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

September 24, 2005

Southern Nuclear Operating Company, Inc.
ATTN: Mr. L. M. Stinson
Vice President - Farley Project
P. O. Box 1295
Birmingham, AL 35201-1295

SUBJECT: JOSEPH M. FARLEY NUCLEAR PLANT - NRC PROBLEM IDENTIFICATION AND RESOLUTION INSPECTION REPORT 05000348/2005008 AND 05000364/2005008

Dear Mr. Stinson:

On August 26, 2005, the U. S. Nuclear Regulatory Commission (NRC) completed a team inspection at the Joseph M. Farley Nuclear Plant. The enclosed report documents the inspection results which were discussed on August 25, 2005, with Mr. Todd Youngblood and other members of your staff.

This inspection was an examination of activities conducted under your licenses as they relate to the identification and resolution of problems, and compliance with the Commission's rules and regulations, and the conditions of your operating licenses. Within these areas, the inspection involved selected examination of procedures and representative records, observations of activities, and interviews with personnel.

Based on the sample selected for review, the team concluded that, in general, problems were properly identified, evaluated, and corrected. There were two NRC-identified findings and one self-revealing finding of very low safety significance (Green) identified during this inspection. One NRC-identified finding and the self-revealing finding were determined to be violations of NRC requirements. The remaining finding is associated with a failure to correct a long-standing condition adverse to quality. The first violation is associated with a failure to promptly identify a condition adverse to quality and the second violation is associated with inadequate corrective actions to preclude recurrence. However, because of their very low safety significance and because they have been entered into your corrective action program, the NRC is treating these violations as non-cited violations in accordance with Section VI.A of the NRC's Enforcement Policy. If you deny any of these findings, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington DC 20555-0001; with copies to the Regional Administrator, Region II; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington DC 20555-0001; and the NRC Resident Inspector at the Farley Nuclear Plant.

In addition, several examples of minor problems were identified including equipment failures that were inappropriately classified as not being functional failures, industry operating

experience that was ineffectively evaluated, and past operability determinations that lacked proper documentation.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) components of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at *http://www.nrc.gov/reading-rm/adams.html* (the Public Electronic Reading Room).

Sincerely,

\RA

Malcolm T. Widmann, Chief
Reactor Projects Branch 2
Division of Reactor Projects

Docket Nos.: 50-348 and 50-364
License Nos.: NPF-2 and NPF-8

Enclosure: NRC Inspection Report 05000348/2005008
and 05000364/2005008
w/Attachment: Supplemental Information

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U. S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket Nos:	50-348 and 50-364
License Nos:	NPF-2 and NPF-8
Report Nos:	05000348/2005008 and 05000364/2005008
Licensee:	Southern Nuclear Operating Company, Inc.
Facility:	Joseph M. Farley Nuclear Power Plant, Units 1 and 2
Location:	7388 N. State Highway 95 Columbia, AL 36319
Dates:	August 8 - 12, 2005, and August 22 - 26, 2005
Inspectors:	R. Carroll, Senior Project Engineer (Lead Inspector) J. Baptist, Resident Inspector - Farley R. Reyes, Resident Inspector - Crystal River A. Nielsen, Health Physics Inspector
Approved by:	Malcolm T. Widmann, Chief Reactor Projects Branch 2 Division of Reactor Projects

Enclosure

SUMMARY OF ISSUES

IR 05000348/2005-008 and 05000364/2005-008; 08/08/2005 - 08/12/2005 and 08/22/2005 - 08/26/2005; Joseph M. Farley Nuclear Plant, Units 1 and 2; Identification and Resolution of Problems.

The inspection was conducted by a senior project engineer, two resident inspectors, and a health physics inspector. Three Green findings were identified of which two were non-cited violations (NCVs). The significance of most findings is indicated by their color (Green, White, Yellow, Red) using IMC 0609,"Significance Determination Process" (SDP). Findings for which the SDP does not apply may be Green or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, Reactor Oversight Process, Revision 3, dated July 2000.

Problem Identification and Resolution (PI&R)

The team determined that the licensee was generally effective in identifying problems and entering them into the corrective action program (CAP). The threshold for problem identification was determined to be low. CAP-related audits were effective in identifying deficiencies for resolution. Condition Report trending under the CAP has had success in bringing about corrective actions for identified adverse trends. The team determined that the licensee properly prioritized issues entered into the CAP. Generally, the licensee performed adequate evaluations that were technically accurate and sufficiently detailed. Corrective actions developed and implemented for problems were generally timely, effective, and appropriate to the problem. One Green finding for failure to correct a long-standing condition adverse to quality and two Green non-cited violations for a failure to promptly identify a condition adverse to quality and inadequate corrective actions to preclude recurrence were identified. In addition, several examples of minor problems were identified including equipment failures that were inappropriately classified as not being functional failures, industry operating experience that was ineffectively evaluated, and past operability determinations that lacked proper documentation. Management emphasized the need for staff to identify and resolve issues using the CAP. A safety conscious work environment was evident.

A. NRC-Identified and Self-Revealing Findings

Cornerstone: Mitigating Systems

- Green. An NRC-identified non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, was identified for failure to take corrective actions to preclude repetition of a significant condition adverse to quality. Specifically, corrective actions taken to develop a solid state protection system (SSPS)/7300 troubleshooting guideline following a Unit 2 SSPS/7300 troubleshooting-related reactor trip on April 12, 2004, was inadequate to preclude the recurrence of another SSPS/7300 troubleshooting-related event on April 28, 2005.

  This finding is more than minor because it affects the Mitigating Systems Cornerstone attribute of equipment performance and adversely impacted the cornerstone objective in that the SSPS/7300 troubleshooting guidance did not provide the necessary steps to facilitate timely (i.e., within the TS LCO) determination of a SSPS/7300 process channel

failure. This finding is of very low safety significance because the "B" train of SSPS was maintained operable at all times. (Section 4OA2c.(2)(b))

Cornerstone: Barrier Integrity

- Green. A self-revealing non-cited violation of 10 CFR 50, Appendix B, Criterion XVI, Corrective Action, was identified for failure to identify a significant condition adverse to quality. Specifically, following the July 15, 2003, trip of the 1A containment spray pump room cooler, the licensee failed to identify an existing degraded time delay relay. Consequently, for the period between July 15, 2003, until corrected on May 1, 2004, the degraded condition of the 1A containment spray pump room cooler rendered it vulnerable to "run/stop/hot restart" scenarios that could be encountered during the response to a large break loss of coolant accident (LOCA).

  This finding is more than minor because it affects the Barrier Integrity Cornerstone attribute of Barrier Performance and impacted the cornerstone objective in that tripping of the room cooler could result in loss of the 1A containment spray pump safety function due to overheating. This finding is of very low safety significance (Green) because the 1B containment spray pump and room cooler and all containment coolers were available to ensure containment barrier integrity would be maintained in the event of a large break LOCA or containment over pressure challenge. (Section 4OA2c.(2)(a))

- Green. An NRC-identified finding was identified for untimely resolution of excessive air flow problems on the Unit 1 and Unit 2 Containment Air Particulate Radiation Monitors (R-11). Excessive air flow through the moving filter paper caused the monitor to become inoperable on numerous occasions since 1990. When R-11 was out of service, the ability to detect low-level reactor coolant system (RCS) leakage was degraded.

  This finding is more than minor because it is associated with the RCS Equipment and Barrier Performance Attribute of the Barrier Integrity Cornerstone and adversely affects the cornerstone objective in that the ability to detect low-level RCS leakage that may indicate pressure boundary degradation was reduced. This finding could not be evaluated using the Significance Determination Process (SDP) in accordance with IMC 0609 because the SDP for the RCS barrier only applied to a degraded barrier; not the ability to detect a degraded barrier. Therefore, this finding was reviewed by regional management and determined to be of very low safety significance (Green) because alternate methods of detecting low-level RCS leakage were available whenever R-11 was out of service. (Section 4OA2c.(2)(c))

B. Licensee-identified Violations

None

REPORT DETAILS

4. OTHER ACTIVITIES (OA)

4OA2 Problem Identification and Resolution (PI&R)

a. Effectiveness of Problem Identification

(1) Inspection Scope

The team reviewed selected condition reports (CRs) initiated since the previous NRC PI&R inspection, conducted September 2003, to verify that problems were being properly identified, appropriately characterized, and entered into the corrective action program (CAP). The reviews primarily focused on issues associated with five risk significant plant safety system areas: nuclear service water (SW); auxiliary feedwater; component cooling water; emergency core cooling systems (ECCS); and vital electrical systems. In addition to the system reviews, the team selected a sample of CRs that were related to radiation protection and emergency preparedness to ensure coverage of those cornerstones. The team also reviewed those CRs associated with licensee event reports and findings identified in NRC inspection reports (IRs) issued since the last PI&R inspection.

The team reviewed completed maintenance work orders (WOs), system health reports, and the Maintenance Rule (MR) database for the five selected system areas to verify that equipment deficiencies were being appropriately entered into the CAP and the MR program. The team conducted walkdowns of equipment associated with the selected systems to assess the material condition and to look for any deficiencies that had not been entered into the CAP. The team reviewed temporary modifications, the main control room deficiency list, operator workaround list, failed surveillances and any acceptance criteria changes, control room operator logs, and the employee concerns program to verify that equipment deficiencies (especially those involving the selected systems) were entered into the CAP.

