UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
SAM NUNN ATLANTA FEDERAL CENTER
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ATLANTA, GEORGIA 30303-8931

February 13, 2003

Florida Power and Light Company
ATTN: Mr. J. A. Stall, Senior Vice President
Nuclear and Chief Nuclear Officer
P. O. Box 14000
Juno Beach, FL 33408-0420

SUBJECT: ST. LUCIE NUCLEAR PLANT - NRC INSPECTION REPORT 50-335/03-10 AND 50-389/03-10

Dear Mr. Stall:

On February 10, 2003, the U. S. Nuclear Regulatory Commission (NRC) completed an inspection at your St. Lucie Units 1 and 2. The enclosed report documents the inspection findings which were discussed on December 6, 2002, and on February 10, 2003, with Mr. Don Jernigan 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.

Within the scope of the inspection, the report documents five findings of very low safety significance (Green), including NRC-identified and self-revealing examples, which were also determined to be violations of NRC requirements. However, because of the very low safety significance and because they are entered into your corrective action program, the NRC is treating these five findings as non-cited violations (NCVs) consistent with Section VI.A.1 of the NRC Enforcement Policy. Additionally, licensee identified violations are listed in Section 4OA7 of this report. If you contest any NCV in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, D.C. 20555-0001; with copies to the Regional Administrator Region II; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555-0001; and the NRC Resident Inspector at the St. Lucie 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) component 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).

Should you have any questions concerning this letter, please contact us.

Sincerely,

/RA/

Anne T. Boland, Chief
Plant Support Branch
Division of Reactor Safety

Docket Nos. 50-335, 50-389
License Nos. DPR-67, NPF-16

Enclosure: NRC Inspection Report
50-335/03-10, 50-389/03-10

cc w/encl: See Page 3

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U.S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket Nos.:	50-335; 50-389
License Nos.:	DPR-67, NPF-16
Report No.:	50-335/03-10, 50-389/03-10
Licensee:	Florida Power & Light Company (FP&L)
Facility:	St. Lucie Nuclear Plant, Units 1 & 2
Location:	6351 South Ocean Drive Jensen Beach, FL 34957
Dates:	December 2, 2002 - February 10, 2003
Inspectors:	George B. Kuzo, Team Leader (Sections 2OS1, 2PS3, 4OA1) Donald B. Forbes, Health Physicist (Section 2PS1) Adam D. Nielsen, Health Physicist (Section 2OS3)
Approved by:	Anne T. Boland, Chief Plant Support Branch Division of Reactor Safety

Enclosure

SUMMARY OF FINDINGS

IR 05000335/2003-10, 05000389/2003-10; Florida Power and Light Company; 12/02/2002-02/10/2003; St. Lucie Plant, Units 1 & 2; Access to Radiologically Significant Areas, Radiation Monitoring Instrumentation and Protective Equipment, and Radiological Environmental Monitoring Program and Radioactive Material Control Program.

This announced inspection was conducted by three region based inspectors. Five Green non-cited violations (NCVs) were identified. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using IMC 609 "Significance Determination Process" (SDP). Findings for which the SDP does not apply may be Green or be assigned a severity level after the NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 3, dated July 2000.

A. Inspector-Identified and Self-Revealing Findings

Cornerstone: Occupational Radiation Safety

- Green. The licensee failed to follow radiation protection procedures for access controls associated with radiologically significant areas. The failure to follow Radiation Work Permit (RWP) and procedural requirements resulted in workers inappropriately accessing high radiation area (HRA) locations not permitted by their RWP details and in workers entering an airborne radioactive material area without monitoring stay-times used for Derived Air Concentration-hour (DAC-hr.) tracking or revising RWPs.

  A non-cited violation (NCV) of Technical Specification (TS) Sections 6.11 and 6.12, with one NRC-identified and two self-revealing examples, was identified. Each of these examples is greater than minor in that the failure to follow procedures which resulted in workers inappropriately accessing HRAs and airborne areas was associated with the program and process attributes of the Occupational Radiation Safety Cornerstone and affected the cornerstone objective to protect occupational workers from exposure to radiation. Each example is of very low safety significance because all individuals were monitored for exposures from external radiation fields and from internally deposited radionuclides, as appropriate; and no individuals exceeded either internal or external exposure limits. (Section 2OS1.1).

- Green. The licensee failed to follow radiation protection procedures for conducting surveys of personnel. Specifically, the licensee failed to survey the work area directly through surveys or indirectly through extremity monitoring for two workers entering the Unit 1 (U1) reactor containment building (RCB) lower cavity and failed to conduct discrete radioactive particle (DRP) surveys at the required frequency for outage activities conducted in the U1 Refueling Pool, including incore instrumentation (ICI) change-out.

  An NCV of TS Section 6.11, with an NRC-identified and a self-revealing example, was identified. Each of these examples is greater than minor.

Specifically, the failure to follow procedures for radiation surveys resulted in workers entering the RCB lower cavity without the knowledge of actual radiological conditions and decreased effectiveness of DRP monitoring during tasks conducted in the refueling pool, e.g., change-out. These examples are associated with radiation protection program and process attributes of the Occupational Radiation Safety Cornerstone and affected the cornerstone objective. Each example is of very low safety significance based on retrospective reviews of the radiological conditions on the lower cavity floor and reactor head prior to decontamination and the dispersal of radioactive contamination due to hydrolasing activities. Further, exposure to radiation and radioactive material, including DRPs, was within regulatory limits for all occupational workers involved in the U1 End of Cycle 18 refueling outage (U1 EOC 18 RFO) activities. (Section 2OS1.1)

- Green. The licensee failed to follow radiation protection procedures for postings associated with radiologically significant areas which resulted in an improperly posted high radiation area at the dry storage warehouse and an airborne radioactivity area at the reactor containment building equipment hatch access.

  A self-revealing NCV of TS Sections 6.11 and 6.12, with two examples, was identified. Each of these examples is greater than minor in that the failure to follow procedures which decreased the effectiveness of radiological controls for workers entering HRAs and airborne radiation areas was associated with radiation protection program and process attributes of the Occupational Radiation Safety Cornerstone and affected the cornerstone objective. Each example is of very low safety significance because any workers who may have entered the unposted airborne radiation and HRA conditions were required to wear appropriate monitoring devices within the areas, workers exiting the radiological control area (RCA) are screened for internally deposited radionuclides, and exposures resulting from both external radiation sources and from airborne radioactivity conditions were within regulatory limits for all occupational workers involved in the U1 EOC 18 RFO activities. (Section 2OS1.1)

Cornerstone: Public Radiation Safety

- Green. The licensee failed to follow established procedures for personnel monitoring surveys which resulted in the release of radioactive material offsite.

  A self-revealing NCV of TS Section 6.11 was identified. The failure to follow procedures resulting in the inappropriate release of radioactive material offsite is associated with radiation protection program and process attributes of the Public Radiation Safety Cornerstone and affected the cornerstone objective to protect members of the public from exposure to radiation, and is therefore greater than minor. The finding is of very low safety significance because there have been

less than five occurrences of material released outside the protected area in the past two-year period and it did not involve doses to a member of the public in excess of five millirem (mrem) Total Effective Dose Equivalent (TEDE). (Section 2OS3.2)

- Green. The licensee failed to have adequate written procedures for radiological surveys of potentially contaminated material which resulted in the release of radioactive material offsite.

  A self-revealing NCV of TS Section 6.11 and 10 CFR 20.1501(a) was identified. The finding is greater than minor in that the inappropriate release of contaminated materials offsite is associated with radiation protection program and process attributes of the Public Radiation Safety Cornerstone and affected the cornerstone objective to protect members of the public from exposure to radiation. The finding is of very low safety significance because there have been less than five occurrences of material released outside the protected area in the past two-year period and it did not involve doses to a member of the public in excess of five mrem TEDE. (Section 2PS3.3)

B. Licensee-Identified Violations

Violations of very low safety significance, identified by the licensee, were reviewed by the inspectors. Corrective actions taken or planned by the licensee have been entered into the licensee's corrective action program. The violations and corrective action tracking numbers are listed in Section 4OA7 of this report.

