Arkansas Nuclear 2
4Q/2009 Plant Inspection Findings

Initiating Events

Significance: G Sep 23, 2009
Identified By: Self-Revealing
Item Type: FIN Finding
FAILURE TO IMPLEMENT TROUBLESHOOTING PROCEDURE DURING TROUBLESHOOTING ACTIVITIES
Green. The inspectors documented a self-revealing finding for failure to follow Procedure EN MA 125, "Troubleshooting," Revision 3. Specifically, the procedure was not implemented, as work conditions dictated, and failed to prevent maintenance from blowing a fuse while performing troubleshooting activities in the steam generator blow down tank level switch circuitry. This resulted in the energizing of pressurizer backup heaters, loss of automatic operations of the main feedwater pump lube oil temperature and loss of the first stage pressure input, requiring operator action to regain control of systems.

The performance deficiency was determined to be more than minor because it was associated with the configuration control attribute of the Initiating Events Cornerstone and affected the objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during power operations, and is therefore a finding. Using Inspection Manual Chapter 0609, Phase 1 Worksheets, the finding was determined to be of very low safety significance because the finding did not contribute to both, the likelihood of a reactor trip and the likelihood that mitigation equipment or functions would not have been available. It was determined that the finding had a crosscutting aspect in the area of human performance associated with work practices [H.4(b)], in that the licensee failed to define and effectively communicate expectations regarding procedural compliance.

Inspection Report# : 2009004 *(pdf)*

Significance: G Jun 30, 2009
Identified By: NRC
Item Type: FIN Finding
Failure to Follow Procedure to Obtain OSRC Review Prior to Restart
A Green NRC identified finding was identified for failure of operations personnel to follow procedures to obtain an Operational Safety Review Committee review and approval prior to restart of the unit where the cause of the trip had not been positively identified. Specifically, on December 13, 2008, and again on December 23, 2008, Unit 1 was restarted without an Operational Safety Review Committee review and approval as required by the Post Transient Review procedure (OP-1015.037), Attachment B. In both cases, the cause of the trip was identified as probable. The issue was not a violation of NRC requirements because the affected activities were not safety related. The licensee entered this issue into their corrective action program as condition report CR-ANO-C-2009-01217.

The performance deficiency was greater than minor because it could be reasonably viewed as a precursor to a significant event, as evidenced by the December 20, 2008 manual reactor trip. Using Manual Chapter 0609.04, "Phase 1 – Initial Screening and Characterization of Findings," this finding affects the initiating events cornerstone and is determined to have very low safety significance by NRC management review because it did not contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions would not be available. The finding was determined to have a crosscutting aspect in the area of Human Performance associated with Decision-Making [H.1(b)], in that the licensee made non-conservative assumptions in the decisions to restart the unit after each trip. The licensee failed to conduct sufficient effectiveness reviews to verify the validity of the underlying assumptions.

Inspection Report# : 2009008 *(pdf)*

Significance: G Mar 24, 2009
Identified By: Self-Revealing
Item Type: FIN Finding
Failure to Follow Procedure for Flow Accelerated Corrosion Program
The inspectors documented a self-revealing finding for the failure to properly implement the flow accelerated corrosion control program. Consequently, a nonsafety related extraction steam drain line failed because of flow accelerated corrosion. Engineers had identified the line as being vulnerable to flow accelerated corrosion but did not monitor it. Engineers also failed to integrate relevant industry operating experience into the program. Operators had to reduce Unit 2 power and take the turbine off line in response to the event. The licensee entered this issue into their corrective action program as Condition Report ANO 2-2009-0319.

The performance deficiency was more than minor because it affected the equipment performance attribute of the Initiating Events Cornerstone, and it directly affected the cornerstone objective to limit the likelihood of those events that upset plant stability during power operations. Using Inspection Manual Chapter 0609, “Significance Determination Process,” Phase 1 Worksheet, this finding was determined to have very low safety significance because it did not contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions would not be available. The finding had a crosscutting aspect in the area of Problem Identification and Resolution associated with Operating Experience [P.2(b)], in that licensee personnel failed to implement and institutionalize operating experience through changes to station processes and procedures.

Inspection Report# : 2009002 *(pdf)*

Mitigating Systems

Significance: G Sep 23, 2009
Identified By: NRC
Item Type: NCV NonCited Violation
FAILURE TO MAINTAIN SEISMIC DESIGN BASES CONTROL
Green. The inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion III, “Design Control,” for the failure to assure that applicable design basis for applicable structures, systems, and components were correctly translated into specifications, procedures, and instructions. Specifically, the licensee approved a nonconservative engineering calculation which led to operating procedure changes that allowed the removal of safety related, motor operated valve actuator rigid seismic restraints in the support of maintenance without verifying conformance to meet seismic design basis requirements. The issue was entered into the licensee's corrective action program as Condition Report ANO C 2009 0710.

