Arkansas Nuclear 1
4Q/2010 Plant Inspection Findings

Initiating Events

Significance: G Dec 31, 2010
Identified By: Self-Revealing
Item Type: FIN Finding
Failure to Use Human Performance Tools Results in Two Turbine Building Roof Fires
The inspectors documented a self-revealing finding for contract roofers failing to use human performance tools, per Procedure EN HU 102, “Human Performance Tools,” Revision 5, while performing hot work activities on Arkansas Nuclear One’s turbine building roof which resulted in two fires. Specifically, contractors committed human performance errors during activities by not performing self- and peer-checks, or demonstrating a questioning attitude which resulted in a fire on September 17 and again on November 18, 2010. These issues were entered into the corrective action program as Condition Reports CR ANO 1 2010 3231, CR ANO C 2010 2428, and CR ANO C 2010 2978.

The failure to use human performance error prevention tools as specified in Procedure EN HU 102, “Human Performance Tools,” Revision 5, was a performance deficiency. The performance deficiency was determined to be more than minor because it was associated with the protection against external activities attribute of the Initiating Events Cornerstone, and affected the cornerstone objective to limit the likelihood of those events that upset plant stability during power operations, and therefore a finding. Using Inspection Manual Chapter 0609.04, “Phase 1 – Initial Screening and Characterization of Findings,” 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 function would not be available. The finding was determined to have 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, including contractors, such that nuclear safety is supported. Specifically, the licensee failed to provide adequate oversight of the roofing contractor to prevent fires.
Inspection Report# : 2010005 *(pdf)*

Significance: G Sep 30, 2010
Identified By: Self-Revealing
Item Type: FIN Finding
Failure to Follow Station Work Control Procedure Results in Unavailable Equipment
The inspectors documented a self-revealing finding for station electrical maintenance personnel's failure to adequately implement station Procedure EN-WM-102, “Work Implementation and Closeout,” Revision 4. Specifically, station personnel performing Work Order 00182908 01, removal/reinstallation of the C 8A isophase fan motor, did not stop work and get a scope change for the work order when a condition that was not identified in the work order was discovered. This issue was entered into the licensee's corrective action program as Condition Report CR ANO 1 2010 2260.

The performance deficiency was determined to be more than minor because it affected the human 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 Manual Chapter 0609.04, “Phase 1 - Initial Screening and Characterization of Findings,” the inspectors determined that the 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 function would not be available. The finding was determined to have a crosscutting aspect in the area of Human Performance, associated with work practices in that the licensee failed to communicate human error prevention techniques, such as holding pre-job briefs, self- and peer-checking, and proper documentation of activities [H.4(a)].
Inspection Report# : 2010004 *(pdf)*

Significance: G Sep 30, 2010
Identified By: Self-Revealing
Item Type: NCV NonCited Violation
Failure to Follow Procedure Results in Draining Unit 1 Pressurizer to Reactor Building Floor
The inspectors documented a self-revealing noncited violation of Unit 1 Technical Specification 5.4.1.a for the failure to follow Procedure EN OP 102, “Protective and Caution Tagging,” Revision 12. Specifically, a maintenance tagout holder signed off a tagout prior to all work being complete, which led to the removal of the clearance. This resulted in draining the pressurizer to the containment basement floor instead of to a drain tank. This issue was entered into the corrective action program as Condition Report CR ANO 1-2010 1013.

Failure of station personnel to follow Procedure EN OP 102, “Protective and Caution Tagging,” Revision 12 was a performance deficiency. The performance deficiency was associated with the Initiating Events Cornerstone. The performance deficiency was determined to be more than minor because if left uncorrected it could lead to a more significant safety issue. Specifically, the continued failure to follow this procedure could lead to the inappropriate release of systems and equipment to other organizations when these systems or equipment are not capable of performing their function. This is therefore a finding. Using NRC Manual Chapter 0609, “Significance Determination Process, Appendix G, "Shutdown Operations Significance Determination," Attachment 1, the finding was determined to have very low safety significance because the finding did not affect core heat removal, inventory control, power availability, containment control or reactivity guidelines. The finding was determined to have a crosscutting aspect in the area of human performance, associated with work practices in that the licensee did not ensure supervisory and management oversight of work activities such that nuclear safety is supported. Specifically, instead of supplying appropriate guidance and supervision for the workers in the field, the mechanical war room coordinators’ actions resulted in the failure to follow procedure by convincing the mechanical lead to sign off on the tagout before the work had been completed [H.4(c)].

Inspection Report# : 2010004 *(pdf)*

Significance: G Jun 30, 2010
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Follow Natural Emergencies Procedure to Control Site Missile Hazards During Severe Weather Warnings and Watches
The inspectors identified a noncited violation of Technical Specification of 5.4.1.a for failure to follow Procedure OP-1203.025, “Natural Emergencies,” Revision 30. Specifically, on April 23, 2010, the licensee entered Procedure OP-1203.025 due to a tornado watch/warning and failed to identify and control potential missile hazards in and around the Unit 1 transformer yard. The licensee entered this issue into the corrective action program as Condition Report CR-ANO-C-2010-1003.