The team reviewed selected industry operating experience (OE) items, including NRC generic communications, to verify that both types were appropriately evaluated for applicability and whether issues identified through these reviews were entered into the CAP. The team reviewed several licensee audits (focusing primarily on problem identification and resolution) to verify that findings were entered into the CAP and to verify that these findings were consistent with the NRC's assessment of the licensee's CAP. Trending of CRs under the CAP was also reviewed to determine if licensee-identified trends were captured for resolution and if CAP statistics indicated any trends that were not identified by the licensee.

The team attended several daily management update and site corrective action program coordinator (CAPCO) meetings, as well as a corrective action review board meeting to observe management and department CAPCO oversight functions in the corrective action process. The team also interviewed personnel from operations, maintenance, engineering, health physics, and emergency preparedness to evaluate their threshold for identifying issues and entering them into the CAP.

Documents reviewed are listed in the Attachment.

(2) Assessment

The team determined that the licensee was effective in identifying problems and entering them into the CAP. There was, however, one issue identified involving the July 16, 2004, remote shutdown capability test of the 1C SW pump, in which the necessity to cycle its associated switch twice before starting was recorded on the surveillance test result sheet (STRS) of FNP-1-24.20; but, not in a CR where it could be evaluated and trended under the CAP. Performance/documentation of such "switch cycling/cleaning" on the STRS was also found to be permitted in precaution/limitation 4.4 of FNP-1-STP-73.1, Hot Shutdown Operability Verification; thereby, making it potentially vulnerable to bypassing the CAP as well. To address this and related "switch cycling/cleaning" potential vulnerabilities, the licensee generated CRs 20055108397 and 2005203550.

Based on observed samples, independent walkdowns, and staff interviews, the threshold for problem identification was low. CRs provided complete and accurate characterization of the subject issues. Equipment performance issues involving maintenance effectiveness were for the most part being appropriately identified and entered into the CAP. However, the team identified two CRs (i.e., CR 2003003388, Degraded 1C Diesel Generator Speed Signal Generator, and CR 2005104677, Failure of Service Water Battery Charger #3 to Load) where the associated equipment failure was inappropriately categorized as not being a functional failure. The licensee generated CRs 2005108425 and 2005108446, which acknowledged the mis-classifications and confirmed that the respective functional failures would not have caused (past or present) the MR performance criteria for the affected functions to be exceeded.

With the exception of the two examples discussed below, the licensee was effective in evaluating internal and external industry operating experience items for applicability and entering issues into the CAP:

- NRC IR 05000348,364/2004004 identified that the licensee's response to Information Notice (IN) 94-68, Safety-Related Equipment Failures Caused By Faulted Indicating Lamps, was narrow in scope and specifically did not address the diesel generators (DGs). Although there had been a number of occurrences recorded in CRs involving the DGs since 2000, actions taken had focused on restoring diesel operability and more careful bulb replacement rather than eliminating the problem. The team verified that the licensee had recently completed modifications to eliminate this problem on both the diesels and the main steam atmospheric reliefs, as well as began an in-depth review of the IN to determine if similar vulnerabilities exist.

- As documented in NRC Triennial Fire Protection (TFP) IR 05000348,364/2005006, the licensee inappropriately made the assumption that a fire could not cause the spurious opening of both the inboard and outboard reactor coolant system (RCS)-to-residual

heat removal (RHR) system supply isolation valves. The effects of fire on these valves was discussed in INs 87-50, Potential Loss of Coolant Accident (LOCA) at High and Low Pressure Interfaces From Fire Damage, 92-18 Potential For Loss of Remote Shutdown Capability During a Control Room Fire, and 99-17, Problems Associated With Post Fire Safe Shutdown Circuit Analysis. The licensee did not properly evaluate these INs and inappropriately concluded they were not vulnerable to this failure. Consequently, Units 1 and 2 had maintained both valves in the two RCS-to-RHR supply lines energized making them susceptible to a breach in the high pressure - low pressure interface boundary between the RCS and RHR systems. When the condition was identified during the April 2005 TFP inspection, the licensee was in the process of reviewing the issue again under RIS 2004-03, Risk Informed Approach for Post Fire Safe Shutdown Associated Circuit Inspections. Subsequently, on April 29, 2005, the licensee de-energized one train of valves on both units to prevent inadvertent actuation due to a fire.

CAP-related audits performed by Performance Evaluation, Quality Assurance (QA), and department CAPCOs were effective in identifying issues and entering these deficiencies into the CAP for resolution. Site management was involved in the CAP and focused attention on significant plant issues.

CR trending under the CAP has had success in bringing about corrective actions for identified adverse trends; however, trend identification was primarily keyed on tripping established thresholds based on increases in CR populations for a given area. Consequently, issues common to smaller CR populations, such as the heat exchanger problems noted in NRC IR 05000348,364/2005003 or missed procedural interdependencies and out-of-specification Agastat testing results noted during the team's CR reviews, may go undetected without rigorous reviews at either end of the CR process. For the examples noted, all were confirmed by the team to have been captured for resolution by means other then the formal trending process (e.g., system engineer, CR evaluation, etc.). It was noticed that the site CAPCO recently began identifying repeat issues for possible adverse trends; but, as of the time of this inspection, the need to perform the intended trend assessments had not been captured in a CR. NRC IR 05000348,364/2005003 also documented the resident inspectors' questioning the validity of the justifications used in dispositioning 14 potential adverse trends identified in the November 2004 - January 2005 CAP trend report as "no adverse trend." The team's review of the February - April 2005 CAP trend report revealed that during the managers' trend report review two of the subject areas (i.e., fire equipment and performance monitoring) were appropriately reclassified as "actual adverse trends." In addition, CR 2005106889 identified areas for improvement related to data trending and more timely/in-depth management review (i.e., addition of tertiary event codes and review of the trend report outside the weekly managers meeting within 45 days). The potential adverse trends for the period of May - July 2005, including the need for assessment before capturing them in the associated CAP trend report, had not been identified in CRs as of the end of this inspection; therefore, corrective action effectiveness could not be assessed.

b. Prioritization and Evaluation of Issues

(1) Inspection Scope

The team reviewed selected CRs in order to verify that the licensee properly classified and evaluated the problems in accordance with procedure NMP-GM-002, Corrective Action Program. Accordingly, the team's review also assessed if the licensee determined the apparent cause (root and contributing causes for significant conditions adverse to quality) of problems and adequately addressed operability, reportability, common cause, generic concerns, and extent of condition. More than a third of the CRs reviewed were classified as either Severity Level (SL) 2 (requiring a root cause and corrective actions to prevent recurrence) or SL 3 (requiring an apparent cause and corrective actions to reduce the likelihood of recurrence). There were no SL1 CRs in the overall population from which the CRs were selected.

(2) Assessment

With the exception of CRs 200400795 and 2003000917, the team determined that the licensee properly prioritized issues entered into the CAP. The CRs in question were associated with non-cited violations and should have been prioritized as SL 3 (versus SL 5 and SL 4, respectively) in accordance with NMP-GM-002. This was considered administrative in nature since the required apparent cause was performed for each one.

Overall, the licensee performed adequate evaluations that were technically accurate and sufficiently detailed. Consistent with QA audit findings, the team noted the following exceptions:

- CR 2003000172, Unit 2 Solid State Protection System (SSPS) B Train Failure: During surveillance testing of the Unit 2 SSPS B Train on January 29, 2003, and on March 21, 2003, the Logic C test failed at position 14 (Lo-Lo level start of the turbine driven auxiliary feedwater pump (TDAFWP)). The licensee performed a root cause analysis, but found there was not enough information available to make a root cause determination. Therefore, various corrective actions were identified in the CR to be performed so that data could be gathered in order to determine a root cause. However, the team found that some of these corrective actions (i.e., resistance check of logic switches to verify proper operation, failure analysis of the SSPS card, visual inspections of card edge connections, and investigation into the cause of a bad card selected from the warehouse) had not been completed. As a result, the root cause was never determined; therefore, no past operability determination of the TDAFW pump could be made. The CR described reasons why some of the actions were not completed (e.g., too man power intensive, too costly, etc.). However, the decision not to perform these corrective actions was not communicated to the root cause group as required by NMP-GM-002. Furthermore, the licensee's root cause effectiveness review had determined that the corrective actions were effective when some of them had never been completed and a root cause had never been determined. When questioned about these discrepancies, the licensee initiated CR 2005108442.

- CR 2004002293, Gas Accumulation in Suction of the 2B Coolant Charging/High Head Safety Injection (HHSI) Pump: The licensee had identified that the 2B HHSI pump discharge check valve had a flaw which allowed approximately 40 gallons per minute (GPM) of reverse flow through the pump when idle. A formal operability determination had been performed which determined that HHSI pump discharge flows had been balanced within established limits. However, documentation was not readily available to demonstrate that the effects of the idle pump (i.e., the reverse flow) had been considered with respect to post-accident operation of HHSI pump 2A and/or 2C. Informal/uncontrolled information was eventually provided to the team that substantiated proper post-accident operation of the 2A and 2C HHSI pumps, but this information was not inherent to the resolution of CR 2004002293 or any of its supporting justifications.

