



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION IV  
612 EAST LAMAR BLVD, SUITE 400  
ARLINGTON, TEXAS 76011-4125

July 29, 2011

Christopher J. Schwarz, Site Vice President  
Arkansas Nuclear One  
Entergy Operations, Inc.  
1448 SR 333  
Russellville, AR 72802-0967

Subject: ARKANSAS NUCLEAR ONE - NRC INTEGRATED INSPECTION REPORT  
NUMBER 05000313/2011003 AND 05000368/2011003

Dear: Mr. Schwarz:

On June 30, 2011, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at the Arkansas Nuclear One facility. The enclosed integrated inspection report documents the inspection findings, which were discussed on July 7, 2011, with Mr. M. Chisum, General Manager Plant Operations and other members of your staff.

The inspections examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel.

Based on the results of this inspection, the NRC has identified issues that were evaluated under the risk significance determination process as having very low safety significance (Green). The NRC has determined that two (2) violations are associated with these issues. However, because of the very low safety significance and because they were entered into your corrective action program, the NRC is treating these findings as a noncited violations, consistent with Section 2.3.2.a of the NRC Enforcement Policy.

If you contest the violations or the significance of the noncited violations, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, D.C. 20555-0001, with copies to the Regional Administrator, U.S. Nuclear Regulatory Commission, Region IV, 612 E. Lamar Blvd, Suite 400, Arlington, Texas, 76011-4125; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555-0001; and the NRC Resident Inspector at the facility. In addition, if you disagree with the cross-cutting aspect assigned to any finding in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the Regional Administrator, Region IV, and the NRC Resident Inspector at the facility.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response, will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's document system (ADAMS), accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>. To the extent possible, your response should not include any personal privacy or proprietary, information so that it can be made available to the Public without redaction.

Sincerely,

**/RA/**

Jeffrey A. Clark  
Chief, Project Branch E  
Division of Reactor Projects

Docket: 50-313; 50-386  
License: DPR-51, NPF-6

Enclosure:  
NRC Inspection Report 05000313/2011003; 05000368/2011003  
w/Attachment: Supplemental Information

cc w/Enclosure:

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**U.S. NUCLEAR REGULATORY COMMISSION**

**REGION IV**

Docket: 05000313; 05000368

License: DPR-51; NPF-6

Report: 05000313/2011003; 05000368/2011003

Licensee: Entergy Operations Inc.

Facility: Arkansas Nuclear One, Units 1 and 2

Location: Junction of Hwy. 64 West and Hwy. 333 South  
Russellville, Arkansas

Dates: April 1 through June 30, 2011

Inspectors: A. Sanchez, Senior Resident Inspector  
J. Rotton, Resident Inspector  
W. Schaup, Resident Inspector.  
J. Adams, Reactor Inspector  
G. Guerra, CHP, Emergency Preparedness Inspector  
R. Latta, Senior Reactor Inspector  
G. Replogle, Senior Reactor Analyst

Approved By: James Drake, Acting Chief, Project Branch E  
Division of Reactor Projects

## SUMMARY OF FINDINGS

IR 05000313/2011003; 05000368/2011003; 04/01/2011 - 06/30/2011; Arkansas Nuclear One, Integrated Resident and Regional Report; Emergent Work Control, Identification and Resolution of Problems.

The report covered a 3-month period of inspection by resident inspectors and announced baseline inspections by region-based inspectors. Three Green noncited violations of significance were identified. The significance of most findings is indicated by their color (Green, White, Yellow, or Red) using Inspection Manual Chapter 0609, "Significance Determination Process." The cross-cutting aspect is determined using Inspection Manual Chapter 0310, "Components Within the Cross Cutting Areas." Findings for which the significance determination process does not apply may be Green or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 4, dated December 2006.

### A. NRC-Identified Findings and Self-Revealing Findings

Cornerstone: Mitigating Systems

- Green. The inspectors identified a Green noncited violation of Unit 1 Technical Specification 5.4.1.a for a failure to perform proper placekeeping and to revise a compliance work order for the replacement of the auto-manual pushbutton, PB-2613, emergency feedwater steam admission valve. Specifically, the electrician had completed critical steps in a compliance work order without following the work order as written as required in Section 5.15 of station Procedure EN-MA-101, "Fundamentals of Maintenance," Revision 9. The electricians also failed to stop and revise the work order when encountering an unexpected wiring configuration that was different than was specified in the work order. This was also not in accordance with the station Procedure EN-MA-101. The licensee took immediate corrective action to restore compliance. This issue has been entered into the corrective action program as Condition Reports CR-ANO-C-2011-0284, CR-ANO-C-1695, and CR-ANO-C-2011-1673.

The inspectors determined that the failure to follow and revise the compliance work order as required by station Procedure EN-MA-101, "Fundamentals of Maintenance," Revision 9, was a performance deficiency because it was within the licensee's ability to foresee and correct and is also a violation of technical specifications. The performance deficiency was determined to be more than minor because it was associated with the human performance attribute of the Mitigating System Cornerstone and adversely affected the 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, not following compliance work orders while working on safety related equipment could adversely affect the system or component if required to respond to an event. Furthermore, working on safety related equipment without proper procedural guidance could also adversely affect the system or component. Using Manual Chapter 0609, Exhibit 1,

“Phase 1 Initial Screening and Characterization of Findings,” the finding was determined to be of very low safety significance (Green) because it did not result in the loss of operability or functionality; did not represent a loss of system safety function; did not represent an actual loss of function of a single train for greater than its technical specification allowed outage time; did not represent an actual loss of safety function of any risk significant system for greater than 24 hours; and did not screen as potentially risk significant due to external events. The finding was determined to have a cross-cutting aspect in the area of human performance, associated with work practices in that the licensee failed to use human error prevention techniques, such as self and peer checks, and questioning attitude, to ensure that the compliance work order was being followed and revised as required, [H.4(a)](Section 1R13).

Cornerstone: Barrier Integrity

- Green. The inspectors documented a self-revealing noncited violation of Unit 2 Technical Specification 6.4.1.a for an inadequate procedure that resulted in damaging a control element assembly shaft extension. Specifically, station Procedure OP-2505.007, “Unit 2 Upper Guide Structure Installation,” Revision 18, failed to give adequate guidance on aligning the center control element assembly shaft extension with the in-core instrumentation thimble support plate lifting frame funnel. This misalignment resulted in damaging the shaft extension, and required additional inspection and analysis for possible damage to the control element assembly and reactor fuel. The licensee entered this issue into the corrective action program as Condition Report CR-ANO-2-2011-1284.

The inspectors determined that the failure to provide adequate procedural guidance for installing the thimble support plate into the Unit 2 reactor vessel was a performance deficiency because it was within the licensee’s ability to foresee and correct and also violated technical specifications. The performance deficiency was determined to be more than minor because it was associated with the procedure quality attribute of the Barrier Integrity Cornerstone and adversely affected the cornerstone objective to provide reasonable assurance that the physical design barriers will protect the public from radionuclide releases caused by accidents or events, and is therefore a finding. Specifically, inadequate procedural guidance resulted in the damaging of a control element assembly shaft extension and could have resulted in fuel cladding damage. Using Manual Chapter 0609, Appendix G, “Shutdown Operations Significance Determination Process,” the finding was determined to be of very low safety significance (Green), because the finding did not prevent or degrade core heat removal, inventory control, electrical power, containment control, or core reactivity capabilities. The finding was determined not to have a cross-cutting aspect because the performance deficiency occurred in 2002 and is not indicative of current plant performance (Section 4OA2.3).

**B. Licensee-Identified Violations**

None.

## REPORT DETAILS

### Summary of Plant Status

Unit 1 began the period at 100 percent reactor power. On April 25, reactor power was reduced to approximately 43 percent due to grid conditions caused by adverse weather in the state that damaged various areas of the grid infrastructure. On May 14, following repair of the grid, reactor power was raised to 100 percent and remained there for the remainder of the period.

Unit 2 began the period at 100 percent reactor power. On April 25, reactor power was reduced to approximately 78 percent, and eventually down to approximately 43 percent due to adverse weather and subsequent grid infrastructure damage. On May 13, following repair of the grid, reactor power was raised to 100 percent power and remained there for the remainder of the period.

### 1. REACTOR SAFETY

#### Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity, and Emergency Preparedness

#### 1R01 Adverse Weather Protection (71111.01)

##### .1 Summer Readiness for Offsite and Alternate-ac Power

##### a. Inspection Scope

The inspectors performed a review of preparations for summer weather for selected systems, including conditions that could lead to loss-of-offsite power and conditions that could result from high temperatures. The inspectors reviewed the procedures affecting these areas and the communications protocols between the transmission system operator and the plant to verify that the appropriate information was being exchanged when issues arose that could affect the offsite power system. Examples of aspects considered in the inspectors' review included:

- The coordination between the transmission system operator and the plant's operations personnel during off-normal or emergency events
- The explanations for the events
- The estimates of when the offsite power system would be returned to a normal state
- The notifications from the transmission system operator to the plant when the offsite power system was returned to normal

During the inspection, the inspectors focused on plant-specific design features and the procedures used by plant personnel to mitigate or respond to adverse weather conditions. Additionally, the inspectors reviewed the Safety Analysis Report and

performance requirements for systems selected for inspection, and verified that operator actions were appropriate as specified by plant-specific procedures. Specific documents reviewed during this inspection are listed in the attachment. The inspectors also reviewed corrective action program items to verify that the licensee was identifying adverse weather issues at an appropriate threshold and entering them into their corrective action program in accordance with station corrective action procedures. The inspectors' reviews focused specifically on the following plant systems:

- Units 1 and 2 main transformer yards and the main switchyard
- Alternate ac diesel

These activities constitute completion of one (1) readiness for summer weather affect on offsite and alternate-ac power sample as defined in Inspection Procedure 71111.01-05.

b. Findings

No findings were identified.