Report Details

2. RADIATION SAFETY
Cornerstones: Occupational Radiation Safety (OS) and Public Radiation Safety (PS)

2OS1 Access Controls To Radiologically Significant Areas (71121.01)

.1 Access Controls

a. Inspection Scope

Licensee activities for controlling and monitoring worker access to radiologically significant areas and tasks were evaluated. The inspectors evaluated procedural guidance; directly observed implementation of administrative and established physical controls; and assessed resultant worker exposures to radiation and radioactive material. Radiation worker and Health Physics Technician (HPT) proficiency in implementing radiation protection (RP) activities was appraised. In addition, the inspectors evaluated the effectiveness of access controls and resultant occupational worker doses associated with performance of selected Unit 1 End-of-Cycle18 Refueling Outage (U1 EOC 18 RFO) tasks conducted in steep dose-rate gradient fields, or in areas designated for airborne radioactivity, radiation area, high radiation area (HRA), locked-high radiation area (LHRA), and very high radiation area (VHRA) conditions.

During the week of December 2, 2002, radiological controls for selected areas and work activities including a spent resin transfer were observed and discussed. The evaluations included, as applicable, Radiation Work Permit (RWP) details; use and placement of dosimetry; and electronic alarming dosimetry (EAD) set-points and use in loud ambient noise areas. The inspectors attended pre-job briefings and reviewed RWP details to assess communication of radiological control requirements to workers. Postings and controls for access to radiological control areas (RCAs) and physical controls for U1 and Unit 2 (U2) Reactor Auxiliary Building (RAB) HRA and LHRA locations were evaluated during facility tours. Use of labels and their information content were evaluated for containers of radioactive materials located within established RCA locations. The inspectors independently measured radiation dose rates or directly observed conduct of licensee radiation surveys and results for radiologically significant areas/tasks including spent resin transfer activities, U2 let-down lines, and routine surveys of the U2 Low Pressure Safety Injection Rooms. Results were compared to in-use survey records and assessed against established postings and controls. Through direct observation and interviews, occupational worker adherence to selected RWPs and HPT proficiency in performing direct radiation and contamination surveys and for identifying radiation ‘hot spots’ was evaluated. In addition, the inspectors reviewed and discussed documented external and internal exposure data for occupational workers between January 1, 2002, and December 31, 2002.

Selected condition report (CR) documents generated for radiation protection activities identified during the U1 EOC 18 RFO were reviewed and discussed with licensee representatives. The inspectors conducted detailed evaluations of access controls and resultant exposure results for personnel involved with in-core instrument (ICI) change-out; reactor head movement, decontamination, and inspection; reactor cavity clean-up;

and controls for storage of contaminated outage equipment and staging of radioactive waste. The inspectors evaluated RWP and procedural guidance and compliance; use and effectiveness of postings; and conduct and accuracy of area surveys and personnel monitoring. For workers involved in the ICI change-out and the reactor head decontamination and inspection tasks, the inspectors reviewed, as applicable, established controls and postings, worker exposures as measured by EAD, extremity dose calculations conducted for the involved workers, and discrete radioactive particle (DRP) surveys. For the airborne excursion event associated with the U1 Reactor Head decontamination, the effectiveness of administrative and physical controls, Derived Air Concentration-hour (DAC-hour) monitoring, and established postings were assessed. For workers having potential intakes of airborne radioactive particulate material, the inspectors reviewed and discussed whole-body count (WBC) analysis results, worker entries into airborne areas and monitored stay times, and evaluations for potential intakes. For confirmed intakes, dose evaluations from internally deposited radionuclides, including potential dose contributions from alpha-emitting radionuclides, were reviewed and discussed in detail.

Radiation protection activities were evaluated against Updated Final Safety Analysis Report (UFSAR) Section 12, Radiation Protection; 10 CFR 19.12; 10 CFR 20, Subparts B, C, F, G, H, and J; TS Sections 6.11, Radiation Protection Program, and 6.12, High Radiation Area Controls; and approved procedures listed in Section 2OS1 of the Attachment to this report.

b. Findings

.1 Failure to Follow Radiation Protection Procedures for Access Controls to Radiologically Significant Areas.

Introduction. A Green finding, with one NRC-identified and two self-revealing examples, was identified for the failure to follow radiation protection procedures for access controls to radiologically significant areas.

Description. Three examples involving failure to follow approved RWP and procedural requirements were identified which resulted in workers improperly accessing HRAs and airborne radioactive material areas. The identified examples included the following:

- On October 2, 2002, a Supervisor entered the Unit 1 (U1) RAB 0.5 foot (') elevation Pipe Tunnel HRA using RWP-02-509 for entry into the RCA. Upon log-out from the RCA access control network, system data indicated that the individual had received an EAD dose-rate alarm. Based on an NRC request, subsequent investigation of the EAD alarm by the licensee determined that the individual entered a posted HRA contrary to the RWP and Administrative Procedure (ADM)-5.03, Radiation Work Permits, Section 6.19, Rev. 2, which required workers to follow the instructions contained in their RWP. Further, because of elevated ambient noise in the Pipe Tunnel, the individual did not hear the EAD alarm and, thus, had not immediately exited the area as required by Health Physics Procedure (HPP)-74, Access Controls Using Alarming Dosimeters, Section 4.5, Rev. 5. The individual did not receive a cumulative

dose alarm. Licensee discussions with the subject individual indicated he had read and understood the RWP requirements and the failure to follow RWP guidance for HRA access was attributed to inattention to detail.

- On October 4, 2002, a worker improperly entered a posted HRA associated with the U1 Regenerative Heat Exchanger room. The worker was permitted to enter the room by a HPT to perform valve checks and subsequently received an EAD dose-rate alarm and exited the area. Licensee review of the event determined that the worker failed to comply with the requirements of ADM-5.03, Section 6.19, Rev. 2 in that the worker's RWP, No. 02-1002, did not allow access to HRA locations and that alarm set-points were improper for the entry.

- On October 6, 2002, at approximately 0805 hours, the failure of planned engineering controls during decontamination of the Reactor Head in the U1 Reactor Containment Building (RCB) lower cavity resulted in a measured airborne radionuclide concentration of approximately 2.2 DAC on the RCB 62' elevation. Additional U1 RCB backup air samples collected between 0830 and 1100 hours had measurable airborne concentrations exceeding 0.25 DAC. Although selected entrances the RCB 62' elevation were posted, no posting was applied to the U1 equipment hatch.

  Subsequent to identifying the airborne radioactivity area conditions, numerous licensee workers improperly entered the U1 RCB airborne radioactivity area. For those workers entering the RCB during the airborne excursion event, RWPs were not revised to address the airborne radiological conditions as required by Procedure HPP-1, Preparing Radiation Work Permits, Section 4.12, Rev. 20, and worker stay-times were not monitored in accordance Procedure HPP-63, Derived Air Concentration (DAC) -hour Assessment, Section 7.2, Rev. 3. The improper entries were attributed to confusion regarding evacuation orders for the RCB associated with the airborne excursion event, continuing Reactor Head decontamination activities, and other scheduled outage activities. The failure to follow these procedures resulted in numerous incidents of workers becoming contaminated both externally and internally, and impacted monitoring of workers exposure to airborne radionuclides.

Analysis. The inspectors determined that each of these examples was greater than minor in that the failure to follow procedures resulting in workers inappropriately accessing HRAs and airborne areas was associated with the program and process attributes of the Occupational Radiation Safety Cornerstone and affected the cornerstone objective to protect occupational workers from exposure to radiation. The finding was evaluated using the Occupational Radiation Safety Significance Determination Process (SDP). Each example was determined to be of very low safety significance because all individuals were monitored for exposures from external radiation fields and from internally deposited radionuclides, as appropriate; and no individuals exceeded either internal or external exposure limits.

Enforcement. TS Section 6.11, Radiation Protection Program, requires procedures for personnel radiation protection to be prepared consistent with the requirements of

10 CFR Part 20 and to be approved, maintained, and adhered to for all operations involving personnel radiation exposure. TS Section 6.12, High Radiation Area, provides controls for entry into high radiation areas. Contrary to the above, the licensee failed to follow licensee procedures ADM-05.03, HPP -1, HPP-63, and HPP-74 associated with access controls to areas designated for HRA and airborne radioactivity conditions. Because the failure to follow these procedures is of very low safety significance and has been entered into the corrective action program (CR Numbers 02-2336, 02-2729, and 02-2740), this violation is being treated as an Non-cited Violation (NCV), consistent with Section VI.A.1 of the NRC Enforcement Policy: NCV 50-335,389/2003-010-01, Failure to Follow Procedures for Access Controls to Radiologically Significant Areas.

.2 Failure to Follow Radiation Protection Procedures for Surveys of Radiologically Significant Areas.

Introduction. A Green finding, with one NRC-identified and one licensee identified example, was identified for the failure to follow radiation protection procedures for conducting surveys of radiologically significant areas.