- CR 2004001281, 1A Containment Spray Pump Room Cooler Failure: The licensee determined that a degraded time delay relay was the cause of the July 15, 2003, and March 23, 2004, "run/stop/hot restart" trips experienced on the 1A containment spray pump room cooler. Accordingly, the March 23, 2004, event was appropriately identified by the licensee as a maintenance preventable failure. However, it was apparent that the licensee had not considered past operability of the room cooler with respect to its vulnerability to "run/stop/hot restart" scenarios that could be encountered during the response to a large break loss of coolant accident (LOCA). (This condition is further discussed in Section 4OA2c.(2)(a).)

Troubleshooting was considered an essential tool in problem evaluation. NRC IR 05000348,364/2004005 documented an observation of inconsistent troubleshooting activities for 4160 volt breakers. The team also identified other troubleshooting-related issues involving the evaluation/cause determination of failures in the SSPS/7300 process channels in Unit 2 and the failures of non-vital inverter 2F. SSPS/7300 troubleshooting is discussed further in Section 4OA2c.(2)(b) of this report. With respect to the 2F inverter, troubleshooting efforts were unable to preclude two additional failures (i.e., transfers to bypass on July 17 and 27, 2005) since its failure on July 1, 2005, which resulted in returning to a MR (a)(1) status for the second time in two years. Suspecting all three failures were the result of an intermittent transistor failure, the affected static switch card was replaced after the third failure before returning the inverter to service in August 2005. At that time, a more methodical approach to troubleshooting the 2F inverter was implemented that included monitoring via an attached recorder. No further failures of the 2F inverter had occurred by the conclusion of the inspection.

c. Effectiveness of Corrective Actions

(1) Inspection Scope

The team evaluated selected CRs to verify that the licensee had identified and implemented timely and appropriate corrective actions to address problems. The team determined whether the corrective actions were appropriate for the described problem, as well as properly documented, assigned, and tracked to ensure completion. Selected corrective actions were sampled for detailed review to independently verify that

corrective actions were implemented as intended. The sample selected for verification included corrective actions associated with NRC findings and others from CRs associated with the focus systems. Additionally, the team reviewed a sampling of the oldest CRs to determine if implementation delays were appropriately justified.

(2) Assessment

Corrective actions developed and implemented for problems were generally timely, effective, and appropriate to the problem. NRC IR 05000348,364/ 2004003 reflected both the residents' and licensee's findings that corrective actions for several Severity Level 2 (and 3) CRs had not always been sufficiently comprehensive to prevent (or reduce the likelihood of) recurrence. As discussed below, the team identified similar findings of missed opportunities for the CAP to promptly resolve problems.

(a) 1A Containment Spray Pump Room Cooler Failures

Introduction: A Green, self-revealing non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion XVI, Corrective Action, was identified for failure to identify a significant condition adverse to quality. Specifically, following the July 15, 2003 trip of the 1A containment spray pump room cooler, the licensee failed to identify an existing degraded time delay relay. Consequently, for the period between July 15, 2003, until corrected on May 1, 2004, the degraded condition of the 1A containment spray pump room cooler rendered it vulnerable to "run/stop/hot restart" scenarios that could be encountered during the response to a large break LOCA.

Description: On March 23, 2004, during the performance of surveillance test procedure FNP-1-STP-16.1, 1A Containment Spray Pump Quarterly In Service Test, the 1A containment spray pump and its associated room cooler were stopped to facilitate adding oil to the pump. About 1 - 3 minutes after restart of the pump and room cooler, the room cooler tripped. Troubleshooting revealed the thermal overloads for the 1A containment spray pump supply breaker had tripped. The thermal overloads were reset and FNP-1-STP-16.1 was successfully completed. Operations personnel suggested that this event was similar to an event which occurred on July 15, 2003, during the same surveillance test. At the time of the July 2003 event, the 1A containment spray pump room cooler had been running to support painting in the pump room when it was stopped for the quarterly pump test. Approximately 1 - 3 minutes after starting the 1A containment spray pump and room cooler, the room cooler tripped. The thermal overloads were reset twice before FNP-1-STP-16.1 could be successfully completed. Followup actions to the July 15, 2003 event involved tightening electrical connections and post-maintenance testing of the room cooler, but not in the "run/stop/hot restart" fashion in which it had failed.

Investigation into the similarity of the two events resulted in troubleshooting efforts on April 30, 2004. These efforts determined that a degraded time delay relay was most likely the cause for both events and Minor Departure 04-2760 was implemented on May 1, 2004, to correct the problem. This time, post-maintenance testing was conducted satisfactorily in the "run/stop/hot restart" fashion. To assure operability, the 1B

containment spray pump room cooler was subsequently tested satisfactorily in the "run/stop/hot restart" fashion. In addition, Design Change Request (DCR) M04-1-0060 was created to make the thermal overload configuration in the Unit 1 pump room coolers the same as in Unit 2. This design change had been completed on both Unit 1 containment spray pump room coolers and was scheduled to be implemented on the remaining Unit 1 pump room coolers in 2006. Further investigation by the licensee concluded that the root cause evaluation for the July 15, 2003 event was inadequate; resulting in a maintenance preventable functional failure (MPFF) of the 1A containment spray pump room cooler on March 23, 2004. However, the team determined that the degraded condition of the 1A containment spray pump room cooler rendered it vulnerable to "run/stop/hot restart" scenarios that could be encountered during the response to a large break LOCA. Such scenarios would involve: (1) a subsequent loss of offsite power and re-sequencing loads on the emergency diesel generators; or (2) the need to momentarily secure containment spray pumps/room coolers to facilitate the transfer of emergency core cooling systems to the containment sump.

Analysis: This finding is more than minor because it affects the Barrier Integrity Cornerstone attribute of Barrier Performance and impacted the cornerstone objective in that tripping of the room cooler could result in loss of the 1A containment spray pump safety function due to overheating. This finding is of very low safety significance (Green) because the 1B containment spray pump and room cooler and all containment coolers were available to ensure containment barrier integrity would be maintained in the event of a large break LOCA or containment over pressure challenge.

Enforcement: 10 CFR 50, Appendix B, Criterion XVI, Corrective Actions, required that measures shall be established to assure that significant conditions adverse to quality are promptly identified. Contrary to the above, following the July 15, 2003 trip of the 1A containment spray pump room cooler the licensee failed to identify a degraded time delay relay. Consequently, a similar "run/stop/hot restart" trip of the room cooler occurred on March 23, 2004. For the period between July 15, 2003, until corrected on May 1, 2004, the degraded condition rendered the 1A containment spray pump room cooler vulnerable to "run/stop/hot restart" scenarios that could be encountered during the response to a large break LOCA. Because this finding is of very low safety significance and has been entered into the licensee's corrective action program (CR 2005109145), this violation is being treated as an NCV, consistent with Section VI.A of the NRC Enforcement Policy: NCV 05000348/2005008-01, Failure to Identify 1A Containment Spray Pump and Room Cooler Degraded Time Delay Relay.

(b) SSPS/7300 Troubleshooting

Introduction: A Green, NRC-identified NCV of 10 CFR Part 50, Appendix B, Criterion XVI, was identified for failure to take corrective actions to preclude repetition of a significant condition adverse to quality. Specifically, corrective actions taken to develop a SSPS/7300 troubleshooting guideline following a Unit 2 SSPS/7300 troubleshooting-related reactor trip on April 12, 2004, was inadequate to preclude the recurrence of another SSPS/7300 troubleshooting-related event on April 28, 2005.

Description: On April 11, 2004, Unit 2 tripped due to a fault which unblocked the source range high flux trip. SSPS/7300 troubleshooting resulted in two SSPS cards being replaced and the unit was restarted. However, Unit 2 tripped again on April 12, 2004, due to the same unblocking of the source range high flux trip. Subsequent troubleshooting revealed that a different SSPS card was the source of the problem. The licensee also determined that, as a contributing cause, troubleshooting activities following the first trip did not use a rigorous troubleshooting methodology to identify and validate the specific equipment failure and corrective action. Additionally, no formal guidance for troubleshooting problems in the SSPS/7300 process channels existed. Therefore, the exact equipment failure was not correctly identified and the problem recurred. Corrective actions to prevent recurrence included development of formal SSPS/7300 troubleshooting guidance.

A similar SSPS/7300 troubleshooting-related event occurred subsequently on April 28, 2005, when annunciators for the “1B Steam Generator Main Steam Line Delta P Alert” came into alarm. Based on the control board indications and previous history of failed 7300 cards, the licensee believed that a 7300 card had failed and entered TS 3.3.2, LCO D for an inoperable 7300 channel. The required action for this condition was to place the channel in trip within 6 hours or be in Mode 3 within 12 hours and Mode 4 within 18 hours. After placing the channel in the tripped condition, troubleshooting was begun on the associated 7300 cards to identify the exact failure. The licensee had determined that the 7300 cards were sending the proper signal to SSPS and concluded that the current TS LCO may not be correct. Based on this information, the licensee tested an input relay that was the interface between the 7300 and SSPS circuitry and, on April 29, 2005, it was found to be satisfactory. Consequently, TS 3.3.2, LCO D was exited and the licensee entered TS 3.3.2, LCO C for SSPS "A" Train. The required action for this condition was to restore the train to operable status within 6 hours or be in Mode 3 within 12 hours. Troubleshooting on SSPS was subsequently completed, revealing that a SSPS logic card had failed. After the logic card was replaced, and SSPS tested satisfactorily, the licensee exited the LCO. (Note: The failure to follow TS for an inoperable SSPS logic train was previously dispositioned as NCV 05000348/2005003002.)

