Arkansas Nuclear 2
1Q/2004 Plant Inspection Findings

Initiating Events

Significance: G Dec 31, 2003
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Promptly Correct a Faulty Power Supply Switch Leads to a Dropped CEA at Power
A noncited violation of 10 CFR Part 50, Appendix B, Criterion XVI, revealed itself when licensee personnel in Unit 2 did not take prompt corrective action to repair a faulty power switch in the power supply to Control Element Assembly 43. The power switch was determined to be the cause of two missing phases on different Control Element Assembly 43 coils and was not repaired for 3 months. The failure to repair it subsequently led to the dropping of Control Element Assembly 43 fully into the reactor core, initiating an unplanned downpower event.
This finding is greater than minor because it affected the initiating events cornerstone objective of limiting the likelihood of those events that upset plant stability during power operations, in that it led to an unplanned downpower. This finding has very low safety significance because Control Element Assembly 43 was able to perform its intended safety function.
Inspection Report# : 2003005*(pdf)*

Significance: G Dec 31, 2003
Identified By: NRC
Item Type: NCV NonCited Violation
Inadequate Procedure for MNSA Installation Leading to a Reactor Coolant System Leak
A noncited violation of 10 CFR Part 50, Appendix B, Criterion V, revealed itself when licensee personnel failed to prescribe an adequate procedure for inspecting the counterbore region of mechanical nozzle seal assemblies prior to their installation on the bottom of the Unit 2 pressurizer. This led to an inadequate counterbore in which material left in the counterbore area allowed leakage through an unanalyzed leak path, allowing boric acid to come into contact with the outside of the carbon steel pressurizer vessel.
This finding is greater than minor because it was analogous to Example 2.e in Appendix E of Manual Chapter 0612 because procedures impacted the ability of seals to perform their function. This finding has very low safety significance because the amount of leakage was extremely small and no degradation to the pressurizer or mechanical nozzle seal assembly occurred due to boric acid corrosion.
Inspection Report# : 2003005*(pdf)*

Significance: G Dec 31, 2003
Identified By: NRC
Item Type: NCV NonCited Violation
Operator Action Causes a Reactor Trip During CEA Postmaintenance Testing
A noncited violation of 10 CFR Part 50, Appendix B, Criterion V, revealed itself when a Unit 2 reactor operator did not follow the prescribed procedure for movement of an individual control element assembly during postmaintenance testing. The reactor operator positioned the control element drive mechanism control system mode selector switch to the "manual group" instead of the "manual individual" position, and began control element assembly insertion. This resulted in eight, instead of one, control element assemblies being inserted into the core and caused the core protection calculator to initiate an unplanned reactor protection system reactor trip.
This finding is greater than minor because it was analogous to Example 4.b in Appendix E of Manual Chapter 0612 because an operator error caused a reactor trip. This finding has very low safety significance because no other complicating events were caused by the error and all mitigating systems remained available to the operators.
Inspection Report# : 2003005*(pdf)*

Significance: SL-IV Sep 20, 2003
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Obtain a License Amendment for Upgrade of the Spent Fuel Area Crane
A noncited violation of 10 CFR 50.59 was identified by the inspectors when the licensee 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 subsequently submitted a license amendment request for the modification on February 24, 2003.

This issue involves traditional enforcement because it involves a violation of 10 CFR 50.59 and is more than minor because there was a

reasonable likelihood that the change would require NRC review and approval prior to its implementation. The finding affects the initiating events cornerstone objective attributable to fuel handling equipment performance and has very low safety significance because, after identification of the problem, the licensee did not transfer spent fuel casks until the license amendment was approved. Consequently, the finding is categorized as a Severity Level IV noncited violation in accordance with the NRC Enforcement Policy.
Inspection Report# : 2003004*(pdf)*

Mitigating Systems

Significance: G Dec 31, 2003
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Properly Install a HPSI System Flow Transmitter
A noncited violation of 10 CFR Part 50, Appendix B, Criterion III, revealed itself when licensee personnel in Unit 2 did not correctly translate the designed configuration of the Unit 2 high pressure safety injection system cold leg flow transmitters into the component database and the work instructions to replace the transmitters. The flow transmitter for the C-Leg 2FI-5054 was subsequently installed with its high and low pressure taps reversed, rendering the indicator inoperable for nearly 1 year, until discovered during a surveillance test.
This finding is greater than minor because it was analogous to Example 5.b in Appendix E of Manual Chapter 0612, because it involved returning a system to service after improper installation of a plant component. The improper installation of the high pressure safety injection C-Leg flow transmitter would have provided confusing indications to operators under accident conditions. This finding has very low safety significance because no other anomalous conditions were found which would have complicated operation of the high pressure safety injection system and the system would have performed its safety function with proper operator diagnosis.
Inspection Report# : 2003005*(pdf)*

