

Arkansas Nuclear 2

2Q/2008 Plant Inspection Findings

Initiating Events

Significance: G Dec 31, 2007

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Maintain Fire Barrier for Emergency Feedwater Pump A

Green. The inspectors identified a Green noncited violation of Technical Specification 6.4.1.c, "Procedures," associated with the licensee's failure to adequately implement the fire protection program. Specifically, station personnel breached the fire barrier door for emergency feedwater (EFW) Pump 2P-7A and failed to implement compensatory measures as required by the station Fire Protection Program. This issue was entered into the licensee's corrective action program as Condition Report ANO-2-2007-1729.

The finding was determined to be more than minor because it affected the protection against external factors attribute of the mitigating systems cornerstone, and it directly affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Using the Manual Chapter 0609, Appendix F, "Fire Protection Significance Determination Process," Phase 1 Worksheet, the finding was determined to have very low safety significance because: (1) the duration factor was assumed to be 6E-5; and (2) the fire frequency was assumed to be 4E-4, which resulted in a change in CDF of less than 1E-6. The finding had crosscutting aspects 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 a previous occurrence of leaving fire doors open such that the resolution appropriately addressed the cause.

Inspection Report# : [2007005](#) (*pdf*)

Significance: G Nov 09, 2007

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

INADEQUATE MAINTENANCE PROCEDURE FOR MOTOR CONTROL CENTER BREAKERS

A self-revealing noncited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Actions," was identified associated with the licensee's failure to implement adequate corrective actions to prevent recurrence of a significant condition adverse to quality. Specifically, during the Root Cause Evaluation performed for the fire in Motor Control Center 2B-22 in October 2000, the licensee failed to recognize and evaluate previously documented instances where other breakers exhibited degraded connections that were similar, and as such precursors to the failure of the breaker in Motor Control Center 2B-22. Also, the licensee failed to recognize and evaluate these same degraded breaker connection conditions that were discovered during extent of condition inspections and subsequent motor control center maintenance inspections. The licensee's failure to identify and evaluate all instances of degraded breaker connections contributed to their failure to adequately identify the cause and implement corrective actions to prevent recurrence of this significant condition adverse to quality. This resulted in a fire in Motor Control Center 2B-52 on October 23, 2007. This issue was entered into the licensee's corrective action program as Condition Report ANO-2-2008-0060.

The finding was determined to be more than minor because it affected the protection against external factors attribute of both the Initiating Events and Mitigating Systems cornerstone. Using the Manual Chapter 0609, "Significance Determination Process," Phase 1 worksheets, the inspectors concluded that a phase 2 evaluation was required.

The inspectors performed a Phase 2 analysis using Appendix A, "Technical Basis For At Power Significance Determination Process," of Manual Chapter 0609, "Significance Determination Process," and the Phase 2 worksheets for Arkansas Nuclear One. The inspectors determined that the Phase 2 presolved table and worksheets did not contain appropriate target sets to estimate accurately the risk impact of the finding there fore a phase 3 analysis was performed. The senior reactor analyst performed a Phase 3 analysis. The estimated change in core damage frequency was 8.463E-7/yr. The estimated change in large early release frequency was 4.842E-8/yr. Therefore, the significance

of the finding was determined to be Green. The cause of this 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 the fire in Motor Control Center 2B-22 such that the resolution addressed the cause and extent of condition. This also includes conducting effectiveness reviews of corrective actions to ensure that the issue was resolved after more indications were discovered

Inspection Report# : [2007009](#) (pdf)

Significance:  Nov 09, 2007

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO IDENTIFY, CORRECT AND PREVENT RECURRENCE OF A SIGNIFICANT CONDITION ADVERSE TO QUALITY

A self-revealing noncited violation was identified associated with the licensees' failure to comply with Unit 2 Technical Specifications, Section 6.4.1, "Procedures," for the failure to ensure adequate procedures were available for maintenance that was conducted on the Unit 2 AC motor control centers. Specifically, the maintenance procedure used by the licensee did not require visual inspections, nor cleaning, and lubrication of the bus to stab contact surface which facilitated degradation of the motor control center bus bars and also allowed this degradation to continue unrecognized. This issue was entered into the licensee's corrective action program as Condition Report ANO-2-2007-1512.