Description. Two examples of failure to follow procedural requirements were identified for failure to conduct surveys for entry into the U1 RCB lower cavity to recover outage equipment and for failure to conduct radiation surveys at the required frequency for DRP monitoring during the U1 EOC 18 RFO. The identified examples included the following:

- On October 2, 2002, two workers entered the U1 RCB lower cavity to retrieve and remove equipment and debris associated with the Reactor Head Decontamination activities. At the time of the entry the lower cavity contained six to eight inches of water due to the hydrolasing process previously used to decontaminate the head. The workers were provided with proper whole-body dosimetry and, in addition, a remote radiation probe connected to a read-out which was under direct HPT supervision who was providing coverage and observing the workers. Prior to the workers' entries, the lower cavity floor area had not been surveyed for DRPs and hot spots, nor were the workers provided with lower extremity dosimetry. The workers used the remote probe to conduct general area dose rate surveys during movement around the lower cavity. As the workers approached objects to be retrieved, contact dose rates were monitored and assessed.

  Surveys of the dry lower cavity floor prior to the initiation of hydrolasing activities did not indicate the presence of DRPs nor dose rates high enough to require dosimetry for the workers' lower extremities. However, as a result of the reactor head decontamination activities, additional surveys were required to determine the actual radiological conditions for the lower cavity floor. Procedure HPP-23, Health Physics Activities in the Reactor Containment Building during Shutdown, Section 6.4.7, Rev.12A, requires all work areas to be surveyed or verified that a current survey has been performed prior to starting work in the area. The inspectors noted that contrary to HPP-23, the licensee did not conduct additional surveys of the lower cavity floor resulting in two workers entering the U1 RCB

lower cavity without the surveys or monitoring for potential radiological hazards resulting from decontamination activities.

- Between October 6 and 17, 2002, U1 RFO 18 activities known to have the potential for generating DRPs including ICI removal, reactor head decontamination and inspection, were conducted. Procedure HPP-21, Hot Particle Surveys, Section 6.4, Rev. 21, requires, in part, contamination control areas associated with the Spent Fuel and Refueling Pools to be surveyed for DRPs once per shift when work is in progress. The NRC inspectors reviewed selected records for radiation surveys conducted during the U1 EOC 18 RFO, and determined that from October 6, through October 17, 2002, DRP surveys for selected U1 Refueling Pool tasks were not conducted at the frequency specified by HPP-21. For example, only three of approximately eight DRP surveys were made for ICI change-out and disposal activities conducted between October 7 and October 11, 2002.

Analysis. The inspectors determined that each of these examples was greater than minor. Specifically, the failure to follow procedures for radiation surveys which resulted in workers entering the RCB lower cavity without the knowledge of actual radiological conditions or being monitored for extremity exposure and decreased effectiveness of DRP monitoring during tasks involving removal of equipment from the refueling pool was associated with radiation protection program and process attributes of the Occupational Radiation Safety Cornerstone and affected the cornerstone objective. This finding was evaluated using the Occupational Radiation Safety SDP. Each example is of very low safety significance based on retrospective reviews of the radiological conditions on the lower cavity floor and reactor head prior to decontamination and the dispersal of radioactive contamination due to hydrolasing activities. Further, exposure to radiation and radioactive material, including DRPs, was within regulatory limits for all occupational workers involved in the U1 EOC 18 RFO activities.

Enforcement. TS Section 6.11, Radiation Protection Program, requires procedures for personnel radiation protection to be prepared consistent with the requirements of 10 CFR Part 20 and to be approved, maintained, and adhered to for all operations involving personnel radiation exposure and for access. 10 CFR Part 20.1501(a) details, in part, that each licensee make or cause to be made surveys that may be necessary for the licensee to comply with the regulations in this part. Contrary to the above, the licensee failed to conduct appropriate surveys in accordance with Procedure HPP-23 for entry into the U1 RCB lower cavity and Procedure HPP-21 for DRP surveys within the refueling pool areas. Because the failure to conduct the procedurally required surveys is of very low safety significance and has been entered into the corrective action program (CR Numbers 02-2554 and 03-0152), this violation is being treated as an NCV, consistent with Section VI.A.1 of the NRC Enforcement Policy: NCV 50-335,389/2003-010-02, Failure to follow Radiation Protection Procedures for Surveys of Radiologically Significant Areas.

.3 Failure to Follow Radiation Protection Procedure for Posting Radiologically Significant Areas.

Introduction. A Green self-revealing finding was identified for failure to implement radiation protection procedures for posting radiologically significant areas.

Description. Two examples involving failure to follow procedures for posting radiologically significant areas during U1 EOC 18 RFO activities were identified. The identified examples included the following:

- At 0805 hours on October 6, 2002, failure of planned engineering controls during decontamination of the U1 Reactor Head in the lower cavity resulted in an initial airborne radionuclide concentration of approximately 2.2 DAC at the RCB 62' elevation. Between 0820 and 1105 hours on October 6, 2002, results of backup air samples collected throughout the U1 RCB indicated airborne radionuclide concentrations exceeding 25 percent of the DAC values specified in Appendix B to 10 CFR Part 20. During this period, the licensee failed to post the U1 RCB equipment hatch access for the airborne activity conditions in accordance with HPP-63, DAC-hour Assessment, Section 7.1, Rev.3, which specifies posting an area as an Airborne Radioactivity Area if radionuclide concentrations equal or exceed 25 percent of the DAC values documented in Appendix B to 10 CFR Part 20.

- On October 20, 2002 at approximately 0600 hours, HRA postings associated with a box containing underwater vacuum equipment stored in the dry storage warehouse were changed to indicate radiation area dose rate conditions. Licensee Procedure HPP-20, Area Radiation and Contamination Surveys, Section 6.6, Rev 15., details posting requirements for radiation areas and high radiation areas. On October 20, 2002, the HPT responsible for the initial HRA posting noted that the area around the equipment had been de-posted and informally questioned activities associated with the observed change. At approximately 0900 hours, additional surveys of the subject box and adjacent areas indicated dose rates exceeding 100 millirem per hour (mrem/hr) at 30 centimeters. The HRA postings and barricades were immediately restored for the subject storage box and surrounding area. Licensee evaluation of the event determined that the failure to follow procedures for conducting the survey resulted in the area being posted contrary to HPP-20 requirements.

Analysis. The inspectors determined that each of these examples is greater than minor in that the failure to follow procedures which decreased the effectiveness of radiological controls for workers entering HRAs and airborne radiation areas was associated with radiation protection program and process attributes of the Occupational Radiation Safety Cornerstone and affected the cornerstone objective. This finding was evaluated using the Occupational Radiation Safety SDP. Each example is of very low safety significance because any workers who may have entered the unposted radiation and HRA conditions were required to wear appropriate monitoring devices within the areas, workers exiting the RCA are screened for internally deposited radionuclides, and exposures resulting from both external radiation sources and from airborne radioactivity

conditions were within regulatory limits for all occupational workers involved in the U1 EOC 18 RFO activities.

Enforcement. TS Section 6.11, Radiation Protection Program, requires procedures for personnel radiation protection to be prepared consistent with the requirements of 10 CFR Part 20 and to be approved, maintained, and adhered to for all operations involving personnel radiation exposure. TS Section 6.12, High Radiation Areas, specifies requirements for controlling, posting and monitoring high radiation areas. Contrary to the above, on October 6, 2002, the licensee failed to post the U1 RCB Equipment Hatch access point for airborne radioactivity conditions in accordance with Procedure HPP-63, and on October 20, 2002, an HRA associated with a box of outage equipment stored in the dry storage warehouse was improperly posted as a radiation area as required by Procedure HPP-20. Because the failure to conduct the procedurally required surveys is of very low safety significance and has been entered into the corrective action program (CR Numbers 02-2336 and 02–2715), this violation is being treated as an NCV, consistent with Section VI.A.1 of the NRC Enforcement Policy: NCV 50-335,389/2003-010-03, Failure to follow Radiation Protection Procedures for Posting Radiologically Significant Areas.

.2 Problem Identification and Resolution

a. Inspection Scope

Issues identified through selected corrective action program (CAP) documents including department self-assessments, audits, and CRs, as listed in Section 2OS1 of the report Attachment, were reviewed and discussed with responsible licensee representatives. The inspectors assessed the licensee's ability to characterize, prioritize, and resolve the identified issues in accordance with licensee Procedure, ADM-07.02, Condition Reports, Rev. 6A, and Procedure HPP-101, Identification and Reporting of Radiological Events, Rev. 8.

b. Findings

Excluding issues identified and documented in Section 2OS1.1 above, no additional findings of significance were identified.