Significance: G Dec 19, 2003
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Adequately Evaluate Test Requirements
Inspectors previously identified an unresolved item (URI 50-368/2003-04-01) associated with service water heat exchanger performance testing. Based upon further review and interviews conducted during this inspection, the inspectors determined the issue was a non-cited violation of 10 CFR 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 (EDG) Heat Exchanger 2E-20A and the green train Unit 2 EDG 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.
Inspection Report# : 2003008*(pdf)*

Significance: G Sep 20, 2003
Identified By: Self Disclosing
Item Type: NCV NonCited Violation
Failure to Take Prompt Action to Correct Exhaust Manifold Leaks Leads to Fire on an EDG
A violation of 10 CFR Part 50, Appendix B, Criterion XVI, revealed itself when the licensee 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 for approximately 10 months and the failure to correct it subsequently led to an exhaust manifold fire during surveillance testing on August 27, 2003.

The finding is more than minor since it was analogous to Example 4.f of Appendix E of Manual Chapter 0612 because it involved creation of a fire hazard. The finding has very low safety significance (Green) because the emergency diesel generator remained available to perform its safety function and the fire did not spread to other components.
Inspection Report# : 2003004*(pdf)*

Significance: TBD Aug 03, 2001
Identified By: NRC
Item Type: AV Apparent Violation
THE ACCEPTABILITY OF THE USE OF MANUAL ACTIONS IN LIEU OF PROVIDING PROTECTION FOR CABLES ASSOCIATED WITH EQUIPMENT NECESSARY FOR ACHIEVING AND MAINTAINING HOT SHUTDOWN.
In a letter dated September 28, 2001, the licensee claimed the NRC position that manual actions cannot be used to comply with 10 CFR Part 50, Appendix R, Section III.G.2, was a backfit. The NRC convened a backfit panel and determined that the NRC's position did not constitute a backfit. On April 15, 2002, the NRC reclassified this unresolved item as an apparent violation pending assessment of the significance of the finding. The question of whether this position was a backfit generic to all plants was addressed in the NRC's letter to the Nucear Energy Institute, dated May 16, 2002.
Inspection Report# : 2001006*(pdf)*

Barrier Integrity

Significance:  Mar 24, 2004
Identified By: NRC
Item Type: NCV NonCited Violation
INEFFECTIVE CORRECTIVE ACTIONS TO PREVENT RECURRENCE OF PWSCC OF ALLOY 600 MATERIAL
Green. The inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," for the failure to implement effective corrective actions to prevent recurrences of pressure boundary leakage due to primary water stress corrosion cracking of Alloy 600 reactor coolant system nozzles associated with pressurizer heater sleeves.

This finding was greater than minor because it affected the reactor safety barrier integrity cornerstone objective for providing reasonable assurance that the physical design barriers protect the public from radionuclide releases caused by accidents or events. Using NRC Manual Chapter 0609 Significance Determination Process Phase 1 Screening Worksheet, this performance deficiency affected the reactor coolant system barrier function. The finding was determined to be of very low safety significance because no actual leakage from the remaining pressurizer heater sleeves has occurred.

Inspection Report# : 2004002*(pdf)*

Significance:  Aug 01, 2003
Identified By: NRC
Item Type: NCV NonCited Violation
FAILURE TO CORRECTLY TRANSLATE A DESIGN BASIS INTO CALCULATIONS
The inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control." Specifically, the inspectors identified four examples of failures to correctly translate the design basis into specifications, procedures, and instructions. The inspectors considered the barrier integrity cornerstone affected because of the potential of containment and engineered safety features integrity being degraded by these conditions.

The inspectors considered this finding greater than minor because it paralleled Example 3.i of Appendix E to Inspection Manual Chapter 0612. The licensee's engineering staff had to perform reanalyses and operability evaluations due to these conditions. The inspectors considered this finding of very low safety significance because it did not represent an actual loss-of-safety function.

Inspection Report# : 2003007*(pdf)*

Significance: SL-IV Apr 21, 2003
Identified By: NRC
Item Type: NCV NonCited Violation
DELETION OF CONTAINMENT INTEGRITY CONTROLS FOR SECONDARY SYSTEM CONTAINMENT PENETRATIONS
IR 050000313-03-02, IR 05000368-03-02; Entergy Operations, Inc.; 12/29/02 - 03/22/03; Arkansas Nuclear One, Units 1 and 2; Evaluations of Changes, Tests, or Experiments; Temporary Plant Modifications; ALARA Planning and Controls.