The performance deficiency was determined to be more than minor because it was associated with the protection against external events attribute of the Mitigating Systems Cornerstone, and affected the associated cornerstone objective to ensure availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences, and is therefore a finding. Specifically, the engineering calculation used to support removal of rigid seismic restraints and maintain operability only analyzed the deadweight of the motor operated valve actuator, not any dynamic seismic loading. Using NRC Manual Chapter 0609, “Significance Determination Process,” Phase 1 Worksheets, Mitigating Systems Cornerstone, the finding was determined to have very low safety significance because it did not represent an actual loss of safety function and did not screen as potentially risk significant due to a seismic initiating event. This finding did not have a crosscutting aspect because the engineering calculation used to determine the acceptability of removal of motor operated valve actuator seismic restraints to support maintenance and maintain system operability was made in 1994 and was not indicative of current plant performance.

Inspection Report# : 2009004 *(pdf)*

Significance: G Sep 23, 2009
Identified By: NRC

Item Type: NCV NonCited Violation
FAILURE TO ENSURE THAT CONDITIONS ADVERSE TO QUALITY ARE APPROPRIATELY ENTERED INTO THE CORRECTION ACTION PROGRAM
Green. The inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion XVI, “Corrective Action,” for the licensee’s failure to have adequate measures established to assure that, when a condition adverse to quality was identified, it was appropriately entered into the stations corrective action program. Specifically, the licensee’s staff has repeatedly failed to enter conditions adverse to quality, identified during investigation of issues, into the corrective action program. The licensee entered this issue into their corrective action program as Condition Reports ANO C 2009 1544.

The performance deficiency was determined to be more than minor because, if left uncorrected, station personnel's failure to enter conditions adverse to quality into the station corrective action program would result in the licensee’s failure to recognize that risk-significant equipment is in a degraded condition and, as such, may not be able to perform its specified safety function, and is therefore a finding. Using Inspection Manual Chapter 0609, “Significance Determination Process,” Phase 1 Worksheets, this finding was determined to have a very low safety significance because the finding (1) was a qualification deficiency confirmed not to result in loss of operability; (2) did not lead to an actual loss of system safety function; (3) did not result in the loss of safety function of a single train for greater than its technical specification allowed outage time; (4) did not represent an actual loss of safety function of one or more nontechnical specification trains of equipment designated as risk-significant per 10 CFR 50.65, for greater than 24 hours; and (5) it did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. This finding had a crosscutting aspect in the area of problem identification and resolution associated with the corrective action program [P.1(a)], in that licensee personnel failed to implement a corrective action program with a low threshold for identifying issues. This also includes identifying such issues completely, accurately, and in a timely manner commensurate with their safety significance.

Inspection Report# : 2009004 *(pdf)*

Barrier Integrity

Significance: G Sep 23, 2009
Identified By: NRC
Item Type: NCV NonCited Violation
FAILURE TO ADEQUATELY IMPLEMENT FOREIGN MATERIAL EXCLUSION CONTROLS
Green. The inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion V, “Instructions, Procedures, and Drawings,” associated with the licensee’s failure to adequately implement Procedure EN MA 118, “Foreign Material Exclusion,” Revision 5. Specifically, on multiple occasions during Refueling Outage 2R20, licensee personnel failed to implement appropriate foreign material exclusion controls in areas designated as Zone 1 foreign material exclusion areas in accordance with Procedure EN MA 118. This issue was entered into the licensee's corrective action program as Condition Report ANO 2-2009-2843.

The performance deficiency was more than minor because it affected the human performance attribute of the Barrier Integrity Cornerstone and directly affected the cornerstone objective of providing reasonable assurance that physical barriers protect the public from radionuclide releases caused by accidents or events, and is therefore a finding. Furthermore, the significant programmatic deficiencies that were identified associated with this issue could lead to more significant errors if left uncorrected. Specifically, station personnel’s continued failure to implement appropriate foreign material exclusion controls would result in the introduction of foreign material into critical areas, such as the spent fuel pool or the reactor cavity, which in turn would result in degradation and adverse impacts on materials and systems associated with these areas. Using Inspection Manual Chapter 0609, “Significance Determination Process,” Phase 1 Worksheets, this finding was determined to have a very low safety significance because the finding was only associated with the fuel barrier. This finding had a crosscutting aspect in the area of human performance associated with work practices [H.4(b)], in that the licensee failed to define and effectively communicate expectations regarding procedural compliance which resulted in a failure to follow procedure by workers.

