

## Saint Lucie 2

### 4Q/2004 Plant Inspection Findings

---

## Initiating Events

**Significance:** G Dec 31, 2004

Identified By: Self Disclosing

Item Type: NCV NonCited Violation

#### **Improper Implementation of Emergency Operating Procedure Following a Manual Reactor Trip**

A self-revealing non-cited violation (NCV) was identified for failing to properly implement emergency operating procedure 2-EOP-99, Appendix X, Secondary Post Trip Actions, as prescribed by TS 6.8.1.a and Regulatory Guide 1.33. More specifically, a licensed reactor operator did not ensure the main feedwater regulating valve block valves were in the closed position following the reactor trip on December 25, which then directly contributed to the cause of another manual reactor trip on December 27.

The finding is greater than minor because it involved the human performance attribute of the Initiating Events Cornerstone and its objective, in that failure to follow and implement a required emergency operating procedure step directly contributed to a subsequent plant transient that resulted in a manual reactor trip. The finding is of very low safety significance because, although it caused a manual reactor trip, it did not increase the likelihood of a primary or secondary system loss of coolant accident initiator, did not contribute to a combination of a reactor trip and loss of mitigation equipment functions, and did not increase the likelihood of a fire or internal/external flood. This finding directly involved cross cutting aspects of human performance. (Section 1R14)

Inspection Report# : [2004006\(pdf\)](#)

**Significance:** G Mar 27, 2004

Identified By: Self Disclosing

Item Type: FIN Finding

#### **Condensate Pump Lower Motor Bearing Failure Due to Inadequate Lubrication Resulted in Manual Reactor Trip**

A self-revealing finding was identified due to human error that resulted in the misidentification of the 2A condensate pump lower motor bearing as a sealed bearing which did not require lubrication.

The finding is greater than minor because if left uncorrected could result in unnecessary and increased challenges (e.g., reactor trips) to safety significant systems. The finding affected the initiating event cornerstone, and was considered to be of very low safety significance according to the SDP Phase 1 worksheet since there was no increase in the likelihood that mitigation equipment or functions would not be available. (Section 4OA3.1)

Inspection Report# : [2004003\(pdf\)](#)

**Significance:** N/A Mar 06, 2004

Identified By: NRC

Item Type: FIN Finding

#### **Supplemental Inspection 95001**

This supplemental inspection was conducted to assess the licensee's individual and collective evaluations associated with a Unit 2 White performance indicator (PI) in the initiating events cornerstone of the reactor safety strategic performance area. The White PI performance indicator involved crossing the threshold from Green to White for the Unplanned Scrams per 7,000 Critical Hours Performance Indicator in the fourth quarter of calendar year 2003. More specifically, Unit 2 experienced four reactor trips during the last three quarters of 2003. The first reactor trip, which occurred on April 1, 2003, was a manual trip from 100 percent power due to the loss of main condenser vacuum caused by a degraded air removal system. The second reactor trip, which occurred on June 11, 2003, was an automatic trip from approximately 22 percent power initiated by equipment failures of the 2A steam generator (SG) low power and full power main feedwater (MFW) bypass flow control valves. The third reactor trip, which occurred on December 4, 2003, was a manual trip from approximately 60 percent power initiated by a loss of the 2A condensate pump due to sudden, catastrophic failure of the lower motor bearing. And, the fourth reactor trip, which occurred on December 20, 2003, was an automatic reactor trip from 100 percent power caused by the loss of main generator excitation due to failure of a voltage regulator control module.

The licensee's problem identification, root cause and extent-of-condition evaluations, and corrective actions for the four specific reactor trips were generally thorough and complete. Although the collective evaluation did conclude that degraded material condition of critical secondary system equipment was an apparent common contributor, it did not identify any specific risk-significant common cause(s) linking all four reactor trips

Inspection Report# : [2004008\(pdf\)](#)

---

## Mitigating Systems

**Significance:**  Sep 25, 2004

Identified By: Self Disclosing  
Item Type: NCV NonCited Violation

### **Wrong Lead Lifted During Maintenance Rendering Containment Spray Pump 2A Inoperable**

A self-revealing non-cited violation (NCV) was identified for failing to properly implement procedure OP-2-0010125A, Surveillance Data Sheets, Data Sheet 8A, Quarterly Valve Cycle Test (All Modes), as prescribed by Technical Specification (TS) 6.8.1.a. Specifically, an I&C journeyman inadvertently lifted an electrical lead on a terminal board, rendering the 2A-Containment Spray Pump (CSP) out-of-service (OOS) for a period of time without the knowledge of the on-shift Operations personnel.