Severity Level IV. The inspectors identified a noncited violation of 10 CFR 50.59 because the licensee failed to identify that changes made to the Units 1 and 2 Updated Safety Analysis Reports required a license amendment request. These changes removed containment isolation valve controls for secondary system containment penetrations. The licensee initiated corrective action on March 28, 2003, to prepare a license amendment request to obtain NRC approval of the changes to the Updated Safety Analysis Reports.

This is an item for traditional enforcement because it involves an issue not appropriate for evaluation using the SDP. It involves a violation of 10 CFR 50.59, an issue which impacts NRC oversight ability. The issue is more than minor because it involves a programmatic issue affecting containment controls for all secondary system penetrations. It was considered to be a noncited Severity Level IV violation. Management review

determined it was greater than minor because the change should have received NRC review prior to implementation. Redundant containment barrier (system piping) existed and the licensee entered this issue into its corrective action program
Inspection Report# : 2003002*(pdf)*

Emergency Preparedness

Significance: TBD Aug 22, 2003
Identified By: NRC
Item Type: AV Apparent Violation
FAILURE TO MEET THE ALERT NOTIFICATION SYSTEM DESIGN CRITERIA
TBD. The inspector identified a violation of 10 CFR 50.54(q) having a potential safety significance greater than very low significance because the licensee failed to follow the emergency plan requirement to establish a means to notify members of the public in the emergency planning zone. Between September 1999 and April 2003, a small percentage of residences in the licensee's plume exposure emergency planning zone would not have received an emergency alerting signal in the event of an emergency at the Arkansas Nuclear One facility.

The finding had greater than minor significance because the condition resulted in a loss of alert notification capability to a small percentage of the emergency planning zone population, and if left uncorrected the condition would have continued to degrade. Using the Emergency Preparedness Significance Determination Process the finding was preliminarily determined to have low to moderate safety significance (White) because it was a violation of 10 CFR 50.54(q) and represented a degradation of the risk-significant planning standard 10 CFR 50.47(b)(5) function.
Inspection Report# : 2003011*(pdf)*

Occupational Radiation Safety

Significance:  Mar 24, 2004
Identified By: Self Disclosing
Item Type: NCV NonCited Violation
FAILURE TO PERFORM A RADIOLOGICAL SURVEY
Green. A self-revealing noncited violation of 10 CFR 20.1501(a) was identified for the failure to perform a radiological survey. On September 25, 2003, while performing a resin efficiency comparison test, a chemistry specialist received an electronic dosimeter dose rate alarm. A physical survey by radiation protection indicated 500 millirem/hour on contact and approximately 80 millirem/hour at 30 centimeters. Radiation protection performed an evaluation before the test. The calculated dose rates were expected to be 41 millirem/hour on contact and approximately 2 millirem/hour at 30 centimeters. The actual dose rate differed from the calculated dose rates because of a miscommunication of the actual sample activity between radiation protection and chemistry personnel.

The failure to perform a radiological survey associated with the use of a resin testing apparatus is a performance deficiency. This finding is greater than minor as it is associated with the Occupational Radiation Safety Program and Process attribute and affected the cornerstone objective to ensure adequate protection of the worker's health and safety from exposure to radiation. Since this occurrence involves workers unplanned, unintended dose or potential of such a dose which could have been significantly greater as a result of a single minor, reasonable alteration of circumstances, this finding was evaluated using the Occupational Radiation Safety Significance Determination Process. The finding was determined to be of very low safety significance because it was not associated with ALARA planning or work controls, there was no overexposure or a substantial Significance Determination Process potential for an overexposure, and the ability to assess dose was not compromised.
Inspection Report# : 2004002*(pdf)*

Significance:  Dec 31, 2003
Identified By: NRC
Item Type: NCV NonCited Violation
Three Examples of Failure to Perform Radiological Surveys
The inspector reviewed three examples of a self-revealing, noncited violation of 10 CFR 20.1501(a), because the licensee failed to perform required radiation surveys to evaluate radiological conditions in rooms affected by radiation streaming from a stuck fuel assembly in the fuel transfer carriage and to ensure compliance with 10 CFR 20.1902(a) and (b). Specifically, on October 1, 2003, two examples involved the licensee's failure to survey and evaluate the radiological conditions in the Unit 2 penetration emergency exhaust ventilation room and the upper north piping penetration area located inside the controlled access area. Subsequent radiation surveys of these two areas identified general area radiation dose rates greater than 100 millirems per hour, requiring the areas to be posted as high radiation areas. The third example involved the licensee's failure to survey and evaluate radiological conditions in the Unit 2 lower north electrical penetration area located outside the