**1R04 Equipment Alignments (71111.04)**

.1 Partial Walkdown

a. Inspection Scope

The inspectors performed partial system walkdowns of the following risk-significant systems:

- April 14, 2011, Units 1 and 2, diesel fire pump during electric fire pump replacement
- June 15, 2011, Unit 2, train A containment spray system, while train B containment spray was out of service for bearing cooler maintenance

The inspectors selected these systems based on their risk significance relative to the Reactor Safety Cornerstones at the time they were inspected. The inspectors attempted to identify any discrepancies that could affect the function of the system, and, therefore, potentially increase risk. The inspectors reviewed applicable operating procedures, system diagrams, Safety Analysis Report, technical specification requirements, administrative technical specifications, outstanding work orders, condition reports, and the impact of ongoing work activities on redundant trains of equipment in order to identify conditions that could have rendered the systems incapable of performing their intended functions. The inspectors also inspected accessible portions of the systems to verify system components and support equipment were aligned correctly and operable. The inspectors examined the material condition of the components and observed operating parameters of equipment to verify that there were no obvious deficiencies. The inspectors also verified that the licensee had properly identified and resolved equipment alignment problems that could cause initiating events or impact the capability of



mitigating systems or barriers and entered them into the corrective action program with the appropriate significance characterization. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of two (2) partial system walkdown samples as defined in Inspection Procedure 71111.04-05.

b. Findings

No findings were identified.

.2 Complete Walkdown

a. Inspection Scope

On June 30, the inspectors concluded a complete system alignment inspection of the Unit 2 low pressure safety injection/decay heat system and the inside containment emergency core cooling system piping to verify the functional capability of the system. The inspectors selected this system because it was considered both safety-significant and risk-significant in the licensee's probabilistic risk assessment. The inspectors inspected the system to review mechanical and electrical equipment line ups, electrical power availability, system pressure and temperature indications, as appropriate, component labeling, component lubrication, component and equipment cooling, hangers and supports, operability of support systems, and to ensure that ancillary equipment or debris did not interfere with equipment operation. The inspectors reviewed a sample of past and outstanding work orders to determine whether any deficiencies significantly affected the system function. In addition, the inspectors reviewed the corrective action program database to ensure that system equipment-alignment problems were being identified and appropriately resolved. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of one (1) complete system walkdown sample as defined in Inspection Procedure 71111.04-05.

b. Findings

No findings were identified.

.3 System Walkdown associated with Temporary Instruction (TI) 2515/177, "Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems."

a. Inspection Scope

During the Refueling Outage 2R21 (February through March 2011) and June 30, 2011, the inspectors conducted a walkdown of the Unit 2 trains A and B low pressure injection/decay heat removal systems in sufficient detail to reasonably assure the acceptability of the licensee's walkdowns (TI 2515/177, Section 04.02.d).

In addition, the inspectors verified that the licensee had isometric drawings that describe the Unit 2, trains A and B, low pressure/decay heat removal system configurations and had acceptably confirmed the accuracy of the drawings (TI 2515/177, Section 04.02.a). The inspectors verified the following related to the isometric drawings:

High point vents were identified. High points that do not have vents were acceptably recognizable. Other areas where gas can accumulate and potentially impact subject system operability, such as at orifices in horizontal pipes, isolated branch lines, heat exchangers, improperly sloped piping, and under closed valves, were acceptably described in the drawings or in referenced documentation. Horizontal pipe centerline elevation deviations and pipe slopes in nominally horizontal lines that exceed specified criteria were identified. All pipes and fittings were clearly shown. The drawings were up-to-date with respect to recent hardware changes and that any discrepancies between as-built configurations and the drawings were documented and entered into the corrective action program for resolution.

The inspectors verified that piping and instrumentation diagrams accurately described the subject systems, that they were up-to-date with respect to recent hardware changes, and any discrepancies between as-built configurations, the isometric drawings, and the piping and instrumentation diagrams were documented and entered into the corrective action program for resolution (TI 2515/177, Section 04.02.b).

Documents reviewed are listed in the attachment to this report.

This inspection effort counts towards the completion of TI 2515/177 which will be closed in a later inspection report.

b. Findings

No findings were identified.

**1R05 Fire Protection (71111.05)**

.1 Quarterly Fire Inspection Tours

a. Inspection Scope

The inspectors conducted fire protection walkdowns that were focused on availability, accessibility, and the condition of firefighting equipment in the following risk-significant plant areas:

- April 13, 2011, Unit 1, intake structure
- April 28, 2011, Unit 1, Fire Zone 53-Y, lower north piping penetration room
- June 4, 2011, Unit 1, Fire Zone 112-I, lower north electrical penetration room
- June 4, 2011, Unit 2, Fire Zone 2111-T, lower south electrical penetration room
- June 14, 2011, Unit 2, Fire Zone 2102-Y, east battery room
- June 24, 2011, Unit 1, Fire Zone 98-J, EDG corridor area

The inspectors reviewed areas to assess if licensee personnel had implemented a fire protection program that adequately controlled combustibles and ignition sources within the plant; effectively maintained fire detection and suppression capability; maintained passive fire protection features in good material condition; and had implemented adequate compensatory measures for out of service, degraded or inoperable fire protection equipment, systems, or features, in accordance with the licensee's fire plan. The inspectors selected fire areas based on their overall contribution to internal fire risk as documented in the plant's Individual Plant Examination of External Events with later additional insights, their potential to affect equipment that could initiate or mitigate a plant transient, or their impact on the plant's ability to respond to a security event. Using the documents listed in the attachment, the inspectors verified that fire hoses and extinguishers were in their designated locations and available for immediate use; that fire detectors and sprinklers were unobstructed; that transient material loading was within the analyzed limits; and fire doors, dampers, and penetration seals appeared to be in satisfactory condition. The inspectors also verified that minor issues identified during the inspection were entered into the licensee's corrective action program. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of six (6) quarterly fire-protection inspection samples as defined in Inspection Procedure 71111.05-05.

b. Findings

No findings were identified.

.2 Annual Fire Protection Drill Observations (71111.05A)

a. Inspection Scope

On January 15 and on May 14, 2011, the inspectors observed the fire brigade activation for a fire on the Unit 2 refueling floor and the Unit 2 north emergency switchgear room, respectively. The observation evaluated the readiness of the plant fire brigade to fight fires. The inspectors verified that the licensee staff identified deficiencies, openly discussed them in a self-critical manner at the drill debrief, and took appropriate corrective actions. Specific attributes evaluated were: (1) proper wearing of turnout gear and self-contained breathing apparatus; (2) proper use and layout of fire hoses; (3) employment of appropriate firefighting techniques; (4) sufficient firefighting equipment brought to the scene; (5) effectiveness of fire brigade leader communications, command, and control; (6) search for victims and propagation of the fire into other plant areas; (7) smoke removal operations; (8) utilization of preplanned strategies; (9) adherence to the preplanned drill scenario; and (10) drill objectives.

These activities constitute completion of two (2) annual fire-protection inspection samples as defined in Inspection Procedure 71111.05-05.

b. Findings

No findings were identified.

## **1R11 Licensed Operator Requalification Program (71111.11)**

### a. Inspection Scope

On May 12 and May 19, 2011, the inspectors observed a crew of licensed operators in the Unit 1 simulator, to verify that operator performance was adequate, evaluators were identifying and documenting crew performance problems and training was being conducted in accordance with licensee procedures. The inspectors evaluated the following areas:

- Licensed operator performance
- Crew's clarity and formality of communications
- Crew's ability to take timely actions in the conservative direction
- Crew's prioritization, interpretation, and verification of annunciator alarms
- Crew's correct use and implementation of abnormal and emergency procedures
- Control board manipulations
- Oversight and direction from supervisors
- Crew's ability to identify and implement appropriate technical specification actions and emergency plan actions and notifications
- Crew's usage and validation of shutdown procedures

The inspectors compared the crew's performance in these areas to preestablished operator action expectations and successful critical task completion requirements. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of one (1) quarterly licensed-operator requalification program sample as defined in Inspection Procedure 71111.11-05.

### b. Findings

No findings were identified.

