UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
611 RYAN PLAZA DRIVE, SUITE 400
ARLINGTON, TEXAS 76011-4005

February 2, 2004

Jeffrey S. Forbes, Site Vice President
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1448 S.R. 333
Russellville, AR 72801-0967

SUBJECT: ARKANSAS NUCLEAR ONE, UNITS 1 AND 2 - NRC PROBLEM IDENTIFICATION AND RESOLUTION INSPECTION REPORT 0500313/2003-008; 0500368/2003-008

Dear Mr. Forbes:

On December 8, 2003, the Nuclear Regulatory Commission (NRC) completed a team inspection of your Arkansas Nuclear One, Units 1 and 2, facility. The enclosed report presents the results of this inspection. On November 20, 2003, we discussed the preliminary results of the onsite portion of the inspection with you and other members of your staff. The team continued document reviews and discussed specific issues with your staff through December 8, 2003. An exit meeting was held with you and your staff on December 19, 2003.

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

On the basis of the samples selected for review, the team concluded that, while, for the most part, problems were properly identified, evaluated, and corrected, occasionally, problems were not identified or properly entered into the corrective action program. The team found most priority and evaluation actions were conducted properly, even though the team found weaknesses in guidance. Notable problems were identified where some conditions adverse to quality, and at least one significant condition adverse to quality were not effectively corrected. During interviews, station personnel communicated a willingness to enter issues into the corrective action program. However, the team found that occasionally station personnel dealt with issues outside the program. There were four findings identified, including multiple examples, which were determined to be violations of NRC requirements. However, because of their very low safety significance and because they have been entered into your corrective action program, the NRC is treating the above findings as noncited violations, in accordance with Section V1.A.1 of the NRC's Enforcement Policy. If you deny the noncited violations, you should provide a response with the basis for you denial within 30 days of the date of this inspection report, to the U. S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, D.C. 20555-0001, with copies to the Regional Administrator, Region IV, 611 Ryan Plaza Drive, Suite 400, Arlington, Texas 76011-4005; the Director, Office of Enforcement, U.S.

Nuclear Regulatory Commission, Washington, D.C. 20555-001; and the NRC resident inspector at Arkansas Nuclear One, Units 1 and 2, facility.

In addition, several examples of minor problems were found, which related to the identified violations. These problems further detail deficiencies in your identification, evaluation, and resolution of problems.

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

Sincerely,

/RA/

Anthony T. Gody, Chief
Operations Branch
Division of Reactor Safety

Dockets: 50-313; 50-368
Licenses: DPR-51; NPF-6

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05000368/2003008 w/Attachment:
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U.S. NUCLEAR REGULATORY COMMISSION

REGION IV

Dockets:	50-313, 50-368
Licenses:	DPR-51, NPF-6
Report:	050000313/2003-008; 05000368/2003-008
Licensee:	Entergy Operations, Inc.
Facility:	Arkansas Nuclear One, Units 1 and 2
Location:	Junction of Hwy. 64W and Hwy. 333 South Russellville, Arkansas
Dates:	November 3 through December 19, 2003
Inspectors:	J. Clark, Senior Project Engineer, Projects Branch D T. McKernon, Senior Operations Engineer, Operations Branch S. Cochrum, Resident Inspector, Projects Branch C E. Crowe, Resident Inspector, Projects Branch D
Approved By:	Anthony T. Gody, Chief Operations Branch Division of Reactor Safety

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SUMMARY OF FINDINGS

IR 05000313/2003008, 05000368/2003008; 11/03 - 12/19/2003; Arkansas Nuclear One, Units 1 and 2; biennial baseline inspection of the identification and resolution of problems. Violations, with multiple examples, were identified in the area of problem identification and effectiveness of corrective actions.

This inspection was conducted by two resident inspectors and two regional inspectors. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter 0609, "Significance Determination Process." Findings for which the significance determination process does not apply may be Green or be assigned a severity level after NRC management review. Four Green findings of very low safety significance were identified during this inspection and classified as noncited violations. 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.

Identification and Resolution of Problems

The team found that the licensee staff occasionally failed to identify problems that were subsequently identified through self-revealing events, internal or third party audits, or by NRC inspectors. The licensee's corrective action procedure uses risk to prioritize the extent to which individual problems should be evaluated and in establishing schedules for implementing corrective actions. However, the team found that risk was not the primary factor in this determination and that problem classification did not consistently meet the licensee's guidance contained within that procedure. The team also found problems with root-cause determinations, for significant conditions adverse to quality, and corrective actions associated with conditions adverse to quality. Implementation and tracking of corrective actions were performed using a wide variety of systems and were not always placed in a quality controlled document. This caused difficulty in determining corrective action program effectiveness. Licensee audits and assessments were self-critical and made similar conclusions regarding the corrective action program. On the basis of the interviews conducted during this inspection, workers at the site felt free to input safety concerns into the corrective action program.

NRC-Identified and Self-Revealing Findings

Cornerstone: Barrier Integrity

- Green. The team identified a noncited violation of Technical Specification 3.4.13(a) and 10 CFR Part 50, Appendix B, Criterion XVI. NRC inspectors previously identified an unresolved item on December 20, 2002 (URI 50-313/2002-05-02), for repeat reactor coolant system boundary leakage from Unit 1, Control Rod Drive Mechanism Nozzle 56. During this inspection, the team performed additional review of corrective action documents and consulted with NRC senior reactor analysts and Office of Enforcement personnel to close this issue. The team concluded that repetitive leakage from the nozzle violated the licensee's technical specification of zero reactor coolant system boundary leakage, with the causal factor of a performance deficiency in failing to prevent recurrence of a significant condition adverse to quality. This finding was determined to have cross-cutting aspects of problem identification and resolution.

The finding was considered more than minor due to adversely affecting the performance attribute of the barrier integrity cornerstone for reactor coolant system leakage. The finding is of very low safety significance because a Manual Chapter 0609, Phase III, significance determination concluded that the flaw did not have a circumferential aspect and, therefore, represented relatively low risk of a control rod ejection accident. The licensee staff entered the condition into the corrective action system and completed a more comprehensive repair as documented in Licensee Event Report 50-313/2002-003-00. (Section 4OA2.c)

Cornerstone: Mitigating Systems

- Green. NRC inspectors previously identified an unresolved item (URI 05000368/200304-01) associated with service water heat exchanger performance testing. Based upon further review and interviews conducted during this inspection, the team determined the issue was a noncited violation of 10 CFR Part 50, Appendix B, Criterion XI, for failure to adequately evaluate that test requirements were satisfied. The installation and accuracy of the licensee's test instrumentation failed to meet guidelines established by the licensee's procedures and Electric Power Research Institute guidance, which the licensee had adopted. Due to the inaccuracy of the test equipment, engineers stated that recalculation of margins were required for all heat exchangers cooled by service water and tested using the low-accuracy ultrasonic instruments. The engineers also stated that design margins were exceeded for three heat exchangers and required re-analysis, for consideration of operability, with present conditions rather than design. These heat exchangers were the Unit 2 low pressure safety injection pump seal cooler, the red train Unit 2 Emergency Diesel Generator Heat Exchanger 2E-20A and the green train Unit 2 Emergency Diesel Generator Heat Exchanger 2E-20B. This finding was determined to have cross-cutting aspects of problem identification and resolution.