controlled access area. Radiation surveys of this area indicated the highest general area dose rate of 80 millirems per hour, requiring the area to be posted as a radiation area. These findings are in the licensee's corrective action program as Condition Report ANO-2-2003-1405.
The finding is greater than minor because it was associated with one of the occupational radiation safety cornerstone attributes (exposure/contamination control) and the finding affected the associated cornerstone objective to ensure the adequate protection of the worker health and safety from exposure to radiation from radioactive material. The inspector processed the finding through the occupational radiation protection significance determination process because the occurrence involved unplanned or unintended doses (resulting from actions or conditions contrary to licensee procedures) which could have been significantly greater as a result of a single minor, reasonable alteration of the circumstances. However, because the finding was not an as low as is reasonably achievable planning and control issue, there was no overexposure or substantial potential for personnel overexposure, and the finding did not compromise the licensee's ability to assess dose, the finding had no more than very low safety significance.
Inspection Report# : 2003005*(pdf)*

Public Radiation Safety

Physical Protection

Miscellaneous

Significance: G Dec 19, 2003
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Correct Multiple Conditions Adverse to Quality
• Green. The inspectors identified a non-cited violation of 10 CFR 50, Appendix B, Criterion XVI, with four examples, for failing to correct conditions adverse to quality. a) The team identified that on June 21, 2002, after the licensee noted a large number of foreign material exclusion (FME) 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 inspectors concluded the root cause was narrowly focused, and that subsequent spent fuel pool FME problems in 2003 demonstrated that corrective actions did not correct the condition adverse to quality; b) The inspectors closed URI 2003-04-02, for inadequate corrective actions associated with the use of ultrasonic flow instruments in service water heat exchanger performance testing; c) The inspectors identified that on October 11, 2003, the licensee 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 monitored 2D11 cell #41 several times during the charge, and observed its voltage increased above Technical Specification limits, the licensee failed to perform a post maintenance test of the battery to confirm that corrective actions were effective; and d) The inspectors identified that during a period from 2001 through 2003, the licensee entered numerous problems into their corrective action program that appeared to represent violations of NRC requirements. However, the inspectors determined, based upon a sampling of 12 such issues, the licensee did not consider the majority of these to be conditions adverse to quality and closed them administratively. The inspectors 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: a) the licensee evaluated the subsequent FME issues and determined that each was of very low safety significance ; b) the licensee changed the heat exchanger performance test to use adequate test equipment and subsequently performed satisfactory tests on each heat exchanger; c) the licensee conducted a surveillance of the 2D11 battery, which demonstrated no Technical Specifications were exceeded, and d) the inspectors determined the licensee subsequently corrected all identified violations of NRC requirements. The inspectors verified the license entered the issues into their corrective action program as condition reports CR-C-ANO-2003-1080. (Section 4OA2.c).
Inspection Report# : 2003008*(pdf)*

Significance: G Dec 19, 2003
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Identify Multiple Conditions Adverse to Quality
The inspectors identified a non-cited violation of 10 CFR 50, Appendix B, Criterion XVI, with three examples, for failing to identify conditions adverse to quality and enter them into the corrective action program. a) On February 15, 2002, an inadequate implementation of a modification

for a Unit 1 Integrated Control System (ICS) module caused reactor power to increase to 101.3 percent. The licensee 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 lead to this self-revealing excursion; b) The inspectors further reviewed the conditions of an unresolved item (URI 05000368/2003003-01). From April to June of 2003, inspectors identified numerous physical and electrical conditions which could adversely affect the quality of Unit 2 battery 2D12. The inspectors noted that although several of these conditions were previously known to the licensee, they failed to enter the conditions adverse to quality into the corrective action system; and c) On October 11, 2002, workers inspected the 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: a) Operators took prompt immediate actions to take manual control of the ICS and terminate the transient. Subsequent corrective actions eliminated the problem with the module. b) The 2D12 battery passed Technical Specification surveillance tests for the remainder of the operating cycle and was subsequently replaced; and c) the licensee repaired SV-2663 prior to evaluated end of qualified life. The license entered the issues, including the failures to enter adverse conditions into their corrective action program, as condition reports CR-1-ANO-2002-00201 for the ICS issue, CR-2-ANO-2003-00457, CR-2-ANO-2003-00646, CR-2-ANO-2003-00703, and CR-2-ANO-2003-00871 for the 2D12 battery, and CR-1-ANO-2003-00346 for SV-2663. (Section 4OA2.a).

Inspection Report# : 2003008*(pdf)*

Last modified : May 05, 2004