The licensee identified a lack of procedural guidance to diagnose an alarm condition as the root cause for the extended amount of time needed to troubleshoot the alarm condition and associated TS concerns. Accordingly, a troubleshooting work order sequence for such annunciator problems was incorporated into the SSPS/7300 troubleshooting guidance.

Analysis: This finding is more than minor because it affects the Mitigating Systems Cornerstone attribute of equipment performance and adversely impacted the cornerstone objective in that the SSPS/7300 troubleshooting guidance did not provide the necessary steps to facilitate a timely (i.e., within the TS LCO) determination of a SSPS/7300 process channel failure. This finding is of very low safety significance because the “B” train of SSPS was maintained operable at all times.

Enforcement: 10 CFR 50, Appendix B, Criterion XVI, Corrective Actions, required that measures shall be established to assure that significant conditions adverse to quality are corrected to preclude repetition. Contrary to the above, the SSPS/7300 troubleshooting guideline developed as a corrective action for a Unit 2 SSPS/7300 troubleshooting-related reactor trip on April 12, 2004, was inadequate to preclude the occurrence of another SSPS/7300 troubleshooting-related event on April 28, 2005. Because this finding is of very low safety significance and has been entered into the licensee's corrective action program (CR 2005109147), this violation is being treated as a NCV, consistent with Section VI.A of the NRC Enforcement Policy: NCV 05000364/2005008-02, Inadequate Corrective Action Results in Recurrence of a SSPS/7300 Troubleshooting-Related Event.

(c) Radiation Monitor R-11 Failures

Introduction: A Green, NRC-identified finding (FIN) was identified for untimely resolution of excessive air flow problems on the Unit 1 and Unit 2 Containment Air Particulate Radiation Monitors (R-11). Excessive air flow through the moving filter paper caused the monitor to become inoperable on numerous occasions since 1990. When R-11 was out of service, the ability to detect low-level RCS leakage was degraded.

Description: After the licensee installed new paper drives in 1990, radiation monitor R-11 experienced frequent paper drive malfunctions and pump trips. The licensee determined that there was too much air flow through the sample lines. The sample air flow for R-11 was originally designed for 10 cubic feet per minute (CFM) and the pumps were sized accordingly. However, the paper drive vendor recommended a flow rate of no more than 5 CFM to avoid paper drive related problems. Due to these problems, radiation monitor R-11 was put on the MR (a)(1) list in 1995.

In order for R-11 to perform its TS function, at least 4 CFM air flow was required. However, due to uncertainties in the flow measuring device, the flow rate must be set at 6 CFM or greater to ensure that the TS required 4 CFM passes through the filter paper. On August 8, 1996, DCR 96-1-9059 was submitted to install a bypass line to reduce the air flow through the filter paper to 6 CFM with the remaining 4 CFM bypassing the paper drive/detector assembly. No analysis was performed to determine whether the flow rate upstream of the detector could be reduced below the design rate of 10 CFM. The design change was completed in December 1997 but, frequent pump trips and paper drive problems due to excessive flow rate continued to be a problem. Also, with the new bypass line installed, small fluctuations in pressure caused Hi/Lo air flow alarms. Root Cause Investigation 2-98-338/1-98-328, Request for Engineering Assistance (REA) 99-2100, and REA 99-2121 were completed to evaluate R-11 pump-related problems. The licensee concluded that more man-power intensive preventive maintenance tasks (PMs) were required to keep R-11 functional (e.g., more frequent checks on pump drive belts and filter paper status, stricter adherence to vendor lube requirements, etc.). The new PMs were effective in addressing the symptoms and R-11 was removed from the Maintenance Rule (a)(1) list in late 2000. However, because the licensee did not develop any corrective actions to address the underlying problem of excessive air flow, the team concluded that the new PMs were effectively a work-around.

Beginning in 2003, problems related to excessive air flow again became an issue as documented in numerous CRs including 2003002541, 2004000192, 2004101110, 2005101978, 2005012025, 2005102065, 2005102457, 2005106984, 2005017050, 2005107120, and 2005107076. In August 2004, R-11 was put back on the MR (a)(1) list. In August 2005, Request for Engineering Review C050882501 was submitted to modify the system. This modification would eliminate the bypass line, reduce the capacity of the sample pumps flow from 6 CFM to 2-3 CFM, and replace the flow measurement device with a more accurate automated mass-flowmeter. These modifications, which appeared to be an adequate solution, are scheduled to be implemented in 2006.

Analysis: The team determined that the R-11 air flow related problems are a performance deficiency in that the resultant impact to the instruments' ability to perform its TS required function was reasonably within the licensee's ability to correct in a timely manner. This finding is more than minor because it is associated with the RCS Equipment and Barrier Performance Attribute of the Barrier Integrity Cornerstone and adversely affects the cornerstone objective in that the ability to detect low-level RCS leakage that may indicate pressure boundary degradation was reduced. This finding could not be evaluated using the Significance Determination Process (SDP) in accordance with IMC 0609 because the SDP for the RCS barrier only applied to a degraded barrier; not the ability to detect a degraded barrier. Therefore, this finding was reviewed by the regional management and determined to be of very low safety significance (Green) because alternate methods of detecting low-level RCS leakage were available when R-11 has been out of service.

Enforcement: No violation of TS or other NRC requirements occurred. This finding has been entered into the licensee's corrective action program (CR 2005109190) and is identified as FIN 05000348,364/2005008-03, Untimely Resolution of Flow Problems on Radiation Monitor R-11.

d. Assessment of Safety-Conscious Work Environment (SCWE)

(1) Inspection Scope

The team conducted interviews with randomly selected members of the plant staff, including operations, maintenance, engineering, health physics, and emergency preparedness personnel, to develop a general perspective of the SWCE at the site and the willingness of personnel to use the CAP and the employee concerns program (ECP). The interviews were also to determine if any conditions existed that would cause employees to be reluctant to raise safety concerns. The team also reviewed the licensee's ECP, which provides an alternate method to the CAP for employees to raise concerns and remain anonymous. The team interviewed the ECP Coordinator and reviewed a select number of ECP reports completed since August 2003 to verify that concerns were being properly reviewed and that identified deficiencies were being resolved in accordance with the SNC Concerns Program Procedure, Revision 8.

(2) Assessment

The team concluded that licensee management emphasized the need for all employees to identify and report problems using the appropriate methods established within the administrative programs, including the CAP and ECP. These methods were readily accessible to all employees. Licensee management encouraged employees to promptly identify nonconforming conditions. Based on discussions conducted with a sample of plant employees from various departments, the team determined that the site staff felt free to raise issues and felt that management wanted issues placed into the CAP for resolution. The staff members also believed that feedback was good when using the CAP and the ECP, and that they were kept up to date on identified issues. The team noted that, for the ECP files they had reviewed, CRs were initiated in the CAP for any substantiated condition adverse to quality that had been identified in the file. The team also did not identify any reluctance to report safety concerns.

4OA6 Management Meetings Including Exit

The team presented the inspection results to Mr. Todd Youngblood and other members of licensee management on August 25, 2005, who acknowledged the findings. The team also confirmed that proprietary information was not provided or examined during the inspection.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee personnel
W. Bayne, Performance Analysis Supervisor
S. Chestnut, Engineering Support Manager
P. Harlos, Health Physics Manager
J. Hunter, Operations Support
D. Lisenby, Engineering Supervisor
R. Wells, Operations Outage Support
T. Youngblood, Assistant General Manager - Plant Support

NRC personnel
C. Patterson, Senior Resident Inspector-Farley
P. Xavier Bellarmine, Reactor Inspector

LIST OF ITEMS OPENED, CLOSED AND DISCUSSED

Opened and Closed

05000348/2005008-01	NCV	Failure to Identify 1A Containment Spray Pump and Room Cooler Degraded Time Delay Relay. (Section 4OA2c.(2)(a))
05000364/2005008-02	NCV	Inadequate Corrective Action Results in Recurrence of a SSPS/7300 Troubleshooting-Related Event (Section 4OA2c. (2)(b))
05000348,364/2005008-03	FIN	Untimely Resolution of Flow Problems on Radiation Monitor R-11 (Section 4OA2c.(2)(c))

LIST OF DOCUMENTS REVIEWED

CRs Generated as a Result of PI&R Inspection

2005108397, Assess Industry OE on cleaning and reporting handswitch failures
2005108425, Incorrect MR functional failure (FF) determination for 1C DG speed signal generator failure
2005108442, Root Cause not completed CR 2003000172
2005108444, Lack of proper documentation on past equipment failures regarding regulatory reportability
2005108446, Incorrect MR FF determination on SW #3 Battery Charger
2005108451, 10 yr electrolytic filter capacitor replacement on Auxiliary Building Battery Chargers
2005108455, Request Engineering Determination be performed on Ametek Solid State Controls Inc. Oscillator and sync boards