## **1R12 Maintenance Effectiveness (71111.12)**

### a. Inspection Scope

The inspectors evaluated degraded performance issues involving the following risk significant systems:

- June 30, 2011, Unit 1, service water system
- June 30, 2011, Unit 2, low pressure safety injection system

The inspectors reviewed events such as where ineffective equipment maintenance has resulted in valid or invalid automatic actuations of engineered safeguards systems and independently verified the licensee's actions to address system performance or condition problems in terms of the following:

- Implementing appropriate work practices
- Identifying and addressing common cause failures
- Scoping of systems in accordance with 10 CFR 50.65(b)
- Characterizing system reliability issues for performance
- Charging unavailability for performance
- Trending key parameters for condition monitoring
- Ensuring proper classification in accordance with 10 CFR 50.65(a)(1) or -(a)(2)
- Verifying appropriate performance criteria for structures, systems, and components classified as having an adequate demonstration of performance through preventive maintenance, as described in 10 CFR 50.65(a)(2), or as requiring the establishment of appropriate and adequate goals and corrective actions for systems classified as not having adequate performance, as described in 10 CFR 50.65(a)(1)

The inspectors assessed performance issues with respect to the reliability, availability, and condition monitoring of the system. In addition, the inspectors verified maintenance effectiveness issues were entered into the corrective action program with the appropriate significance characterization. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of two (2) quarterly maintenance effectiveness sample as defined in Inspection Procedure 71111.12-05.

b. Findings

No findings were identified.

**1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13)**

a. Inspection Scope

The inspectors reviewed licensee personnel's evaluation and management of plant risk for the maintenance and emergent work activities affecting risk-significant and safety-

related equipment listed below to verify that the appropriate risk assessments were performed prior to removing equipment for work:

- April 4, 2011, Unit 1 and 2, emergent risk assessment due to the loss of the London Line
- April 14, 2011, Unit 1, emergent risk assessment for taking down the train C Service Water bay after losing electric fire pump parts into the bay
- April 22, Unit 1, emergent risk assessment for the repair control valve CV-2648, emergency feedwater flow to steam generator B
- June 6-11, 2011, Unit 1, planned and emergent, risk evaluation and extension work window for P4-A service water pump sleeve replacement
- June 15, 2011, Unit 2, emergent, risk assessment to clean train B containment spray pump seal cooler
- June 30, 2011, Unit 1, completed review of emergent work for emergency feedwater pushbutton, PB-2613, steam admission control valve

The inspectors selected these activities based on potential risk significance relative to the reactor safety cornerstones. As applicable for each activity, the inspectors verified that licensee personnel performed risk assessments as required by 10 CFR 50.65(a)(4) and that the assessments were accurate and complete. When licensee personnel performed emergent work, the inspectors verified that the licensee personnel promptly assessed and managed plant risk. The inspectors reviewed the scope of maintenance work, discussed the results of the assessment with the licensee's probabilistic risk analyst or shift technical advisor, and verified plant conditions were consistent with the risk assessment. The inspectors also reviewed the technical specification requirements and inspected portions of redundant safety systems, when applicable, to verify risk analysis assumptions were valid and applicable requirements were met. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of six (6) maintenance risk assessments and emergent work control inspection samples as defined in Inspection Procedure 71111.13-05.

b. Findings

Introduction. The inspectors identified a Green noncited violation of Unit 1 Technical Specification 5.4.1.a for a failure to perform proper placekeeping and to revise a compliance work order for the replacement of the auto-manual pushbutton, PB-2613, emergency feedwater steam admission valve. Specifically, the electrician had completed critical steps in a compliance work order without following the work order as written as required in Section 5.15 of station Procedure, EN-MA-101, Fundamentals of Maintenance," Revision 9. The electricians also failed to stop and revise the work order when encountering an unexpected wiring configuration that was different than what was

specified in the work order. This was also not in accordance with the station Procedure EN-MA-101.

Description. On February 2, 2011, the inspectors were observing a corrective maintenance activity in the Unit 1 control room to replace a suspected failed auto-manual pushbutton for CV-2613 emergency feedwater steam admission valve. The instrumentation and control technician performed a review of the panel in which the pushbutton was to be replaced, identified the power cables that needed to be removed and noted a discrepancy in a jumper underneath the pushbutton. After the supervisor confirmed that the jumper would be appropriate to cut, the jumper was cut by the technician. The technician then proceeded to remove the pushbutton. At this point, the inspectors identified that work was being performed without the use of the approved work order and was not being performed in accordance with this work order. The inspectors discussed this observation with the licensee. The supervisor immediately stopped the technician and coached him to have the compliance work order out and to follow the steps. The inspectors then observed the technician review the work order and mark steps that had already been completed. Two of the steps that the technician had completed without the work order in hand were identified as critical steps. Additionally, the work order provided no guidance or steps to cut the discrepant jumper that was identified previously.

The inspectors communicated their observations to the supervisor and the issue was placed into the corrective action program as Condition Report CR-ANO-C-2011-0284. Following a review of the condition report, the inspectors followed up with the supervisor to clarify the observation and concern. The condition report description was modified and a human performance error review was performed to determine why the error occurred. The licensee determined that the technician failed to use human error prevention techniques, such as self- and peer-check and a questioning attitude, following the discovery of a different wiring configuration than what was expected in the field. This caused the technician to lose focus and lose track of the work order during the work activity.

Analysis. The inspectors determined that the failure to follow and revise the compliance work order as required by station Procedure EN-MA-101, "Fundamentals of Maintenance," Revision 9, was a performance deficiency because it was within the licensee's ability to foresee and correct and is also a violation of technical specifications. The performance deficiency was determined to be more than minor because it was associated with the human performance attribute of the Mitigating System Cornerstone and adversely affected the 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, not following compliance work orders while working on safety related equipment could adversely affect the system or component if required to respond to an event. Furthermore, working on safety related equipment without proper procedural guidance could also adversely affect the system or component. Using Manual Chapter 0609, Exhibit 1, "Phase 1 Initial Screening and Characterization of Findings," the finding was determined to be of very low safety significance (Green), because it did not result in the loss of operability or functionality; did not represent a loss of system safety function; did not represent an actual loss of

function of a single train for greater than its technical specification allowed outage time; did not represent an actual loss of safety function of any risk significant system for greater than 24 hours; and did not screen as potentially risk significant due to external events. The finding was determined to have a cross-cutting aspect in the area of human performance, associated with work practices in that the licensee failed to use human error prevention techniques, such as self and peer checks, and questioning attitude, to ensure that the compliance work order was being followed and revised as required, [H.4(a)].

Enforcement. Unit 1 Technical Specification 5.4.1.a states, in part, that written procedures shall be implemented in accordance with Regulatory Guide 1.33, Revision 2, Appendix A, Section 9.a. Contrary to the above, the licensee failed to follow station Procedure EN-MA-101, "Fundamentals of Maintenance," Revision 9, by not following, step-by-step, a compliance work order for pushbutton PB-2613, emergency feedwater steam admission valve, replacement. Because this finding is of very low safety significance and has been entered into the corrective action program as Condition Reports CR-ANO-C-2011-0284, CR-ANO-C2011-1695, and CR-ANO-C-2011-1673, this violation is being treated as a noncited violation consistent with Section 2.3.2.a of the NRC Enforcement Policy: NCV 05000313/2011003-01, "Failure to Follow Compliance Work Order for Corrective Maintenance on Safety Related Equipment"

## **1R15 Operability Evaluations (71111.15)**

### a. Inspection Scope

The inspectors reviewed the following issues:

- April 26, 2011, Unit 2, thermal relief valve without tailpipe in overhead above train A high pressure injection pump
- May 5, 2011, Unit 1, delay in replacement of P4-A service water pump sleeve replacement past 6 month required replacement period
- May 20, 2011, Unit 1, emergency diesel fuel oil vault flooding due to an inadvertent deluge valve actuation
- May 23, 2011, Unit 2, startup transformer 3 following a fire in the control cabinet for the transformer
- June 3, 2011, Unit 2, train A emergency diesel generator exhaust leak
- June 10, 2011, Unit 1, train A service water pump motor Raychem splice degradation
- June 29, 2011, Unit 2, train B containment spray pump minimum recirculation valve and associated piping due to a scaffold



The inspectors selected these potential operability issues based on the risk significance of the associated components and systems. The inspectors evaluated the technical adequacy of the evaluations to ensure that technical specification operability was properly justified and the subject component or system remained available such that no unrecognized increase in risk occurred. The inspectors compared the operability and design criteria in the appropriate sections of the technical specifications and Safety Analysis Report to the licensee personnel's evaluations to determine whether the components or systems were operable. Where compensatory measures were required to maintain operability, the inspectors determined whether the measures in place would function as intended and were properly controlled. The inspectors determined, where appropriate, compliance with bounding limitations associated with the evaluations. Additionally, the inspectors also reviewed a sampling of corrective action documents to verify that the licensee was identifying and correcting any deficiencies associated with operability evaluations. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of seven (7) operability evaluations inspection samples as defined in Inspection Procedure 71111.15-04.

b. Findings

No findings were identified.

**1R17 Evaluations of Changes, Tests, or Experiments and Permanent Plant Modifications (71111.17)**

a. Inspection Scope.