2OS3 Radiation Monitoring Instrumentation and Protective Equipment (71121.03)

.1 Area Radiation Monitoring and Post-Accident Sampling Systems (PASS)

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. The inspectors directly observed ARM equipment material condition, installed configurations (where accessible), and completion of a U1 Main Steam-Line monitor functional test. Current calibration data for the U1 Containment High Range Monitor (CHRM) equipment and the U1 Control Room

Outside Air Intake monitors were reviewed and discussed with responsible system engineers. The placement and use of CAMs inside containment during the previous U1 EOC 18 RFO were evaluated through discussion with HP management.

The inspectors discussed changes to PASS requirements with the system engineer, and toured and observed material condition of the abandoned PASS components and equipment. Current methods to maintain grab sampling capabilities were discussed with a chemistry supervisor. Chemistry laboratory configuration for sampling and analysis *in lieu* of PASS was reviewed and discussed during tours of the chemistry facilities.

Program guidance, monitor performance, and equipment material condition were reviewed against details documented in 10 CFR Parts 20 and 50; UFSAR Section 12.1.4, Area Monitoring and approved procedures. The licensee's current programs for CHRMs and PASS capabilities additionally were reviewed against applicable sections of NUREG-0737, Clarification of Three Mile Island (TMI) Action Plan Requirements, November 1980; Regulatory Guide (RG) 1.97, Instrumentation for Light-Water-Cooled Nuclear Power Plants to Assess Plant and Environs Conditions During and Following an Accident, Rev. 3; Safety Evaluation for License Amendments 174 and 114, issued March 27, 2001; and applicable licensee procedures. Reviewed documents are listed in Section 2OS3 of the report Attachment.

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 personnel survey instruments were reviewed and evaluated. Instrument selection and operability determinations conducted by HPT staff prior to performing selected radiological surveys and monitoring were reviewed and discussed. Conduct of daily source checks for an ion chamber survey meter were observed and the results compared to specified tolerances. Responsible staff's knowledge and proficiency regarding on-site instrumentation calibration activities were evaluated through interviews, record reviews, and direct observation of source calibrations of selected portable instrumentation. The inspectors interviewed an HP supervisor regarding the licensee's program for the use of electronic dosimeters and observed the functional test of an EAD alarm. 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 HPT staff. In addition, calibration records were reviewed for selected teletector instrumentation used during previous U1 EOC 18 RFO activities.

Operability and analysis capabilities of the licensee's whole-body counter (WBC) FAST SCAN analysis, personnel contamination monitor (PCM), and Portal Monitor (PM) equipment were reviewed and evaluated. Reviewed PCM and PM detectors included

equipment staged at the RCA and the Protected Area (PA) exit points. For selected WBC, PCM, and PM equipment, current calibration and recent operational/performance test surveillance data, as applicable, were evaluated.

Whole-body counter calibration records, radionuclide library data base, and daily source check trends were reviewed and evaluated. The inspectors observed and discussed the conduct and results of a daily WBC source check with the responsible dosimetry technician. Selected WBC data analysis results were reviewed and discussed with responsible staff to assess knowledge and proficiency in resolving unknown energy peaks and evaluating WBC results.

The inspectors reviewed calibration records and observed performance checks for three portal monitors and two PCM detectors. Calibration source check radionuclide types and percent abundance were evaluated and minimum detectable activities values were evaluated and discussed with an HP supervisor. The inspectors directly observed conduct of monthly PCM surveillance tests.

Licensee activities associated with personnel radiation monitoring instrumentation were reviewed against UFSAR Section 12; TS Sections 6.11 and 6.12; 10 CFR 20.1204 and 20.1501; and applicable licensee procedures listed in Section 2OS3 of the report Attachment.

b. Findings

Introduction. A self-revealing Green finding was identified for failure to follow established procedures for personnel monitoring surveys involving the release of radioactive material offsite.

Description. On October 11, 2002, a contract employee alarmed the personnel contamination monitor and portal monitor at the U1 control point. The employee's clothing was placed in a Small Article Monitor (SAM) and released as clean. However, the individual's undergarments were not included in the SAM-9 survey, and licensed material, a DRP of approximately nine nanocuries (nCi) of Cobalt (Co)-58/Co-60/Chromium (Cr)-51, affixed to the unmonitored clothing was missed in the survey. The worker showered, donned clean outer garments, and was frisked with a pancake probe by an HPT. However, the frisk did not include the employee's entire body and the contamination in the undergarments was not identified. The individual continued to alarm the portal monitor and was escorted to dosimetry for WBC analyses.

A dosimetry technician conducted two FASTSCAN WBC quantitative radionuclide analyses, one with the individual facing toward (front count) and one with the individual facing away from (back count) the detector, front and back count geometries. Both Co-58 and Co-60 radioisotopes were detected in each analysis. For the Co-60 radionuclide, WBC results were reported as 0.1 microcuries (µCi) for the front geometry and a value of 0.025 µCi for the back geometry, a difference in measured activity of 75 percent between the two analyses. Licensee procedure HPP-31, Operation of the Whole Body Counting System, Rev. 9, Section 6.4, required that the HP Shift Supervisor be contacted and the presence of external contamination be

suspected if there was a difference of more than 50 percent between front and back counts. The HP Technical Supervisor advised the dosimetry technician to release the individual from the site with the caveat that the worker return the next morning for a follow-up WBC. The worker had been involved in a contamination event earlier in the outage and it was assumed that the WBC results were due to residual internal deposition for which the worker had already been assigned an internal dose. The follow-up WBC analysis performed the next day showed a significant decrease in detected activity.

After further review, HP supervision concluded that the initial WBC results were most likely due to external contamination. On October 12, 2002, a radiation survey was performed of the individual's temporary residence and a nine nCi DRP was identified on the worker's undergarments which had been worn the previous day. The particle was retrieved and returned to the site. Dose assessments based on conservative assumptions from exposure to the licensed material for both the affected worker and for members of the public were conducted.

Analysis. The inspectors determined the finding is greater than minor in that the failure of radiological control barrier which resulted in the release of licensed material offsite was associated with program and process attributes of the Public Radiation Safety Cornerstone and affected the cornerstone objective to protect members of the public from exposure to radiation. This finding was evaluated using the Public Radiation Safety Significance SDP and is of very low safety significance because there have been less than five occurrences of material released outside the protected area in the past two-year period and it did not involve a dose to a member of the public in excess of five millirem (mrem) total effective dose equivalent (TEDE). This finding represents one occurrence of radioactive material being released offsite for purposes of future Public Radiation Safety SDP logic.

Enforcement. TS Section 6.11, Radiation Protection Program, requires procedures for personnel radiation protection to be prepared consistent with the requirements of 10 CFR Part 20 and to be approved, maintained, and adhered to for all operations involving personnel radiation exposure. 10 CFR Part 20.1501(a) states, in part, that each licensee shall make or cause to be made surveys that may be necessary for the licensee to comply with the regulations in this part. Contrary to the above, the licensee failed to properly follow procedure HPP-31, Operation of the Whole Body Counting System, Rev. 9, Section 6.4, for evaluating the quantity of external personnel contamination, thereby allowing the improper transfer of licensed material to the public domain. Because the failure to effectively evaluate the quantity of radioactive material in this example is of very low safety significance and has been entered into the corrective action program as CR Nos. 02-2523 and 02-2596, this violation is being treated as an NCV, consistent with Section VI.A.1 of the NRC Enforcement Policy: NCV 50-335,389/2003-010-04, Failure to Follow Radiation Protection Procedures for Surveys of Personnel.

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

a. Inspection Scope

The licensee's respiratory protection program guidance and its implementation for SCBA use were evaluated and discussed with plant personnel. The number of available SCBA units and their general material and operating condition were observed during tours of the Control Room and RAB. Current records associated with supplied air quality for staged SCBA equipment were evaluated. In addition, control room operators were interviewed to determine their level of knowledge of available SCBA equipment storage locations, proper use, bottle change-out, and availability of prescription lens inserts, if required.

Program guidance, performance activities, and equipment material condition were reviewed against details documented in 10 CFR Part 20, and Regulatory Guide (RG) 8.15, Acceptable Programs for Respiratory Protection, Rev. 1; and applicable licensee procedures. Reviewed guidance documents and applicable records are listed in Section 2OS3 of the report Attachment.

b. Findings

No findings of significance were identified.