Inspection Report# : 2009004 *(pdf)*

Significance: G Aug 27, 2009
Identified By: NRC
Item Type: NCV NonCited Violation
Inadequately Analyzed Emergency Operating Procedure Change
The NRC examiners identified a Green noncited violation of Technical Specification 5.4.1.b for failure to validate changes made to Emergency Operating Procedures. Specifically, the licensee failed to validate a change made to Emergency Operating Procedure E-0, Reactor Trip or Safety Injection. This unvalidated change to E-0 had the unintended consequence of changing the Emergency Operating Procedure mitigation strategy in the steam generator tube rupture procedure, E-3, in that it resulted in premature direction to close the main steam isolation valves which increases the likelihood and duration of a radioactive release during a tube rupture event. This was an undesirable effect that the licensee had not considered when it made the change to E-0. This was entered into the licensee's Corrective Action Program under AR22391, and the licensee removed the change that was made to E-0.

The finding was more than minor because it adversely affected the barrier integrity cornerstone attribute of "Procedure Quality" in that the change to the emergency operating procedure increased the likelihood of an offsite release during a steam generator tube rupture casualty. Manual Chapter 0609, Attachment 4, "Initial Screening and Characterization of Findings," was used to evaluate the finding. The finding is of very low safety significance because it did not represent a degradation of the radiological barrier function provided for the control room, auxiliary building, or spent fuel pool; it did not represent a degradation of the barrier function of the control room against smoke or a toxic atmosphere; it did not represent an actual open pathway in the physical integrity of reactor containment; and it did not involve an actual reduction in function of hydrogen ignitors in the reactor containment. The finding had a crosscutting aspect in the area of human performance associated with decision making because the licensee failed to conduct effectiveness reviews of safety-significant decisions to verify the validity of underlying assumptions and identify possible unintended consequences.

Inspection Report# : 2009302 *(pdf)*

Significance: G Jun 23, 2009
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Appropriately Identify and Implement Adequate Corrective Actions to Correct a Condition Adverse to Quality Associated with the Material Control System
The inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion XV, "Nonconforming Materials, Parts or Components," associated with the licensee's failure to properly control nonconforming components. Specifically, in 1997 the licensee identified that two check valves, which had been installed in the postaccident monitoring system, had a defective design that prevented them from seating all of the way. However, the stations material control system was not updated with this information and this model valve was subsequently issued for use in the high pressure safety injection pressurization system which resulted in leakage due to the valves failure to completely seat. The licensee entered this issue into their corrective action program as Condition Report CR ANO 2 2009 1012.

The performance deficiency was more than minor because it affected the design control attribute of the Barrier Integrity Cornerstone and it directly affected the cornerstone objective to provide reasonable assurance that the physical design barriers protect the public from radionuclide releases caused by accidents or events. Using Inspection Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheet, this finding was determined to have very low safety significance because the finding did not represent a degradation of the barrier functions of the control room or auxiliary building; did not represent an actual open pathway in the physical integrity of reactor containment; and did not involve an actual reduction in the function of hydrogen ignitors in the reactor containment. The finding was determined to have a crosscutting aspect in the area of Problem Identification and Resolution associated with the Corrective Action Program [P.1(c)], in that the licensee failed to thoroughly evaluate problems such that the resolutions address causes and extent of conditions, as necessary. This is indicative of current plant performance because the licensee continues to inadequately evaluate issues and develop appropriate resolutions.

Inspection Report# : 2009003 *(pdf)*

Emergency Preparedness

Occupational Radiation Safety

Significance: G Sep 23, 2009
Identified By: Self-Revealing
Item Type: NCV NonCited Violation
FAILURE TO CONTROL ACCESS TO A HIGH RADIATION AREA WITH DOSE RATES IN EXCESS OF 1.0 R/HR
Green. The inspector reviewed a self-revealing noncited violation of Technical Specification 6.7.2 for failure to control a high radiation area with dose rates in excess of 1.0 R/hr. On September 12, 2009, a radiological barrier was removed by a work crew exposing an area with dose rates in excess of 1.0 R/hr without radiation protection personnel authorization. Radiation protection personnel did not fully understand that the work crew was intending to remove the secondary handhole barrier on the Unit 2 steam generator A to clean the area in preparation for installing the strongback. The dose rate one foot within the handhole was 2.9 R/hr. Radiation protection was made aware of the situation when reviewing the cause for one member of the work crew receiving a dose rate alarm. The issue was documented as Condition Report ANO-2-2009-02609.