2005203550, Revise FNP-1(2)-STP-73.1 to address writing CR for handswitch contact swiping and determine if other procedures are susceptible
2005109190, Untimely resolution of long-standing flow problems on radiation monitor R-11 (FIN 5000348,364/2005008-03)
2005109147, Inadequate corrective action developed guideline results in recurrence of a SSPS/7300 troubleshooting-related event (NCV 05000364/2005008-02)
2005109145, Inadequate corrective actions render the 1A containment spray pump and room cooler vulnerable to possible post-accident affects of a degraded time delay relay (NCV 05000348/2005008-01)

CRs Related To Focus Systems

[AFW]

2004105343, Repeated pump motor trips during attempted starts of the 1B motor driven auxiliary feedwater pump (MDAFWP)
2003003101, Oil fill cap leaking during run of 2A MDAFWP
2004001041, 2A MDAFW pump declared inoperable due to oil leak
2004100074, Unit 2 TDAFWP found leaking < 1DPM from oil bubbler
2003002297, TDAFWP FCV3228C for 2B SG would not stroke correctly from HSDP per FNP-2-STP-73.1
2005101796, Unable to start 1A MDAFW pump from hot shutdown panel (HSDP)
2004103612, Failure of FNP-1-STP-22.6 due to dirty remote/local handswitch on HSDP

[CCW]

2004001251, 1C CCW pump failed to start on first attempt from main control board
2004103380, 1C CCW pump failed to start on first attempt from main control board
2004101977, Wires labeled wrong on inboard and outboard bearings of 2C CCW pump
2003001654, CR to document problems encountered while investigating slow stroke times of Unit1 CCW surge tank vent valves
2003002040, Unit 1 CCW surge tank vent valves both had slow stroke times
2003003311, Oil analysis results for inboard 2A CCW pump indicated elevated iron and chromium

[SW]

2005104278, Received MCB annunciator JE2, 1B SG STM Line High Delta P
2004000053, During the current SW pump 2B replacement outage, the pump will have exceeded its Maintenance Rule allowed out-of-service time
2004000824, Reactor Trip, first out alarm was 1C SG-Hi-HI Level
2004001672, While reviewing tagout (T/O) for Mode 3 prerequisites it was discovered that T/O 2-CA-R16-P17-91 had the CCW valve HV3096A jacked open
2004001706, Unit 2 Tripped during low Power Physics testing from a B train Source Range
2004001493, During the performance of FNP-2-STP-40.0 the 2E SW pump failed to start on safety injection signal
2005100693, The "A" train #2 SW battery charger has exceeded its Maintenance Rule performance criteria of 1 FF per train per 36 months

2004002098, Maintenance Rule pseudo function P06-F01 (7300 Analog Protective System) not meeting its A1 goals of not exceeding any plant level performance criteria
2005100150, 'A' Train SW DC bus declared inoperable due to voltage
2005104278, Received MCB annunciator JE2, 1B SG STM LINE HIGH DELTA P ALERT, along with bistable TSLB-4 window 13-3: STM LP2 P2<P3
2005104808, The number 2 Governor Valve has failed closed, caused a Turbine load shed
2005105360, While attempting to place handwheel back on Q1P16V007A the valve failed closed causing loss of SW flow to the on service CCW heat exchanger (HX)
2004001189, During performance test of 7300 cards in cab 3 of Unit 2, two failures occurred
2004001193, During the process of performing a Hot Bus transfer to align 2E 600 VAC load center (LC) to 2F 600 VAC LC, the supply breaker to 2E 600V LC was opened prematurely
2004101522, During performance of FNP-1-STP-24.10 Service Water Pump 1C Auto
2004001407, Several problems were found concerning weld program controls during the Unit 2 SW strainer bypass valve line replacement
2004101522, During performance of FNP-1-STP-24.10, SW pump 1C supply breaker DK05-1 tripped immediately when closed
2003002747, During routine Outside System Operator rounds, found the 2B SW pump upper oil reservoir overflowing
2004102496, With the 2A and 2C CCW HXs in service, SW to 2B CCW HX MOV-3130B was caution tagged open with power available to allow flow through the 2B HX during super-chlorination
2004103570, The Farley Nuclear Plant Quarterly Trend Report for May, June, July 2004 identified a possible trend in 'rework' related events
2004106140, Valve Q1P16V0203 failed FNP-1-STP-628.19 as previously documented on CR 2004104150; this failure should have been documented as a Functional Failure
2004001241, During performance of STP-40.2, the 2C Charging pump and 2E SW pump breakers failed to close when the SI signal was generated
2004104453, Due to STP failure on valve Q1P16V0203 a WO was written to perform FNP-1-STP-628.19 on the other valve
2005103081, 1D SW pump tripped instantly while starting
2005105715, WO 2050000901 did not meet its functional test
2005106477, Attempted to bump the 2C SW pump, breaker (DK05) failed to close
2005103081, 1D SW pump tripped instantly while starting
2005103345, 1B SW pump tag order 1-DT-05-P16-272 had incorrect steps 1 and 3
2005101317, While attempting to start the 2D SW pump, the amber breaker tripped flag lit and annunciator AE4 "SW PUMP TRIPPED" alarmed
2004102349, 2A SW pump is in the alert range on the 1A (axial) position in the 2A & 2C SW pump combination
2004102359, 2B Service water pump reference vibration for the Axial direction (for 2A and 2B combination) is listed as 0.0159 in/sec
2004103257, During pre-outage flushing activities, with system in service, four drain valves did not pass any flow
2004103689, During the performance of ASME Section XI pressure test 160.27-4, active moisture from under foam insulation at Q1P16V217C was detected
2004104140, B-Train SW Mini-flow valve Q1P16V579 did not go open after discharge valve Q1P16V508 was closed, during shutdown of B-train SW
2004104220, A SW pump vibration (axial) is in the alert range per STP 24.1; evaluation needed within 96 hrs

2004104535, Attempted to start 1D SW pump and immediately received the SW pump tripped annunciator
2004104820, During the return to service of 'A' train SW it was discovered that the 'A' train SW strainer bypass valve Q1P16V513 was leaking
2004104857, During performance of M400136001, butterfly valve was found installed backwards
2004100914, During performance of FNP-1-STP-24.2, pump combinations 1D&1E,1D&1C were found to be in the alert range for flow
2004100406, Q1P16V224A-D and Q1P16V230A-D valves are stainless steel, but have carbon steel body-to-bonnet bolts
2004100660, Unit 1 "E" SW pump upper motor bearing is making a chirping noise
2004002353, Discovered a through wall leak on the 1C CCW Hx service water side drain pipe to drain valve Q1P16V005F
2004001982, Predictive Maintenance finding on 2D SW pump motor...this is a continued trend
2004000139, The NRC resident identified a potential concern related to declaring the 2B SW pump operable, following replacement, without a proper evaluation
2004000713, Valve Q2P16V007A is leaking SW in a steady stream
2003002139, Multiple radial cracks discovered in the stellite seating surface of the 2D SW discharge check valve
2003000172, During performance of surveillance logic switch C Position 14 failed
2003002396, The suction bell on SW pump does not meet ASME requirements
2001003054, The manufacturer has discontinued the line of Gemco series 404 hand switches
2005104270, ES evaluate as-found data for the 2A SW pump for Qr, delta-Pr, and vibration... also evaluate 2B SW pump for alert range vibes at point 1A
2005104355, The pump and motor vibrations on 1C SW pump appear to be higher than normal
2005101800, Generate a design change to replace N1P16V737 located at the SW cyclone separator with a stainless steel valve
2005101807, Work Order 0M56271501 was written for 'B' TRN SW Lube and Cooling Strainer DP being negative
2005102755, Generate a minor maintenance work order to remove/re-install each of the anchor bolts in seismic support SS5409 one at a time
2005102756, Generate a work order to remove seismic support SS2860 after the completion of the actuator removal on Q1P16V721B (WO 1050847101)
2004106189, Evaluation required within 96 hours for 2A/B & 2A/C in ALERT on 1A vertical vibes... 2A SW pump vibes for the 1A position is in the ALERT for the 2A & 2B combination
2004107042, Unit 2A SW lube and cooling strainer is showing a negative differential pressure (-1)...three of the four strainers are now displaying this problem
2005100009, SW from TB chiller isolation valve has insulation removed causing excessive condensation
2005100424, Required generate a DCR/MDC modification package to support the NRC commitment to remove the SW booster pumps from service
2005100619, B Train SW Lube & Cooling Strainer T/O for P/S Cal...need evaluation/ determination from ES on attendant equipment and operability concerns
2005100619, B Train SW Lube & Cooling Strainer T/O for P/S Cal...need evaluation
2003003034, Review actions taken by FNP to address the leak constituted a non-code repair as defined in GL 90-05
2003002396, The suction bell on the pump assembly intended to be installed in the 1B SW pump location on 09/22/03 does not meet ASME requirements

