson Plans, and Manuals

- Procedure ADM-NGGC-0101, Maintenance Rule Program, Revision 13
- Procedure CAP-NGGC-0201, Self-Assessment Program, Revision 5
- Harris Nuclear Plant Maintenance Rule Cycle 10, Periodic (a)(3) Assessment, dated May 28, 2002

Action Requests (ARs) associated with equipment problems including: a sample of completed corrective actions, root cause determinations, (a)(1) determinations, goal setting and status, and industry operating experience:

- AR 51755, Failure of RHR Valve 1RH-31 to Close
- AR 50708, Failure of Pressurizer PORVs to Open
- AR 60144, Failure to Properly Classify Maintenance Rule Functional Failures
- AR 60145, Inconsistent Capturing and Logging Maintenance Rule Unavailability
- AR 60146-02, Lack of Progress on Cable Baseline Inspections
- AR 60150, Inconsistent Logging of Unavailability Events in Autolog
- AR 61057-01, Failure of PORV Performance Monitoring Group to Meet Maintenance
- Rule Performance Criteria
- AR 49404, Foreign Material in RHR Pump Suction
- AR 23401, Failure of Valve 1AF-50 to Indicate Fully Open During Monthly Test
- AR 26203, Failure of Main Steam Pressure Loop P-0486 to Function Properly During
- Test
- AR 47526, Electrolytic Capacitors in TDAFW & EDG Governors
- AR 60543, Maintenance Rule Performance Criteria Exceeded for System 5165-PMG
- Bus 1E (See AR 56307)
- AR 67657, Breaker 1A-SA-5:010/6.9KV Would Not Close in Test Position
- AR 55091, WC-3 Chiller Motor Tripped
- AR 57403, Breaker Failure for WC-3 Chiller Motor
- AR 60104, AFW Flow Indicator Failure
- AR 68987, A Maintenance Rule Functional Failure for Valve 1SW-1430 was not Identified
- AR 50531-02, Potential Blockage of Service Water Flow to A CSIP Oil Cooler
- AR 23414, EDG Non-Functional Time not Recorded in Autolog

- AR 25841, A ESW Main RSVR Traveling Screen Tripped
- AR 54450, A ESCW Chiller Inoperable Due 1SW-1055 Failure to Modulate
- AR 45316-02, Failure of Coupling on ESW Train B Traveling Screens
- AR 48376, RHR Valve 1RH-39 Failed to Stroke
- AR 51894, MOC Switch Contacts 5and 6 not Changing States for RHR Pump 1A

Industry Operating Experience

- AR 52530, Unable to Establish Required Pressure for VT-2 Inspection for RHR
- AR 50502, 10 CFR Part 21 - Terry Turbine Trip & Throttle Valve Screw Spindle
- AR 51360, Fisher IN 2001-01, Potential Part 21 Type 657, 667 Actuators
- Ar 52239, NSAL 01-08, Reduced ECCS Flow Due to RHR Mini-Flow Valve Opening

- AR 55806, SEN 230 Pressurizer Valve Failure Results in Scram and Safety Injection
- AR 57168-3, MDAFWP Air Binding Due to Blockage
- AR 54971, Operated Valve Leakage
- AR 52247, OE12922 Emergency Diesel Generator Lube Oil Coupling Separation
- AR 57093, OE13391 Oxide on Contacts Results in Rod Control Failure Alarm

Expert Panel Meeting Minutes for Meeting Nos. 00-08, 01-05, 01-08, and 02-14

Expert Panel Presentation for Reclassification for (a)(2) to (a)(1) for Pressurizer PORV PMG

Maintenance Rule (a)(1) List

HNP Periodic System Review Reports

- Auxiliary Feedwater System - June 27, 2002
- 6.9KV AC Distribution System - May 5, 2002
- Emergency Service Water - April 1, 2002
- Residual Heat Removal - June 20, 2002

Maintenance Rule Event Log Reports - 4/1/01 to Present

- Auxiliary Feedwater System
- Emergency Service Water System
- Residual Heat Removal System

Maintenance Rule Scoping and Performance Criteria for ESW System

Work Requests (WRs)/Work Orders(WOs)