Failure of the licensee to assess and control potential missile hazards on site, in and around transformer yards was a performance deficiency. Specifically, the licensee failed to follow Procedure OP 1203.025, “Natural Emergencies,” Revision 30 and adequately secure missile hazards on site. The performance deficiency was determined to be more than minor because it was associated with the external hazards attribute and directly affected the Initiating Events Cornerstone objective to limit the likelihood of those events that upset plant stability while in shutdown or at power conditions, and is therefore a finding. Specifically, the failure of the licensee to secure missile hazards on site, especially around the safety related transformers increased the likelihood of a loss of power event that could result in upsetting plant stability. The inspectors evaluated the significance of the finding using Manual Chapter 0609, “Significance Determination Process,” Appendix G, Checklist 3, and determined the finding to be of a very low safety significance, Green, because the finding did not cause the loss of mitigating capability of core heat removal, inventory control, power availability, containment control, or reactivity control. 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(d), in that the licensee failed to take appropriate corrective actions to address safety issues and adverse trends in a timely manner, commensurate with their safety significance and complexity. Specifically, the licensee failed to take effective corrective action from a previous NRC-identified issue, in that the corrective actions did not ensure that the control room operators had adequate guidance to asses and control potential missile hazards on site prior to the onset of severe weather.

Inspection Report# : 2010003 *(pdf)*

Significance: G Jun 30, 2010
Identified By: Self-Revealing
Item Type: FIN Finding
Failure to Recognize Critical Dimension Results in Reactor Coolant Pump Seal Failure
The inspectors documented a self-revealing finding associated with the third stage seal failure of reactor coolant pump P-32C on April 18, 2010. Specifically, during reassembly of reactor coolant pump P-32C, the licensee failed to recognize and maintain the gap between the pumps slinger ring and splash shield as a critical dimension which was required for successful operation of the seal assembly. This lack of recognition resulted in the failure of the pumps third stage seal, and an increase in reactor coolant system leak rate. This issue was entered into the licensee's corrective action program as condition report ANO-1-2010-1896.
The performance deficiency was determined to be more than minor because it was associated with the design control attribute of the initiating events cornerstone, and affected the associated cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as at power operations, and is therefore a finding. Specifically, the failure to recognize and maintain the gap between the reactor coolant pumps slinger ring and splash shield as a critical dimension resulted in the failure of the pumps third stage seal. Using NRC Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheets, the finding was determined to have very low safety significance because assuming worst case degradation, the finding would not result in exceeding the technical specification limit for any RCS leakage; nor could the finding have likely affected other mitigation systems resulting in a total loss of their safety function. The inspectors determined that since the licensee had not recently re-evaluated what dimensions were critical to the seals operation, and vendor documents were not specific to this dimension; this finding did not represent current plant performance and therefore did not have a cross-cutting aspect associated with it.

Inspection Report# : 2010003 *(pdf)*

Significance: G Jun 30, 2010
Identified By: Self-Revealing
Item Type: FIN Finding
Troubleshooting in Switchyard Causes Loss of Power to Unit 1 and Unit 2 Startup Transformers
The inspectors documented a self-revealing finding for failure to implement Procedure OP-1015.033, "ANO Switchyard Controls," Revision 12. Specifically, On March 26, 2010, while performing 161 kV Breaker B1205 post-installation testing, several issues developed and testing activities transitioned into troubleshooting activities. Per the above mentioned procedure, a new component and plant impact statement should have been performed. The impact statement should have described the new work activities, objectives and potential for plant impacts so that a proper assessment could be made by operations as to allow the work or not. These troubleshooting activities ultimately resulted in a lockout of the auto-transformer, which resulted in the lockout of startup Transformers 1 and 3 (offsite power source) for Units 1 and 2, respectively. The licensee entered the issue into the corrective action program as Condition Report CR-ANO-C-2010-0726.

The failure to properly implement Procedure OP-1015.033, ANO Switchyard Controls," Revision 12, was a performance deficiency. Specifically, the licensee did not stop and obtain a component and plant impact statement when test activities transitioned into troubleshooting activities in the Arkansas Nuclear One switchyard. The troubleshooting activities led an auto lockout of the auto transformer and resulted in the loss of offsite power to startup transformers 1 and 3. The performance deficiency was determined to be more than minor because it is associated with the human performance attribute and 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 conditions, and is therefore a finding. The significance of the finding was determined using Manual Chapter 0609, "Significance Determination Process," Appendix G, Checklist 4, and determined to be of very low safety significance, because it did not cause the loss of mitigating capability of core heat removal, inventory control, power availability, containment control, or reactivity control. The finding was determined to have a crosscutting aspect in the area of human performance associated with work practices, H.4(c), in that the licensee failed to ensure supervisory and management oversight of work activities in the switchyard such that nuclear safety is support. Specifically, the licensee became too involved helping solve the issue discovered in the switchyard and failed to recognize that

Procedure OP-1015.033 need to be implemented.