The inspectors reviewed the effectiveness of the licensee's implementation of evaluations performed in accordance with 10 CFR 50.59, "Changes, Tests, and Experiments," and changes, tests, experiments, or methodology changes that the licensee determined did not require 10 CFR 50.59 evaluations.

The inspectors reviewed eight evaluations required by 10 CFR 50.59; 17 changes, tests, and experiments that were screened out by licensee personnel; and eight permanent plant modifications. Specific documents reviewed during this inspection are listed in the attachment.

The inspectors verified that, when changes, tests, or experiments were made, evaluations were performed in accordance with 10 CFR 50.59 and licensee personnel had appropriately concluded that the change, test or experiment can be accomplished without obtaining a license amendment. The inspectors also verified that safety issues related to the changes, tests, or experiments were resolved. The inspectors reviewed changes, tests, and experiments that licensee personnel determined did not require evaluations and verified that the licensee personnel's conclusions were correct and consistent with 10 CFR 50.59. The inspectors also verified that procedures, design, and licensing basis documentation used to support the changes were accurate after the changes had been made.

In the inspection of modifications, the inspectors verified that supporting design and license basis documentation had been updated accordingly and was still consistent with the new design. The inspectors verified that procedures, training plans, and other design basis features had been adequately accounted for and updated. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of eight (8) evaluation samples; 17 samples of changes, tests, and experiments that were screened out by licensee personnel; and eight (8) permanent plant modifications samples, as defined in Inspection Procedure 71111.17-04.

b. Findings.

No findings were identified.

**1R18 Plant Modifications (71111.18)**

.1 Temporary Modifications

a. Inspection Scope

To verify that the safety functions of important safety systems were not degraded, the inspectors reviewed the temporary modification identified as the Unit 1 train B reactor building cooling coils HDB-20 service water weld overlay.

The inspectors reviewed the temporary modification and the associated safety-evaluation screening against the system design bases documentation, including the Safety Analysis Report and the technical specifications, and verified that the modification did not adversely affect the system operability/availability. The inspectors also verified that the installation and restoration were consistent with the modification documents and that configuration control was adequate. Additionally, the inspectors verified that the temporary modification was identified on control room drawings, appropriate tags were placed on the affected equipment, and licensee personnel evaluated the combined effects on mitigating systems and the integrity of radiological barriers.

These activities constitute completion of one (1) temporary plant modifications sample as defined in Inspection Procedure 71111.18-05.

b. Findings

No findings were identified.

.2 Permanent Modifications

a. Inspection Scope

The inspectors reviewed key parameters associated with energy needs, materials, replacement components, timing, heat removal, control signals, equipment protection

from hazards, operations, flow paths, pressure boundary, ventilation boundary, structural, process medium properties, licensing basis, and failure modes for the permanent modification Unit 1, trains A and B emergency diesel generator combustion air suction duct-tornado differential pressure modification.

The inspectors verified that modification preparation, staging, and implementation did not impair emergency/abnormal operating procedure actions, key safety functions, or operator response to loss of key safety functions; postmodification testing will maintain the plant in a safe configuration during testing by verifying that unintended system interactions will not occur; systems, structures and components' performance characteristics still meet the design basis; the modification design assumptions were appropriate; the modification test acceptance criteria will be met; and licensee personnel identified and implemented appropriate corrective actions associated with permanent plant modifications. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of one (1) permanent plant modifications sample as defined in Inspection Procedure 71111.18-05.

b. Findings

No findings were identified.

**1R19 Postmaintenance Testing (71111.19)**

a. Inspection Scope

The inspectors reviewed the following postmaintenance activities to verify that procedures and test activities were adequate to ensure system operability and functional capability:

- April 28, 2011, Unit 2, train B plant protection system following troubleshooting and repair of the train B steam generator delta pressure pretrip and trip lights sealed in continuously
- May 3, 2011, Unit 1, ultrasonic and magnetic particle testing following welding of train B service water piping to repair a pinhole leak
- May 11, 2011, Unit 2, train A service water pump following planned shaft sleeve replacement
- May 31, 2011, Unit 2, containment sump suction valve, 2CV-5469-1, following motor operated valve maintenance and inspection
- June 4, 2011, Unit 2, channel C plant protection system hot leg temperature input modification

- June 15, 2011, Unit 1, train A service water pump following motor replacement activities

The inspectors selected these activities based upon the structure, system, or component's ability to affect risk. The inspectors evaluated these activities for the following:

- The effect of testing on the plant had been adequately addressed; testing was adequate for the maintenance performed
- Acceptance criteria were clear and demonstrated operational readiness; test instrumentation was appropriate

The inspectors evaluated the activities against the technical specifications, the Safety Analysis Report, 10 CFR Part 50 requirements, licensee procedures, and various NRC generic communications to ensure that the test results adequately ensured that the equipment met the licensing basis and design requirements. In addition, the inspectors reviewed corrective action documents associated with postmaintenance tests to determine whether the licensee was identifying problems and entering them in the corrective action program and that the problems were being corrected commensurate with their importance to safety. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of six (6) postmaintenance testing inspection samples as defined in Inspection Procedure 71111.19-05.

b. Findings

No findings were identified.

**1R22 Surveillance Testing (71111.22)**

a. Inspection Scope

The inspectors reviewed the Safety Analysis Report procedure requirements, and technical specifications to ensure that the surveillance activities listed below demonstrated that the systems, structures, and/or components tested were capable of performing their intended safety functions. The inspectors either witnessed or reviewed test data to verify that the significant surveillance test attributes were adequate to address the following:

- Preconditioning
- Evaluation of testing impact on the plant
- Acceptance criteria
- Test equipment

- Procedures
- Jumper/lifted lead controls
- Test data
- Testing frequency and method demonstrated technical specification operability
- Test equipment removal
- Restoration of plant systems
- Fulfillment of ASME Code requirements
- Updating of performance indicator data
- Engineering evaluations, root causes, and bases for returning tested systems, structures, and components not meeting the test acceptance criteria were correct
- Reference setting data
- Annunciators and alarms setpoints

The inspectors also verified that licensee personnel identified and implemented any needed corrective actions associated with the surveillance testing.

- April 28, 2011, Unit 2, train B low pressure safety injection pump quarterly inservice test
- April 29, 2011, Unit 1, steam driven emergency feedwater pump, P-7A quarterly inservice test
- May 19, 2011, Unit 2, train C high pressure safety injection pump quarterly inservice test
- June 1, 2011, Unit 1, train A reactor building spray pump system quarterly inservice test
- June 15, 2011, Unit 2, B emergency diesel generator semi-annual fast start test
- June 21, 2011, Unit 1, train A (VCH-4A) electrical equipment room emergency air conditioning system test

Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of six (6) surveillance testing inspection samples as defined in Inspection Procedure 71111.22-05.

b. Findings

No findings were identified.

**Cornerstone: Emergency Preparedness**

**1EP2 Alert Notification System Testing (71114.02)**

a. Inspection Scope

The inspectors discussed with licensee staff the operability of the offsite siren emergency warning system to determine the adequacy of the methods for testing the alert and notification system in accordance with 10 CFR Part 50, Appendix E. The alert and notification system testing program was compared with criteria in NUREG-0654, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," Revision 1; FEMA Report REP-10, "Guide for the Evaluation of Alert and Notification Systems for Nuclear Power Plants"; and the licensee's current FEMA-approved alert and notification system design report, "Arkansas Nuclear One ANS Design Report Update," May 2009. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of one (1) sample as defined in Inspection Procedure 71114.02-05.

b. Findings

No findings were identified.

**1EP3 Emergency Response Organization Augmentation Testing (71114.03)**

a. Inspection Scope

The inspectors discussed with licensee staff the operability of primary and backup systems for augmenting the on-shift emergency response staff to determine the adequacy of licensee methods for staffing emergency response facilities in accordance with their emergency plan. The inspectors reviewed the documents and references listed in the attachment to this report, to evaluate the licensee's ability to staff the emergency response facilities in accordance with the licensee's emergency plan and the requirements of 10 CFR Part 50, Appendix E. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of one (1) sample as defined in Inspection Procedure 71114.03-05.

b. Findings

No findings were identified.

**1EP5 Correction of Emergency Preparedness Weaknesses and Deficiencies (71114.05)**

a. Inspection Scope

The inspectors reviewed the licensee's corrective action program requirements in Procedure EN-LI-102, "Corrective Action Procedure," Revision 16. The inspectors reviewed summaries of corrective action program documents assigned to the emergency preparedness department and emergency response organization and selected 20 for detailed review against the program requirements. The inspectors evaluated the response to the corrective action requests to determine the licensee's ability to identify, evaluate, and correct problems in accordance with the licensee program requirements, planning standard 10 CFR 50.47(b)(14), and 10 CFR Part 50, Appendix E. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of one (1) sample as defined in Inspection Procedure 71114.05-05.

b. Findings

No findings were identified.