- WO 268746 01, Inboard Seal Locking Problem on AFW Pump 1AF-E005
- WO 147159 01, Breaker 1-4A-11 Charging Springs Did Not Charge as Expected
- WO 191092 01, SYNC Selector Switch Stuck In Breaker Position 122
- WR 14590301, Inspect Wiring for Damage
- WO 187969 01, Blockage of Service Water Flow to A CSIP Oil Cooler
- WR 1159701, Pressure Switch Caused ESW Strainer to Continually Back-Flush
- WO 174314 01, ESW Flow Blocked to DG Jacket Water at Valve 1SW-1407

- WO 115976 01, Switch PDS-9101A Caused ESW Strainer to Cycle
- WO 089282 01, Temperature Indication Switch for ESW to Containment Fan Cooler Would not Calibrate
- WO 178688 01, Valve 1RH-39 Would not Open When MCB Switch Taken to Open
- WO 184621 01, Valve ISI-329 failed its Set Pressure Test
- WO 194385 01, Failure of RHR Valve 1RH-31 to Close
- WO 195565 01, RHR Pump 1A-SA Running with the Pump Secured

Section 20S1

Procedures, Instructions, Lesson Plans, and Manuals

- Administrative Procedure (AP) -504, Administrative Controls for Locked and Very High Radiation Areas, Revision (Rev.) 19
- AP-545, Containment Entries, Rev. 22
- Nuclear Generation Group Standard Procedure, (HPS-NGGC)-0003, Radiological Posting, Labeling, and Surveys, Rev. 6
- Nuclear Generation Group Standard Procedure, (DOS-NGGC)-0005, Skin Dose From Contamination, Rev. 6
- Nuclear Generation Group Standard Procedure, (HPS-NGGC)-0008, Performing Work In Radiation Control Areas, Rev. 02
- Plant Program Procedure (PLP) - 511, Radiation Control and Protection Program, Rev. 17
- Health Physics Procedure (HPP) - 401, Operation of the Merlin Gerin Bartlett Remote Monitoring System, Rev. 5
- Health Physics Procedure (HPP) - 600, Preparation of Radiation Work Permits, Rev. 15
- HPP- 625, Performance of Radiological Surveys, Rev. 17
- HPP-800, Handling Radioactive Material, Rev. 34

Radiation Work Permits (RWPs)

- RWP-00000301 02, ALARA Task 00193853, Routine Health Physics Activities, Decon Room Perform Maintenance on Hoist, entry on 01/07/02
- RWP-00000301 02, ALARA Task 00193853, Routine Health Physics Activities, Inspect FP- 425 in Reactor Auxiliary Building (RAB) North Equipment Drain Transfer Tank Room, 190 foot (‘) elevation, entry on 02/12/02
- RWP-00000303 00, ALARA Task 00186425, Operations Activities, Inspect FP-425 in Filter Back Wash Transfer Tank Pump Valve Galley, RAB 236‘ elevation, entry on 02/20/02
- RWP-00000321 00, ALARA Task 00186474, High Activity Radioactive Material Shipping, Load 14-215 Cask, Waste Processing Building (WPB) 261' elevation, entry on 02/19/02
- RWP-00000313 00, ALARA Task 00186450, Filter Changes on Contaminated Systems, Operations Activities, WPB 236', entry on 05/09/02

Records and Data

- Health Physics Day/Night Shift Turnover Logs, June 1, 2002, through July 8, 2002
- High Radiation Area and Locked High Radiation Area Entries from January 1, 2002, through June 12, 2002
- Personnel Exposure Investigation Data Sheets documented from October 1, 2001, through June 12, 2002
- Initial Intake Assessment Data Sheets documented from October 1, 2001, through June 12, 2002
- Reactor Auxiliary Building Primary Sample Sink 'A' and 'B' Alpha Surveys, 06/25/2002