Inspection Report# : 2010003 *(pdf)*

Significance: G Jun 30, 2010
Identified By: Self-Revealing
Item Type: NCV NonCited Violation
Failure to Follow Nuclear Instrumentation Procedure Results in an Automatic Reactor Trip
The inspectors documented a self-revealing noncited violation of Technical Specification 5.4.1.a, for failure to follow Procedure OP-1304.032, "Unit 1 Power Range Linear Amp Calibration at Power (NI Cal)," Revision 32, which resulted in a Unit 1 automatic reactor trip. Specifically, while at 20 percent reactor power, the licensee failed to place the reactor demand station, and the diamond rod control stations, of the Babcock and Wilcox integrated control system, in manual during nuclear instrumentation calibrations, which resulted in automatic control rod withdrawal and reactor trip on high power. The licensee entered this issue into the corrective action program as Condition Report ANO-1-2010-2056.

The inspectors determined that the licensee failure to follow the nuclear instrumentation calibration procedure as written was a performance deficiency. Specifically, the licensee failed to properly implement Procedure OP-1304.032, "Unit 1 Power Range Linear Amp Calibration at Power (NI Cal)," Revision 32, and failed to place the integrated control system into manual while calibrating nuclear instrumentation detectors. The performance deficiency was determined to be more than minor because it was associated with the human performance attribute and directly affected the initiating events cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical plant safety function during power operations, and is therefore a finding. Specifically, the failure to follow the nuclear instrumentation calibration procedure resulted in an actual reactor trip. The inspectors evaluated the significance of the finding using Manual Chapter 0609, "Significance Determination Process," and determined that the finding was 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 be available. The finding was determined to have a crosscutting aspect in the area of human performance, associated with work practices, H.4(c), in that the licensee failed to ensure supervisory and management oversight of work activities such that nuclear safety is supported. Specifically, the control room supervisor and the shift manager failed to provide adequate supervision for the nuclear instrumentation calibration activity which resulted in a reactor trip.

Inspection Report# : 2010003 *(pdf)*

Significance: G Jun 30, 2010
Identified By: Self-Revealing
Item Type: FIN Finding
Failure to Consider Failure Modes Results in Main Feedwater Pump Over Speed Trip
The inspectors documented a self-revealing finding for the failure of the licensee to perform a thorough design change evaluation which did not recognize and address all design failure modes. Specifically, the licensee failed to address the water intrusion into the electronic modules of the main feedwater pump control system from a possible failure of the condensate drain system of the control cabinet air conditioning units. On May 1, 2010, water emanating from the air conditioning units above the Lovejoy control cabinets, dripped into the electronic modules and caused oscillations in main feedwater Pump A speed before tripping on an actual over speed condition. Unit 1 automatically ran back from 100 percent power to 40 percent power as designed. The licensee entered this issue into the corrective action program as Condition Report CR-ANO-1-2010-2150.

The failure to adequately consider the potential failure modes of the air conditioning cooling to the local Lovejoy control cabinets for the main feedwater pumps was a performance deficiency. Specifically, the licensee did not consider the condensate drain pan and piping failure that could, and in this case did, introduce water into the control cabinet electronics and implement and actions to monitor or preventative measures to prevent this from occurring. The performance deficiency was determined to be more than minor because is associated with the design control attribute and directly affected the initiating events cornerstone 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. The inspectors evaluated the significance of the finding using Manual Chapter 0609, "Significance Determination Process," Phase I

worksheets and determined the finding to be of very low safety significance because the finding did not contribute to both the likelihood of a reactor trip and the likelihood mitigation equipment or functions would not be available. The inspectors determined that there was no crosscutting aspects associated with this finding because the performance deficiency is not indicative of current plant performance and is a latent issue as the modification was installed in 1996.