**1EP6 Drill Evaluation (71114.06)**

.1 Emergency Preparedness Drill Observation

a. Inspection Scope

The inspectors evaluated the conduct of a routine licensee emergency drill on June 1, 2011, to identify any weaknesses and deficiencies in classification, notification, and protective action recommendation development activities. The inspectors observed emergency response operations in the control room simulator, technical support center, and the emergency operations facility to determine whether the event classification, notifications, and protective action recommendations were performed in accordance with procedures. The inspectors also attended the licensee drill critique to compare any inspector-observed weakness with those identified by the licensee staff in order to evaluate the critique and to verify whether the licensee staff was properly identifying weaknesses and entering them into the corrective action program. As part of the inspection, the inspectors reviewed the drill package and other documents listed in the attachment.

These activities constitute completion of one (1) sample as defined in Inspection Procedure 71114.06-05.

b. Findings

No findings were identified.

.2 Training Observations

a. Inspection Scope

The inspectors observed a simulator training evolution for licensed operators on June 15, 2011, which required emergency plan implementation by a licensee operations crew. This evolution was planned to be evaluated and included in performance indicator data regarding drill and exercise performance. The inspectors observed event classification activities performed by the crew. The inspectors also attended the post-evolution critique for the scenario. The focus of the inspectors' activities was to note any weaknesses and deficiencies in the crew's performance and ensure that the licensee evaluators noted the same issues and entered them into the corrective action program. As part of the inspection, the inspectors reviewed the scenario package and other documents listed in the attachment.

These activities constitute completion of one (1) sample as defined in Inspection Procedure 71114.06-05.

b. Findings

No findings were identified.

**4. OTHER ACTIVITIES**

**40A1 Performance Indicator Verification (71151)**

.1 Data Submission Issue

a. Inspection Scope

The inspectors performed a review of the performance indicator data submitted by the licensee for the first quarter 2011 performance indicators for any obvious inconsistencies prior to its public release in accordance with Inspection Manual Chapter 0608, "Performance Indicator Program."

This review was performed as part of the inspectors' normal plant status activities and, as such, did not constitute a separate inspection sample.

b. Findings

No findings were identified.



.2 Reactor Coolant System Specific Activity (BI01)

a. Inspection Scope

The inspectors sampled licensee submittals for the reactor coolant system specific activity performance indicator for Units 1 and 2 for the period from the first quarter 2010 through the first quarter 2011. To determine the accuracy of the performance indicator data reported during those periods, the inspectors used definitions and guidance contained in NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6. The inspectors reviewed the licensee's reactor coolant system chemistry samples, technical specification requirements, issue reports, event reports, and NRC integrated inspection reports for the period of January 2010 through March 2011 to validate the accuracy of the submittals. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the performance indicator data collected or transmitted for this indicator and none were identified. In addition to record reviews, the inspectors observed a chemistry technician obtain and analyze a reactor coolant system sample. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of two (2) reactor coolant system specific activity samples as defined in Inspection Procedure 71151-05.

b. Findings

No findings were identified.

.3 Reactor Coolant System Leakage (BI02)

a. Inspection Scope

The inspectors sampled licensee submittals for the reactor coolant system leakage performance indicator for Units 1 and 2 for the period from the first quarter 2010 through the first quarter 2011. To determine the accuracy of the performance indicator data reported during those periods, the inspectors used definitions and guidance contained in NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6. The inspectors reviewed the licensee's operator logs, reactor coolant system leakage tracking data, issue reports, event reports, and NRC integrated inspection reports for the period of January 2010 through March 2011 to validate the accuracy of the submittals. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the performance indicator data collected or transmitted for this indicator and none were identified. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of two (2) reactor coolant system leakage samples as defined in Inspection Procedure 71151-05.

b. Findings

No findings were identified.

4 Drill/Exercise Performance (EP01)

a. Inspection Scope

The inspectors sampled licensee submittals for the Drill and Exercise Performance, performance indicator for the period from the third quarter 2010 through the first quarter 2011. To determine the accuracy of the performance indicator data reported during those periods, performance indicator definitions and guidance contained in NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6, was used. The inspectors reviewed the licensee's records associated with the performance indicator to verify that the licensee accurately reported the indicator in accordance with relevant procedures and the NEI guidance. Specifically, the inspectors reviewed licensee records and processes including procedural guidance on assessing opportunities for the performance indicator; assessments of performance indicator opportunities during pre-designated control room simulator training sessions, performance during the 2010 biennial exercise, and performance during other drills. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of one (1) drill/exercise performance sample as defined in Inspection Procedure 71151-05.

b. Findings

No findings were identified.

5 Emergency Response Organization Drill Participation (EP02)

a. Inspection Scope

The inspectors sampled licensee submittals for the Emergency Response Organization Drill Participation performance indicator for the period from the third quarter 2010 through the first quarter 2011. To determine the accuracy of the performance indicator data reported during those periods, performance indicator definitions and guidance contained in NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6, was used. The inspectors reviewed the licensee's records associated with the performance indicator to verify that the licensee accurately reported the indicator in accordance with relevant procedures and the NEI guidance. Specifically, the inspectors reviewed licensee records and processes including procedural guidance on assessing opportunities for the performance indicator, rosters of personnel assigned to key emergency response organization positions, and exercise participation records. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of one (1) emergency response organization drill participation sample as defined in Inspection Procedure 71151-05.

b. Findings

No findings were identified.

.6 Alert and Notification System (EP03)

a. Inspection Scope

The inspectors sampled licensee submittals for the Alert and Notification System performance indicator for the period from the third quarter 2010 through the first quarter 2011. To determine the accuracy of the performance indicator data reported during those periods, performance indicator definitions and guidance contained in NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6, was used. The inspectors reviewed the licensee's records associated with the performance indicator to verify that the licensee accurately reported the indicator in accordance with relevant procedures and the NEI guidance. Specifically, the inspectors reviewed licensee records and processes including procedural guidance on assessing opportunities for the performance indicator and the results of periodic alert notification system operability tests. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of one (1) alert and notification system sample as defined in Inspection Procedure 71151-05.

b. Findings

No findings were identified.

**40A2 Identification and Resolution of Problems (71152)**

**Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity, Emergency Preparedness, Public Radiation Safety, Occupational Radiation Safety, and Physical Protection**

.1 Routine Review of Identification and Resolution of Problems

a. Inspection Scope

As part of the various baseline inspection procedures discussed in previous sections of this report, the inspectors routinely reviewed issues during baseline inspection activities and plant status reviews to verify that they were being entered into the licensee's corrective action program at an appropriate threshold, that adequate attention was being given to timely corrective actions, and that adverse trends were identified and addressed. The inspectors reviewed attributes that included the complete and accurate identification of the problem; the timely correction, commensurate with the safety significance; the evaluation and disposition of performance issues, generic implications, common causes, contributing factors, root causes, extent of condition reviews, and previous occurrences reviews; and the classification, prioritization, focus, and timeliness of corrective actions. Minor issues entered into the licensee's corrective action program because of the inspectors' observations are included in the attached list of documents reviewed.

These routine reviews for the identification and resolution of problems did not constitute any additional inspection samples. Instead, by procedure, they were considered an integral part of the inspections performed during the quarter and documented in Section 1 of this report.

b. Findings

No findings were identified.

.2 Daily Corrective Action Program Reviews

a. Inspection Scope

In order to assist with the identification of repetitive equipment failures and specific human performance issues for follow-up, the inspectors performed a daily screening of items entered into the licensee's corrective action program. The inspectors accomplished this through review of the station's daily corrective action documents.

The inspectors performed these daily reviews as part of their daily plant status monitoring activities and, as such, did not constitute any separate inspection samples.

b. Findings

No findings were identified.

.3 Selected Issue Follow-up Inspection

a. Inspection Scope

During a review of items entered in the licensee's corrective action program, the inspectors recognized a corrective action item documenting an incident during the Unit 2 2R21 refueling outage in which a control element shaft extension was damaged during core reassembly. The licensee entered the issue into the corrective action program as Condition Report CR-ANO-2-2011-1284.

These activities constitute completion of one (1) in-depth problem identification and resolution sample as defined in Inspection Procedure 71152-05.

b. Findings

Introduction. The inspectors documented a Green self-revealing noncited violation of Unit 2 Technical Specification 6.4.1.a for an inadequate procedure that resulted in damaging a control element assembly shaft extension. Specifically, station Procedure OP-2505.007, "Unit 2 Upper Guide Structure Installation," Revision 18, failed to give adequate guidance on aligning the center control element assembly shaft extension with the in-core instrumentation thimble support plate lifting frame funnel. This misalignment resulted in damage to the shaft extension, and required additional inspection and analysis for possible damage to the control element assembly and reactor fuel.

Description. On March 14, 2011, the Unit 2 refueling team visually aligned the control element assembly shaft extension with the lifting frame funnel in preparation to lower the thimble support plate. When the thimble support plate was being lowered and the load cell changed from 4600 to 4400 pounds, the evolution was stopped. The refueling team raised the thimble support plate and identified the center control element assembly shaft extension had been bent. The licensee entered the issue into the corrective action program as Condition Report CR-ANO-2-2011-1284.