.4 Problem Identification and Resolution

a. Inspection Scope

Issues identified through selected CAP documents including department self-assessments, audits, and CRs associated with ARM equipment, portable radiation detection instrumentation, and respiratory protective program activities, as listed in Section 2OS3 of the report Attachment, were reviewed and assessed. The inspectors assessed the licensee's ability to characterize, prioritize, and resolve the identified issues in accordance with ADM-07.02, Condition Reports, Rev. 6A, and HPP-101, Identification and Reporting of Radiological Events, Rev. 8.

b. Findings

Excluding the issues identified in Section 2OA3.2 above, no findings of significance were identified.

2PS1 Radioactive Gaseous and Liquid Effluent Treatment and Monitoring Systems (71122.01)

.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:

- Radiation Monitor RSC-26-4, Unit 1 Fuel Building Stack Monitor
- Radiation Monitor RM-45-1, Steam Generator Blowdown Monitor
- Radiation Monitor RSC-26-1, Unit 1 Plant Vent Stack Monitor
- Radiation Monitor RE-6648, Gaseous Waste Process Monitor
- Radiation Monitor RE-6627, Liquid Radiation Monitor

During the week of December 2, 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, ten effluent release permits completed and documented since October 1, 2001, were reviewed, discussed, and evaluated. The inspectors 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) 2002.

The inspectors directly observed and evaluated chemistry staff proficiency in conducting weekly plant vent surveillance activities, including particulate filter and charcoal cartridge change-out for three monitors and observed sampling prior to a U2 reactor containment mini-purge. 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 Section 6.8, Procedures and Programs; 10 CFR Part 20, UFSAR Section 11, Offsite Dose Calculation Manual (ODCM) Rev. 25; ANSI-N13.1-1969, Guide to Sampling Airborne Radioactive Materials in Nuclear Facilities and ANSI-N13.10-1974, ANS Specification and Performance of On-Site Instrumentation for Continuously Monitoring Radioactivity in Effluents; and approved procedures listed in Section 2PS1 of the report Attachment.

In-place liquid effluent release equipment, observed task evolutions, and offsite dose results were evaluated against 10 CFR Part 20 requirements, and Appendix I to 10 CFR Part 50 design criteria; TS Section 6.8; UFSAR details, ODCM, and applicable procedures listed in Section 2PS1 of the 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

No findings of significance were identified.

.2 Problem Identification and Resolution

a. Inspection Scope

Licensee CAP documents associated with effluent processing and monitoring activities were reviewed. Three CRs documented in Section 2PS1 of the report Attachment were reviewed and evaluated in detail. The inspectors assessed the licensee's ability to identify, characterize, prioritize, and resolve the identified issues in accordance with ADM-07.02, Condition Reports, Rev. 6A, and HPP-101, Identification and Reporting of Radiological Events, Rev. 8.

b. Findings

No findings of significance were identified

2PS3 Radiological Environmental Monitoring Program (REMP) and Radioactive Material Control Program (71122.03)

.1 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 information. Report details were evaluated for required sample types, sampling locations, and monitoring frequencies.

During the week of December 2, 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 were observed and flow rates were observed at three air sampling stations. Collection of surface water and vegetation samples were observed and discussed. The proficiency and knowledge of technicians collecting the samples and the adequacy of collection techniques were assessed. The placement and material condition of thermoluminescent dosimetry (TLD) were evaluated

at seven monitoring locations. Using NRC Global Positioning System equipment, the inspectors independently assessed selected TLD and air sampling locations and compared the results to ODCM specified locations.

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; UFSAR Section 12 details; ODCM, Rev. 25 guidance; and applicable procedures listed in Section 2PS3 of the Attachment to this report. Specific QC activities associated with sample collection and analyses, and data reporting 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

No findings of significance were identified.

.2 Meteorological Monitoring Program

a. Inspection Scope

Licensee program activities to assure accuracy and availability of meteorological monitoring data were evaluated. The inspectors reviewed and evaluated current instrument calibration and surveillance data for the primary meteorological tower. During the week of December 2, 2002, the inspectors toured the primary meteorological facilities and assessed equipment material condition, observed conduct of a weekly performance test, and reviewed instrument operability and current meteorological data accuracy within the Control Room. In addition, the inspectors reviewed current data recovery results and 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; UFSAR Sections 2.3.3 and 13.7.1.3; ODCM, Rev. 25; and applicable procedures documented in Section 2PS3 of the report Attachment.

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 potentially contaminated materials from the RCA were reviewed and evaluated. During the week of December 2, 2002, the inspectors directly observed surveys of

contaminated materials released from the RCA using Small Article Monitor (SAM)-9 equipment. In addition, SAM-9 equipment detection sensitivities were assessed using a low-level Cs-137/Co-60 radioactive source with a strength of approximately 5000 disintegrations per minute. Current calibration and performance check data were reviewed and discussed. To evaluate the appropriateness and accuracy of release survey instrumentation, radionuclides identified within the most current waste stream analyses were compared against current calibration and performance check source radionuclide types.

The licensee practices and implementation of monitoring for unconditional release of materials from the RCA were evaluated against 10 CFR Part 20; TS Sections 6.8 and 6.11; UFSAR Section12; IE Circular 81-07, Control of Radioactively Contaminated Material, May 14, 1981; and applicable licensee procedures. The applicable licensee guidance, calibration records, and performance data are documented in Section 2PS3 of the report Attachment.

b. Findings

Introduction. A self-revealing Green finding was identified for failure to have adequate written procedures for radiological surveys of potentially contaminated material released to the offsite environs.

Description. During review of licensee CAP documents, the inspectors noted a self-revealing finding involving the release of potentially contaminated modesty garments offsite. Procedural guidance in HPP-41, Movement of Material and Equipment, Rev. 17, required that potentially contaminated modesty garments released in bulk (bagged materials) be frisked with a micro-R meter, the bag smeared, and the smear analyzed prior to being released. If the bags were determined to be free of radioactive material, the garments were then sent to an offsite laundry facility for cleaning. During the previous Unit 1 refueling outage, a verbal instruction was issued by Health Physics Supervision to require that the bags of modesty garments be cleared through a portal monitor as an additional measure for contamination control. From discussions with licensee representatives, the inspectors determined that some of the bags had passed the required micro-R frisk and smear count analyses but subsequently alarmed the portal monitor, indicating the presence of gamma-emitting radionuclides affixed to or inside of the bags. Based on the knowledge that each of the individual sets of modesty garments were surveyed previously through the PCMs at the RCA exit control point and found to be clean, the HPT inappropriately subdivided the bulk package into smaller bundles and sent the materials back through the portal monitor. The subdivision continued until the bags could clear the portal monitor. The bags were then sent to the laundry vendor, washed, and returned to the site.

On October 10, 2002, a bag of modesty garments from a clean locker room was monitored using SAM-9 equipment. The SAM went into high alarm and indicated radioactive contamination levels exceeding 86,000 disintegrations per minute. The garments recently had been laundered by the offsite laundry vendor and had not been worn inside the RCA since being returned to the site. Fifty similar garments were surveyed in the SAM-9, and of those fifty, five alarmed the detector. The inspectors

noted that the most probable method for the laundered garments to cause the SAM-9 detector alarm was if they were contaminated when they left the site. The contaminated garments were secured and placed in a radioactive material storage area.

Use of the offsite vendor facility for laundering the potentially contaminated modesty garments was stopped. On October 22, 2002, the licensee HP staff conducted radiation and contamination surveys of the offsite laundry facilities and equipment. Based on results of contamination smear and radiation surveys, no radioactive material contamination or dose rates above background values were found for the offsite facilities or equipment.

Analysis. The inspectors determined that this finding is greater than minor in that the failure to have adequate procedures for the control of radioactive material was associated with radiation protection program and process attributes of the Public Radiation Safety Cornerstone and affected the cornerstone objective to protect members of the public from exposure to radiation. This finding was evaluated using the Public Radiation Safety SDP. The finding is of very low safety significance because there have been less than five occurrences of material released outside the protected area in the past two-year period and it did not involve doses to a member of the public in excess of five mrem TEDE. This finding represents one occurrence of radioactive material being released offsite for purposes of future Public Radiation Safety SDP logic.

Enforcement. TS Section 6.11, Radiation Protection Program, requires procedures for personnel radiation protection to be prepared consistent with the requirements of 10 CFR Part 20 and to be approved, maintained, and adhered to for all operations for involving personnel radiation exposure. 10 CFR Part 20.1501(a) states, in part, that each licensee shall make or cause to be made surveys that may be necessary for the licensee to comply with the regulations in this part. Contrary to the above, the licensee failed to have written procedures to properly evaluate the quantity of radioactive material affixed to soiled modesty garments, thereby allowing the improper transfer of licensed material, fixed contamination on clothing, into the public domain. Because the failure to effectively evaluate the quantity of radioactive material is of very low safety significance and has been entered into the corrective action program (CR Numbers 02-2740 and 02-2729), this violation is being treated as an NCV, consistent with Section VI.A.1 of the NRC Enforcement Policy: NCV 50-335,389/2003-010-05, Failure to have Radiation Protection Procedures for Radiological Surveys of Potentially Contaminated Clothing Bulk-Released to the Public Domain.