  The finding was considered more than minor because it affected the Mitigating Systems Cornerstone objective in ensuring reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. It was also considered more than minor because the method of testing, if allowed to continue, could have masked inoperable heat exchanger conditions, presenting a more serious condition. The finding is of very low safety significance because the licensee changed their surveillance tests and reperformed testing with appropriate test equipment that adequately demonstrated operability of all service water cooled heat exchangers for all design basis conditions.

Cornerstone: Miscellaneous

- Green. The team identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion XVI, with three examples, for failing to identify conditions adverse to quality and enter them into the corrective action program. Example 1 - On February 15, 2002, an inadequate implementation of a modification for a Unit 1 integrated control system module caused reactor power to increase to 101.3 percent. The licensee staff missed prior opportunities, from 1999 to 2002, to identify and enter a condition adverse to quality into their corrective action system, associated with the module, which led to this self-revealing excursion. Example 2 - The team further reviewed the conditions of an

unresolved item (URI 05000368/2003003-01). From April to June of 2003, the team identified numerous physical and electrical conditions, which could adversely affect the quality of Unit 2, Battery 2D12. The team noted that although several of these conditions were previously known to the licensee staff, they failed to enter the conditions adverse to quality into the corrective action system. Example 3 - On October 11, 2002, workers inspected Unit 1 emergency feedwater system turbine driven pump steam admission Bypass Valve SV-2663. Although, clearly identified in the maintenance document as being environmentally qualified and referencing a previous degraded condition due to excessive temperature effects, the workers identified heat damage on the inspection form but failed to enter the condition adverse to quality into the corrective action program. This finding was determined to have cross-cutting aspects of problem identification and resolution.

The finding was considered more than minor because, if left uncorrected, they would pose a more significant safety concern. The finding is of very low safety significance because (Example 1) operators took prompt immediate actions to take manual control of the integrated controls system and terminate the transient. Subsequent corrective actions eliminated the problem with the module. The Battery 2D12 passed technical specification surveillance tests (Example 2) for the remainder of the operating cycle and was subsequently replaced. The licensee staff repaired Bypass Valve V-2663 (Example 3) prior to evaluated end of qualified life. The license staff entered the issues, including the failures to enter adverse conditions, into their corrective action program as Condition Reports CR-1-ANO-2002-00201 (integrated controls system issue), CR-2-ANO-2003-00457, CR-2-ANO-2003-00646, CR-2-ANO-2003-00703, and CR-2-ANO-2003-00871 (Battery 2D12), and CR-1-ANO-2003-00346 (Bypass Valve SV-2663). (Section 4OA2.a)

- Green. The team identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion XVI, with four examples, for failing to correct conditions adverse to quality. Example 1 - The team identified that on June 21, 2002, after the licensee staff noted a large number of foreign material exclusion problems with the Unit 1 and 2 spent fuel pools, a root-cause analysis was initiated and corrective actions were developed to prevent recurrence. The team concluded the root cause was narrowly focused, and that subsequent spent fuel pool foreign material exclusion problems in 2003 demonstrated that corrective actions did not correct the condition adverse to quality. Example 2 - When the team closed Unresolved Item 05000368/2003004-02, they determined the licensee had not taken adequate corrective actions associated with the use of ultrasonic flow instruments in service water heat exchanger performance testing. Example 3 - The team identified that on October 11, 2003, the licensee staff performed an equalizing charge of the Unit 2 Battery 2D11, as corrective action, after five cell-specific gravities were found below procedural maintenance limits and after Cell 41 was found below technical specification minimum voltage on October 9, 2003. While the licensee staff monitored Battery 2D11 Cell 41 several times during the charge, and observed its voltage increased above technical specification limits, the licensee staff failed to perform a post-maintenance test of the battery to confirm that corrective actions corrected the condition adverse to quality. Example 4 - The team identified that during a period from 2001 through 2003, the licensee staff entered numerous problems into their corrective action program that appeared to represent violations of NRC requirements. However, the team determined, based upon a sampling of 12 such issues, the licensee staff did

not consider the majority of these to be conditions adverse to quality and closed them administratively. The team found that several of the conditions did violate NRC requirements, but were closed in the licensee's corrective action program without corrective actions being taken. This finding was determined to have cross-cutting aspects of problem identification and resolution.

The finding was considered more than minor because, if left uncorrected, they would pose a more significant safety concern. The finding is of very low safety significance because (Example 1) the licensee staff evaluated the subsequent foreign material exclusion issues and determined that each was of very low safety significance; (Example 2) the licensee staff changed the heat exchanger performance test to use adequate test equipment and subsequently performed satisfactory tests on each heat exchanger; (Example 3) the licensee staff conducted a surveillance of Battery 2D11, which demonstrated no technical specifications were exceeded; and (Example 4) the team determined the licensee staff subsequently corrected all identified violations of NRC requirements. The team verified the license staff entered the issues into their corrective action program as Condition Report CR-C-ANO-2003-1080. (Section 4OA2.c)

Report Details

4. OTHER ACTIVITIES (OA)

4OA2 Problem Identification and Resolution

a. Effectiveness of Problem Identification

(1) Inspection Scope

The team reviewed approximately 200 condition reports, and supporting documentation, including root-cause analyses, and analyses associated with justifications for continued operation, to determine whether problems were properly identified, characterized, and entered into the corrective action program. These conditions were selected across the seven cornerstones of safety.

(2) Assessment

Introduction. The team identified an example of a noncited violation (Green) of 10 CFR Part 50, Appendix B, Criterion XVI, for the failure to identify adverse conditions posed by troubleshooting of the Unit 1integrated controls system STAR module. The team provided additional review and characterization of a previously unresolved item (URI 05000368/2003003-01) and closed the issue as an example for a noncited violation (Green) of 10 CFR Part 50, Appendix B, Criterion XVI, for the failure to identify potentially degraded condition of the Unit 2 Battery 2D12. The team identified an example of a noncited violation (Green) of 10 CFR Part 50, Appendix B, Criterion XVI, for Unit 1 turbine-driven emergency feedwater pump steam admission Bypass Valves SV-2613 and SV-2663 for failing to identify degradation that affected environmental qualifications. The multi-example violation describes an issue, which has cross-cutting aspects of problem identification and resolution. The team also discussed with the licensee staff aspects of several minor violations as further examples of concerns with the effectiveness of problem identification.

The team concluded that, occasionally, problems were not identified or properly entered into the corrective action program. Although conditions or problems were seen by plant personnel, they were not always documented in a system that would direct corrective action or give oversight opportunity to other station groups and management. The team determined the licensee staff used several other programs to document and direct corrective actions. Interviews revealed that plant personnel believed the corrective action program was cumbersome and did not effectively or efficiently correct some problems that were important to their specific areas. The team found plant personnel displayed ownership of their systems and programs. However, the team determined that personnel occasionally saw the corrective action program as a roadblock. This was evidenced by the fact that personnel occasionally combined several steps of the corrective action program (such as identification, evaluation, and resolution). Since the problem was, therefore, resolved, nothing was documented in the corrective action program.