Upon inspection it was determined that interference (a lip) existed where the center guide tube, called the pick-up adaptor, on the thimble support plate, extended through the frame funnel. Once aligned into the frame funnel, the control element assembly shaft extension should have been guided into the pick-up adaptor tube, which would have allowed the thimble support plate to have been lowered into the reactor vessel. However, the control element assembly shaft extension was guided by the frame funnel onto the lip and hung up. The weight of the thimble support plate bent the shaft extension. The licensee performed video and visual inspections of the entire thimble support plate, and all other control element assembly shaft extensions and did not identify any other damage. Based on the evidence and observations from those individuals involved, the licensee performed calculations and determined that the control element assemblies and the reactor fuel were not likely damaged. Radiation levels, chemical analysis of the refueling cavity coolant, and control rod testing confirmed that conclusion.

Previously, station Procedure OP-20505.007, "Unit 2 Upper Guide Structure Installation," had instructions to insert a plastic pipe down through the pick-up adaptor and over the control element shaft extension to ensure no interference was possible when lowering the thimble support plate into the reactor vessel. In 2002, the procedure was revised to remove these instructions. The decision to remove the guidance was based on saving time during the outage and to help minimize dose. The justification was, in part, based on the assumption that the frame funnel was attached to the pick-up adaptor and was smooth with no interferences. Given this assumption, if the control element assembly shaft extension was aligned in the frame funnel, the thimble support plate could be lowered and the shaft extension would fit right into the pick-up adaptor. This design assumption was never verified and was incorrect. The procedure change failed to receive the proper reviews and should not have been allowed to be changed.

The licensee had a new control element shaft extension fabricated by Westinghouse and installed it without incident. Once the reactor was reassembled, control element assembly testing was completed satisfactorily, which confirmed no further damage.

Analysis. The inspectors determined that the failure to provide adequate procedural guidance for installing the thimble support plate into the Unit 2 reactor vessel was a performance deficiency because it was within the licensee's ability to foresee and correct and also violated technical specifications. The performance deficiency was determined to be more than minor because it was associated with the procedure quality attribute of the Barrier Integrity Cornerstone and adversely affected the cornerstone objective to provide reasonable assurance that the physical design barriers will protect the public from radionuclide releases caused by accidents or events, and is therefore a finding.

Specifically, inadequate procedural guidance resulted in the damaging of a control element assembly shaft extension and could have resulted in fuel cladding damage. Using Manual Chapter 0609, Appendix G, "Shutdown Operations Significance Determination Process," the finding was determined to be of very low safety significance (Green), because the finding did not prevent or degrade core heat removal, inventory control, electrical power, containment control, or core reactivity capabilities. The finding was determined not to have a cross-cutting aspect because the performance deficiency occurred in 2002 and is not indicative of current plant performance.

Enforcement. Unit 2 Technical Specification 6.4.1.a states, in part, that written procedures shall be implemented in accordance with Regulatory Guide 1.33, Revision 2, Appendix A, Section 2.I. Contrary to the above, the licensee failed to provide adequate procedural guidance in station Procedure OP-2505.007, "Unit 2 Upper Guide Structure Installation," Revision 18, to properly install the Unit 2 thimble support plate and resulted in physically damaging the control element assembly shaft extension. Because this finding is of very low safety significance and has been entered into the corrective action program as Condition Report CR-ANO-2-2011-1284, this violation is being treated as a noncited violation consistent with Section 2.3.2.a of the NRC Enforcement Policy: NCV 05000368/2011003-02, "Failure to Provide Adequate Procedural Guidance Results in Control Element Assembly Shaft Extension Damage"

#### **40A3 Event Follow-up (71153)**

.1 (Closed) LER 05000313/2009-02 Manual Reactor Trip From Power In Response to a Fire at the Main Generator Hydrogen Addition Station Caused by a Personnel Error

On February 7, 2009, the Unit 1 reactor was manually tripped from 90 percent power in response to a report of fire at the main generator hydrogen addition station. The auxiliary operator, who was attempting to add hydrogen to the main generator, mistakenly assumed that the hydrogen add valve was stuck on its closed seat. The operator used a pipe wrench to rotate the valve handle in the open direction. The valve is a threaded body to bonnet design and while attempting to operate the valve with the pipe wrench, the auxiliary operator actually disassembled the valve releasing hydrogen into the area. The hydrogen quickly ignited. Unit 2 shift manager entered station Procedure OP-2203.034 for fire or explosion and dispatched the fire brigade. The fire was extinguished by isolating the hydrogen at the hydrogen house. Unit 1 also declared a Notification of Unusual Event emergency action level because the fire duration inside the protected area was longer than 10 minutes. The licensee reassembled the valve and modified it to prevent inadvertent disassembly. The auxiliary operator was disqualified, removed from shift and placed into a remedial re-qualification training program. The issue was placed into the corrective action program as Condition Report CR-ANO-1-2009-0254. A noncited violation was documented in Inspection Report 05000313/2009002-04 for this issue. This licensee event report is closed.

.2 (Closed) LER 05000368/2009-01, Manual Reactor Trip from Power in Response to Feedwater Regulating Valve Failing Closed

On Friday, March 13, 2009, Arkansas Nuclear One, Unit 2 was manually tripped from 84 percent power due to decreasing level in the B steam generator, caused by the B main feedwater regulating valve moving in the closed direction without a demand signal to close. The trip was manually initiated at approximately the 25 percent steam generator water level. Due to the valve malfunction the system was unable to restore the steam generator water level before the 22.2 percent emergency feedwater system control actuation set point was reached. The emergency feedwater system actuated, as designed, restoring steam generator water levels to normal. Post trip responses were normal with all plant safety systems functioning as expected. Investigation revealed that the most probable root cause of the event was a foreign substance in the clearance area of the armature, internal to the current-to-pressure converter in the B main feedwater regulating valve positioner. The positioner was replaced and tested, and Unit 2 returned to 100 percent power operation, on March 17, 2009. The licensee event report was reviewed by the inspectors and no findings of significance were identified. The licensee documented this issue in their corrective action program as Condition Report CR-ANO-2-2009-0658. This licensee event report is closed.

#### **40A5 Other Activities**

.1 (Closed) NRC Temporary Instruction 2515/183, "Follow-up to the Fukushima Daiichi Nuclear Station Fuel Damage Event"

a. Inspection Scope

The inspectors assessed the activities and actions taken by the licensee to assess its readiness to respond to an event similar to the Fukushima Daiichi nuclear plant fuel damage event. This included (1): an assessment of the licensee's capability to mitigate conditions that may result from beyond design basis events, with a particular emphasis on strategies related to the spent fuel pool, as required by NRC Security Order Section B.5.b issued February 25, 2002, as committed to in severe accident management guidelines, and as required by 10 CFR 50.54(hh); (2) an assessment of the licensee's capability to mitigate station blackout (SBO) conditions, as required by 10 CFR 50.63 and station design bases; (3) an assessment of the licensee's capability to mitigate internal and external flooding events, as required by station design bases; and (4) an assessment of the thoroughness of the walkdowns and inspections of important equipment needed to mitigate fire and flood events, which were performed by the licensee to identify any potential loss of function of this equipment during seismic events possible for the site.

b. Findings

Inspection Report 05000313/2011008 and 05000368/2011008 (ML11133A307) documented detailed results of this inspection activity. Following issuance of the report, the inspectors conducted detailed follow-up on selected issues. No findings were identified during this follow-up inspection.

.2 (Closed) NRC Temporary Instruction 2515/184, "Availability and Readiness Inspection of Severe Accident Management Guidelines (SAMGs)"

a. Inspection Scope

The inspectors reviewed the licensee's severe accident management guidelines (SAMGs), implemented as a voluntary industry initiative in the 1990's, to determine: (1) whether the SAMGs were available and updated; (2) whether the licensee had procedures and processes in place to control and update its SAMGs; (3) the nature and extent of the licensee's training of personnel on the use of SAMGs; and (4) licensee personnel's familiarity with SAMG implementation.

b. Findings

The results of this review were provided to the NRC task force chartered by the Executive Director for Operations to conduct a near-term evaluation of the need for agency actions following the Fukushima Daiichi fuel damage event in Japan. Plant-specific results for Arkansas Nuclear One were provided as Enclosure 1 to a memorandum to the Chief, Reactor Inspection Branch, Division of Inspection and Regional Support, dated May 26, 2011 (ML111470264).

.3 (Open) NRC Temporary Instruction 2515/177, Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal and Containment Spray Systems (NRC Generic Letter 2008-01)

As documented in Section 1R04, the inspectors confirmed the acceptability of the described licensee's actions. This inspection effort counts towards the completion of TI 2515/177 which will be closed in a later inspection report.

## **40A6 Meetings**

### Exit Meeting Summary

On June 16, 2011, the 10 CFR 50.59 and Modifications inspection team leader presented the preliminary inspection results to Mr. D. James, Nuclear Safety Assurance Director, and other members of the licensee's staff. The licensee acknowledged the issues presented. While some proprietary information was reviewed during this inspection, no proprietary information was included in this report.