Corrective Action Program (CAP)/Nuclear Condition Report (NCR) Documents

- NCR-00049850, Inadequate Neutron Estimates Provided, 10/13/01
- NCR-00050394, Pipe End Decon Airborne Contamination, 10/23/01
- NCR-00051149, High Radiation Sign Out of Place, 11/08/01
  NCR-00051052, Unlocked Door Found in HP Survey Required Upon Entry, 11/06/01
- NCR-00051559, Review of Personnel Exposure Investigations, 11/17/01
- NCR-00052138, Missing LHRA Lights, 12/01/01
- NCR-00054547, TLD Discrepancy in Total Exposure, 01/23/02

Section 20S3

Procedures, Standing Orders, Guidance Documents

- Environmental & Radiation Control (ERC) Management Manual (ERC) -114, Control of Radiation Protection Instruments and Equipment, Rev. 5
- Nuclear Generation Group Standard Procedure, (HPS-NGGC)-0005, Calibration of Portable Radiation/Contamination/Air Sampling Survey Instruments, Rev. 02
- AP-512, Use of Respiratory Protection Equipment, Rev. 22
- HPP-630, Respiratory Protection, Rev. 16
- HPP-631, Certification and Operation of Breathing Air Supplies, Rev. 13
- HPS-NGGC-0005, Calibration of Portable Radiation/Contamination/Air Sampling Survey Instruments, Rev. 2
- DOS-NGGC-0020, Whole Body Counter (WBC) System Calibration, Rev. 6
- DOS-NGGC-0021, Whole Body Counter (WBC) System Operation, Rev. 10
- Chemistry and Radiochemistry Procedure (CRC) - 821, Post Accident RCS/RHR Sampling, Rev.25
- CRC -823, Post Accident Containment Air Sampling, Rev.10
- CRC -830, Periodic Maintenance and Operability Verification of the PASS, Rev.12
- Survey Instrument Calibration (SIC) 705, Calibration of Radiation/Contamination Survey Instruments, Rev. 10
- SIC-710, Calibration of Semi-Portable Radiation Detection Equipment, Rev. 3
- Maintenance Surveillance Test (MST) I0401, Containment High Range Accident Monitor RM-01CR-3589SA Calibration, Rev. 7
- MST I0403, Containment High Range Accident Monitor, RM-01CR-3590SB Calibration, Rev. 7
- Standing Order 02-01, Emergency Response, Rev 0

Records, Worksheets, and Drawings

- Whole Body Counter (WBC) Calibration Records, 11/14/2001
- WBC ICRP-30, Inhalation Nuclide Library, as 06/18/02
- Respiratory Equipment Inspection Record Data Sheets, May - June 2002
- Eagle Air Supply System, Grade D Air Sample Results, 01/30/02
- Annual Calibration Records, IPM-7/8 Equipment, Serial Number (S/N)137 conducted 05/15/02; and S/N 214 conducted 06/13/02
- Individual Personnel Monitor (IPM) S/N 137 and 214, Monthly Whole Body Contamination Monitor/Portal Monitor Monthly Checks for July 2002
- Emergency Response Organization Respiratory Qualification Data, as of July 8, 2002

NCR Documents

- NCR-00052141, Air Sample Counting Instrument Not Source Checked, 12/01/01
- NCR-00052636, Calibration Invalidated by Unauthorized Adjustment, 12/02/01
- NCR-00055093, PQD Database in PASSPORT Not Maintained Accurate, 02/03/02
- NCR-00055992, Instrument Source Check Failure, 02/19/02
- NCR-00056433, PASSPORT (PQD) Work-Around, 02/26/02
- NCR-00060201, Respirator Issuance, 05/02/02
- NCR-00065387, Respiratory Protection Spectacles, 07/10/02
- NCR-00065407, Tech Note on WBC Capabilities and Interpretation of Results, 07/10/02
- NCR-00065420, Documentation of Quarterly Operational Test for SCBAs