2003003027, Results for surveillance test procedure FNP-2-STP-24.21 found the 2A SW booster pump vibrations exceeded the required action range
2004000839, During maintenance of valve Q1P16V0721B under work order 559059, pipe restraint SS-2860 had to be removed to facilitate motor operator maintenance
2004001430, During SW bypass line replacement by WPS weld quality issues were discovered on the 2F and 3F welds
2004001990, Oil analysis results for the 1D SW pump lower motor bearing indicates high particle count in the unacceptable range
2004100140, During the replacement of the 2B SW pump under work order 03007525, the new pump assembly was converted to product lubrication
2004100391, A work order needs to be written to inspect the posts on the 71-1X relay in cabinet Q1P16L001 to ensure there is no cracking or corrosion
2004100729, Evaluate the acceptability for bypassing a SW strainer for up to fourteen days
2004100862, Evaluate whether EQ MCC buckets qualified under U267469 meet the seismic requirements of the DG and SW buildings
2004102539, 2A SW pump has excessive seal leakage
2004102837, During the NRC SW inspection it was noted that SW differential pressure indicator showed low flow
2004104441, During setup for breaker DL03-1, the breaker has jumpers installed and is racked to test
2004104614, A train miniflow valve did not open with discharge closed
2004104197, Pump flow was above the acceptable range on FNP-STP-24.21
2004100928, Considerable amount of water (more than usual) escaping from around main shaft of 2A strainer
2004100972, Based on the results of the Unit 2 B train SW pump testing, the data indicates the pumps are improving and performing better than expected
2004101009, Q2P16MOV3131 stroked outside the acceptable range
2004101934, During performance of work activity to install missing hilti bolt in base plate (WO M300826501), it was determined that the hilti bolt could not be installed
2004101997, Shaft key had backed off of valve Q1P16V007A, 1A CCW heat exchanger SW outlet isolation, not allowing the valve to be fully closed
2005103444, This CR written to review post job critique of SW lube and cooling outage
2005106483, The plunger on breaker DK05-2 was found out of position

[4.16KV and 600 V Electrical Distribution]

2003003121, Unit 2 "F" Sequencer degraded grid relay failed
2003003540, B-Train 27G3(3-1) degraded grid undervoltage relay
2004001493 (2004001762), DG15-2 failed to close when manual paralleling 2B DG with offsite power
2004105289, "B" train LOSP during FNP-1-STP-80.16
2003001574, During testing the 1J sequencer phase 1-2 & 2-3 uv relays failed
2005105837, 1C DG breaker DH07-2 would not trip
2004002041, 2A 4160V bus undervoltage relay N2R15BKRDA02273
2003002436 (2003002996, 2004000397, 2004001120, 2004002291,2004100850, 2004101225), Agastat relays time delay out of specification
2005105120, Emergency start circuit - T2A relay timed out early
2003003316, Q1R16BKRER02 installed bkrs DS416 vs 208

2004000594 (CR2004000377), under sized control power transformer
2004102688, 2 vs 3 amp fuse in 1U MCC
2003002443, NCV for untimely corrective action for out of tolerance undervoltage and underfrequency relays
2004001221, Sequencer time delay relay out of specification
2004104322, Supply breaker to 1J (DG13) malfunctioned
2004104611, Investigate 1D SW pump breaker control circuit
2004101162, Feeder breaker DF03 to LC 2D did not trip when lockout relay actuated
2004104980, Feeder breaker to LC 1F would not close

[125VDC/120VAC Electrical Distribution]

2003002696, 1B AB Battery exceeded MR unavailability limits
2005100150, A Train SW DC bus inop with #2 bat chgr
2005100693, SW Battery charger #2 MR a(1) status
2003002437, Aux Bldg Bat Q1R42E0002B cell # 27 low voltage
2004001730, 1B Aux Bldg 125v battery cell #24 < A&B limits
2004001743, 1B Aux Bldg 125v battery cell #24 & 35 < A&B limits
2005101299, 2A Bat Charger outside AMP accept criteria
2003002132, 1B AB Battery (Q1R42E0001B) cell #6 <AB limits
2003002263, 1B AB Battery cell #30 found <AB limits, then in limits (sulfate crystals)
2004100319, 1B AB Battery cell #7 < limits
2005101614, 2B AB battery charger AC supply breaker EE-05 tripped
2005104031, 1A AB battery charger SCR (Q1R42E001A)
2005104836, #3 SW battery pilot cells 27 & 34 (blown fuse charger-to-battery)
2003002862 (2004100696, 2004102784, 2005104677), SW Battery Charger #3 failures
2005100150 (2005104439), SW Battery Charger #2 failures
2004105690 (2004105691), 125 DC Bus Fuses
2003003089, 2A inverter failure causing loss of reactor coolant pump (RCP) breaker indication and reactor trip
2005107075 (2003000028, 2005106573, 2005107143, 2005107485, 2005107162), 2F inverter swapped to bypass
2003003267, 2A inverter exceeds available time
2003001975, 1B inverter swaps to bypass
2004001231, 2C & 2D inverters have blown fuses
2004101861, 2A inverter swapped to bypass
2004102144 (2003002649), 1F inverter transferred to bypass
2004102360, 2C Inverter SCRs Q1 & Q2 high temperatures
2004104458, 1A Inverter Fault annunciator and transfer to bypass
2005101115 (2003001295, 2003000395), 2F inverter exceeds unavailability hours in 3/03
2005107242, missing X201 and X202 jumpers on 2F inverter
2005108125, Unit 1 inverter X201 and X202 jumpers
2005105318, 1G inverter swapped to bypass
2003000559, 2B inverter swapped to bypass
2003001015 (2003000850), inverter operational problems after 10 year parts replacement
2000005555, 1G inverter transfer to bypass during jumper removal
2003000254 (2003001997), 2G inverter sync circuit deficiency
2003001962, 2D inverter swapped to bypass

2003000841, 1D inverter swapped to bypass
2003000560, 2A inverter alarmed and cleared

[DGs]

2003002738 (2005105962, 2004100261, 2004101595, 2004104242, 200202588, 2001000349, 2002000986, 2002001193), DG Annunciator panels
2005103104, Annunciator ZA3 (1C DG trouble) in alarm on EPB, but not local
2004001994, 2C DG control power ATS swap to emergency source
2004105273, 2C alarm panel won't stop flashing
2004102220, 2B DG inoperable due to blown control power fuse during bulb change
2004106435, 2B DG functional failure on 8/23/04
2003003438 (2004100829, 2004101591), DG 2C starting air issues
2004000486 (2004102971), DG 1C starting air issues
2005101584 (2003002188, 2004100687, 2004104552, 2004104779, 2004105943, 2004106755), DG 1B starting air issues
2004101592 (2004102593, 2004102603), DG 1-2A starting air issues
2004100396, OE18349
2005105523 (2004107270, 2005105515, 2004106454, 2005100889), DG [1-2A, 1C, 1B] room louvers broken...heater QSY41B523C not working
2003001815 (2005100612), DFOST water/sediment
2003002661, 1C DG bearing oil unacceptable particle count
2003003323, 1C DG bearings excessive wear
2004001371, 1C DG degraded equipment
2004001556, 1C DG oil leaks during load reject test
2004000096, 2C DG bearing high particle count
2003003388, Erratic 1C DG maintenance run in
2004000067, 1B DG inoperable from painter hose
2004000271, 1B DG oil leak
2004101642, 2C DG lube oil temperature
2004103216 (2004103210), 2B DG jacket water low
2004106483, DG 1-2A generator field ground
2004107013, 1-2A DG jacket water orifice
2005100631, FNP-2-STP-80.5 criteria 57HZ vs 60 HZ
2005101612, water in DG rocker assembly lube oil
2005101872, change droop setting
2005101909, replace woodward governor
2004204545, reopen and broaden scope of RER 95-0744 (IN 94-68)

[ECCS]

2003002834 (2003002669,2003001617,2001000069), 1A Containment Spray Pump Room Cooler
2004001281, 1A Containment Spray Pump Room Cooler
2004001493, Safety Injection Test Issues - SW/GD/CRAC
2004001903, 1A Containment Spray Pump Room Cooler (a)(1) evaluation
2005103427, 1A Containment Spray Pump Room Cooler - SRB Revisit
2004104538, 2A Boric Acid Transfer Pump Unavailability

2005105289, Loss of Residual Heat Removal during STP
2003002522, ESP 1.3 Post LOCA Recirculation
2003002883, Charging Pump Vibrations
2004001241, Safety Injection Test Issues
2004001428, Old tag on Containment Cooler during SI/LOSP Test
2004001444, STP-168 Procedural issue
2004105016, STP-40 Accumulator Disc
2005100773, 2B Boric Acid Transfer Pump - changes Severity Level
2005103888, RWST Make Up Valve Misposition
2003001008, Three Charging Pumps Operable in Mode 6
2003001181, Risk Assessment Unit 2 RHR
2003000990, 2B Charging Pump Sticking Valve Disc
2003800303, Calculation to establish set point uncertainty of RWST
2003001612, 1A/1B Containment Spray Pump Min Flow reqt not met
2004101645, 1A Containment Spray Pump Code Replacement
2004101965, 1A Containment Spray Pump Sliding Link - Inadvertent Start
2004103785, PEN 94 Valve 8827A failed LLRT
2004104689, PEN 94 Valve 8827A failed LLRT
2004105482, Containment Spray Train B Sump Boron/Rust Buildup
2004105711, Containment Spray Pump Test Grace Period
2005102815, ASME Code Change - Safety Related Pumps
2004102534, 2C Charging Pump Failed IST
2004103628, Boric Acid Transfer Pump (BATP) 1A Degraded
2004107275, 2B BATP ticking w/incr bearing temp
2004102740, Boric Acid Transfer Boron Concentrate STP
2004107348, Evaluation of 2B Boric Acid Transfer Pump data
2005101944, 2C Charging Pump snubber/heise issue
2004101406, 2C Charging Pump Heise Gauge
2004001485, MOV 8701A bkr heaters
2004100771, Boric Acid on RHR system
2004103098 (2004103103), RHR HX Bypass valve did not fully stroke
2004105482, RHR Sump Rust
2004106996, SSD Methodology
2005101082, 1A Residual Heat Removal Pump Motor oil drain plugs
2005103979, Residual Heat Removal Suction Valves - TFP
2003003107, 1A Charging Pump Room Cooler Ext Tubes Cleaned
2003003024, ETP 4447 1A Containment Spray Pump Room Cooler
2005102377, Unit 1 Charging Pump Discharge Valve Reach Rods
2004102083, Safety Injection Termination
2003002522, Transfer to Cold Leg Recirculation