On June 23, 2011, the inspectors presented the onsite emergency preparedness inspection results to Mr. C. Schwarz, Site Vice President, and other members of the licensee's staff. The licensee acknowledged the issues presented. The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

On July 7, 2011, the inspectors presented the inspection results to Mr. M. Chisum, General Manager Plant Operations, and other members of the licensee staff. The licensee acknowledged the issues presented. The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. Proprietary information was identified and is being handled accordingly by the resident inspector staff.



**SUPPLEMENTAL INFORMATION**  
**KEY POINTS OF CONTACT**

Licensee Personnel

J. Bacquet, Supervisor, Radiation Protection  
D. Bauman, Senior Project Manager  
D. Bentley, Acting Manager, Design Engineering  
D. Bice, Acting Manager, Licensing  
M. Chisum, General Manager Plant Operations  
R. Crowe, Superintendent, Security  
R. Fowler, Senior Emergency Preparedness Planner  
R. Fuller, Manager, Quality Assurance  
W. Greenson, Manager, Engineering Programs and Component  
R. Gresham, Senior Emergency Preparedness Planner  
R. Holeyfield, Manager, Emergency Preparedness  
D. James, Director, Nuclear Safety Assurance  
D. Marvel, Supervisor, Radiation Protection  
D. Metheany, Steam Generator Programs Owner  
J. McCoy, Director, Engineering  
N. Mosher, Licensing Specialist  
L. Muncy, Maintenance Support Superintendent  
C. O'Dell, Assistant Operation Manager, Unit 2  
K. Panther, Manager, ISI Program  
S. Pyle, Manager, Licensing  
W. Renz, Director, Emergency Preparedness  
C. Schwarz, Site Vice President  
C. Simpson, Superintendent, Operations Training  
J. Smith, Manager, Radiation Protection  
D. Stoltz, Senior Health Physics Specialist, Radiation Protection  
D. White, Emergency Preparedness Planner

NRC Personnel

A. Sanchez, Senior Resident Inspector  
J. Rotton, Resident Inspector  
W. Schaup, Resident Inspector

**LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED**

Opened

2515/177	TI	Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal and Containment Spray Systems (NRC Generic Letter 2008-01) (Section 40A5)
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Opened and Closed

05000313/2011003-01	NCV	Failure to Follow Compliance Work Order for Corrective Maintenance on Safety Related Equipment (Section 1R13)
05000368/2011003-02	NCV	Failure to Provide Adequate Procedural Guidance Results in Control Element Assembly Shaft Extension Damage (4OA2.3)

Closed

05000313/2009002	LER	Manual Reactor Trip From Power In Response to a Fire at the Main Generator Hydrogen Addition Station Caused by a Personnel Error
05000368/2009001	LER	Manual Reactor Trip from Power in Response to Feedwater Regulating Valve Failing Closed
2515/183	TI	Follow-up to the Fukushima Daiichi Nuclear Station Fuel Damage Event
2515/184	TI	Availability and Readiness Inspection of Severe Accident Management Guidelines (SAMGs)

**LIST OF DOCUMENTS REVIEWED**

**Section 1RO1: Adverse Weather Protection**

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
OP-1203.025	Natural Emergencies	33
OP-2203.008	Natural Emergencies	21

MISCELLANEOUS

ANO Switchyard Coordination Phone Call Notes (5/31/11, 6/14/11)

## Section 1RO4: Equipment Alignment

### PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
OP-2104.005	Containment Spray	60
OP-2104.040	LPSI System Operations	58

### DRAWINGS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
M-2230	Reactor Coolant System	78
M-2232	Safety Injection System	117
M-2236	Containment Spray System	94
5-BS-6	Large Pipe Isometric-Spray Pump Suction	16
DH-200	Small Pipe Isometric- Decay Heat Removal Pump P-34A and P-34B Recirculation Piping	9
7-DH-4	Large Pipe Isometric- Decay Heat Removal from Reactor	23
7-DH-11	Large Pipe Isometric- Decay Heat Pump Discharge	21
7-DH-13	Large Pipe Isometric- Decay Heat Pump Suction[ed] Header	12
2CCA-21-1	Large Pipe Isometric- Safety Injection to Reactor Coolant Pump 2P-32B	12
2CCA-21-2	Large Pipe Isometric- Safety Injection and Shutdown Cooling to RCP 2P-32B	9
2CCB-13-3	Large Pipe Isometric- Safety Injection Piping rom Fluid Head 2P-11 to Valve 2SI-13B	4

2CCB-3-2	Large Pipe Isometric- Safety Injection System piping from Containment Pen. 2p10 to VLV 2SI-14B	7
2FCB-3-1	Large Pipe Isometric- Safty injection Tank 2T-2B to Valve 2SI-16B	3

**Section 1RO5: Fire Protection**

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
FHA	ANO Fire Hazard Analysis	13
PHP-U1	ANO Prefire Plan (Unit 1)	13
PHP-U2	ANO Prefire Plan (Unit 2)	10
EN-TQ-1215	Fire Brigade Drills	1
OP-1063.020	Fire Brigade Training Program	16

DRAWINGS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
FZ-1032	Unit 1 fire zone detail – lower north electrical penetration room	2
FZ-2055	Unit 2 fire zone detail – east battery room	2
FZ-2046	Unit 2 fire zone detail – lower south electrical penetration room	2
FZ-1016	Unit 1 fire zone detail – emergency diesel generator corridor	2
FZ-1061	Unit 1 fire zone detail – intake structure	2
FZ-1049	Unit 1 fire zone detail – lower north piping penetration room	2

**Section 1R11: Licensed Operator Requalification Program**

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
A1SPGLOR110502	Unannounced Casualties/RCS Events	0
OP-1202.012	Repetitive Tasks	9

PROCEDURE IMPROVEMENT FORMS (PIF)

1-11-305            1-11-308            1-11-309            1-11-310

**Section 1R12: Maintenance Effectiveness**

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
EN-DC-203	Maintenance Rule Program	1
EN-DC-204	Maintenance Rule Scope and Basis	1
EN-DC-205	Maintenance Rule Monitoring	2
EN-DC-206	Maintenance Rule (a)(1) process	2

CONDITION REPORTS (CR-ANO)

1-2010-693            1-2011-17            1-2011-39            1-2009-955

MISCELLANEOUS DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>DATE</u>
	Maintenance Rule Database – Scoping and Performance Criteria – Unit 1 Service Water	June 15, 2011
	Maintenance Rule Unit 1 Service Water FF Determination report 2009-2011	June 15, 2011
	Unit 2 Low Pressure Safety Injection System Health Report	March 31, 2011
	ANO Risk Significant Classification Basis	March 2009
	Maintenance Rule Expert Panel Electronic Vote	March 30, 2011

WORK ORDERS

51640867

**Section 1R13: Maintenance Risk Assessment and Emergent Work Control**

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
COPD-024	Risk Assessment Guidelines	35

CONDITION REPORTS (CR-ANO)

1-2011-0618      C-2011-1695

MISCELLANEOUS DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>DATE</u>
	Plant Impact Statement: P-4A Sleeve replacement	June 7-11, 2011

**Section 1R15: Operability Evaluations**

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
EN-OP-104	Operability Evaluations	4
EN-MA-133	Control of Scaffolding	7
STM 2-52	Liquid Radwaste/Boron Management System	15

CONDITION REPORTS (CR-ANO)

2-2011-1566	2-2011-1890	2-2011-1968
2-2011-2030	1-2011-0618	2-2011-1902
2-2011-2269		

MISCELLANEOUS DOCUMENTS

DCP-97-4814-D201

**Section 1R17: Evaluations of Changes, Tests, or Experiments and Permanent Plant Modifications**

CONDITION REPORTS (CR-ANO)

1-2008-01630	1-2008-01801	1-2009-00704
2-2008-01724	2-2009-00359	2-2010-01597
1-2010-00323	LO-ANO-2009-00074	1-2009-00903
2-2011-02430		

MODIFICATION PACKAGES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
EC-01922	Component Cooling Water Heat Exchanger 2E-28C Replacement, Unit 2	0
EC-11441	Low Temperature Over-Pressure Protection Setpoint Change, Unit 2	0
EC-16330	Install Pressure Snubbers in Feedwater Instrument Lines, Unit 2	0
EC-20413	Add Zinc Injection Equipment to the Chemical and Volume Control System on Unit 2	0
EC-22295	Replace Valves 2CV-1446-2, 2CV-1562-2 and 2CV-1564-2, Unit 2	0
EC-24037	Motor-Operated Valve Setpoint Changes for Valves CV-1434 and CV-1435, Unit 1	0

CONDITION REPORTS (CR-ANO)

EC-25916	Changes to the Core Protection Calculator Constants	0
EC-27531	Decay Heat Load Evaluation, Unit 2	0