.4 Problem Identification and Resolution

a. Inspection Scope

Licensee CAP documented issues associated with REMP operations, meteorological monitoring activities, and the unconditional release of materials from the RCA were reviewed and evaluated. Specific CRs reviewed and evaluated in detail are identified in Section 2PS3 of the Attachment to this report. The inspectors assessed the licensee's ability to identify, characterize, prioritize, and resolve the identified issues in accordance

with ADM-07.02, Condition Reports, Rev. 6A, and HPP-101, Identification and Reporting of Radiological Events, Rev. 8.

b. Findings

Excluding the finding identified in Section 2PS3.3 above, no additional findings of significance were identified.

3. OTHER ACTIVITIES

4OA1 Performance Indicator Verification

.1 Occupational Radiation Safety Performance Indicator Verification

a. Inspection Scope

The licensee's Occupational Exposure Control Effectiveness performance indicator (PI) results for the Occupational Radiation Safety Cornerstone were reviewed for the period January 1 through December 2, 2002. For the specified period, the inspectors evaluated data reported to the NRC, and subsequently sampled and assessed applicable CAP documents and selected Health Physics Program records. The reviewed records included health physics shift logs, contamination occurrence logs and assessments, internal exposure evaluations, and personnel exposure investigation reports and licensee CRs listed in Sections 2OS1, 2OS3, and 4OA1 of the report Attachment. The licensee's dispositioning of the reviewed issues and events was evaluated against NEI 99-02, Regulatory Assessment Performance Indicator Guideline, Rev. 2.

b. Findings

No findings of significance were identified.

.2 Public Radiation Safety Performance Indicator Verification

a. Inspection Scope

The inspectors reviewed and discussed the Radiological Control Effluent Release Occurrence PI results for the Public Radiation Safety Cornerstone from January 1, 2002 through December 2, 2002. For the review period, the inspectors reviewed data reported to the NRC and evaluated selected radiological liquid and gaseous effluent release data, selected out-of-service process radiation monitor and compensatory sampling data, abnormal release results, and CRs documented in Sections 2PS1 and 4OA1 of the report Attachment. The licensee's classification of reviewed data was evaluated against NEI 99-02, Regulatory Assessment Performance Indicator Guideline, Rev. 2.

b. Findings

No findings of significance were identified.

4OA6 Management Meetings

Exit Meeting Summary

On December 6, 2002, and February 10, 2003, the inspectors presented the inspection results to Mr. Don Jernigan and other members of his staff, who acknowledged the findings. The inspectors confirmed that proprietary information was not provided or examined during the inspection.

4OA7 Licensee Identified Violations

The following findings of very low safety significance (Green) were identified by the licensee and are violations of NRC requirements which meet the criteria of Section VI of the NRC Enforcement Policy, NUREG-1600, for disposition as NCVs.

- TS Section 6.12, High Radiation Areas, specifies requirements for controlling, posting, and monitoring HRAs *in lieu* of requirements specified in 10 CFR 20.1601. Contrary to TS Section 6.12, on October 4, 2002, licensee Quality Assurance (QA) personnel observed that the U1 RCB 42' elevation stairwell near the elevator had not been posted as an HRA in accordance with HPP-20. The HRA posting was required to control access to the RCB 62' elevation during conduct of Reactor Head Lift operations. This event is documented in the licensee's CAP as CR 02-2252. Because subsequent reviews determined workers had not entered actual dose rate fields indicative of HRA conditions through this entrance/egress point, this finding is of very low safety significance.

- TS Section 6.12, High Radiation Areas, specifies requirements for controlling, posting, and monitoring high radiation areas *in lieu* of requirements specified in 10 CFR 20.1601. Contrary to TS Section 6.12, on October 16, 2002, licensee Quality Control Personnel observed workers inadvertently breaching the LHRA boundary established for Reactor Head maintenance activities conducted on the U1 RCB 62 ' elevation. This event is documented in the licensee's CAP as CR 02-2618. Because the subject workers were immediately stopped and subsequently determined to not have entered actual dose rate fields indicative of either HRA or LHRA conditions, this finding is of very low safety significance.

- TS Section 6.11 requires procedures for personnel radiation protection to be prepared consistent with the requirements of 10 CFR 20 and to be approved, maintained written, and adhered to for all operations involving personnel radiation protection. Licensee Procedure HPP-20, Routine Radiation Protection Surveillances, Revision 15, Section 6.7 specifies posting requirements for radiation areas. Contrary to HPP-20, between October 14 and October 18, 2002, during routine radiation protection surveillances, the licensee identified

three un-posted radiation areas associated with Sea-Land containers containing dry active waste. Specifically, on October 14, 2002, two un-posted radiation areas associated with the containers were discovered and on October 18, 2002, a third Sea-Land container was identified with dose rates requiring radiation area postings. These events were entered into the licensee's CAP as CR-02-2685 and CR-02-2687. Because subsequent reviews determined that appropriate monitoring was provided for all workers entering the areas, this finding is of very low safety significance.

PARTIAL LIST OF PERSONS CONTACTED

- D Jernigan, Site Vice President
- D. Rose, Plant General Manager
- R. Steinke, Chemistry Supervisor
- S. Wisla, Radiation Protection Manager
- D. Wolf, Engineering Manager

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed

50-335,389/2003-010-01	NCV	Failure to Follow Radiation Protection Procedures for Access Controls to Radiologically Significant Areas (Section 2OS1.1)
50-335,389/2003-010-02	NCV	Failure to Follow Radiation Protection Procedures for Surveys of Radiologically Significant Areas (Section 2OS1.1)
50-335,389/2003-010-03	NCV	Failure to Follow Radiation Protection Procedures for Posting of Radiologically Significant Areas (Section 2OS1.1)
50-335,389/2003-010-04	NCV	Failure to Follow Radiation Protection Procedures for Surveys of Personnel (Section 2OS3.2)
50-335,389/2003-010-05	NCV	Failure to Have Written Radiation Protection Procedures for Radiological Surveys of Potentially Contaminated Clothing Bulk-Released to the Public Domain (Section 2PS3.3)

LIST OF ACRONYMS USED

ADM	Administrative Procedure
ARM	Area Radiation Monitor
CAM	Continuos Air Monitor
CAP	Corrective Action Program
CFR	Code of Federal Regulations
CHRM	Containment High Range Monitor
CR	Condition Report
CR	Condition Report
CY	Calendar Year
DRP	Discrete Radioactive Particle
EAD	Electronic Alarming Dosimetry
EOC	End of Cycle
FP&L	Florida Power & Light Company
HP	Health Physics
HPP	Health Physics Procedure
HPT	Health Physics Technician
ICI	In-core Instrument
IMC	Inspection Manual Chapter
IR	[NRC] Inspection Report
LHRA	Locked High Radiation Area
LLD	Lower Limit Detection
NCV	Non-Cited Violation (of NRC requirements)
NRC	Nuclear Regulatory Commission
ODCM	Offsite Dose Calculation Manual
PA	Protected Area
PASS	Post Accident Sampling System
PCM	Personnel Containment Monitoring
PI	Performance Indicator
PM	Portal Monitor
QA	Quality Assurance
QC	Quality Control
RCA	Radiation Control Area
RFO	Refueling Outage
RG	[NRC] Regulatory Guide
RII	Region II - Atlanta, Georgia (NRC)
RP	Radiation Protection
SAM	Small Area Monitor
SCBA	Self-Contained Breathing Apparatus
TEDE	Total Effective Dose Equivalent
TLD	Thermoluminescent Dosimetry
TMI	Three Mile Island
TS	Technical Specification(s)
U1	Unit 1
U2	Unit 2
UFSAR	Updated Final Safety Analysis Report
VRHA	Very High Radiation Area
WBC	Whole-Body Count

ATTACHMENT

LIST OF DOCUMENTS REVIEWED

2OS1 Access Control To Radiologically Significant Areas (71121.01)