The finding was determined to be more than minor because it affected the protection against external factors attribute of both the Initiating Events and Mitigating Systems cornerstone. Using the Manual Chapter 0609, "Significance Determination Process," Phase 1 worksheets, the inspectors concluded that a phase 2 evaluation was required.

The inspectors performed a Phase 2 analysis using Appendix A, "Technical Basis For At Power Significance Determination Process," of Manual Chapter 0609, "Significance Determination Process," and the Phase 2 worksheets for Arkansas Nuclear One. The inspectors determined that the Phase 2 presolved table and worksheets did not contain appropriate target sets to estimate accurately the risk impact of the finding therefore a phase 3 analysis was performed. The senior reactor analyst performed a Phase 3 analysis. The estimated change in core damage frequency was 8.463E-7/yr. The estimated change in large early release frequency was 4.842E-8/yr. Therefore, the significance of the finding was determined to be Green.

Inspection Report# : [2007009](#) (pdf)

Significance:  Nov 09, 2007

Identified By: NRC

Item Type: NCV NonCited Violation

INADEQUATE IMPLEMENTATION OF CORRECTIVE ACTIONS FAIL TO CORRECT A CONDITION ADVERSE TO QUALITY

The inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," for the licensee's failure to take adequate corrective actions in response to a Motor Control Center fire that occurred on October 24, 2000. Specifically, the licensee had identified dust and dirt in the MCC as a condition adverse to quality, assigned a corrective action for the condition and subsequently closed their corrective action without actions being taken to correct the condition. This issue was entered into the licensee's corrective action program as Condition Reports ANO-2-2007-1566, ANO-2-2008-0050 and ANO-2-2008-0071.

The finding was determined to be more than minor because it affected the protection against external factors attribute of the initiating events cornerstone, and it directly affected the cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Using the Manual Chapter 0609, Appendix F, "Fire Protection Significance Determination Process," Phase 1 Worksheet, the finding was determined to have very low safety significance because the condition represented a low degradation of a fire prevention and administrative controls feature. The finding had crosscutting aspects in the area of problem identification and resolution associated with the corrective action program (P.1(d)) because the licensee failed to take appropriate corrective actions to address safety issues in a timely matter.

Inspection Report# : [2007009](#) (pdf)

Mitigating Systems

Significance:  Oct 19, 2007

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO MAINTAIN ADEQUATE FIRE BRIGADE STAFFING DURING ALTERNATE SHUTDOWN

The team identified a noncited violation of License Conditions 2.C.(8) for Unit 1 and 2.C.(3)(b) for Unit 2 for failure to implement and maintain in effect all provisions of the approved fire protection program. Specifically, the licensee failed to maintain adequate fire brigade staffing during fire scenarios requiring an alternative shutdown of Unit 2 coincident with a remote shutdown of Unit 1. The licensee entered the failure to maintain adequate fire brigade staffing under all circumstances into their corrective action process for resolution.

The failure to implement and maintain in effect all provisions of the approved fire protection program by failing to maintain adequate fire brigade staffing was a performance deficiency. The finding was more than minor since it was associated with the Mitigating Systems Cornerstone attribute of protection from external factors and affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The significance of the finding was assessed using Appendix M of Manual Chapter 0609, "Significance Determination Process Using Qualitative Criteria." This finding was determined to be of very low safety significance (Green) by management review due to the short duration of the violation. The finding has a cross-cutting aspect in the area of human performance associated with resources because the licensee did not adequately ensure the procedures governing the procedure change process were complete and accurate (H.2.(c)).

Inspection Report# : [2007006](#) (*pdf*)

Significance:  Sep 21, 2007

Identified By: NRC

Item Type: NCV NonCited Violation

NONCONSERVATIVE ERRORS IN UNIT 2 FUEL OIL CONSUMPTION CALCULATION

The team identified a non-cited violation of 10 CFR 50 Appendix B, Criterion III, Design Control for the failure to recognize multiple non-conservative errors in a Unit 2 emergency diesel generator fuel oil consumption calculation. The errors were a result of illegible reference data, inconsistently applied methodology, and inadequate calculation reviews, some of which reduced the calculated margin to meeting design bases requirements. The inspectors determined that the failure to recognize multiple errors in a design bases emergency diesel generator fuel oil consumption calculation constituted a performance deficiency and a violation. The licensee entered this into the corrective action program as CR-ANO-2-2007-01325.