Inspection Report# : 2010003 *(pdf)*

Mitigating Systems

Significance: G Dec 31, 2010
Identified By: NRC
Item Type: FIN Finding
Exceeded Technical Specification Allowed Outage Time for Electrical Power Systems Due to Loss of Non-Technical Specification Supported Systems
The inspectors identified a noncited violation of Technical Specifications 3.8.4, “DC Sources - Operating,” Technical Specification 3.8.7, “Inverters – Operating,” and Technical Specification 3.8.9, “Distribution Systems – Operating,” due to the failure to enter the appropriate technical specification or complete the associated required action prior to the appropriate completion time when the associated emergency chillers were out of service. Specifically, the licensee did not enter the appropriate technical specification for an inoperable system, subsystem, train or component when the all necessary attendant non-technical specification support equipment that are required for the system, subsystem, train, component, or device to perform its specified safety function(s) are also capable of performing their related support function(s). The issue was entered into the licensee's corrective action program as Condition Reports CR ANO 1 2010 3075 and CR-ANO-1-2011-0204.
The inspectors determined that not entering the appropriate technical specification when the emergency switchgear chillers or applicable room cooling unit were not available to provide the technical specification support function for technical specific emergency switchgear equipment was a performance deficiency. The performance deficiency was determined to be more than minor because it was associated with the design control 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, CALC-93-R-1040-01, “ANO-1 AB Limiting Component Qualification Temperatures,” Revision 3 identifies the temperature limits for each applicable room at 120 degrees F except for Room 110 which is 150 degrees F. Licensee Event Report No. 50-313/77-19 described the permanent solution to maintain room temperatures by the installation of two independent chilled water systems (VCH4s and applicable room coolers) to maintain those rooms and associated enclosed equipment (i.e., 480V motor control centers, inverters, battery chargers, instrument AC panels, etc.) below the rated continuous operating temperatures following a loss of coolant accident concurrent with a loss of offsite power, which was accepted by the NRC in a Safety Evaluation Report dated October 10, 1979. Failure to enter Technical Specifications 3.8.4, “DC Sources - Operating,” Technical Specification 3.8.7, “Inverters – Operating,” and Technical Specification 3.8.9, “Distribution Systems – Operating,” due to the loss of the non-technical specification chilled water cooling support system or complete the associated required action prior to the appropriate completion time when the associated emergency chillers were out of service was a violation of technical specifications. Using Inspection Manual Chapter 0609.04, “Phase 1 - Initial Screening and Characterization of Findings,” the finding was determined to require a Phase 2 analysis because removing a VCH-4 chiller from service did result in an actual loss of safety function of a single train for greater than its technical specification allowed outage time. The resident inspectors received support from the regional senior reactor analyst and determined that the finding to be of very low safety significance (Green). Specifically, although the function was lost by the designated support equipment (emergency switchgear chillers), representing the technical specification violation, the licensee had an evaluation that credited compensatory measures and specific environmental conditions that assured the overall functionality of the applicable switchgear train was not lost. The inspectors reviewed the engineering change EC 25691, “Prepare EC markup to CALC-92-E-0103-01 to determine maximum outside ambient temperatures and compensatory measures to allow one chiller train to cool DC/BATT/SWGR areas during maintenance,” and determined that it supported the conclusion that the compensatory measures in place assured the overall functionality of the applicable switchgear train was not lost, however, the compensatory measures sufficed for the function, but did not satisfy the technical specification switchgear operability requirements. The finding was determined to have a

crosscutting aspect in the area of human performance, associated with decision making, in that the licensee did not use conservative assumptions in decision making and adopt a requirement to demonstrate that the proposed action is safe in order proceed rather than a requirement that it is unsafe in order to disapprove the action. Specifically, the licensee approved an engineering change that relied on the use of compensatory actions and non-safety related equipment to support the operability of technical specification equipment when the safety related support equipment was not available or functional and implemented a procedure change that resulted in not entering the appropriate technical specification when applicable non technical specification safety related equipment was out of service.

Inspection Report# : 2010005 *(pdf)*

Significance: G Dec 31, 2010
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Perform Required Quality Control Inspections
Inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion X, "Inspection," for the failure to ensure that quality control verification inspections were consistently included and correctly specified in quality-affecting procedures and work instructions for construction-like work activities as required by the quality assurance program. The licensee performed extensive reviews, and inspectors performed independent reviews of the licensee's conclusions as well as independent sampling, to confirm that improper or missed inspections did not actually affect the operability of plant equipment. Entergy initiated prompt fleet-wide corrective actions to ensure proper work order evaluation and proper inclusion of quality control verification inspections. This issue was entered into the corrective action program under Condition Reports CR HQN 2009 01184 and CR HQN 2010 0013.

The failure to ensure that adequate quality control verification inspections were included in quality-affecting procedures and work instructions as required by the quality assurance program was a performance deficiency. This programmatic deficiency was more than minor because, if left uncorrected, it could lead to a more significant safety concern in that the failure to check quality attributes could involve an actual impact to plant equipment. This issue affected the design control attribute of the Mitigating Systems Cornerstone because missed or improper quality control inspections during plant modifications could impact the availability, reliability, and capability of systems needed to respond to initiating events. This performance deficiency was determined to have very low safety significance in Phase 1 of the Significance Determination Process, since it was confirmed to involve a qualification deficiency that did not result in a loss of operability or functionality. The inspectors determined that this performance deficiency involved a crosscutting aspect related to the human performance in decision-making because the licensee did not have an effective systematic process for obtaining interdisciplinary reviews of proposed work instructions to determine whether quality control verification inspections were appropriate.
Inspection Report# : 2010005 *(pdf)*