The team was concerned that failing to place degraded conditions, or conditions adverse to quality, into the corrective action program could result in two distinct problems. First, the ability to assess the overall effectiveness of the corrective action program could be inhibited. Secondly, adverse conditions that are not identified can become latent problems with the plant.

a) Failure to Identify Problem With Unit 1 Integrated Control System:

Description. The licensee staff failed to promptly identify and correct a condition adverse to quality resulting in exceeding rated thermal power on February 15, 2002. The integrated control system is a control system which directly interfaces with 10 CFR Part 50, Appendix B, systems, such as, reactivity controls systems. The condition adverse to quality introduced a nonconservative error into the integrated controls system STAR module, which caused the unplanned reactivity addition.

Arkansas Nuclear One, Unit 1, uses integrated controls system, which consists of several subsystems that provide proper coordination of the reactor, steam generator feedwater control, and turbine. The integrated controls system STAR module is contained in the unit load demand circuit and was installed during Refueling Outage 1R14 as a direct digital replacement of the analog memory module and the rate limited signal follower module. The STAR module provides precise automatic or manual control of the unit load demand in response to calculated core thermal power or operator input. During the original STAR module installation, indication and control system responses were expected to be identical to the replaced analog modules. The initial testing identified difficulties taking the STAR module out of Unit Master Track Mode. The problem was determined by system engineering to be a module “functional lock up” related to the Unit Master Track Mode. A modification package was processed to disable the Unit Master Track Mode to allow testing to continue. This problem was documented in the test log, but was not documented in the corrective action program. The licensee staff failed to recognize that the functional lock up condition was related to an improper integrated controls system runback configuration.

On October 9, 1999, prior to startup following Refueling Outage 1R15, operations notified system engineering that a runback annunciator was in alarm. This condition was corrected by manually jumpering STAR module contacts, which released the Unit Master Track Mode signal to the STAR module allowing manual unit load master station operation. This occurrence was determined to be similar to the STAR module lock up during the original Refueling Outage 1R14 STAR module installation post-modification testing. However, since it occurred at 0 percent power, the licensee staff failed to recognize a connection to runbacks, or that portion of the circuitry.

On December 22, 2000, control room annunciators “Unit Master in TRACK,” “Loss of RCP [reactor coolant pump] Runback in Effect” and “FW [feedwater] Re-ratio on RC [reactor coolant]-Flow Enabled” alarms were received. It was determined that the “D RCP Running” relay had failed. Operators verified that all reactor coolant pumps were in operation, reactor coolant system flows were stable and normal, and no reactor coolant pump trips or other problems were indicated on the reactor protection system. Because the integrated controls system recognized the event of a loss of reactor coolant pump, a runback signal should have automatically reduced power to about 75 percent.

However, no runback occurred. Maintenance personnel in integrated controls system room noted that “D RCP Running” relay re-energized and all associated control room annunciators cleared. The “D RCP Running” relay was replaced. Three days later, the control room received annunciators “Loss of RCP Runback in Effect” and “FW Re-Ratio on RC-Flow Enabled.” No plant condition supported these alarms and no automatic runback was initiated. Local indication within the integrated controls system relay room revealed the annunciators were associated with the “D” reactor coolant pump and were identical to those received earlier. During the troubleshooting effort, the alarms and the fault cleared before any corrective actions were accomplished. Based on the limited troubleshooting findings, a fuse and the fuse bayonet cap associated with the "D" reactor coolant pump running circuit were replaced. Integrated controls system was returned to automatic without further problems, but the lack of the plant runback feature on loss of an reactor coolant pump remained un-recognized and non-functional. This condition was documented as Condition Report CR-ANO-1-2000-0492.

On May 5, 2001, the “B” main feedwater pump tripped. The reactor power ran back automatically to approximately 59 percent reactor power due to integrated controls system cross limits. The unit load demand and SG/Rx master hand/auto station outputs remained at 100 percent demand. The plant stabilized at 59 percent reactor power and was manually reduced to less than 40 percent reactor power to complete the runback. The integrated controls system runback from the feedwater pump trip was not initiated as required by integrated controls system STAR module design. Based on data review and a verification review of the integrated controls system STAR module software, the cause of the nonfunctional runback feature was determined to be a STAR module software code design error. The STAR module program included a code line that, in effect, caused the STAR module output to remain unchanged if the input was approximately equal to the output. The consequence of this condition is that the integrated controls system would not respond to any of the preset runback conditions. The code error was not discovered during the original STAR module modification testing. While the modification testing extensively verified the Unit Master Track Mode feature, the Unit Master Track configuration was not identified as requiring testing. In fact, the Unit Master Track Mode inputs were actually disabled in order to allow testing. The lock up condition stated earlier was not documented in a problem report for resolution since it was believed to be caused by the test configuration. The factory acceptance test failed to identify and test all possible combinations of the various inputs to the STAR module. The software documentation report verified that each function required by the specification was tested, but did not verify that each test was adequate to fully verify the function. This condition was documented as Condition Report CR-ANO-1-2001-0611. The team noted that although a thorough failure modes and effects analysis, under 10 CFR 50.34(f)(2)(xxii), had been conducted for the original system, the licensee staff failed to adequately identify and incorporate design differences with the new digital system.

On February 15, 2002, an unanticipated integrated controls system STAR module response during planned maintenance system recovery caused reactor power to increase to 101.3 percent. The STAR module had been replaced to correct software logic that had previously disabled the automatic runback features of the integrated controls system. After the SG/RX master controller was placed in AUTO following the STAR module post-modification testing sequence, the integrated controls system

gradually generated a unit load demand signal increase. The control board operators recognized the power increase and transferred to manual integrated controls system control and reduced power to less than 100 percent. The event analysis identified that when the SG/RX master was placed in AUTO, the STAR module was subjected to a combination of inputs that had not been evaluated or tested during original design development and subsequent design changes. Although the STAR module tracking algorithm had been specified to operate like its analog predecessor, the digital equivalent proved to be unstable under the specific plant conditions experienced. Due to the inherent discrete, sequential nature of the digital process, the control inputs that the STAR module expected did not develop, causing the STAR module software algorithm to respond inappropriately by raising reactor power. The original software logic error and configuration, which had prevented proper runback response, had also caused this unstable condition. The team concluded that the licensee's inadequate failure modes and effects evaluation, coupled with missed prior opportunities to determine the correct operation of the module, led to the failure to identify the condition adverse to quality and to the power excursion.

Enforcement. Appendix B, Criterion XVI, of 10 CFR Part 50, states, in part, that measures shall be established to assure that conditions adverse to quality are promptly identified. The failure to promptly identify the STAR module software errors, resulting in a reactivity addition, which exceeded rated thermal power, is an example of a violation of 10 CFR Part 50, Appendix B, Criterion XVI. This is being treated as a noncited violation (05000313/2003003-01) consistent with Section VI.A of the NRC Enforcement Policy.