Miscellaneous CRs

2003003089, Reactor Trip - RCP Breaker input to SSPS
2004000824, Reactor Trip - 1C Steam Generator Hi Level
2004001706, Reactor Trip during Physics Testing
2004103346, RCP Seal Flow - Health Physics skip Proc Step
2005103588, Emergency Lighting

2005105949, Rod Position Misalignment
2005104484, Spent Fuel Pool Valve Misalignment
2003002764, CR Disposition disapproved by V.P.
2003002866, Human Performance Error Trends
2003003106, Operations adjusted wrong RCP seal flow
2003003588, Operators Making Procedural Errors
2003003595, Improper Identification of Plant Problems
2003003601, Peer Check - Reactivity Issue
2004000983, N-42 Switch in Bypass
2004001644, 2B DG Mode Selector Switch in wrong mode
2004001777, Unit 2 Load Rejection
2004102447, Maintenance Risk Assessment
2004103715, N-31 Failed check
2004104853, H/U C/D Curves
2004105497, Mid Loop Issues
2004106286, Thermal Power - Turbine Drains
2004106420, Apparent Cause Determination Issues
2005100808, Two Valves Misaligned
2005100966, Reactor Management Index Value
2005101224, Misposition Evaluation
2005101245, Ineffective AFR Corrective Actions
2005101343, Maintenance Rule
2005102948, Fire Fighting Emergency Lighting
2005103353, Maintenance Rule
2005104808, #2 Governor Valve Failed Closed
2005106186, Estimated Criticality Conditions Issues on S/U
2004101959, Reactivation of SRO License
2004000743, Licensee Identified Violation - Firewatch Rounds in DG Building
2004105563, 1B RCP Seal Leakoff Failed Low
2004105636, 1B RCP Seal Leakoff Recorder Failed Low
2004105538, 1C RCP Seal Leakoff FI-154B failed
2005100740, 2B RCP #1 Seal Leakoff digital failed
2005103039, RCP seal flow anomaly
2005103055, Board Walkdown misposition & RCP seal flow
2004000824, Instrument Malfunction Procedure
2003001177, Malfunction of Rod Control System
2005103653, Triennial Fire Protection - AFW IA Issue
2005103659, Triennial Fire Protection- RHR Suction Valves
2005103667, Triennial Fire Protection - RCP Trip Capability
2005103688, Triennial Fire Protection - Manual Operator Actions
2005103499, Triennial Fire Protection - Emergency Lights
2005103500, Triennial Fire Protection - Emergency Lights
2005103427, SRB meeting F2004-03 addressing inadequate corrective actions for CR 2004001281
2005100195, Delay on MPFF call
2003002443, Inadequate corrective action
2005106889, Trend Report improvement items
2005104537, Potential “rework” trend
2005106867, Effectiveness of rework review board results

2005104532, Potential fire equipment trend
2005106723, Assessment of fire equipment adverse trend
2005104533, Potential performance monitoring trend
2005101224, Increase in mispositioned components
2005107462, Identified weaknesses in processing CRs and AIs
2005106296, Operability determinations not properly documented
2004000795, NCV for non-1E battery charger tied to 1B AB battery
2004002235, NCV for inadequate control of backhoe in high voltage switchyard
2005100308, Neutral line caught by boom truck in low voltage switchyard
2002001545, Unit 2 RE-11/12 pump tripped twice on evening shift
2003002541, Unit 1 RE-11/12 pump tripped
2004000192, Unit 2 RE-11/12 pump tripped on low flow
2004101110, Unit 1 & Unit 2 RE-11/12 recommended for Maintenance Rule (a)(1) status
2005101978, Unit 2 RE-11 filter paper riding high
2005012025, Unit 2 RE-11/12 pump found not running - filter paper riding high
2005102065, Unit 2 RE-11/12 pump tripped on high flow
2005102457, Initiate RER to lower volumetric flow rate through RE-11/12
2005106984, Unit 2 RE-11 has a filter fault light
2005017050, Unit 2 RE-11 tripped on high flow
2005107120, Unit 2 RE-11 tripped
2005107076, Unit 2 RE-11 tripped on high flow
2003002382, Wrong battery was sampled, analyzed, and reported
2003002851, No indication of corrosion products found on Unt 2 corrosion products sample filter
2003003597, Environmental air monitoring station 0701 was found not running
2003001645, Negative trend identified in environmental monitoring equipment operability
2004000356, Unit 2 zinc addition batching tank double batched
2005101440, Battery 1B sulfate value of 159 ppb exceeded the diagnostic limit of 150 ppb
2005103232, Seven smoke detectors were released from the RCA with contamination levels above release criteria
2004002422, Contaminated lock found inside the main key cabinet in the Control Room Shift Foreman’s office
2004103577, Potential trend identified for "radiological incident" related events
2003003219, Individual received DAD dose rate alarm
2003002127, Security officer exited the RCA without being surveyed by HP
2003001965, FNP source No. 1863.00.00 was found missing from its normal storage area
2004002081, HP determined that the lower portion Unit 1 cask wash pit contained alpha contamination
2004002237, Potential trend identified in the area of "HP controls"
2005102892, Radioactive boric acid leaks found on the VCT outlet isolation valves
2003003616, NCV for failure to implement QA program to ensure representativeness of airborne effluent samples monitored by R-29A
2004001839, LIV for Unit 2 entering Mode 3 with the TDAFWP inoperable
2004001672, LIV for U2 entering Mode 4 with an LCO on one train of CCW
2004104156, LIV for not barricading and conspicuously posting HRA entrance at Unit 1 biowall entrance
2003002554, NCV for failure to adequately correct AFW pump oil out of specification condition
2003000917, NCV for inadequate use of engineering controls for airborne contamination

WOs

2051943101, 2F inverter swap to bypass (CR 2005107075)
0W65560601, 1A inverter 10 year component replacement
S300240601, X201 replacement in 1A inverter
0W65560801, 1B inverter 10 year component replacement
S300240701, X201 replacement in 1B inverter
0W65561001, 1C inverter 10 year component replacement
S300240801, X201 replacement in 1C inverter
0W65561201, 1D inverter 10 year component replacement
M300240901, X201 replacement in 1D inverter
0W65561601, 1G inverter 10 year component replacement
S300241001, X201 replacement in 1G inverter
0W65561401, 1F inverter 10 year component replacement
S300240501, X201 replacement in 1F inverter
S040591401, SW battery charger #3 missing mounting stud
S040591501, SW battery charger #3 low voltage alarm relay not working
S051407601, SW battery charger #3 failure
S040281201, SW battery charger #3 alarm
S050909001, SW battery charger #1 control card replacements
S051321901, SW battery charger #2 control card replacements
S050909101, SW battery charger #3 control card replacements
S050909201, SW battery charger #4 control card replacements
1050909401, AB 1A battery charger control card replacements
1050909301, AB 1B battery charger control card replacements
1050909501, AB 1C battery charger control card replacements
2050909701, AB 2A battery charger control card replacements
2050909801, AB 2B battery charger control card replacements
2050909601, AB 2A battery charger control card replacements
W00690106, Perform AB 1B battery service test per FNP-1-STP-905.1
2040276101, Address failures of Agastat relays in device 62 applications
1050715902, Aux Feedwater Pump (MD) Handswitch
03006352, TDAFWP Discharge Hand Switch
03007943, Flip cap on inboard pump bearing (2A MDAFW) oil fill cap is leaking
0M55663001, 2A MDAFW pump leaks oil from observation disc
1040510201, Check wiring for the Unit 1 CCW pumps
30044706, Investigating 7/15/2003 issues with 1A Containment Spray Pump Room Cooler
4002222, Investigating 3/23/2004 issues with 1A Containment Spray Pump Room Cooler

Procedures

NMP-AD-002, Troubleshooting Guidelines A Graded Approach, Version 1.0
FNP-0-SOP-0.13, LCO/TR Status Sheet, Version 4.0
FNP-1-STP-24.20A, Service Water Pumps A Train Remote Shutdown Capability Test (Pumps Operable), Version 2.0
FNP-1-STP-24.10, Service Water Pump 1C Automatic Starting Circuitry Test, Version 7.0
FNP-2-STP-40.2, B Train Sequencer Operability Test, Version 32.0

