

Arkansas Nuclear 1

4Q/2008 Plant Inspection Findings

Initiating Events

Significance:  Dec 31, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Procedure for Reactor Vessel Head Lift

DRAFT - While performing a review in accordance with Operating Experience Smart Sample FY2007 03, "Crane and Heavy Lift Inspection, Supplemental Guidance for Inspection Procedure 71111.20," the inspectors identified a noncited violation of Technical Specification 5.4.1, "Procedures," associated with the licensee's failure to ensure that adequate procedures were available for removal and reinstallation of the Unit 1 reactor vessel head. Specifically, Procedures OP 1504.007, "Unit 1 Reactor Vessel Closure Head Removal and Storage," Revision 14; and OP 1504.009, "Unit 1 Reactor Vessel Closure Head Installation, Revision 17, allowed the vessel closure head to be lifted to a height which exceeded the maximum analyzed height in the head drop analysis. This issue was entered into the licensee's corrective action program as Condition Report ANO 1 2008 1555.

The finding was determined to be more than minor because it was associated with the procedure quality 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 NRC Manual Chapter 0609, "Significance Determination Process," Appendix G, "Shutdown Operations Significance Determination Process," the inspectors determined that the finding was not a loss of shutdown control as defined by NRC Manual Chapter 0609, Appendix G, Table 1, "Losses of Control." Therefore, the inspectors then evaluated the issue using NRC Manual Chapter 0609, Appendix G, Attachment 1, "Shutdown Operations Significance Determination Process Phase 1 Operational Checklists for Both PWRs and BWRs," Checklist 3, and determined that a quantitative analysis was not required because the event did not: (1) affect core heat removal, (2) inventory control, (3) power availability guidelines, (4) containment control guidelines, and (5) reactivity guidelines. The finding had a crosscutting aspect in the area of Human Performance associated with the Resources Component [H.2(c)], because the licensee failed to provide complete, accurate and up to date procedures and work packages for the removal and installation of the reactor vessel closure head

Inspection Report# : [2008005](#) (*pdf*)

Significance:  Dec 31, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Control Transient Combustible Material in the Auxiliary Building

DRAFT - The inspectors identified a Green noncited violation of Technical Specification 5.4.1, "Procedures," associated with the licensee's failure to adequately implement the fire protection program. Specifically, on multiple occasions station personnel exceeded or challenged combustible limits specified in Procedure EN DC 161, "Control of Combustibles," Revision 2, without taking the prescribed compensatory actions. The inspectors also identified that, in some cases, the procedure was not even invoked.

The inspectors determined that the failure of station personnel to follow Procedure EN DC 161, "Control of Combustibles," Revision 2, was a performance deficiency and therefore a finding. The finding was determined to be more than minor because it affected the protection against external factors attribute and it directly affected the Initiating Events 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 NRC 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 administration controls. The finding had a crosscutting aspect in the area of Problem Identification and Resolution associated with

the Corrective Action Program because the licensee failed to take appropriate actions to address an adverse trend in a timely manner, which allowed the adverse trend to continue and reoccur on multiple occasions [P.1(d)].

Inspection Report# : [2008005](#) (pdf)

Significance:  Dec 31, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Correct and Prevent Recurrence of a Significant Condition Adverse to Quality Associated with Fires

DRAFT - The inspectors identified noncited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," associated with a fire that occurred in the Arkansas Nuclear One switchyard while Entergy Arkansas Transmission and Distribution contractors performed welding activities. Specifically, the licensee failed to correct a significant condition adverse to quality stemming from a long history of procedural violations of Procedure EN DC 127, "Control of Hot Work and Ignition Sources." The licensee entered the issue into their corrective action as Condition Report ANO C 2008 2305.

The inspectors determined that the licensee's failure to adequately implement corrective actions from previously identified trend of small fires since 2003, which constitutes a significant condition adverse to quality, was a performance deficiency and therefore a finding. The finding was determined to be more than minor because it affected the protection against external factors attribute and it directly affected the Initiating Events 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 NRC 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 administration controls. The finding had a crosscutting aspect in the area of Human Performance associated with Work Practices in that the licensee failed to ensure supervisory and management oversight of work activities, especially contractors, such that nuclear safety was supported [H.4(c)]

Inspection Report# : [2008005](#) (pdf)

Significance:  Sep 23, 2008

Identified By: Self-Revealing

Item Type: FIN Finding

FAILURE OF FEEDWATER HEATER HIGH LEVEL DRAIN VALVE DUE TO MAINTENANCE

Inspectors documented a self-revealing finding for the failure to follow Procedure EN-HU-102, "Human Performance Tools," Revision 4, which required that workers perform self checks and peer checks to ensure that the correct work was being performed on the correct equipment. Specifically, workers, who were returning from a break to resume preoutage preparation for feedwater heater replacement, failed to perform a self check, or obtain a peer check, and worked on the wrong component. They cut two instrument air lines to the Unit 1 Feedwater Heater E-4A high level drain Valve CV-3068. This caused the valve to fail full open and drain the feedwater heater. Plant personnel captured this finding in the corrective action program as Condition Report ANO-1-2008-0924.