Procedures, Instructions, Guidance Documents, and Operating Manuals

- Administrative Procedure (ADM) -05.03, Radiation Work Permits, Revision (Rev.) 2
- ADM -07.02, Condition Reports, 6A
- Health Physics Procedure (HPP)-1, Preparing Radiation Work Permits, Rev. 20
- Health Physics (HP)-74, Access Control Using Alarming Dosimeters, Rev. 5
- HPP-3, High Radiation Areas, Rev. 13
- HPP-15, Hot Particles, Rev. 6
- HPP-20, Area Radiation And Contamination Surveys, Rev. 15
- HPP-21, Hot Particle Surveys, Rev. 5
- HPP-23, Health Physics Activities in the Reactor Containment Building during Shutdown, Rev.12A
- HPP-25, Radiological Controls For Diving, Rev. 4
- HPP-30, Extremity Monitoring, Rev. 28
- HPP-5, Health Physics Department Conduct Of Operations, Rev. 0
- HP-49A, Transfer Of Radioactive Bead Resins, Appendix B, Rev. 16
- HPP-70, Personnel Contamination Monitoring, Rev. 19
- HPP-74, Access Controls Using Alarming Dosimeters, Rev. 5

Radiation Work Permits (RWPs)

- RWP-02-0509, U1 Reactor Auxiliary Building - All Elevations. and the Radiologically Controlled Area: NPS/Projects Personnel: General Entry for the RCA, Rev. 0
- RWP-02-1002, M/M Supervision: Inspections and Walkdowns, Rev. 0
- RWP-02-1008, Unit 1 (U1) Reactor Containment Building (RCB) 62 foot (') elevation, Upper Cavity; Lower Cavity; Reactor Head: Lift Reactor Head/ Install 51" Risers/ Set Head In Lower Cavity/ Lift Head Back to Missile Shield/ Transfer Head to Cribbing/ Set Head Back on 31" Risers , Rev. 0
- RWP-02-1024, U1 RCB 62 ‘ Pressurizer Spray Valve Platform 1100 E & F Platform: Remove, Repack, and Repair 1100 E&F Valves, Rev. 0
- RWP-02-1043, U1 RCB 62 ‘ Pressurizer Spray Valve Platform, V-1236 (PZR Mini-Spray) Remove, Replace, Weld, Rev. 0
- RWP-02-1105, U1 RCB 62 ‘ Pressurizer 1100 E & F Platform: Remove/Install Test Actuators and Instrumentation, Rev. 0
- RWP-02-1115, U1 RCB 62 ‘ Elevation, Refuel Bridge/Cavity Edge: Remove/Install Incore Detectors and Bullet Noses, Cut Up Old Detectors, Transfer to Spent Fuel Pool, Rev. 0
- RWP-02-1342, U1 RCB 62 ‘ Lower Cavity: Reactor Head, Under Reactor Head Decon/Thermal Gap Rinse; ICI Cleaning with Hydrolaser, Rev. 0
- RWP-02-2048, Replace Vent Valves On 2A, 2B, 2C Charging Pumps, Rev. 0, 08/05/02
- RWP-02-2032, Inspection, Repair, Testing Of Rx. Tooling, Clean Lube Rx. Studs, Nuts, Rev. 0
- RWP-02-0022, Health Physics: Extended Work For Surveys, Job Coverage, Rev. 2
- RWP-02-0021, Declared Pregnant Workers: General Entry Into RCA And RAB, Rev. 0

- RWP-02-0016, Sort Radioactive Waste, Rev. 0
- RWP-02-0015, Decon In High Radiation Areas, Rev. 0
- RWP-02-0217, Transfer SRT To Liner, Rev. 0
- RWP-02-0007, NRC: General Entry For The Radiation Controlled Area and The Reactor Auxiliary Building, Rev. 0

Records and Data Reviewed

- Unit 1 Reactor Containment Building Entries EAD Dose Results between October 3 through October 6, 2002
- Health Physics Form HPP-30.17, Exposure Investigation Report, October 1, through October 31, 2002
- Health Physics Form HPP-30.18, Internal Dose Worksheet Whole Body Count Results, October 1 through 31, 2002
- Health Physics Form HPP-70.1, Unit 1 and Unit 2, Personnel, Skin, and Clothing Contamination Report Data from October 1 through December 2, 2002
- Health Physics Form HPP-70.2, Unit 1 and Unit 2, Personnel Contamination Monitor - Portal Monitor ALARM Log for Year - to - Date (YTD) 2002
- Health Physics Form HPP-30.17, Exposure Investigation Report, October 1 through December 2002 YTD
- Health Physics Forms HPS-42 and -64, Radiation Surveys including Discrete Radioactive Particle Surveys, as applicable, for the U1 RCB 62 foot (‘) elevation Reactor Head Stand; U1 Spent Fuel Pool 62 ‘ Elevation, and the Reactor Cavity and Upender between October 6 through October 17, 2002
- Health Physics Forms HPS-42 and -64, Radiation Surveys for the U1 Pressurizer Spray Platform from September 30 through October 18, 2002
- Health Physics Forms HPS-64, Radiation Surveys 62' elevation Reactor Head Stand, Under Head Pre-Decon Survey 10/03/02, HPS-67.2, Lower Cavity 18' Elevation, 10/01/02

Corrective Action Program (CAP) Documents

- Florida Power and Light (FP&L) Quality Assurance Report QSL-CHM-01-02, 01/29 -03/29/01
- FP&L, Quality Assurance Report QSL-RP-01-04, 04/04 -06/12/01
- Plant St. Lucie (PSL) Nuclear Assurance Quality Reports: Quality Report Number (QRNO) 01-0059, 03/09/01; QRNO 02-0011, 01/28/02; QRNO 02-0007, 01/17/02; QRNO 02-0046, 04/09/02; QRNO 02-0084, 06/12/02; QRNO 02-0141, 09/11/02; and QRNO 02-0170, 12/05/02
- Health Physics Department, Self-Assessment, SL1, Outage Critique, First Quarter 2001 and Third Quarter 2001
- Condition Report (CR) -02-2208, Changing Radiological Dose Rates Associated with Pressurizer Spray Valve Cubicle Equipment, 10/02/02
- CR-02-2252, Workers Not Adhering To Postings, 10/04/02
- CR-02-2336, U1 RCB Airborne Excursion Event, 10/06/02
- CR-02-2449, Maintenance Of Locked High Radiation Area Logbook, 10/10/02
- CR-02-2552, Inconsistent High Radiation Area Posting, 10/04/02
- CR-02-2554, Lower Cavity Surveys During Wet Conditions, 10/06/02

- CR-02-2662, Hot Particle Contamination, 10/17/02
- CR-02-2618, Personnel Locked High Radiation Boundary, 10/16/02
- CR-02-2608, Health Physics Controls During Outage, 10/15/02
- CR-02-2553, Unposted Locked High Radiation Area, 10/02
- CR-02-3059, Entering High Radiation Area On Incorrect RWP, 12/03/02
- CR-02-2687, Unposted Radiation Area, 10/18/02
- CR-02-2685, Unposted Radiation Areas, 10/14/02
- CR-02-2715, Improperly Posted High Radiation Area, 10/20/02
- CR-02-2833, Level 1 Review of Radiological Control Issues Associated with U1 EOC 18 RFO Activities, 11/04/02
- CR-03-0152, Issues Associated with Hot Particle Surveys of the Refueling Cavity during SL1 RFO, January 21, 2003
- Root Cause Analysis, Inadvertent Actuation of Containment Evacuation Alarm, CR-02-2367, November 7, 2002

2OS3 Radiation Monitoring Instrumentation and Protective Equipment (71121.03)

Procedures, Instructions, Guidance Documents, and Operating Manuals

- HP-13C, Calibration of Portable Dose Rate Survey Instruments, Rev. 19
- 1-IMP-26.15E, DAM-3 Steam Line Process Radiation Monitor Functional Test Instructions, Rev. 1A
- HP-13A, Operation of Portable Survey Instruments, Rev. 20
- HPP-62, Inspection and Maintenance of Respiratory Protection Equipment, Rev. 6
- HPP-31, Operation of the Whole Body Counting System, Rev. 9
- HP-114, Calibration and Operational Check of the Nuclear Enterprises Personnel Contamination Monitors, Rev. 9A
- HPP-101, Identification and Reporting of Radiological Events, Rev. 8
- COP-06.06, Guidelines for Collecting Post Accident Samples, Rev. 2

Records and Data Reviewed

- SCBA Compressed Air Quality Reports, from 10/01/01 to 09/25/02
- Calibration records for Unit 1 Containment High Range Monitors, Channels 58 & 59, 10/13/02
- Calibration Records for Unit 1 Control Room Outside Air Intake Monitors, Channels 46 & 47, 05/14/01
- Trend Charts for FASTSCAN Whole Body Counter Monthly Source Checks, November 2002
- Calibration Records for FASTSCAN Whole Body Counter, 07/03/02
- Calibration Records for IPM8A (Personnel Contamination Monitor), Unit No. 111, 11/19/01 and 09/25/02
- Calibration Record for SPM-906 (portal monitor), Serial No. 906061, 09/24/02