The finding is more than minor because it affected the Mitigating Systems Cornerstone objective of equipment reliability, in that when the electrical lead was lifted it rendered the 2A-CSP OOS. The finding was determined to be of very low safety significance based on the other train of containment spray being operable and available and the TS Limiting Condition for Operation (LCO) allowed outage time not being exceeded. This finding involved the cross-cutting element of human performance. (Section 1R19)

Inspection Report# : [2004005\(pdf\)](#)

**Significance:**  Jun 26, 2004

Identified By: NRC  
Item Type: NCV NonCited Violation

### **Failure to Follow Procedures per TS 6.8.1.(a)**

The inspectors identified two examples of a non-cited violation (NCV) of Technical Specification 6.8.1.(a) for failure to follow procedures in maintaining and reactivating SRO licenses. This resulted in two senior reactor licensed operators standing watch without the appropriate qualifications.

The finding, which involves the mitigating systems cornerstone, is greater than minor because it is associated with human performance attributes that affect the availability, reliability, and capability of licensed operators to respond to initiating events to prevent undesirable consequences. The NRC considers the maintenance and proficiency of licensed operators an element of the defense in depth philosophy, and the compliance with procedures which implement the requirements of 10 CFR 55.53(f), to be significant. (Section 1R11)

Inspection Report# : [2004004\(pdf\)](#)

**Significance:**  Mar 27, 2004

Identified By: Self Disclosing  
Item Type: NCV NonCited Violation

### **Inadequate Cause Determination and Ineffective Corrective Actions to Preclude Repetitive Overspeed Failures of the 2C AFW Pump**

A self-revealing, non-cited violation of Criterion XVI of 10 CFR 50, Appendix B, Corrective Action was identified for the licensee's failure to determine the cause, and implement appropriate corrective action to preclude repetitive overspeed trips of the 2C auxiliary feedwater (AFW) pump.

The finding is greater than minor finding because if left uncorrected could result in the 2C AFW being unable to perform its safety function to mitigate certain design basis accidents (e.g., station blackout, loss of all feedwater). The finding was determined to be associated with the mitigating systems cornerstone. A Significance Determination Process (SDP) Phase 3 evaluation was performed for this event. The likelihood of successful recovery of the Unit 2 turbine-driven AFW pump after an overspeed trip was found to be better than the generic value for operator recovery used in the Phase 2 SDP sheets. This reduced the calculated risk impact of the event to a value below that determined in the Phase 2 analysis. As a result of this change, the Phase 3 analysis determined the finding's change in risk to be less than 1E-6. (Section 4OA3.3)

Inspection Report# : [2004003\(pdf\)](#)

---

## Barrier Integrity

---

## Emergency Preparedness

## Occupational Radiation Safety

**Significance:**  Sep 25, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

### **Failure To Follow And To Have Adequate Procedure Guidance For Controls Associated With Posted LHRA Locations**

The inspectors identified an NCV of TS 6.11 for failure to meet procedural guidance for locked high radiation area (LHRA) postings and signs, and to have adequate guidance for control of equipment maintained in the vicinity/adjacent to LHRA barrier gates and walls. During the week of August 16, 2004, the licensee failed to post all accessible walls of the Unit 1 Drumming Room LHRA waste storage facility with the required labels (postings) and failed to provide additional signs on walls to deter climbing as specified in Health Physics Procedure (HPP)-3), High Radiation Area, Revision (Rev.) 15. Further, the procedure failed to address the use and storage of other equipment placed against established physical barriers which could potentially facilitate unauthorized access to LHRAs. Equipment examples observed by the inspectors included portable step stools maintained in the vicinity of the LHRA posted Unit 2 (U2) Volume Control Tank (VCT) cubicle and several empty 55 gallon drums placed against the Unit 1 (U1) Drumming Room LHRA storage facility's eastern wall and entrance gate.