The finding was considered more than minor due to an adverse impact on the Barrier Cornerstone. The integrated controls system work produced an inadvertent reactivity addition, a challenge to barrier integrity. The finding is of very low safety significance because operators took prompt immediate actions to take manual control of the integrated controls system and terminate the transient. Subsequent corrective actions eliminated the problem with the module. The licensee staff entered this issue into their corrective action program as Condition Report CR-1-ANO-2002-00201.

b) Failure to Identify Problems With Unit 2 Battery 2D12

Description. The team further reviewed the conditions of Unresolved Item 05000368/2003003-01. During the previous inspection, the team identified numerous conditions, which could adversely affect the quality of Battery 2D12. Most of these conditions had not been identified as conditions adverse to quality by the licensee staff. Some of the conditions, including physical anomalies and individual cell parameters outside administrative limits, were documented using informal methods that did not allow the conditions to be assessed for proper corrective action by station management. The licensee staff entered these concerns in their corrective action program as Condition Reports CR-2-ANO-2003-00457, CR-2-ANO-2003-00646, CR-2-ANO-2003-00703, and CR-2-ANO-2003-00871. The team also found that corrective action effectiveness for the battery had been exempted from the site's general effectiveness review program. Station engineering and maintenance personnel were maintaining this information in battery logs and separate databases. The team determined that this practice highlighted the two distinct concerns of this assessment

area, being both an effectiveness review issue and a potential cache for latent conditions. The team concluded the multiple examples of failing to identify and correct conditions adverse to Battery 2D12 was in violation of NRC requirements. This violation was unresolved pending further evaluation of the performance of Battery 2D12 from April 2003 until replacement. The team noted that the licensee staff completely replaced Battery 2D12 in the recent Unit 2 fall outage.

Enforcement. Appendix B, Criterion XVI, of 10 CFR Part 50, states, in part, that measures shall be established to assure that conditions adverse to quality are promptly identified and corrected. The failure to promptly identify and correct adverse conditions observed with the Battery 2D12 is a violation of 10 CFR Part 50, Appendix B, Criterion XVI, and is being treated as an example of a noncited violation (05000368/2003008-01) consistent with Section VI.A of the NRC Enforcement Policy.

The finding was considered more than minor because, if left uncorrected, could have lead to inoperability of the battery, which would pose a more significant safety concern. The issue is of very low safety significance because the Battery 2D12 passed technical specification surveillance tests for the remainder of the operating cycle and was subsequently replaced. The licensee staff entered this issue into their corrective action program as Condition Report CR-1-ANO-2002-00201.

c) Failure to Identify Problem With Environmental Qualifications

Description. On March 19, 2003, the licensee staff identified that Unit 1 turbine-driven emergency feedwater pump steam admission Bypass Valves SV-2613 and SV-2663 were not environmentally qualified in accordance with 10 CFR 50.49. It was found that the ambient temperature in the area was greatly different than expected, as evidenced by partial melting and deformation of some valve components. This was determined to be a licensee identified noncited violation documented in NRC Inspection Report 05000313/2003-002. The safety significance of this finding was very low because the valves remained operable, by evaluation at the higher temperature, through April 2003 and were replaced prior to that date. This issue was entered into the licensee's corrective action program as Condition Report CR ANO-1-2003-0369. During the problem identification and resolution inspection, the team reviewed the licensee staff's investigation and found that the condition of the valves had actually been seen by workers 5 months earlier during a maintenance activity in November 2002. The workers did not enter the adverse conditions into the corrective action program. The team also found that the condition had been caught in an engineering review in March, and corrective actions taken. However, if the condition had not been observed in the review or the review had been conducted at a later date, the valves would have exceeded qualified life in April, resulting in a more significant condition. The team concluded that this was another example of poor problem identification on the part of the licensee.

Enforcement. Appendix B, Criterion XVI, of 10 CFR Part 50, states, in part, that measures shall be established to assure that conditions adverse to quality are promptly identified and corrected. The failure to promptly identify and correct adverse conditions observed with the environmental qualifications of Bypass Valves 1-SV-2613/2663 is a violation of 10 CFR Part 50, Appendix B, Criterion XVI, and is being treated as an

example of a noncited violation (50-313/2003-08-01) consistent with Section VI.A of the NRC Enforcement Policy.

The finding was considered more than minor because, if left uncorrected, could have led to inoperability of the valves, which would pose a more significant safety concern. The issue is of very low safety significance because the valves were replaced prior to the evaluated end of qualified life date. The licensee entered this issue into their corrective action program as Condition Report CR-ANO-1-2003-0346.

d) Additional Failures to Identify Conditions Adverse to Quality

Description. The team noted several other examples of the licensee failing to enter potential conditions adverse to quality into the corrective action program. These examples were in the form of three minor violations of NRC requirements, and an observation.

- During the 2002 fall Unit 1 outage, the licensee performed a bare metal visual inspection of the reactor vessel head. Reviewers identified one leaking control rod drive mechanism nozzle, with no other identified potential leakers. NRC inspectors examined the video tape and still images recorded by the licensee and identified about 30 nozzles that could be classified as potential leakers. This was evidenced by white crystal accumulation in the nozzle annulus, white stains around the nozzles, and apparent stain trails going down the side of the head from some nozzles. The team interviewed the licensee's reviewers and found they had also seen these indications. This was substantiated by pauses in the video, zooming in on some of the indications, and making several passes of particular nozzles. However, the reviewers stated that they evaluated that the nozzles were not leaking. This was based upon lengthy reviews of previous tapes or photographs from previous outages. The team concluded that the reviewers combined several steps of the corrective action program to do this, and bypassed the documentation and management review that would have been provided by identifying the conditions in the corrective action program. The failure to identify these potential conditions adverse to quality under the corrective action program was as a violation of 10 CFR Part 50, Appendix B, Criterion XVI, and was previously described to the licensee as a minor violation during the debriefing for NRC Inspection Report 50-313/2002-05.

- On March 24, 2002, the licensee staff identified degrading performance of Service Water Pump 2P-4A on Unit 2. A subsequent quarterly performance test performed on May 2, 2002, identified low performance data. Maintenance removed the discharge pressure device (PS-1492) and found mud inside. The instrument was replaced. After pump repair, replacement, and functional testing on June 6, 2002, the instrument still read low but was used to accept the pump for operability after another gage was installed downstream on the discharge strainer to compare pressure and flow measurements to the discharage pressure device (PS-1492). Again, the pump was considered operable but no condition report was written to address the faulty safety-related instrument. On September 5, 2002, another quarterly surveillance test was performed with the faulty instrument used and the test accepted with low but satisfactory flow data.

On November 26, 2002, the pressure instrument was removed under scheduled Maintenance Action Item 64940 and sent in for calibration. The team determined the maintenance action item was not designated as a corrective action and that no condition report was written. The instrument was found out-of-calibration low, recalibrated and reinstalled. Another quarterly performance test was done on November 28, 2002, with satisfactory results.

The licensee staff missed three opportunities to identify the faulty instrument, which was used for acceptance data in both pump functional tests and quarterly inservice tests. Therefore, the failure of the licensee staff to identify and correct a faulty safety-related instrument through their corrective action program was considered a violation of 10 CFR Part 50, Appendix B, Criterion XVI. However, the function of the safety system was never compromised and was, therefore, minor.