Significance: G Dec 31, 2010
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Implement the Experience and Qualification Requirements of the Quality Assurance Program
The inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion II, "Quality Assurance Program," for the failure to implement the experience and qualification requirements of the quality assurance program. As a result, the licensee failed to ensure that an individual assigned to the position of quality assurance manager met the qualification and experience requirements of ANSI/ANS 3.1 1978 as required by the quality assurance program. Specifically, the individual assigned to be the responsible person for the licensee's overall implementation of the quality assurance program did not have at least 1 year of nuclear plant experience in the overall implementation of the quality assurance program within the quality assurance organization prior to assuming those responsibilities. This issue was entered into the corrective action program as Condition Report CR HQN 2010 00386. Failure to ensure that an individual assigned to the position as quality assurance manager met the qualification and experience requirements of ANSI/ANS 3.1 1978 as required by the quality assurance program was a performance deficiency. This performance deficiency was determined to be more than minor because, if left uncorrected, it could create a more significant safety concern. Failure to have a fully qualified individual providing overall oversight to the quality assurance program had the potential to affect all cornerstones, but this finding will be tracked under the Mitigating Systems Cornerstone as the area most likely to be impacted. The issue was not suitable for quantitative

assessment using existing Significance Determination Process guidance, so it was determined to be of very low safety significance using Inspection Manual Chapter 0609, Appendix M, "Significance Determination Process Using Qualitative Criteria." The inspectors determined that there was no crosscutting aspect associated with this finding because this issue was not indicative of current performance because the violation occurred more than 3 years ago.

Inspection Report# : 2010005 *(pdf)*

Significance: G Dec 31, 2010
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Verify the Adequacy of the Unit 2 Refueling Water Tank and the Condensate Storage Tank Transfer Setpoints
The inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," which states, in part, that design control measures shall provide for verifying or checking the adequacy of design, such as by the performance of design reviews, by the use of alternate or simplified methods of calculation, or by the performance of a suitable testing program. Contrary to the above, the licensee failed to assure that design control measures were provided for verifying or checking the adequacy of design, such as by the performance of design reviews, by the use of alternate or simplified calculation methods, or by the performance of a suitable testing program. Specifically, since 1998, the licensee failed to verify the adequacy of the Unit 2 refueling water tank and the condensate storage tank transfer setpoints to prevent potential air entrainment due to vortexing in safety-related pump suction piping. This finding was entered into the licensee's corrective action program as Condition Report ANO C 2007 1469.

The inspectors determined that the failure to verify the adequacy of the Unit 2 refueling water tank and the condensate storage tank transfer setpoints was a performance deficiency. The finding was more than minor because it was associated with the design control attribute of the Mitigating Systems Cornerstone and affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Using Inspection Manual Chapter 0609.04, "Phase 1 – Initial Screening and Characterization of Findings," the inspectors determined that the finding was of very low safety significance (Green) because it was a design or qualification deficiency confirmed not to result in loss of operability or functionality. Specifically, the licensee performed subsequent analysis which demonstrated that vortexing in the refueling water and condensate storage tanks would not impact safety-related pump operation during a design basis event. This finding did not have a crosscutting aspect because the most significant contributor did not reflect current licensee performance.
Inspection Report# : 2010005 *(pdf)*

Significance: G Sep 30, 2010
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Promptly Identify and Correct a Condition Adverse to Quality Associated with Emergency Diesel Generators Heating, Ventilation, and Air Conditioning Ducting Susceptibility to Tornado Loadin
The inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," for the failure of the licensee to promptly identify and correct a known condition adverse to quality associated with the susceptibility of the emergency diesel generators' heating, ventilating and air conditioning ducting to loading effects caused by natural phenomena, such as tornados. Specifically, while performing a review in response to an NRC generic communication, the licensee determined that they could not demonstrate the ability of the station's emergency diesel generators' heating, ventilating and air conditioning ducting to withstand a tornado depressurization event. However no actions were taken to correct or mitigate this issue at the time of discovery. The licensee entered this issue in their corrective action program as Condition Report CR ANO C 2009 2296.