This finding is greater than minor because it adversely affected the access control program and process attribute of the Occupational Radiation Safety cornerstone in that failure to follow or have adequate procedures for maintaining LHRA barrier controls decreased the licensee's ability to provide reasonable assurance to prevent unauthorized entry required for adequate protection of worker health and safety from exposure to radioactive materials as a result of routine civilian nuclear reactor operations. The finding is of very low safety significance because the event did not result in any unanticipated and unexpected worker exposures. Immediate corrective actions included removal of the equipment away from the LHRA barrier walls and gates and positing of proper labels and signs. (Section 2OS1)

Inspection Report# : [2004005\(pdf\)](#)

**Significance:**  Sep 25, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

### **Failure To Have Adequate Procedural Guidance For Response To Extended Duration ARM Alarms**

The inspectors identified an NCV of TS 6.11 for failure to have adequate procedural guidance to meet area radiation monitor (ARM) radiation protection design objectives during periods of prolonged local alarm annunciation. During calendar year 2003 and year-to-date (YTD) 2004, several examples of ARM equipment in prolonged audible or visual alarm, ranging from several days to approximately eight months, were identified with no guidance to address and minimize potential worker habituation and indifference to potential radiological conditions that the alarm annunciators are designed to identify.

This finding is greater than minor because it adversely affected the access control program and process attribute of the Occupational Radiation Safety cornerstone in that failure to properly address prolonged ARM alarms could result in workers improperly responding to actual changes or unexpected operating conditions as a result of routine civilian nuclear reactor operations. The finding is of very low safety significance because there was no failure to identify atypical radiological conditions, no failure to assess doses to workers, nor unexpected personnel exposures (Section 2OS3).

Inspection Report# : [2004005\(pdf\)](#)

## Public Radiation Safety

**Significance:**  Sep 25, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

### **Failure To Maintain Adequate QC Program Activities To Meet Design Specifications To Ensure Representative Sampling of Main Plant Vent Airborne Effluent Particulates**

The inspectors identified an NCV of TS 6.8.1.i for failure to implement Quality Control activities to ensure representative sampling and monitoring of particulates in the main plant vent airborne effluents. Specifically, the licensee failed to establish appropriate guidance for tests and test acceptance criteria for the U1 and U2 Reactor Auxiliary Building (RAB) HEPA ventilation exhaust (HVE) 10A/10B fan plenum cleanup systems which limit maximum diameter of airborne effluent particulates to ensure representative sampling.

This finding is greater than minor because it adversely affected the effluent monitoring program and process attribute of the Public Radiation Safety cornerstone in that failure to ensure representative sampling could impact representative sampling and subsequent monitoring of particulates in airborne effluents released into the public domain as a result of routine civilian nuclear reactor operations. The finding is of very low safety significance because there was no failure to assess dose to the public from airborne particulates released from the main plant vents

and doses did not exceed Appendix I to 10 CFR Part 50 design criteria. Licensee immediate corrective actions included adoption of industry approved testing guidance and acceptance criteria for the RAB HVE filters. The finding involved the cross-cutting element of problem identification and resolution, specifically the timeliness of corrective actions. (Section 2PS1).

Inspection Report# : [2004005\(pdf\)](#)

---

## Physical Protection

[Physical Protection](#) information not publicly available.

---

## Miscellaneous

**Significance:** N/A Feb 27, 2004

Identified By: NRC

Item Type: FIN Finding

### **Problem Identification and Resolution**

The inspectors determined that the licensee was generally effective in identifying problems and entering them into the Corrective Action Program. In general, the threshold for initiating Condition Reports (CRs) was low and employees were encouraged by management to initiate CRs.

The inspectors concluded that the Quality Assurance (QA) audits were comprehensive, were well conducted, and had identified numerous performance problems. For example, licensee Quality Assurance identified that not all self assessments or quarterly CR rollups scheduled for performance in 2003, were actually performed as required by plant procedures. Quality Assurance also identified that there has been a lack of emphasis on completing corrective actions as exemplified by an increasing backlog of overdue Plant Management Action Items (PMAIs). At the time of this inspection there was a backlog of 360 overdue PMAIs of varying importance. Additionally, the inspectors observed that a recent revision to procedure ADM-07.01, PMAI Corrective Action Tracking Program removed all time limits for closure of PMAIs.

The inspectors did not identify any reluctance by the plant staff to report safety concerns. The inspectors concluded that the employee concerns program, Speakout, was functioning well.

Inspection Report# : [2004007\(pdf\)](#)

Last modified : March 09, 2005