- In NRC Inspection Report 05000368/2003004-03, a violation of 10 CFR Part 50, Appendix B, Criterion XVI, was documented because of a self-revealing issue when the licensee staff did not take prompt action to correct lube oil leakage from a degraded exhaust manifold gasket on the Unit 2 Emergency Diesel Generator 2K-4B. The leakage was known and documented by the licensee staff for approximately 10 months, and the failure to correct it subsequently led to an exhaust manifold fire during surveillance testing on August 27, 2003. Additional team review noted that no condition report was ever written for the condition, as called for under Procedure LI-102, “Corrective Action Process," Revision 1, July 12, 2001. The team also determined that such oil leaks were directed to be evaluated by fire protection personnel under Procedure LI-102. The licensee staff had no documentation that such an evaluation had been conducted. The team concluded that failing to identify the problem in the official corrective action program contributed to the lack of recognition of a potentially latent condition. The team determined that the failure to follow Procedure LI-102 was a violation of Technical Specification 6.8.1.a, for a referenced Regulatory Guide 1.33 procedure. This condition did not result in the loss of function of the safety system and was, therefore, minor.

- The team observed that the licensee staff used multiple methods, or bins, to collect and process problems at the facility. These included items, such as, condition reports, work requests, boric acid evaluation forms, engineering requests, coaching cards, procedure improvement forms, battery data books, and others. The team determined that it was very difficult to track problems between systems, and to determine all of the potential problems or corrective actions associated with a component, system, or category of equipment. The team asked several times for an overall count of all corrective actions open at the facility. However, station management could not provide a quantitative answer. The team also asked for several different lists of corrective actions, by equipment type, classification, and type of problem, or by specific types of problems across systems. Due to the multiple systems used, and the search capability being limited by a small number of initial coding options, the licensee staff could not provide such information.

The team interviewed several craft workers, operators, chemists, and engineers. All of the individuals stated that the systems were cumbersome and difficult to use in extracting historical information. They were also not clear on specific guidance for when the condition report system was required, and when other systems could be used.

The team found multiple condition reports written for previous failures to write condition reports, regarding conditions adverse to quality, or for completing corrective actions in other systems and not making reference to the corrective action program. This was also highlighted in licensee self assessments and third party assessments. The team determined, for the examples they observed, that periodic reviews and departmental checks subsequently discovered these discrepancies and provided for their correction. The team was concerned that many of the systems did not incorporate quality assurance documentation. During the onsite inspection, licensee management issued a written directive to station personnel to reinforce the requirements of how corrective actions should be closed through other processes, to the to corrective action program.

The team concluded that the multiple systems and difficulties in tracking historical references to problems, at least, in part, contributed to the above listed violations and their cross-cutting aspects.

b. Prioritization and Evaluation of Issues

(1) Inspection Scope

The team reviewed approximately 200 condition reports, and supporting documentation, including root-cause analyses, and analyses associated with justifications for continued operation, to ascertain whether the licensee staff's evaluation of the problems identified and considered the full extent of conditions, generic implications, common causes, and previous occurrences. In addition, the team reviewed problem evaluation requests to ascertain if the provisions of NRC Generic Letter 91-18, "Resolution of Degraded and Non-Conforming Conditions," and 10 CFR Part 50, Appendix B, were satisfied regarding timeliness of corrective action. Specific items reviewed are listed in the attachment.

(2) Assessment

Introduction. The team found most priority and evaluation actions were conducted properly, even though the team found weaknesses in guidance.

Description. The team identified a number of issues regarding the licensee staff's prioritization and evaluation of issues. These included:

- The team reviewed Procedure LI-102, "Corrective Action Process," Revision 3, October 15, 2003. This procedure provides criteria to determine the significance of issues entered into the corrective action program. The team determined that although reactor safety was a consideration for priority, it was not the highest. Two other categories, significant loss of production and loss of production, were placed higher than failures of safety related components or systems. It was also

determined that most conditions adverse to quality involving safety-related components, but not causing a complete loss-of-safety function, resulted in a priority that was next to the lowest. The team was concerned that this appeared to be nonconservative, and could mean conditions were not given adequate priority. However, the team also found that station personnel and management were not adhering to this guidance. Station personnel and management, in all examples which the team reviewed for potential mis-prioritization, conservatively raised the priority to a higher level. In some cases, this priority was two steps higher than Procedure LI-102 guidance. Another close concern to this was the process of conservatively raising the priority, above that specified in the procedure, often led to "hunting" up and down for a correct level. This process sometimes took months to settle on an appropriate priority.

- The team determined that Procedure LI-102 did not provide discernment to extensions of corrective actions, primarily due to evaluations, based upon significance. A first-line supervisor could authorize an extension, of the same amount, for each priority level of corrective action. The team noted that typical programs require higher levels of authorization, and shorter extensions, as the priority increases. The team also noted several examples where timeliness "clocks" were reset automatically whenever a corrective action was reassigned to a different working group.

- The team noted that repeat occurrences of failures with equipment was classified as rework. They also noted that rework, accompanying an increased rate of equipment failures, was an ongoing concern in a number of self assessments and third party audits. The licensee had a program to assign higher significance to rework items. Through interviews, the team found that station personnel were fairly familiar with the definition and processing of rework items. However, the team were concerned because the individuals could not explain why rework was important. It appeared they were following a process, but did not know a reasoning behind it. As an example, personnel assigned to identify rework items performed scripted searches for duplicate equipment numbers in condition reports of the previous 2 weeks. However, they were not looking for similar conditions or similar symptoms in the corrective action program. Combined with the cumbersome nature of the corrective action program, and the difficulty in reviewing historical information, the team was concerned that identification of rework items may not be effective. The team was unable to determine an overall effect or extent of this problem because of a lack of available information. Also tied to this issue, the team found that the station had no official guidance for troubleshooting, including documentation of troubleshooting efforts and findings. The team saw this as a causal factor to a number of the rework issues, and as a potential cause for improper problem identification. Two specific examples of this were the integrated control system violation example and the station battery violation example in Section (a). The team noted similar findings in self assessments and third party audits for almost 2 years. When questioned, station management stated that such guidance was being developed, but had not been issued.

- The team noted that there were two traditional enforcement violations, both Severity Level IV, issued to the licensee in the past year for inadequate 10 CFR 50.59 evaluations. In NRC Inspection Report 05000313;368/2003-002, a violation was described for the deletion of General Design Criterion 57 requirements from certain Unit 2 containment isolation valves, the team also found that multiple secondary system reactor building penetration valves, which were previously identified as General Design Criterion 57 reactor building isolation valves were removed from the Unit 1 Updated Final Safety Analysis Report in the same manner. This violation was documented as Violation 05000313;368/2003002-01. A noncited violation of 10 CFR 50.59 was also identified by the team when the licensee staff did not submit a license amendment request for a modification to the L-3 spent fuel area crane. The modification, which increased the maximum critical load rating to allow for a different type of spent fuel storage cask to be carried over the control rooms of both units, created the possibility for a malfunction of the L-3 crane that had a different result than previously evaluated. The licensee staff subsequently submitted a license amendment request for the modification on February 24, 2003. This violation was documented as Violation 05000313;368/2003004-05. The team also found that self assessments and third party audits identified repeat occurrences of similar evaluations. The team determined that these examples of inadequate evaluation was an additional example of human performance with cross-cutting aspects of problem identification and resolution.

c. Effectiveness of Corrective Actions

(1) Inspection Scope

The team reviewed problem evaluation requests, followup assessments for operability, and self assessments to verify that corrective actions related to the issues were identified and implemented in a timely manner commensurate with safety, including corrective actions to address common cause or generic concerns. A listing of specific documents reviewed during the inspection is included in the attachment to this report.