Failure to promptly identify and correct a known condition adverse to quality associated with the susceptibility of the Unit 1 emergency diesel generators' heating, ventilating and air conditioning ducting to loading effects caused by natural phenomena, tornados, was a performance deficiency. 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 the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences, and is therefore a finding. Using Manual Chapter 0609.04, "Phase 1 - Initial Screening and Characterization of Findings," the finding was determined

to have very low safety significance because the finding: (1) was not a design or qualification issue confirmed not to result in a loss of operability or functionality; (2) did not represent an actual loss of safety function of the system or train; (3) did not result in the loss of one or more trains of nontechnical specification equipment; and (4) did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. The finding was determined to have a crosscutting aspect in the area of human performance, associated with decision making in that the licensee failed to use conservative assumptions in decision making and adopt a requirement to demonstrate that the proposed action is safe in order to proceed rather than a requirement to it is unsafe in order to disapprove the action [H.1(b)].
Inspection Report# : 2010004 *(pdf)*

Significance: G Sep 30, 2010
Identified By: Self-Revealing
Item Type: NCV NonCited Violation
Failure to Promptly Identify and Correct a Condition Adverse to Quality Associated with Emergency Switchgear Chiller VCH 4A
The inspectors documented a self-revealing noncited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," for the licensee's failure to promptly identify and correct a known condition adverse to quality associated with the improper setup of the dead band of service water flow control valve CV 6034 for cold weather operation. This resulted in the pressure control valve not properly modulating in response to pressure control inputs, resulting in emergency switchgear chiller VCH 4A tripping on high discharge pressure. The licensee entered this issue in their corrective action program as Condition Report CR ANO 1 2009 2212.

Failure to promptly identify and correct a known condition adverse to quality associated with the improper setup of the dead band of service water flow control valve CV 6034 for cold weather operation was a performance deficiency. The performance deficiency was determined to be more than minor because it was associated with the equipment performance attribute of the Mitigating Systems Cornerstone, and affected the associated cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences, and is therefore a finding. Using Manual Chapter 0609.04, "Phase 1 - Initial Screening and Characterization of Findings," the finding was determined to have very low safety significance because: (1) the finding was not a qualification deficiency that resulted in a loss of functionality of chiller VCH 4A; (2) it did not lead to an actual loss of safety function of the system or train; (3) it did not result in an actual loss of safety function of a single train for greater than its technical specification allowed outage time; (4) it did not represent an actual loss of safety function of one or more non-technical 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. The finding was determined to have a crosscutting aspect in the area of human performance, associated with decision making in that, although the licensee had identified the vulnerability of the VCH-4A chiller, decided not to pursue the corrective actions to adjust the dead band for valve CV-6034 and resulted in the subsequent improper operation of the valve [H.1(b)].
Inspection Report# : 2010004 *(pdf)*

Significance: G Sep 30, 2010
Identified By: NRC
Item Type: VIO Violation
Failure to Adequately Implement Foreign Material Exclusion Controls
The inspectors identified a cited 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 5/6. Specifically, between October 31, 2008, and September 02, 2010, inspectors identified multiple occasions where licensee personnel failed to implement appropriate foreign material exclusion controls in Zone 1 areas around safety related equipment (e.g., failure to appropriately log material in to and out of the zone) as required by station procedure. Each identified instance was a repeat occurrence of previously identified issues that were documented as NRC identified violations in previous inspection reports in 2008, 2009, and early 2010. Measures established by Arkansas Nuclear One to address these previously identified noncited violations failed to restore compliance within a reasonable time after these violations were identified. Finally, these failures had the potential of having a negative impact on safety related components such as fuel failure, safety system reliability and safety related equipment availability. This issue was entered into the licensee's corrective action program as Condition Reports CR

ANO 1 2010 3155, CR ANO 2 2010 1839, and CR-ANO-C-2010-2192.

The performance deficiency was determined to be more than minor because it was associated with the human performance attribute of the Mitigating Systems Cornerstone, and affected the associated cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences, and is therefore a finding. Using the Manual Chapter 0609, “Significance Determination Process,” Phase 1 Worksheets, the finding was determined to have very low safety significance because the finding: (1) was not a design or qualification issue confirmed not to result in a loss of operability or functionality; (2) did not represent an actual loss of safety function of the system or train; (3) did not result in the loss of one or more trains of nontechnical specification equipment; and (4) did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. 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(d), in that the licensee takes appropriate corrective actions to address safety issues and adverse trends in a timely manner, commensurate with their safety significance and complexity.

Inspection Report# : 2010004 *(pdf)*

Significance: G Sep 30, 2010
Identified By: Self-Revealing
Item Type: NCV NonCited Violation
Failure to Correctly Translate VCH 4B Design Requirements into Installed Plant Equipment
The inspectors documented a self-revealing noncited violation of 10 CFR Part 50, Appendix B, Criterion III, “Design Control,” for the licensee’s failure to assure that the applicable design basis for applicable structures, systems, and components were correctly translated into specifications, procedures, and instructions. Specifically, during initial plant installation, the licensee failed to correctly identify the effect redundant protective equipment interlocks could have on maintaining operability of VCH 4B design requirements upon a loss of normal non-safety related room cooling. This resulted in VCH 4B, emergency switchgear chiller, not being able to start and perform its design function due to a combination of high room temperature due to loss of normal non-safety related cooling, and normally energized compressor oil heaters which led to a high compressor oil temperature switch actuation that caused a lockout of the chiller that would have prevented a chiller start. The licensee entered this issue in their corrective action program as Condition Report CR ANO 1 2010 2815.