The failure to follow Procedure EN-HU-102 was a performance deficiency and, therefore, a finding. This finding was more than minor because it was similar to nonminor Example 4.e in NRC Manual Chapter 0612, Appendix E, "Examples of Minor Issues." Specifically, the failure to comply with the procedure resulted in the valve failing open. The finding was evaluated for significance using NRC Manual Chapter 0609, "Significance Determination Process," and determined to be of very low safety significance (Green) because as a transient initiator, the finding did not contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions would not be available. Inspectors determined that the finding had a crosscutting aspect in the area of Human Performance associated with Work Practices because the craftsman did not utilize self and peer checking techniques

Inspection Report# : [2008004](#) (pdf)

Significance:  Jun 23, 2008

Identified By: NRC

Item Type: FIN Finding

Loss of 500 kV power line due to switchyard maintenance

The inspectors documented a self-revealing finding for emergent work performed outside of the original work scope that led to the loss of the Pleasant Hills 500 kV power line. Entergy switchyard technicians, while working on a switchyard breaker, stepped outside the bounds of the Arkansas Nuclear One work order and caused another breaker to trip. Consequently, the load dispatcher requested that the plant reduce the output power level and the licensee down-powered both units. The licensee entered the issue into the corrective action program as CR ANO-C-2008-1053, immediately stopped work in the switchyard, performed a stand down to reemphasize work procedures and expectations, and instituted supervisory tours of the work in the switchyard until the work was complete.

The finding was more than minor because it was associated with the human error attribute and affected the Initiating Event Cornerstone objective to limit the likelihood of those events that upset plant stability during power operations. The significance of the finding was assessed using Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheet. The finding was of very low safety significance (Green) because it did not contribute to the likelihood that mitigation equipment or functions would not be available. The finding had a cross-cutting aspect in the area of Human Performance associated with work practices because the licensee did not ensure supervisory and management oversight of work activities, including Entergy transmission network technicians, in the switchyard such that nuclear safety was supported [H.4.(c)].

Inspection Report# : [2008003](#) (*pdf*)

Mitigating Systems

Significance:  Dec 31, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Perform an Adequate Risk Assessment for a Temporary Modification Done in Support of Maintenance

DRAFT - The inspectors identified a noncited violation of 10 CFR 50.65(a)(4), "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," associated with the licensee's failure to perform an adequate risk assessment for a temporary modification performed in support of maintenance. Specifically, when evaluating the upper support frame assembly installed on top of the Unit 1 containment building to support tendon surveillance work, the licensee inappropriately assumed that seismic loads analysis bounded extreme wind loads, specifically tornados. As such, this assumption resulted in an inadequate risk assessment which failed to adequately evaluate and implement appropriate risk management actions for the upper support frame in the event of an extreme wind condition. This issue was entered into the licensee's corrective action program as Condition Report ANO 1 2008 1276.

The finding was more than minor because it was similar to more than minor Maintenance Rule, Example 7.e, in NRC Manual Chapter 0612, Appendix E, "Examples of Minor Issues," in that the licensee's risk assessment contained incorrect assumptions that changed the outcome of the assessment. The inspectors evaluated this finding using NRC Manual Chapter 0609, Appendix K, "Maintenance Risk Assessment and Risk Management Significance Determination Process" because the finding is a maintenance risk assessment issue. Flowchart 1, "Assessment of Risk Deficit," requires the inspectors to determine the risk deficit associated with this issue. This finding was determined to be of very low safety significance because the incremental core damage probability deficit was less than 1×10^{-6} . This finding had a crosscutting aspect in the area of Human Performance associated with Decision Making [H.1(b)], in that the licensee's engineering staff failed to use conservative assumptions and failed to verify the validity of the underlying assumptions used when evaluating and assessing the risk associated with installation of the upper support frame in accordance with 10 CFR50.65(a)(4)

Inspection Report# : [2008005](#) (*pdf*)

G**Significance:** Sep 23, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO ENTER CONDITIONS ADVERSE TO QUALITY INTO THE CORRECTIVE ACTION PROGRAM

The inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," for the failure to implement required measures to ensure that conditions adverse to quality were promptly identified and corrected. Specifically, Procedure EN LI 102, "Corrective Action Process," Revision 8, required that plant personnel write condition reports for conditions adverse to quality. The inspectors identified nine instances where station personnel were aware of conditions adverse to quality, but failed to enter them into the corrective action program without being prompted by the inspectors. Licensee personnel entered this issue into the corrective action program as Condition Report ANO C 2008 1536.