The inspectors determined that the violation was more than minor because it is similar to Inspection Manual Chapter 0612 Appendix E minor example 3j, specifically because operability was called into question by the non-conservative errors identified by the NRC. Furthermore, the calculation will need to be re-performed and scrutinized to correct and identify all errors and to ensure all reference data is valid and supportable. In accordance with Inspection Manual Chapter 0609, Significance Determination Process, Appendix A, Significance Determination of Reactor Inspection Findings for At Power Situations, the inspectors conducted a Phase 1 screening and determined the finding was of very low safety significance (Green) because it was a design deficiency confirmed not to result in loss-of-operability in accordance with Part 9900, Technical Guidance, Operability Determination Process for Operability and Functional Assessment. This issue is being treated as a non-cited violation consistent with Section VI.A of the NRC Enforcement Policy: NCV 05000368/2007008-001, Non-conservative Errors in Unit 2 Fuel Oil Consumption Calculation.

Inspection Report# : [2007008](#) (*pdf*)

Barrier Integrity

Significance:  Apr 04, 2008

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

SCAFFOLDING RENDERED CONTAINMENT ISOLATION VALVE INOPERABLE

Green. The inspectors documented a self-revealing noncited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the failure to follow a site scaffolding procedure, in that operators and the scaffolding certifying official failed to identify that scaffolding impeded the operation of the outboard chill water return containment isolation valve. The valve could not close to perform its safety function. This issue was entered into the licensee's corrective action program as Condition Report CR ANO 2 2008 0473.

The finding was more than minor because it was similar to nonminor Example 4.a in NRC Inspection Manual Chapter 0612, Appendix E, "Examples of Minor Issues." Specifically, the scaffolding had an adverse impact on a safety related containment isolation valve. In addition, this finding was associated with the configuration control attribute of the Barrier Integrity Cornerstone and affected the cornerstone objective to provide reasonable assurance that physical design barriers protect the public from radio nuclide releases caused by accidents or events. Using the Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheet, the finding had very low safety significance because the condition 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 had a crosscutting aspect in the human performance area, work practices component [H.4(c)], because the licensee failed to ensure supervisory and management oversight of work activities such that nuclear safety was supported.

Inspection Report# : [2008002](#) (*pdf*)

Significance:  Apr 04, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

INADEQUATE CONTAINMENT AIR LOCK LEAKAGE TESTING

Green. The inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion XI, "Test Control," involving unacceptable preconditioning during Unit 2 containment escape hatch outer door local leakage rate testing. Specifically, the test procedure as written failed to identify leakage through the air lock outer door seals in excess of that allowed by the Containment Leakage Rate Testing Program. The licensee entered this issue in their corrective action program as condition report CR ANO 2007 1687.

This finding was more than minor because it was associated with the procedure quality attribute of the Barrier Integrity Cornerstone and affected the cornerstone objective to provide reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. Using the Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheet, the finding was of very low safety significance because it did not represent an actual open pathway in the physical integrity of reactor containment or involve an actual reduction in defense-in-depth for the atmospheric pressure control or hydrogen control functions of the containment. This finding has a crosscutting aspect in the area of human performance area associated with resources in that the licensee did not ensure that procedures were available and adequate to assure nuclear safety. Specifically, the licensee failed to provide complete and accurate procedures to allow detection of a degradation of the containment air lock door seals [H 2(c)].

Inspection Report# : [2008002](#) (*pdf*)

Emergency Preparedness

Occupational 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 Dec 31, 2007

Identified By: NRC

Item Type: NCV NonCited Violation

Communication of an NRC Inspector's Presence by Security Personnel

SL IV. The inspectors identified a Severity Level IV NCV of 10 CFR 50.70, "Inspections," for the licensee's failure to ensure that the arrival and presence of an NRC inspector is not communicated to persons at the facility. A security officer informed other security officers at the facility of the presence and expected arrival of an NRC resident inspector at their duty location. This issue was entered into the licensee's corrective action program as Condition Report ANO-2007-1508.

The finding was determined to be applicable to traditional enforcement because the NRC's ability to perform its regulatory function was potentially impacted by the licensee's notification of personnel whose activities are subject to unannounced inspection by NRC inspectors. The finding was not suitable for evaluation using the significance determination process, and was therefore evaluated in accordance with the Enforcement Policy. The finding was reviewed by NRC management and was determined to be of very low safety significance.

Inspection Report# : [2007005](#) (*pdf*)

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