Failure to ensure that design requirements were correctly translated into installed plant equipment was a performance deficiency. The performance deficiency was determined to be more than minor because it was associated with the equipment performance 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. Using Manual Chapter 0609.04, “Phase 1 - Initial Screening and Characterization of Findings,” the finding was determined to have very low safety significance because: (1) the finding was not a qualification deficiency that resulted in a loss of functionality of chiller VCH-4B; (2) it did not lead to an actual loss of safety function of the system or train; (3) it did not result in an actual loss of safety function of a single train for greater than its technical specification allowed outage time; (4) it did not represent an actual loss of safety function of one or more non- technical specification trains of equipment designated as risk-significant per 10 CFR 50.65, for greater than 24 hours; (5) it did not screen as potentially risk-significant due to a seismic, flooding, or severe weather initiating event. The inspectors determined that since the licensee had not recently re-evaluated the design of the emergency switchgear room chiller’s high oil temperature lockout; this finding did not represent current plant performance, and therefore did not have a crosscutting aspect associated with it.
Inspection Report# : 2010004 *(pdf)*

Significance: G Aug 27, 2010
Identified By: NRC
Item Type: FIN Finding
Fire Protection Compensatory Measures Did Not Cover All Fire Protection Features
The team identified a finding because the licensee did not include fire protection features in Procedure 1000.120, “ANO Fire Impairment Program,” Revision 20. The approved fire protection program required implementing compensatory measures for degraded fire protection systems and features, but the fire impairment implementing

procedure addressed only action to identify, document and apply compensatory measures for specific fire protection systems. The team identified that the licensee did not implement compensatory measures for periods when the Appendix R emergency lighting units were placed out of service for maintenance and testing. This finding has been entered into the corrective action program as CR-ANO-C-2010-02205.

Failure to ensure that all of the applicable elements of the approved fire protection program were included in the fire impairment implementing procedure is a performance deficiency. The finding is more than minor because it is associated with the Protection Against External Events attribute of the Mitigating Systems cornerstone since it affected the availability, reliability, and capability of systems that respond to fire events to prevent undesirable consequences. Because this issue relates to fire protection, the team used the guidance of Manual Chapter 0609, Appendix F, Attachment 2, to determine that this fire prevention and administrative control deficiency had a low degradation rating in that it minimally impacted the fire protection program. Based on this, the finding screened as having very low safety significance (Green) during a Phase 1 significance determination. This finding is identified as FIN 05000313; 05000368/2010006¬-01, Inadequate Compensatory Measures for Out-Of-Service Appendix R Emergency Lights. No cross cutting aspect was associated with this finding because the team determined that this deficiency is not indicative of current performance because this practice existed for longer than three years.

Inspection Report# : 2010006 *(pdf)*

Significance: G Jun 30, 2010
Identified By: Self-Revealing
Item Type: NCV NonCited Violation
Failure to Correctly Translate Design Requirements Into Installed Plant Configuration
The inspectors documented a self-revealing noncited violation of 10 CFR Part 50, Appendix B, Criterion III, “Design Control,” associated with the licensee’s failure to assure that the applicable design basis for applicable structures, systems, and components were correctly translated into specifications, procedures, and instructions. Specifically, during initial plant construction the licensee failed to correctly translate the design requirements for the Unit 1 core flood tanks manway covers into the installed plant equipment. This resulted in excessive nitrogen leakage from the covers which required the licensee to implement actions to mitigate the leakage until a permanent repair could be performed. This issue was entered into the licensee’s corrective action program as condition report ANO-1-2010-1057.

The performance deficiency was determined to be more than minor because it was associated with the equipment performance 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 failure to correctly translate the manway design requirement into the installed plant configuration resulted in excessive nitrogen leakage which required the licensee to implement actions to mitigate the leakage until a permanent repair could be performed. Using NRC Manual Chapter 0609, “Significance Determination Process,” Phase 1 Worksheets, 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. The inspectors determined that since the licensee had not recently re-evaluated the design of the core flood tank manway covers; this finding did not represent current plant performance, and therefore did not have a crosscutting aspect associated with it.

Inspection Report# : 2010003 *(pdf)*

Barrier Integrity

Significance: G Jun 30, 2010
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Adequately Implement Foreign Material Exclusion Controls
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, between February 4, 2010, and April 22, 2010, multiple occasions were identified where licensee personnel failed to implement appropriate foreign material exclusion controls in areas designated as Zone 1 foreign material exclusion areas. This issue was entered into the licensee's corrective action program as Condition Reports ANO-2-2010-0262, ANO-2-2010-269, ANO-1-2010-0469, ANO-1-2010-0564, ANO-1-2010-0874, ANO-1-2010-0903, ANO-1-2010-0750, ANO-1-2010-1338, ANO-1-2010-1526, ANO-1-2010-1958, and ANO-C-2010-688.