(2) Assessment

Introduction. The team reviewed and closed Unresolved Item 05000313/2002005-02 as a violation (Green) of 10 CFR Part 50, Appendix B, Criterion XVI, for failing to prevent recurrence of a significant condition adverse to quality. The team identified an example of a noncited violation (Green) of 10 CFR Part 50, Appendix B, Criterion XVI, for the failure to correct a condition adverse to quality in the adverse trend of spent fuel pool foreign material introduction events. The team identified an example of a noncited violation (Green) of 10 CFR Part 50, Appendix B, Criterion XVI, for the failure to perform corrective actions associated with service water heat exchanger performance testing. The team identified an example of a noncited violation (Green) of 10 CFR Part 50, Appendix B, Criterion XVI, for the failure to perform a post-maintenance test on the Battery 2D11 after corrective action, in the form of an equalizing charge, was taken for low specific gravity in five cells. The team identified an example of a noncited violation (Green) of 10 CFR Part 50, Appendix B, Criterion XVI, for the failure to demonstrate corrective actions were taken for several licensee-identified violations of NRC

requirements. An observation was also documented for a concern with the alignment of the licensee's Quality Assurance Plan with 10 CFR Part 50, Appendix B, Criterion XVI, for prevention of recurrence of significant conditions adverse to quality. Two previously identified violations were discussed with the licensee staff to address the cross-cutting aspects of problem identification and resolution described in this section.

The team determined that the majority of conditions adverse to quality were effectively corrected. However, notable problems were identified where some conditions adverse to quality, and at least one significant condition adverse to quality were not effectively corrected. This was evidenced by both the control rod drive mechanism nozzle repair and the multi-part violations previously discussed. The team identified a number of issues regarding the licensee's effectiveness of corrective actions. These included:

a) Control Rod Drive Mechanism Nozzle Repeat Leakage

Description. On October 8, 2002, the team identified an unresolved item associated with repeat reactor coolant system boundary leakage. During the Unit 1 Spring 2001 Refueling Outage 1R16, Control Rod Drive Mechanism Nozzle 56 was identified as leaking. Repairs were made to the nozzle weld, and the unit was returned to operation for another cycle. Upon shutdown for Refueling Outage 1R17, repeat leakage of the nozzle was self revealed during visual examination of the reactor vessel head. In 2001, the licensee staff performed an embedded flaw repair in accordance with Section XI of the ASME Code. However, the licensee staff recently concluded that this repair method was inadequate to prevent recurrence of the original primary water stress corrosion cracking. They stated that the partial arc of the excavation and overlay did not adequately seal the termination points of the weld. Appendix B, 10 CFR Part 50, Criterion XVI, states that in the case of significant conditions adverse to quality, the licensee staff shall assure that corrective action taken precludes repetition. Although the licensee staff determined the reactor coolant system boundary leakage from Vessel Head Penetration Nozzle 56 was a significant condition adverse to quality, they failed to take adequate corrective actions to preclude repetition.

Enforcement. Appendix B, Criterion XVI, of 10 CFR Part 50, states, in part, that measures shall be established to assure that conditions adverse to quality are promptly identified and corrected. In the case of significant conditions adverse to quality, the measures shall assure that the cause of the condition is determined and corrective action taken to preclude repetition. The failure to implement corrective actions to preclude recurrence of reactor coolant system boundary leakage was a noncited violation (05000313/2003008-03) of Technical Specification 3.4.13.a, and Appendix B, Criterion XVI, of 10 CFR Part 50. This review and enforcement also closes Licensee Event Report 50-313/2002-003-00.

During the problem identification and resolution inspection, the team reviewed the licensee staff's actions and received a Phase III significance determination from a regional senior reactor analyst. The issue was determined to be of very low safety significance (Green). The issue was discussed with the licensee staff and described as being closed to a single violation of two NRC requirements.

b) Foreign Material Issues In Spent Fuel Pools

Description. The team identified an example of a noncited violation (Green) of 10 CFR Part 50, Appendix B, Criterion XVI, for failure to promptly identify and correct a potential significant condition adverse to quality. The licensee staff's failure to implement effective corrective actions resulted in numerous foreign material intrusions into Units 1 and 2 spent fuel pools. The team noted five additional foreign material intrusionss into Units 1and 2 spent fuel pools since completion of root-cause corrective actions.

On June 21, 2002, the licencee opened significant Condition Report CR-ANO-C-2002-0500 to identify an adverse trend in foreign material exclusion issues for Units 1 and 2 spent fuel pools areas. During the period from June 01, 2001, to June 18, 2002, 22 nonsignificant condition reports were written to document foreign material intrusions and foreign material exclusion area noncompliance in Units 1 and 2 spent fuel pools FMEA's of which 17 were written in 2002 before identifying a significant adverse trend. After reviewing the individual condition reports, the licensee staff determined that 5 were actual foreign material intrusions's and 17 were considered foreign material exclusion area noncompliance. The team noted that 8 of the condition reports reviewed were dispositioned in the corrective action process as a Category E (trend), which are considered nonsignificant and administratively closed without further actions required. The team also noted that 6 of the condition report's were dispositioned as Category D (apparent cause), which are considered nonsignificant and assigned to the responsible management for corrective action and/or apparent cause. The team reviewed the Categories E and D condition reports using the guidelines for condition report categorization contained in the licensee's Procedure LI-102 "Corrective Action Process," Revision 1, Attachment 9.1, and determined 13 appeared to meet the guidance for categorizing as Category C (root-cause determination), which are considered significant and require a root-cause determination.

The licensee adverse trend root-cause determination subsequently concluded the root causes were due to supervisors not making expectations clear to workers and inadequate foreign material exclusion controls in site documents. The licensee staff also determined several contributing causes were due to insufficient training, procedures not followed, inadequate pre-job briefs, job scope not containing foreign material exclusion requirements and inadequate corrective actions in previous condition reports. The licensee staff also developed several additional conclusions that were identified as causal factors in the individual condition reports and human performance error reviews, such as, the number of jobs worked in the spent fuel pools area not adequately controlled, spent fuel pools floor area used for storage and nonspent fuel pools work performed in spent fuel pools area. It was also noted that condition reports involving spent fuel pools foreign material exclusion are not assigned to a single manger resulting in several managers receiving a fraction of the condition reports, which contributed to the loss of the collective significance of spent fuel pools foreign material exclusion concerns. However, the licensee staff did not identify any additional specific corrective actions to address these concerns. The licensee staff also initiated an effectiveness review to monitor work in spent fuel pools area and review the condition report database for inadequate spent fuel pools foreign material exclusion control. The acceptance criteria for the review was set at zero foreign material intrusions events, 6 potential foreign material intrusions events and 6 foreign material exclusion area and housekeeping events. The date for this review was set for November 2003,

approximately 1 year after the completion of the corrective actions. However no interim reviews or trends were conducted to determine if the acceptance criteria had been exceeded prior to the effectiveness review date. The licensee staff determined Condition Report CR-ANO-C-2002-0500 represented a significant condition, and required a root cause and comprehensive corrective actions. However, the licensee staff failed to develop corrective actions to address all known causes, and did not establish a review plan to ensure corrective actions were effective. The corrective actions were completed in October 2002 and the condition report was closed out in May 2003.