The finding was more than minor because it was similar to nonminor Example 3.j in NRC Manual Chapter 0612, Appendix E, "Examples of Minor Issues," in that significant programmatic deficiencies were identified associated with this issue that could lead to worse errors if left uncorrected. Specifically, station personnel's failure to enter conditions adverse to quality into the station corrective action program could result in the 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. Using NRC Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheet, the finding was determined to have very low safety significance (Green) because the finding: (1) was not 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 10CFR50.65, 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# : [2008004](#) (pdf)**G****Significance:** Sep 23, 2008

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

FAILURE TO PROMPTLY IDENTIFY AND CORRECT A CONDITION ADVERSE TO QUALITY ASSOCIATED WITH EMERGENCY SWITCH GEAR CHILLER VALVE VCH-4B

The inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," for the failure of licensee personnel to promptly identify and correct a condition adverse to quality - chill water expansion tank corrosion materials that blocked the Emergency Switchgear Chiller B VCH-4B Level Switch LS-6036 sensing line. The condition caused the chiller to lockout and become inoperable on December 18, 2005, July 21, 2006, and July 25, 2008. Licensee personnel entered this issue in the corrective action program as Condition Report ANO 1 2008 0851.

The finding was more than minor because it was associated with the Mitigating Systems Cornerstone attribute of equipment performance and affected the associated cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Using NRC Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheet, the finding was determined to have very low safety significance because the finding: (1) was not a qualification deficiency confirmed not to result in a loss of operability of essential Chiller B; (2) did not lead to an actual loss of system safety function; (3) did not result in the loss of one train of technical specification equipment for more than its allowed outage time; (4) did not represent an actual loss of function of one or more nontechnical specification trains of equipment designated as risk-significant per 10CFR50.65, 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. The inspectors determined that the finding did not have a crosscutting

aspect because the first two opportunities to identify and correct the condition were aged and not indicative of current plant performance

Inspection Report# : [2008004](#) (pdf)

Significance:  Sep 23, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO ADEQUATELY MONITOR THE PERFORMANCE OF THE UNIT 1 AUXILIARY BUILDING ROOF DRAINS

The inspectors identified a noncited violation of 10 CFR 50.65(a)(1) for the licensee's failure to monitor Unit 1 auxiliary building roof drains performance in a manner to provide reasonable assurance that the roof drains were capable of fulfilling their intended function. Licensee personnel have never tested, nor checked, the drains for blockages. The failure (or blockage) of these drains could result in excessive roof loading due to accumulation of water during design basis rain events. Licensee personnel entered this issue in the corrective action program as Condition Report ANO 1 2008 1210.

The finding was more than minor because it was similar to nonminor Maintenance Rule, Example 7.a, in NRC Manual Chapter 0612, Appendix E, "Examples of Minor Issues," because significant equipment problems could go undetected. This finding had very low safety significance because the failure to properly categorize failures in accordance with the 10CFR 50.65 did not create, in itself, additional operability or functionality concerns. The inspectors determined that the finding did not have a crosscutting aspect because the opportunity to identify that performance monitoring was inadequate had not occurred recently and, therefore, was not indicative of current licensee performance.

Inspection Report# : [2008004](#) (pdf)

Significance:  Jun 23, 2008

Identified By: NRC

Item Type: FIN Finding

Failure to follow station procedures while troubleshooting

The inspectors identified a finding because the "Fix-it-Now" team failed to follow site procedures when working on high energy line break barrier Door 62, which protected one train of the Unit 1 emergency switchgear. While performing troubleshooting activities on the door to determine the cause of the previous failure associated with the operating mechanism, the team maintained the door open for approximately 15 minutes and made an on the spot decision to turn this troubleshooting activity into "minor maintenance," which was not permitted in this instance. In addition, the team failed to: (1) obtain an approved work order; and 2) inform the control room of the activity, which would have required entry into an 8.0 hour Technical Specification shutdown action statement. The licensee entered this issue in their corrective action program as Condition Report ANO 1 2008 0603.

The finding was more than minor because, if left uncorrected, it could result in a more significant concern. Specifically, by circumventing site procedural requirements, the "Fix-it-Now" team could render more risk significant equipment inoperable without the knowledge and approval of site management or control room personnel. Using Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheet, this finding was determined to have very low safety significance because: (1) the finding was a qualification deficiency that resulted in a loss of functionality of Door 62; (2) it did not lead to an actual loss of safety function of the system or train; (3) it did not result in the loss of one or more trains of non-Technical Specification equipment; (4) it did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. This finding was determined to have a crosscutting aspect in the area of Human Performance associated with Work Control [H.3(b)], in that the licensee did not appropriately coordinate work activities associated with Door 62 by incorporating actions to address the impact of changes to the work scope on the plant, and the need to keep personnel apprised of work status and the operational impact of work activities.