FNP-1-STP-213.11, Steam Generator 1A Q1N11PT0475, Steam Generator 1B Q1N11P0485 And Steam Generator 1CQ1N11PT0495 Loop Calibration And Operational Test, Version 26
FNP-1-STP.213.17, Hi Steam Line Flow, Steam Line Isolation And P-13 Operational Test FB-474A, FB-484A, FB-494A, and PB-446A, Version 31
PS-004, Vendor Technical Information Program, Version 2.0
FNP-0-AP-7, Corrective Action Program, Version 21
FNP-0-AP-30, Preparation And Processing Of Condition Reports and Licensee Event Reports, Version 37
FNP-0-ACP-9.0, Root Cause Program, Version 8.0
FNP-0-ACP-9.1, Root Cause Investigation, Version 8.0
NMP-GM-002, Corrective Action Program, Version 4.0
NMP-GM-002-GL02, Corrective Action Program Details and Expectations Guideline, Version 6.0
NMP-GM-002-GL03, Root Cause Determination Guideline, Version 4.0
NMP-GM-002-GL04, Apparent Cause Determination Guideline, Version 3.0
NMP-GM-002-GL06, Corrective Action Review Board Guideline, Version 3.0
NMP-GM-002-GL07, Effectiveness Review Guideline, Version 1.0.
FNP-0-SYP-14, Preparation And Processing Of NRC Information Notice Responses, Version 2.0
FNP-0-AP-65, Operating Experience Evaluation Program, Version 14.0
FNP-0-EMP-1341.05, Special Battery Single Cell Charging, Version 4.0
FNP-0-ACP-9.2, Operability Determination, Version 5.0
FNP-1-STP-22.6, Auxiliary Feedwater Pump Train B Functional Test, Version 20.0
FNP-1-STP-73.1, Hot Shutdown Panel Operability Verification, Version 8.0
FNP-0-—87, Maintenance Rule Scoping Manual, Version 15.0, Appendix A, HSDP
FNP-0-SOP-0.14, System Operator - Rover - Shift Relief Checklist, Version 8, (notes from 11/10/03 - 11/14/03)
FNP-2-STP-22.1, 2A Auxiliary Feedwater Pump Quarterly Inservice Test, STRS, 11/15/03
FNP-1-STP-73.1, Hot Shutdown Panel Operability Verification, STRS, 6/00 - 7/05
FNP-0-SYP-19, Maintenance Rule Performance Criteria, Version 6.0
SNC Concerns Program Procedure, Revision 8

Other Documents

System Health Report - Service Water (2nd Quarter 2005)
System Health Report - 120V Vital AC, 120V Regulated AC (2nd Quarter 2005)
System Health Report - Battery Chargers (2nd Quarter 2005)
System Health Report - Batteries (2nd Quarter 2005)
System Health Report - DG and Auxiliaries (2nd Quarter 2005)
System Health Report - Residual Heat Removal (2nd Quarter 2005)
System Health Report - Chemical Volume Control (2nd Quarter 2005)
System Health Report - Auxiliary Feedwater and Safety Related Aux Steam (2nd Quarter 2005)
System Health Report - Component Cooling Water (2nd Quarter 2005)
Corrective Action Review Board Minutes, 5/6/04, Root Cause grading for CR 2004001041
Operations LCO Log for TS 3.4.15, June 2002 - August 2005
DCR 96-1-9059, Radiation Monitors R-10, R-11, and R-21 Paper Drives, 8/19/96
Root Cause Investigation for Incident Nos. 2-98-338/1-98-328, R11/12 Inoperable & Multiple Radiation Monitor Failures, 8/30/99

REA 99-2100-01, Evaluation of Radiation Monitors RE11/12 Pump Failures, 12/19/00
REA 99-2121-01, Evaluation of Particulate Detector, RE-10, RE-11, and RE-21 Flow Rates, 3/10/00
RER C050882501, Conceptual Design for R11 Volumetric Flow Rate, 8/5/05
HP Work Plan for Smoke Detector Cleaning and Repair
Minor Departure MD-2760, 1A Containment Spray Pump Room Cooler Fan Supply Breaker Tripping Concern
Minor Design Change Request M04-1-0060 , Removal of Containment Spray Pump Room Cooler 1A & 1B Fan Motor Start Overloads/Bypass
SW Temporary Modification 02-2725, Installation of 4" all-thread to slow leak on V0538
SW Temporary Modification 03-2738, Q2P16V0646A-2A Service Water Pump Motor Cooling Water Pressure Control Root Valve Replacement
Documentation of Engineering Judgement DOEJ-SM-04-TBD-001, Evaluation of Valve Q2E21V0122B Leak on 2R16 Safety Injection Flow Balance Test
Inter-company Correspondence PS-04-0998, Evaluation of Valve Q2E21V0122B Leak on 2R16 Safety Injection Flow Balance Test
Operability Determination 04-06, 2B Charging/HHSI Pump
Procedure FNP-0-SOP-0.13 Figure 4 - LCO/TR Status Sheet, Maintain 2A and 2C Charging Pumps Operable
QA Surveillance 2004-13, Documentation review of operability determination of 2B Charging Pump during discharge check valve leak-by
Email - Assessment of 2B Charging Pump discharge check valve reverse leakage during the period 5/26/04 - 6/1/04
NRC Inspection Reports 05000348,364/(2003003, 004, 005, 007); (2004002, 003, 004, 005, 006); and (2005002, 003, 006)
TS 3.8.7, Inverters - Operating
TS 3.8.8, Inverters - Shutdown
TS 3.8.9, Electrical Distribution Systems - Operating
TS 3.8.9, Electrical Distribution Systems - Shutdown
TS 3.8.4, DC Sources - Operating
TS 3.8.4, DC Sources - Shutdown
TS 3.7.8, SW
RER 1041168801, Fuses for 125 VDC Buses
RER 03-122, Sequencer Undervoltage Relays
SRB Meeting F2004-03 minutes
SRB Meeting F2005-03 minutes
Quarterly Trend Report (February - April 2004)
Quarterly Trend Report (August - October 2004)
Quarterly Trend Report (November 2004 - January 2005)
Quarterly Human Performance Observation Program (November 2004 - January 2005)
Quarterly Human Performance Observation Program (February 2005 - April 2005)
10 CFR Part 21, Potential Defect in Static Switch and Regulated Rectifier Control Assembly in Uninterruptable Power Systems
FNP Equipment Reliability List, dated 6/27/05

Audits/Assessments

SNC-CAP-04, Corrective Action Program Fleet Assessment
F-CAP-2004-2, QA Audit of Corrective Action Program
F-TS-2005, QA Audit - CR Operability Determinations
F-CAP-2004-1, QA Audit of Corrective Action Program
OE Program Focused Self-Assessment (Selected Responses May 16 - June 10, 2005)

Operating Experience

[Action Items]

2002203852, SOER 02-1 “Severe Weather”
2003202566, SOER 3-02 Managing Core Design Changes
2003204418, Limitorque approval of use MOV long life grease
2003204321, ABB 4Kv Breaker failure to close and latch
2003201437, Part 21 Notification on Woodward EGM and EGA controls
2003202258, Evaluate Westinghouse vendor notification NSAL 03-4 , RX head crdm seismic and spacer plates
2003203182, NSAL 3-8, Loose Wire on a Position Switch of a circuit breaker
2003200621, SOER 03-1, Emergency Power Reliability
2004202599, SEN 249 Worker Injured While Removing Water Box Cover at E.I. Hatch
2004205918, SEN 250 Improper Rigging Practices Results in Injury To Supplemental Worker
2004206115, SEN 251 Electrical Shock Injury During Temporary Power Installation
2004200476, Westinghouse Technical Bulletin, TB-04-3, Cracked Ferrules on Ferraz-Shawmut Fuses
2004201083, Review SIL No. 448 Rev 1 & 2, Maintenance and lubricants for GE Type AK/AKR circuit breakers
2004201071, Review 10CFR Part 21 Notification from Cardinal Health regarding compliance of Model 977-201 and 977-210 Wide Range Monitor
2004202307, Westinghouse InfoGram, IG-04-5, Abnormal Condition Found During Upper Internals Removal
2004200438, Siemens Westinghouse Technical Advisory TA 2004-11, Denison Dump Valve Inspection
2004200520, Fisher Information Notice, FIN 2004-02, Fisher Pneumatic Instrument Relays with Nitrile Elastomer Diaphragms
2004203523, Westinghouse Technical Bulletin TB-04-16, Updated Reactivity Surveillance Policy for B10 Isotropic Concentration
2004204936, Review Westinghouse Technical Bulletin TB04-17, TYCO relays
2004203777, Review Westinghouse Issue OE 18932, Reactor Trip Breaker Shunt Trip Pushbuttons
2005201824, Addendum to SOER 00-1, “Loss of Grid”
2005202554, SEN 253, Unplanned Reactor Operations Below POAH
2005200696, Part 21 Eaton C-H Freedom Series Heater Pack
2005203259, OE21157 - Emergency Diesel Generator Rocker Arm Lube Oil Contaminated by Fuel Oil at Seabrook
2005200025, SEN 252 Unplanned Outage Due To Turbine Blade Failure

[CRs]

2002001250, NRC Information Notice 2002-18, Effects of Adding Gas into Water Storage Tanks on the Net Positive Suction Head for Pumps.
2003002682, NRC Information Notice 2003-17, Reduced Service Life Of Automatic Switch Company (ASCO) Solenoid Valves With Buna-N-Material
2005105048, NRC Information Notice 2005-04, Single Failure and Fire Vulnerability Of Redundant Electrical Safety Buses