Enforcement. Appendix B, Criterion XVI, of 10 CFR Part 50, states, in part, that measures shall be established to assure that conditions adverse to quality are promptly identified and corrected. In the case of significant conditions adverse to quality, the measures shall assure that the cause of the condition is determined and corrective action taken to preclude repetition. The failure to implement corrective actions to preclude recurrence of foreign material intrusions into the spent fuel pools was an example of a violation of 10 CFR Part 50, Appendix B, Criterion XVI, and is being treated as a noncited violation (05000313/2003008-04) consistent with Section VI.A of the NRC Enforcement Policy. The licensee staff entered this issue into their corrective action program as Condition Report CR-ANO-C-2003-0871.

This finding affected the Barrier integrity cornerstone and was considered more than minor since it affected the cornerstone attribute of cladding performance and human performance (foreign material exclusion loose parts). Based on the results of an significance determination process Phase 1 evaluation, this finding was determined to have very low safety significance since it did not represent and actual degradation of fission product barriers.

c) Inadequate Corrective Actions for Heat Exchanger Performance Testing

Description. The team reviewed corrective actions associated with Unresolved Item 05000313/2003004-02. The team learned through interviews and documentation that in 1994, NRC personnel had discovered that ultrasonic flow meters used in heat exchanger thermal performance testing did not meet the previous bounding value of 5 percent accuracy. The licensee staff, at that time, developed corrective actions. However, when presented the same finding by inspectors on July 14, 2003, the licensee staff found the corrective actions were never taken.

During the problem identification resolution inspection, the team met with the licensee staff regarding the extent of condition reviews. The licensee staff stated that recalculation of margins were required for all heat exchangers cooled by service water and tested using the ultrasonic instruments. The staff also stated that while no design margins were exceeded, several were reduced. These heat exchangers were the Unit 2 low pressure safety injection pump seal cooler; the red train Unit 2 Emergency Diesel Generator Heat Exchanger 2E-20A and the green train Unit 2 Emergency Diesel Generator Heat Exchanger 2E-20B. The team considered the licensee staff's assessment to be acceptable.

Enforcement. Appendix B, Criterion XVI, of 10 CFR Part 50, states, in part, that measures shall be established to assure that conditions adverse to quality are promptly identified and corrected. The team determined that the failure to correct a condition adverse to quality, specifically the use of inadequate test equipment for service water heat exhanger performance testing, was an example of a violation of 10 CFR Part 50, Appendix B, Criterion XVI, and is being treated as a noncited violation (05000313/2003008-04) consistent with Section VI.A of the NRC Enforcement Policy. The licensee staff has entered this issue into their corrective action program as Condition Report CR-ANO-C-2003-0568.

This finding was considered more than minor because it affected the Mitigating Systems Cornerstone, and if left uncorrected, could have masked inoperability of heat exchangers, posing a more significant concern. The issue was determined to have very low safety significance because subsequent testing and analyses determined the heat exchangers were operable.

d) Failure to Determine if Corrective Actions Were Effective

Description. The team identified a noncited violation (Green) of 10 CFR Part 50, Appendix B, Criterion XVI, for failure to perform a post maintenance test on Battery 2D11 after corrective action, in the form of an equalizing charge, was taken for low specific gravity in five cells.

On October 11, 2003, while performing quarterly Battery Surveillance Test 2403.024 on the Unit 2 Battery 2D11, the licensee staff identified five cells below the maintenance limit for specific gravities of equal to or more than 0.010 units below the bank average. The licensee staff initiated Condition Report CR ANO-2-2003-1602 and informed the battery system engineer. The team noted that Procedure 2403.024, “2D11 Quarterly Surveillance,” Change 12-01-0, dated August 13, 2003, stated in Step 8.2.10.C.3 that if any cells were recorded below the specific gravity maintenance limit, “then inform the Cognizant Supervisor to determine what corrective action should be taken.” Licensee staff determined that Battery 2D11 should be given an equalizing battery charge. This charge was conducted. On November 4, 2003, the team requested a copy of the post-maintenance testing data for Battery 2D11. On November 13, 2003, the licensee staff provided the team with a set of data from Procedure 2403.024, but the team noted the test data was prior to the equalizing charge. Upon further questioning, it was determined that no test was performed after the equalizing charge. Due to the fact the charge was performed as a corrective action, the team determined that the licensee staff failed to determine if the condition requiring the charge had been corrected.

Enforcement. Appendix B, Criterion XVI, of 10 CFR Part 50, states, in part, that measures shall be established to assure that conditions adverse to quality are promptly identified and corrected. The failure to determine if the condition of the battery, which necessitated the battery charge, had been corrected is an example of a violation of 10 CFR Part 50, Appendix B, Criterion XVI, and is being treated as a noncited violation (05000313/2003008-04) consistent with Section VI.A of the NRC Enforcement Policy. The licensee staff entered this issue into their corrective action program as Condition Report CR-ANO-C-2003-1080.

This finding affected the barrier integrity cornerstone and was considered more than minor since it affected the cornerstone attribute of cladding performance and human performance (foreign material exclusion loose parts). Based on the results of a significance determination process Phase 1 evaluation, this finding was determined to have very low safety significance since it did not represent and actual degradation of fission product barriers.

e) Quality Assurance Plan Alignment With 10 CFR Part 50, Appendix B, Criterion XVI

Description. While reviewing specific corrective actions with plant staff, several individuals made comments to inspectors, which appeared to be incorrect interpretations of the licensee staff's corrective action procedures and their alignment with 10 CFR Part 50, Appendix B, Criterion XVI. The comments centered on whether or not corrective actions to prevent recurrence were required for significant conditions adverse to quality. The team reviewed Procedure LI-102 and the Quality Assurance Plan. Differences in wording was found between the licensee staff's documents and the CFR.

By letter dated April 30, 1998, Entergy Operation, Inc., requested a Quality Assurance Program change, characterized as a reduction in commitment, due to consolidating the Entergy South plants into one plan. Arkansas Nuclear One was included in this requested change. As part of this change, Entergy Operation, Inc. reworded Section 4.6, "Corrective Actions," to read, "The program requires a determination of cause (when possible) for significant conditions adverse to quality and corrective action steps that are directed toward lessening the likelihood of recurrence." The team also noted that a safety evaluation report, dated November 6, 1998, characterized the changes to the plan as acceptable.