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, 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 the Manual Chapter 0609, Appendix G, "Shutdown Operations Significance Determination Process," Phase 1 guidance, the finding is determined to have very low safety significance because the finding did not result in an increase in the likelihood of a loss of reactor coolant system inventory, degrade the ability to add reactor coolant system inventory, or degrade the ability to recover decay heat removal. This finding had a crosscutting aspect in the area of problem identification and resolution associated with the corrective action program, P.1(d), in that the licensee takes appropriate corrective actions to address safety issues and adverse trends in a timely manner, commensurate with their safety significance and complexity.

Inspection Report# : 2010003 *(pdf)*

Emergency Preparedness

Significance: SL-IV Dec 31, 2010
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Submit for Approval a Decrease in Effectiveness of Emergency Plan
The inspectors identified a noncited violation of 10 CFR 50.54(q) for the failure to apply for and receive approval by the NRC prior to implementing a change that decreased the effectiveness of the Arkansas Nuclear One Emergency Plan. Specifically, the licensee changed the default Protective Action Recommendation from a 2 mile radius and 5 miles downwind for General Emergency conditions to a 5 miles radius and 10 miles downwind which was determined to be a change that decreased the effectiveness of the approved emergency plan and was implemented without application to and approval by the Commission. Because the violation was entered into the licensee's corrective action program as Condition Report CR ANO C 2010 02502, it is being treated as a noncited Severity Level IV violation consistent with Section 2.3.2 of the Enforcement Policy.

The failure to submit, for approval, a change to the Arkansas Nuclear One Emergency Plan that decreases emergency plan effectiveness is a performance deficiency. The finding is more than minor because the change made has the potential to unnecessarily increase the risk to the public. Because this issue has the potential for impacting the NRC's ability to perform its regulatory function, traditional enforcement is applicable in accordance with NRC Inspection Manual Chapter 0612, Appendix B, "Issue Screening." The finding was determined to be a Severity Level IV violation in accordance with Section 6.6.d.1 of the Enforcement Policy because it involved the licensee's ability to meet or implement any regulatory requirement not related to assessment or notification such that the effectiveness of the emergency plan decreases. This violation of NRC requirements occurred on March 13, 2003, no crosscutting aspect is assigned to this finding because it is not indicative of current performance.
Inspection Report# : 2010005 *(pdf)*

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

Significance: G Dec 31, 2010
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Perform Face-to-Face Supervisory Assessments Less than 4 Hours Before Individuals Began Performing Work Activities Under a Waiver
The inspectors identified a noncited violation of 10 CFR 26.207(a)(3), "Waivers and Exceptions," associated with the failure of supervisory personnel to appropriately perform face-to-face fatigue assessments. Specifically, supervisory personnel were performing one face-to-face fatigue assessment prior to the first shift worked under a waiver issued for multiple days, and not performing additional assessments for consecutive shifts worked under the same waivers when there was a break of at least 10 hours provided between the successive work periods covered by these waivers. The failure to perform face-to-face supervisory assessments less than 4 hours before individuals began performing work activities under a waiver was a performance deficiency. The licensee entered this issue in their corrective action program as Condition Report CR ANO C 2010 2396.

The failure to perform face-to-face supervisory assessments less than 4 hours before individuals began performing work activities under a waiver was a performance deficiency. The performance deficiency was determined to be more than minor because it was associated with the access authorization attribute of the Security Cornerstone, and affected the associated cornerstone objective to provide assurance that the licensee's security system and material control and accounting program use a defense in-depth approach and can protect against (1) the design basis threat of radiological sabotage from external and internal threats and (2) the theft or loss of radiological materials, and is therefore a finding. Using Inspection Manual Chapter 0609, Appendix E, "Baseline Security Significance Determination Process for Power Reactors," Figures 5 and 6, the finding was determined to have very low safety significance because the calculated point total did not exceed the threshold value for a Green noncited violation. The cumulative total for this finding was zero points, which was calculated by factoring the one impact area (vital areas) against Tier III Element 08.02.08, Security Force Work Hours, of the Access Authorization attribute, which resulted in a total of zero points within this attribute. 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 failed to use conservative assumptions in decision making and adopt a requirement to demonstrate that the proposed action is safe in order to proceed rather than a requirement to show it is unsafe in order to disapprove the action. Specifically, the licensee had defined the work period to be 6 weeks without giving appropriate thought about potential consequences of this decision relative to potential fatigue aspects while continuing to work under a waiver.
Inspection Report# : 2010005 *(pdf)*

Last modified : March 03, 2011