CAP Documents

- CR 02-2987, Discrete Radioactive Particle Found During Exit Whole Body Count, 10/19/02
- CR 02-2596, Worker Received Positive Whole Body Count Indicating External Contamination, but Was Released from Site, 10/11/02
- CR 02-2523, Fixed Contamination Found Offsite in a Worker's Hotel Room, 10/12/02
- PSL Nuclear Assurance Quality Reports: QRNO 01-0135, 07/26/01; QRNO 01-0166, 09/24/01

2PS1 Radioactive Gaseous and Liquid Effluent Treatment and Monitoring Systems (71122.01)

Procedures, Instructions, Guidance Documents, and Operating Manuals

- Chemistry Operating Procedure (COP) - 01.05, Appendix G, Preparing of Quarterly Composite Samples and Liquid Spike, Rev. 9
- COP-65.01, ORTEC Multichannel Analyzer, Rev. 6
- COP-65.02, Effluent Grab Sample, Attachment E, Rev. 11
- COP-01.06, Processing Gaseous Waste, Rev. 5
- COP-01.05, Processing Aerated Liquid Waste, Rev. 9
- COP-07.05, Process Monitor Setpoints, Rev. 7
- Instrument and Control Procedure (IMP) 1-IMP-26.15H, "RSC-26-1 Plant Vent Radiation Monitor Secondary Calibration Instructions, Rev. 4A
- 1-IMP-26.13, Gaseous Radwaste Monitor Functional and Calibration Instructions, Rev. 0B
- 1-IMP-26.12, Liquid Radwaste Discharge Process Monitor Functional and Calibration Instructions, Rev. 2C
- Chemistry Procedure, C-200, St. Lucie Plant Offsite Dose Calculation Manual, Rev. 25

Records and Data Reviewed

- Radiation Monitoring System Criteria Performance Records, Updated 09/30/02
- Unit 1 Plant Vent Stack Radiation Monitor RSC-26-1 Calibration Records, 10/09/01
- Gaseous Waste Process Monitor RE 6648 Calibration Records, 02/26/02
- Radiation Liquid Radwaste Monitor RE-6627Calibration Records, 06/10/02
- Quality Assurance (QA) program Crosscheck program records for ORTEC Multichannel Analyzer Geometries, 4/24/02, 4/25/02, 5/29/02, 6/05/02 No.= 6/10/02, 6/19/02
- Calibration Certificates for Multichannel Analyzer Detector P11378B, conducted 6/10/02, 06/28/02; No. P11372A, conducted 4/05/02, and 6/28/02; and No. P21392A, conducted 5/29/02, and 06/27/02
- Daily Counting Room QC Data Records, 12/03/02
- Liquid Release Permit No. 1-02-14, 4/04/02; No. 1-02-32, 07/22/02; No 1-02-39, 09/05/02; and No. 1-02-47, 09/27/02
- Unit 1 Gaseous Effluent Release Permit, No. 1-02-7, 7/29/02; No. 1-02-12, 9/26/02; No. 1-02-14C, 9/29/02
- Unit 2 Gaseous Effluent Release Permit No. 2-02-57C, 07/03/02 No. 2-02-59C, 07/11/02; and No. 2-02-67C, 08/05/02
- St. Lucie Monthly Effluent Dose Reports, 01/31/02 - 09/30/02

CAP Documents

- FP&L QA Report QSL-CHM-01-02, 01/29 -03/29, 2001
- PSL Nuclear Assurance Quality Reports: QRNO 02-0090, 06/19/02; QRNO 02-0092, 07/16/02; QRNO 02-0113, 08/08/02; 02-0152, 09/24/02; 02-0155, 09/26/02; QRNO 02-0174, 11/04/02
- CR-01-2835, Fuel Handling Building Fans Not Secured, 11/27/01
- CR-01-2800, Inoperable Radiation Monitor, 11/21/01
- CR-01-2797, Inoperable Radiation Monitor, 11/21/01
- PSL Nuclear Assurance Quality Reports: Quality Report Number (QRNO) 01-0059, 03/09/01

Annual Reports

- St. Lucie 2001 Annual Radioactive Effluent Release Report, March 1, 2002

2PS3 Radiological Environmental Monitoring Program (REMP) and Radioactive Material Control Program (71122.03)

Procedures, Instructions, Guidance Documents, and Operating Manuals

- St. Lucie, Off-Site Dose Calculation Manual (ODCM), Rev. 25
- Health Physics Procedure (HPP) - 02, Calibration and Operation of the MGP and the Bicron-NE Small Article Monitor, Rev. 7
- Electrical Maintenance Procedure (EMP) 50.02, The Annual Capacity Test of the Met Tower UPS System, Rev. 1
- EMP 50.03, The Semi-Annual Preventative Maintenance Inspection and Cleaning of the Met Tower UPS System, Rev. 2
- Instrument & Control Maintenance Procedure 1400055, Environmental Data Acquisition Semi-Annual Calibration, Rev. 40
- St. Lucie Land Utilization Quality Instruction (LU-QI) - 11.0-45, Inspection of Meteorological Tower Vegetation, Rev. 2
- Sampling Procedure (SP) 1, Collection of Air Particulates and Radioiodines, Rev. 5
- SP 4, Collection of Surface Water, Rev. 4
- SP 5, Collection of Broad Leaf Vegetation, Rev. 2

Records and Data Reviewed

- Department of Energy, Environmental Measurements Laboratory, Quality Assessment Program Report, dated 07/25/02
- Environmental Air-sampling Equipment Semi-Annual Calibration Data conducted 06/07/02: (Sampler Location, Serial No.) (H08, 8191844) (H09, 8191845), (H12, 8191846), (H14, 8191847), (H30, 8191848), (H32, 8191849), (H33, 8191850), and (H34, 8191851)
- St. Lucie Nuclear Plant 2002 Joint Frequency Distribution (JFD) for Quarters 2 and 3, dated October 3, 2002
- Radiological Surveillance Report - St. Lucie Plant, First and Second Quarter of Calendar Year (CY) 2002
- Meteorological Tower, Semi-Annual Calibration PM, completed 11/20/01, 5/10/02

- Meteorological Tower, Wind Direction Element ZE-57-2, completed 02/19/02
- Meteorological Tower, Annual Capacity Test, completed 09/03/02, 10/11/02
- Meteorological Tower Semi-Annual Uninterruptable Power Supply and Battery Inspection PM, completed 07/11/02, 01/09/02
- St. Lucie Land Utilization Quality Instruction (LU-QI) - 11.0-45, Attachment 10.2, Inspection Checklist Form Results, dated 12/01/0011/28/01Inspection of Meteorological Tower Vegetation, Rev. 2
- Calibration records for Bicron-NE Small Article Monitor, Serial No. 104, 02/07/02 and 08/07/02
- HPS-264, Radiation Survey of Personal Residence, conducted 10/19/02; and Offsite Laundry Vendor Facilities, conducted 10/22/02
- HPP-72.1, Discrete Radioactive Particle Worksheets; HPP-30.18, Internal Dose Worksheet Whole Body Count Results

CAP Documents

- CR 02-2729, Freshly Laundered Modesty Garments Alarmed Small Article Monitor, 10/21/02
- CR 02-2740, Modesty Garments Alarmed Portal Monitor, but Were Sent to Laundry, 10/21/02
- PSL Nuclear Assurance Quality Reports: QRNO 01-0058, 03/09/01; 02-0111, 08/01/02 01-0059, 03/09/01

Annual Reports

- St. Lucie Nuclear Plant, 2001 Annual Radiological Environmental Operating Report, dated April 17, 2002

4OA1 Performance Indicator Verification (71151)

Records and Data Reviewed

- Administrative Procedure (ADM) -07.02, Condition Reports, Rev. 6A,
- St. Lucie Radiation Monitor System Status Records, Updated 09/30/02

CAP Documents

- PSL Nuclear Assurance Quality Reports: QRNO 02-0139, 09/05/02 01-0059, 03/09/01;
- CR-02-3201, October 02, 2002, Dose Rate Alarm Associated with Worker on RWP 02-509, 12/20/02
- CR-02-3202, October 18, 2002, Dose Rate Alarm Associated with Worker on RWP 02-1331, 12/20/02
- CR-02-3203, October 6, 2002, Dose Rate Alarm Associated with Worker on RWP 02-3203, 12/20/02