The failure to control a high radiation area with dose rates in excess of 1.0 R/hr is a performance deficiency. The finding was greater than minor because it was associated with the Occupational Radiation Safety cornerstone attribute (exposure control) of program and process and affected the cornerstone objective, in that, the failure to properly control a high radiation area with dose rates in excess of 1.0 R/hr had the potential to increase personnel dose. This finding was evaluated using the Occupational Radiation Safety Significance Determination Process and determined to be of very low safety significance because it did not involve: (1) ALARA planning or work control issue, (2) an overexposure, (3) a substantial potential for overexposure, or (4) an impaired ability to assess dose. Additionally, this finding had human performance crosscutting aspects associated with work control in that the work planning did not appropriately plan work activities by incorporating risk insights and radiological safety [H.3(a)].

Inspection Report# : 2009004 *(pdf)*

Public Radiation Safety

Physical Protection

Although the NRC is actively overseeing the Security cornerstone, the Commission has decided that certain findings pertaining to security cornerstone will not be publicly available to ensure that potentially useful information is not provided to a possible adversary. Therefore, the cover letters to security inspection reports may be viewed.

Miscellaneous

Significance: SL-IV Jul 31, 2009

Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Provide Accurate Information in Response to Generic Letter 2007-01, “Inaccessible or Underground Power Cable Failures that Disable Accident Mitigation Systems or Cause Plant Transients”
SL-IV. The team identified a noncited violation of 10 CFR 50.9, “Completeness and Accuracy of Information,” which states in part that information required by statute or by the Commission's regulations, orders, or license conditions to be maintained by the applicant or the licensee shall be complete and accurate in all material respects. Contrary to the above, the licensee’s May 7, 2007, response to Generic Letter 2007-01, “Inaccessible or Underground Power Cable Failures that Disable Accident Mitigation Systems or Cause Plant Transients,” did not accurately describe the licensee’s programs, procedures, or practices for inspection, testing, and monitoring programs to detect the degradation of inaccessible or underground power cables that support emergency diesel generators, offsite power, essential service water, service water, component cooling water, and other systems that are in the scope of 10 CFR 50.65, “The Maintenance Rule.” The licensee asserted in their response to Generic Letter 2007-01, Question 2, that “ANO inspection, testing, and monitoring practices presently include visual cable inspection during routine operations, periodic meggering of cables and connected equipment associated with maintenance activities, and periodic inspection of manholes for dewatering.” In fact, there was no evidence that these manholes or cables had ever been periodically or routinely inspected for Unit-1, and none of the cables for either of the units were being routinely inspected as the licensee had asserted.

The finding was more than minor because the information was material to the NRC’s decision making processes. In accordance with Inspection Manual Chapter 0612, “Power Reactor Inspection Reports,” the violation was subject to the traditional enforcement process because 10 CFR 50.9 violations impact the NRC’s ability to perform its regulatory function. Using the Enforcement Policy, Supplement VII, “Miscellaneous Matters,” the inspectors characterized the violation as a Severity Level IV violation because it did not meet the Severity Level I, II or III criteria. NRC management reviewed the finding and determined that it was of very low safety significance. Because the violation was of very low safety significance and was entered into the licensee’s corrective action program as Condition Report CR ANO C-2009-1415, this violation is being treated as a noncited violation, consistent with the NRC Enforcement Policy, Section VI.A. The inspectors determined that the finding has a crosscutting aspect in the area of problem identification and resolution in that the licensee failed to implement operating experience directly communicated with a generic letter through changes to station processes, procedures, and equipment [P.2(b)].

Inspection Report# : 2009007 *(pdf)*

Significance: N/A Feb 20, 2009
Identified By: NRC
Item Type: FIN Finding
Identification and Resolution of Problems
The inspectors reviewed approximately 300 condition reports, work orders, engineering evaluations, root and apparent cause evaluations, and other supporting documentation to determine if problems were being properly identified, characterized, and entered into the corrective action program for evaluation and resolution. The inspectors reviewed a sample of system health reports, self assessments, trending reports and metrics, and various other documents related to the corrective action program. The inspectors concluded that the licensee effectively identified, evaluated, and prioritized corrective actions for conditions adverse to quality. The inspectors concluded that the licensee implemented timely, effective corrective actions.

With minor exceptions, the licensee appropriately evaluated industry operating experience for relevance to the facility and had entered applicable items in the corrective action program. The licensee used industry operating experience when performing root cause and apparent cause evaluations. The licensee performed effective quality assurance audits and self assessments, as demonstrated by self identification of poor corrective action program performance and identification of ineffective corrective actions.

Inspection Report# : 2009006 *(pdf)*