Inspection Report# : [2008003](#) (pdf)

G**Significance:** Jun 23, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to adequately monitor the performance of the Unit 1 emergency switchgear chillers

The inspectors identified a noncited violation involving the licensee's failure to adequately monitor the performance of the emergency switchgear chillers in accordance with 10 CFR 50.65 (a)(2). Specifically, while re-evaluating the systems' performance for 10 CFR 50.65 (a)(1) status as a corrective action in response to a previous noncited violation for failure to adequately monitor the performance of the system, the licensee inappropriately determined that two independent functional failures should be counted as one based on time between failures. The extra failure would have resulted in exceeding the licensee's performance criteria for these components. The licensee entered this issue in their corrective action program as Condition Report ANO-1 2008 0360.

The finding was more than minor because it was similar to nonminor Maintenance Rule Example 7.b in NRC Manual Chapter 0612, Appendix E, "Examples of Minor Issues," in that the failure to demonstrate effective control of performance or condition and not putting the affected structure, system or component in (a)(1), necessarily involved degraded system performance. This finding had very low safety significance because the failure to properly categorize failures in accordance with the Maintenance Rule Program did not create, in itself, additional operability or functionality concerns. This finding was determined to have a cross-cutting aspect in the area of Human Performance associated with Decision Making [H.1(b)], in that the licensee did not use conservative assumptions and failed to verify the validity of the underlying assumptions used when evaluating the performance criteria of the emergency switchgear chillers for classification as 10 CFR 50.65 (a)(1) status.

Inspection Report# : [2008003](#) (*pdf*)**G****Significance:** Jun 23, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate preventive maintenance activities result in emergency light failures

The inspectors identified a noncited violation of 10 CFR Part 50, Appendix R, Section III.J, with two examples for inadequate preventive maintenance activities that resulted in 90 emergency light failures between January 2005 and December 2007. The first example related to inadequate preventive maintenance activities that resulted in the failure of 15 emergency light batteries. The second example related to inadequate preventive maintenance activities that resulted in the failure of 75 emergency light lamps. The licensee has entered these conditions in their corrective action program as CR ANO-C-2007-1646.

The finding was more than minor since it was associated with the Mitigating Systems Cornerstone attribute of protection from external factors and affected the associated cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, this finding adversely affected the ability of operators to access and align equipment necessary for safe shutdown in the event of a fire requiring evacuation of the control room. The significance of this finding was assessed using Manual Chapter 0609, Appendix F, "Fire Protection Significance Determination Process." The finding was determined to be of very low safety significance (Green) because it was determined to be a low degradation of the post-fire safe shutdown category. In addition, operators were procedurally required to carry flashlights. This finding was determined to have a crosscutting aspect of Human Performance in that the licensee failed to appropriately plan work activities to support long-term equipment reliability. Specifically, the maintenance scheduling was more reactive than preventive [H.3(b)].

Inspection Report# : [2008003](#) (*pdf*)

Barrier Integrity

G**Significance:** Dec 31, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Adequately Implement Foreign Material Exclusion Controls

DRAFT - The inspectors identified a noncited of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," associated with the licensee's failure to adequately implement Station Procedure EN MA 118, Revision 4, "Foreign Material Exclusion." Specifically, on multiple occasions during Refueling Outage 1R21, the licensee failed to implement appropriate foreign material exclusion controls in areas designated as Zone 1 foreign material exclusion areas in accordance with Station Procedure EN MA 118. This issue was entered into the licensee's corrective action program as Condition Report ANO 1 2008 2491.

The finding was more than minor because it was similar to a more than minor Example 3.j in NRC Manual Chapter 0612, Appendix E, "Examples of Minor Issues," in that significant programmatic deficiencies were identified associated with this issue that could lead to worse 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 NRC Manual Chapter 0609, "Significance Determination Process," Phase 1 worksheet, the finding was determined to have 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 effectively train personnel on the foreign material exclusion procedure which resulted in a failure to follow procedure by workers and supervisors

Inspection Report# : [2008005](#) (*pdf*)

Significance:  Sep 11, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

B.5.b. Phase 2 and 3 Mitigating Strategy

This finding, affecting the Barrier Integrity Cornerstone, is related to mitigative measures developed to cope with losses of large areas of the plant; in response to Section B.5.b. of the February 25, 2002, Interim Compensatory Measures (ICM) Order (EA-02-026) and related NRC guidance. This finding has been designated as "Official Use Only - Security-Related Information;" therefore, the details of this finding are being withheld from public disclosure. This finding has no cross-cutting aspect. See inspection report 2008-006 for more details.

Inspection Report# : [2008006](#) (*pdf*)

Emergency Preparedness

Occupational Radiation Safety

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

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