When applied to actual examples of corrective actions, the team was concerned that the wording of the licensee staff's documents could be interpreted as only requiring a reduction in frequency of recurrence, or correcting a majority of a problem, and not in prevention of recurrence. Discussions involved the Unit 1 control rod drive mechanism nozzle repair, the spent fuel pool foreign material exclusion concerns, the Battery 2D12, and multiple occurrences of Unit 2 pressurizer heater sleeve leaks. However, the team could not determine to what extent these interpretations were used to develop individual corrective actions. The specific examples of ineffective corrective action violations described in this report were individually assessed against the CFR and, therefore, did not extensively assess the individual's interpretations. However, the team briefed the licensee staff that they were concerned with potential future occurrences.

Upon further discussion with the Office of Nuclear Reactor Regulation (NRR), it was determined this change did not permit any relaxation or exemption from the CFR. In discussions with both licensee management, and with NRR, it was found that the wording was provided as clarification. It was intended to provide for those conditions where a root cause could not be determined, and where corrective actions would, thereby, be directed towards lessening the chances the condition would repeat. The team found that it was neither the intent of the licensee management, nor NRR, to accept repetitions of significant conditions adverse to quality where root causes and corrective actions could be developed to preclude them.

Following the inspection activities, the team held additional discussions with licensee management and NRR. The licensee management informed the team that they were planning to submit a change to their corrective action documents, and Quality Assurance Plan, to go back to the same wording as the CFR.

d. Assessment of Safety-Conscious Work Environment

(1) Inspection Scope

The team interviewed two supervisors, five engineers, four maintenance craft personnel, four technicians, two operators, and the employee concerns program coordinator. These interviews assessed whether conditions existed that would challenge a safety conscious work environment. As part of the review, inspectors also used the guidance of Inspection Procedure 71111.15 to assess issues presented regarding operator workarounds.

(2) Assessment

During interviews, station personnel communicated a willingness to enter issues into the corrective action program. However, the team found that occasionally station personnel dealt with potential conditions adverse to quality outside the corrective action program. In some cases station personnel believed that placing these issues in other processes were the only way to get these issues resolved. An example of this was entering equipment deficiencies into the operator workaround program when it was understood that the deficiencies did not meet the definition established for the program. The team reviewed selected operator workarounds and the potential collective significance. The team did find examples of these activities and presented them to the licensee staff. No significant findings were made and such actions appeared to be fairly isolated.

4OA6 Meetings

Exit Meeting

On December 19, 2003, the team leader conducted an exit meeting with Mr. Jeffrey S. Forbes and other members of the licensees staff. The plant management acknowledged the inspection findings. While the licensee staff identified some proprietary information was reviewed by the team during the inspection, no proprietary information was discussed in the issues presented in this report.

ATTACHMENT

KEY POINTS OF CONTACT

Licensee

C. Anderson, Vice President, Operations
G. Ashley, Licensing Manager
M. Chisum, Manager, Systems Engineering
W. Campbell, Entergy - Chief Operating Officer
R. Cooper, Operations Coordinator
L. Compton, Manager, Engineering Programs and Components
S. Cotton, Director, Nuclear Safety Assurance
R. Cuilty, Senior Operations Specialist
B. Eichenberger, Unit 1 Operations Manager
C. Eubanks, General Manager, Plant Operations
E. Ewing, Entergy-Nuclear Oversight
J. Forbes, Vice President, Operations
B. Gordon, Manager, Planning and Scheduling
J. Hanson, Operations Training Senior Instructor
D. Hawkins, Specialist, Licensing Specialist
J. Hines, Senior Engineer
J. Hoffpauir, Plant Manager, Operations
D. James, Manager, Corrective Action and Assessment
J. Kowalewski, Director, Engineering
R. Lingle, Plant Manager, Operations
L. McCarty, Senior Lead Engineer
M. McShane, Planning/Scheduling Coordinator
T. Mitchell, Manager, Plant Manager, Operations
K. Nichols, Manager, Design Engineering
B. Patrick, Manager, Radiation Protection
S. Pullin, Operations Training Senior Instructor
S. Pyle, Licensing Specialist
D. Scheide, Licensing Specialist
F. Van Buskirk, Licensing Specialist
D. Wells, Safety Review Coordinator

ITEMS OPENED AND CLOSED

Closed

050-313/2002-05-02	URI	Failure to prevent recurrence of Reactor coolant system pressure boundary leakage
50-368/2003-04-01	URI	Inadequate Instrumentation Used During Service Water Heat Exchanger Thermal Performance Testing
50-368/2003-04-02	URI	Failure to Correct Instrument Inaccuracies During Service Water
50-368/2003-04-02	URI	Heat Exchanger Thermal Performance Testing

50-313/2002-03-00 LER Reactor coolant system pressure boundary leakage

Opened and Closed

05000313/2003-008-01 NCV Failure to identify multiple conditions adverse to quality
05000368/2003-008-01

05000313/2003-008-02 NCV Failure to adequately evaluate test requirements
05000368/2003-008-02

05000313/2003-008-03 NCV Failure to prevent repeat Reactor coolant system boundary leakage
05000368/2003-008-03

05000313/2003-008-04 NCV Failure to correct multiple conditions adverse to quality
05000368/2003-008-04

DOCUMENTS REVIEWED

Procedures

Procedure	Title	Rev/Change
LI-102	Corrective Action Process	1
LI-102	Corrective Action Process	2
LI-102	Corrective Action Process	3
2403.024	2D11 Quarterly Surveillance	12-01
1000.024	Control of Maintenance	50-00
1000.060	Foreign Material Exclusion Program	00-04
1000.157	Significant Event Investigation	00-01
1025.004	Component Trending Program	05-00
DC-115	ER Response Development	3
PS-100	Outage and Work Management	0
COPD-020	Operations Concerns	04-02

Maintenance Action Items

MAI-64940

Condition Reports

CR-ANO-1-2000-0492
CR-ANO-1-2001-0611
CR-ANO-1-2001-0905
CR-ANO-1-2001-1229
CR-ANO-1-2001-1257
CR-ANO-1-2001-1347
CR-ANO-1-2002-0009
CR-ANO-1-2002-0201
CR-ANO-1-2002-0351
CR-ANO-1-2002-0875
CR-ANO-1-2002-0989
CR-ANO-1-2002-1584
CR-ANO-1-2002-1649
CR-ANO-1-2003-0077
CR-ANO-1-2003-0346
CR-ANO-1-2003-0369
CR-ANO-2-2001-0045
CR-ANO-2-2001-0999
CR-ANO-2-2001-1086
CR-ANO-2-2002-0528
CR-ANO-2-2002-0949
CR-ANO-2-2002-1080
CR-ANO-2-2002-1545
CR-ANO-2-2002-1676
CR-ANO-2-2002-1720
CR-ANO-2-2002-1785
CR-ANO-2-2003-0024
CR-ANO-2-2003-0354
CR-ANO-2-2003-0356
CR-ANO-2-2003-0457
CR-ANO-2-2003-0646
CR-ANO-2-2003-0703
CR-ANO-2-2003-0842
CR-ANO-2-2003-0871
CR-ANO-2-2003-1373
CR-ANO-2-2003-1602
CR-ANO-2-2003-1677
CR-ANO-C-2001-0570
CR-ANO-C-2001-0584
CR-ANO-C-2001-0641
CR-ANO-C-2001-0642
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