Section 2PS1

Procedures, Guidance Documents, and Operating Manuals

- PIC-I915, Condensate Vacuum Pump Effluent Treatment System Radiation Monitor (REM-01TV-3534) Calibration, Rev. 7
- MST-I0339, Turbine Building Vent Stack Accident Monitor (RM-01TV-3536-1) Calibration, Rev. 10
- MST-I0376, Plant Vent Stack Accident Monitor (RM-21AV-3509-1SA) Calibration, Rev. 12
- MST-I0343, Waste Processing Building Stack 5 Radiation Monitor (REM-1WV-3546) Calibration, Rev. 7
- Operations Surveillance Test (OST)-2037, Waste Processing Building Vent Stack 5 Accident Monitoring Instrumentation Channel Check, Rev. 9
- OST-2044, Radwaste Daily Operations Surveillance Test Modes: At All Times, Rev. 18
- OST-1021, Daily Surveillance Requirements Daily Interval Mode 1, 2, Rev. 43
- OST-2020, Waste Processing Building Vent Stack 5 Noble Gas Activity Monitor Source Check Monthly Interval Mode: At All Times, Rev. 9
- RCP-742, Operation Of The Packard Model 2100 TR Liquid Scintillation System, Rev. 3
- CRC-290, Radiological Sample Compositing, Rev. 8
- RCP-660, Sample Preparation For The Determination Of Radioactivity, Rev. 13
- RCP-703, Calibration and Quality Control Set-Up Of The Genie Gamma Spectroscopy System, Rev. 7

- RCP-704, Operation of The Genie Gamma Spectroscopy System, Rev. 2
- Counting Room QC Data, 06/14/02
- Shearon Harris Nuclear Power Plant Offsite Dose Calculation Manual Revision 15, 7/15/02

Effluent Monitoring Program Records and Effluent Release Permits Reviewed

- Radiation Monitoring Maintenance Rule Event Log Report Data, June 01, 2000 through May 31, 2001
- 2001 Liquid Release Volume Data, 06/14/02
- Continuous Gaseous Effluent Permit 20110, 06/11/02
- Continuous Gaseous Effluent Release Permit 20109, 06/19/02
- Continuous Gaseous Effluent Release Permit 20102, 06/04/02
- Batch Gaseous Effluent Release Permit 20033, 02/11/02
- Batch Liquid Effluent Permit 10080, 12/30/01

Corrective Action Program Documents

- NCR-00061833, Incorrect Half Life Values in ODCM Table 2.1-4, 06/04/02
- NCR-00052152, Liquid Volume Effluent Goal, 12/02/01
- NCR-00051865, High Particulate Release From Equipment Hatch, 11/27/01

Annual Reports

- Shearon Harris 2001 Annual Radioactive Effluent Release Report HNP-02-060, April 23, 2002

Section 2PS3

Procedures, Guidance Documents

- Shearon Harris Nuclear Power Plant (SHNPP) Off-Site Dose Calculation Manual, Rev. 14, 11/14/2001
- Nuclear Generation Group Standard Procedure ENV-NGGC-001, Operation and Calibration of HNP Environmental Air Samplers, Rev. 1.
- EVC-NGGC-0001, Operation and Calibration of HNP Environmental Air Samplers, Rev. 2
- Nuclear Generation Group Standard Procedure ENV-NGGC-002, Operation of the HNP Portable Water Samplers, Rev. 0.
- Nuclear Generation Group Standard Procedure ENV-NGGC-003, Radiological Environmental Monitoring Program for HNP, Rev. 0.
- Nuclear Generation Group Standard Procedure ENV-NGGC-009, Determination of Tritium Activity in Aqueous or Solid Samples, Rev. 1.
- Nuclear Generation Group Standard Procedure ENV-NGGC-0011, Determination of Radiodine in Milk, Water, and Charcoal, Rev. 0

Records

- Air Sampler Notes, September 01, 2001 through June 12, 2002.
- Calibration Record Data conducted 06/04/02 for the following Air Sampler Numbers (Nos.) 2230, 2225, 2231, 2229, 2233,2232, 2234, 2226,
- Harris Energy and Environmental Center (HEEC) Environmental Cross Check Program Results, Quarters 1 through 4, Calender Year 2001.
- Quality control (QC) data for the following HEEC analytical instrumentation:
  - Gamma Analysis System Detectors 1, 2, 5, 6 including May 1, 2002, through June 19, 2002, background data, selected energy performance check results, and peak resolution values
  - Tennelec Alpha/Beta Counting System Serial Number (S/N) 35869 QC May1, 2002, through June 11, 2002, Daily reliability alpha and beta source and background check data and graphs
  - Liquid Scintillation Counting System S/N 428 and S/N 404281 QC May1, 2002, through June 11, 2002, monthly tritium efficiency data and daily background check data and graphs
- Annual Calibration Records, Small Article Monitor (SAM)-9 Equipment, S/N154 conducted 08/23/01; and S/N143 conducted 08/29/01; and Automatic Waste Monitor (AWM) S/N 23/108 conducted 01/04/02.
- Engineering Service Request 00-00372, Replace Meteorological Tower Process Computer conducted under Work Order 89376-01
- Radiation Control Technical Report, Release of Personnel and Materials from Radiation Control Areas, Rev. 0

NCR Documents

- NCR-00050347, Contamination Alarm at Security Exit Monitors, 10/23/01
- NCR-00055028, Untagged Radioactive Material, 02/01/2002
- NCR-00058435, Improper Release of Tools from the RCA, dated 03/27/2002
- NCR-00065496, Enhancement to HNP REMP, dated 07/10/2002

Audits and Self-Assessments

- Self-assessment of the HNP REMP Implementation by the Harris Environmental Energy Center, Conducted April 8-10, 2002.

Annual Reports

- Shearon Harris Nuclear Power Plant, Annual Radiological Environmental Operating Report for 2001, submitted 04/30/2002
- Shearon Harris Nuclear Station Effluent Release Data, January 1, 2000 through December 31, 2000

Section 40A1

Records

- Control Room Operation Logs - December 2001 and May 2002
- Process Radiation Monitor Work Requests and - December 2001 and May 2002
- Radiation Monitor LCO Action Logs - December 2001 and May 2002

Corrective Action Program Documents

- Nuclear Condition Report 00050915, Worker did not Hear EPD Alarm or Crowcon ALARM in B Steam Generator, 11/04/01
- NCR-0051932, AP-504 LHRA Paperwork Not Completed for Dive, 11/27/01.
- NCR-0052623, High Radiation Area Swing Gate Tied Open, 12/12/01
- NCR- 00056248, Out of Calibration DRDs, 02/22/02
- NCR-00049011, Worker Exceeded Cumulative Exposure on RWP, 10/02/01

D. Acronyms

AFW	Auxiliary Feedwater
AIAs	Action Item Assignments
AOP	Abnormal Operating Procedure
ARs	Action Requests
ARM	Area Radiation Monitor
CAM	Continuous Air Monitor
CAP	Corrective Action Program
CY	Calendar Year
DRP	Discrete Radioactive Particle
EAD	Electronic Alarming Dosimetry
EOP	Emergency Operating Procedures
ESFAS	Engineered Safety Feature Actuation System
ESW	Emergency Service Water
FSAR	Final Safety Analysis Report
HEEC	Harris Energy and Environmental Center
HPT	Health Physics Technician
HSAS	Homeland Security Advisory System
INPO	Institute of Nuclear Power Operations
IPM	Individual Personnel Monitor
KV	Kilovolt
LHRA	Locked-high Radiation Area
LHSI	Low Head Safety Injection
LLD	Lower Limit of Detection
ODCM	Offsite Dose Calculation Manual
OHS	Office of Homeland Security
NCR	Nuclear Condition Report
NCV	Non-cited Violation
NEI	Nuclear Energy Institute
NRC	Nuclear Regulatory Commission

PARS	Publicly Available Records
PASS	Post Accident Sampling System
PI	Performance Indicator
PORV	Power Operated Relief Valve
QC	Quality Control
RAB	Reactor Auxiliary Building
RCA	Radiologically Controlled Area
RCP	Radiation and Chemistry Procedure
RHR	Residual Heat Removal
RIS	Regulatory Information Summary
RWP	Radiation Work Permit
RWST	Refueling Water Storage Tank
SCBA	Self Contained Breathing Apparatus
SCFM	Standard Cubic Feet per Minute
SDP	Significance Determination Process
SSC	Structures System or Component
TS	Technical Specification
WBC	Whole Body Counting
WPB	Waste Processing Building