50.59 EVALUATIONS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
FFN-08-003	ANO 2 Safety Analysis Report/Technical Requirements Manual Change to Match a Recent Chemical and Volume Control System Technical Specification Change	0
FFN-08-005	Emergency Core Cooling and Containment Spray Calculations to Address Generic Safety Issue 191, Debris Accumulation on Pressurized Water Reactor Sump Performance, Unit 1	0
FFN-08-006	Turbine Front Standard Trip Block Emergency Temporary Action, Unit 1	0
FFN-08-007	Changes to Emergency Core Cooling and Containment Spray Calculation Assumptions in Support of Generic Safety Issue 191, Debris Accumulation on Pressurized Water Reactor Sump, Unit 2	0
FFN-08-008	TRM 3/4.8.2.5 and TRM 3.8.2.5 Bases Changes to Breaker Testing Program, Unit 2	0
FFN-09-001	Removal of Piping Drains that Cause Radiological Hot Spots, Unit 1	0
FFN-10-001	Adjustment of Containment Sump Valve Time Delay Relays, Unit 2	0
FFN-10-002	ANO-2 Zinc Injection Modification	0

50.59 SCREENS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
CPC-II	Core Protection Calculator Change Constant, Unit 2	0



50.59 SCREENS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
OP-1000.009	Surveillance Test Program Control	33
OP-1000.024m	Insulation Removal and Installation, Unit 1	53
OP-1000.028	Control of Temporary Alterations	27
OP-1000.042	Steam Generator Water Chemistry Monitoring, Unit 1	21
OP-1000.113	Diesel Fuel Monitoring Program	11
OP-1202.003	Overcooling, Unit 1	7
OP-1202-006	Tube Rupture Emergency Operating Procedure	11
OP-1302.036	ANO-1, Fuel Assembly Post-Irradiation Examinations	0
OP-1401.001	Excure Nuclear Detector Removal and Installation, Unit 1	7
OP-1404.001	Excure Nuclear Detector Removal and Installation, Unit 1	7
OP-1409.772	High Pressure Injection Pump Endurance Testing Work Plan, Unit 1	0
OP-1506.001	Fuel and Control Component Handling, Unit 1	30
OP-2202.001	Standard Post Trip Actions, Unit 2	12
OP-2202.003	Loss of Coolant Accident, Unit 2	11
OP-5000.009	Repair Replacement Program Administration	6
TRM 3/4.8.2.5 and Bases	Breaker Testing Program Changes, Unit 2	34

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
EN-DC-112	Engineering Change Request and Project Initiation Process	4
EN-DC-115	Engineering Change Process	11
EN-DC-132	Control of Engineering Documents	5
EN-DC-134	Design Verification	4
EN-LI-100	Process Applicability Determinations	10
EN-LI-101	10 CFR 50.59 Evaluations	7
LM-0311	Qualification Matrix	May 3, 2011

MISCELLANEOUS

<u>NUMBER</u>	<u>TITLE</u>	<u>DATE</u>
	List of Installed Engineering Changes Since June 2008	
	Process Applicability Determinations/50.59 Evaluation Review	July 2010
	Process Applicability Determinations/50.59 Evaluations Review	January 2011
	Letter from K.E. Brockman (NRC) to C. R. Huchinson (Entergy), "NRC Inspection Report 50-313/96-23; 50-368/96-23	November 12, 1996
Limitorque Technical Update 09-01	Actuator Output Torque Calculation	May 15, 1998
LO-ALO-2010-00107	Snapshot Assessment on Plant Modification Process	April 21, 2011

50.59 SCREENS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
T.S. 3.4.11	Reactor Coolant System (RCS), Low Temperature Overpressure Protection (LTOP) System	Amendment 215
T.S. 3.5.2	Emergency Core Cooling Systems (ECCS), ECCS Operating	Amendment 215
T.S. 3.5.3	Emergency Core Cooling Systems (ECCS), ECCS Shutdown	Amendment 232
Topical Report 03	95-R-0011-01 MOV Program Topical Reports, Low DP Load MOVs	0
94-R-0011-01	ANO MOV Program Design Criteria Valve Factor Report	4

**Section 1R18: Plant Modifications**

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
EN-DC-136	Temporary Modifications	5

CONDITION REPORTS (CR-ANO)

1-2011-0368      1-2011-2622

WORK ORDERS

00243106      00246953      00246954      00956254

MISCELLANEOUS DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>DATE</u>
EC-0000023896-000	Unit 1 K-4A EDG combustion air duct with ornado differential pressure vent	October 26, 2010

<u>NUMBER</u>	<u>TITLE</u>	<u>DATE</u>
EC-0000023897-000	Unit 1 K-4A EDG combustion air duct with ornado differential pressure vent	October 26, 2010
	NDE report 1-BOP-UT-10-031	
	NDE report 1-BOP-UT-11-008	
	NDE report 1-BOP-VT-11-002	
	NDE report 1-BOP-UT-11-014	
	NDE report 1-BOP-MT-11-005	
	NDE report 1-BOP-UT-11-013	
	NDE report 1-BOP-MT-11-003	

EC-28569

**Section 1R19: Postmaintenance Testing**

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
OP-2304.038	Unit 2 Plant Protection System Channel B Test	44
OP-2304.090	Unit 2 Plant Protection System Channel B Cabinet Calibration	07
OP-2104.005	Containment Spray Quarterly Red Train Spray Pump IST and Sump Valve Stroke Test	60
OP-2104.029	Service Water System Operations	81
OP-1104.029	Service Water and Auxiliary Cooling System	86

CONDITION REPORTS (CR-ANO)

1-2011-827	1-2011-828	1-2011-846
1-2011-848		

WORK ORDERS

00243106	52234103	00274287	52236977	52260269
00279037	00249954	00056266	52199462	00254495
002280275	00257840	52199462		

MISCELLANEOUS DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
	NDE report 1-BOP-UT-11-014	
	NDE report 1-BOP-MT-11-005	
	NDE report 1-BOP-UT-11-013	
	NDE report 1-BOP-MT-11-003	
EC-30016		0
EC-30142	P-4A Motor Stress Cones Degraded	

**Section 1R22: Surveillance Testing**

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
OP-2104.040	Low Pressure Safety Injection System Operations	56
OP-1015.016	Low Pressure Safety Injection Injection Valve Limit Verification	33
OP-2104.036	Unit 2 2K-4B Emergency Diesel Generator operation	79
OP-2104.039	Unit 2 2P-89 C High Pressure Safety Injection Quarterly pump IST	65
OP-1106.006	Unit 1 P-7A Emergency Feedwater Pump Operation	80
OP-1104.027	Unit 1 VCH-4A Emergency Switchgear air conditioning Quarterly ST	40
OP-1104.005	Reactor Building Spray System Operation	61

CONDITION REPORTS (CR-ANO)

2-2011-1914      2-2011-1925

WORK ORDERS

00216115      52255682

**Section 1EP2: Alert Notification System Testing**

PROCEDURES

TITLE

Arkansas Department of Health Siren Testing Procedure

Testing Records from Arkansas Department of Health, Nuclear Planning and Response Program

**Section 1EP3: Emergency Response Organization Augmentation Testing**

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
EN-EP-306	Drills and Exercises	1
OP-1903.011	Emergency Response/Notifications	38

EMERGENCY RESPONSE STAFFING DRILLS

December 2, 2009	June 30, 2010	September 29, 2010
December 14, 2010	March 29, 2011	

**Section 1EP5: Correction of Emergency Preparedness Weaknesses and Deficiencies**

DRILLS

<u>NUMBER</u>	<u>TITLE</u>	<u>DATE</u>
EP-2009-0012	Emergency Response Organization – Full Scale Drill	July 29, 2009
EP-2009-0024	Post Accident Sampling Drill	May 29, 2009
EP-2009-0029	Environmental Monitoring Drill	June 24, 2009

## DRILLS

<u>NUMBER</u>	<u>TITLE</u>	<u>DATE</u>
EP-2009-0039	Emergency Response Organization – Full Scale Drill	November 20, 2009
EP-2009-0042	Off-site Monitoring Drill	December 4, 2009
EP-2010-0027	Radiological Emergency Preparedness – Full Scale Drill	July 22, 2010
EP-2010-0029	Radiological Emergency Preparedness – Full Scale Drill	July 29, 2010
EP-2010-0048	Radiological Emergency Preparedness – Full Scale Drill	December 9, 2010
EP-2010-0050	Radiological Emergency Preparedness – Exercise	December 9, 2010
EP-2010-0051	Environmental Monitoring Drill	December 14, 2010
EP-2010-0052	Post Accident Sampling Drill	December 14, 2010
EP-2010-0055	Emergency Medical Team Drill	December 14, 2010

## PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
EN-LI-102	Corrective Action Procedures	16
EN-QV-109	Audit Process	20

## AUDITS

<u>NUMBER</u>	<u>TITLE</u>	<u>DATE</u>
QA-7-2009-ANO-1	QA Audit Report – Emergency Preparedness Program	May 15, 2009
NQ-2009-012	ANO Emergency Planning Interface and Coordination with Offsite Agencies	June 16, 2009
NQ-2010-008	Evaluation of ANO Emergency Preparedness Performance and Emergency Plan Changes	April 27, 2010
	Pre NRC Biennial EP Exercise - Focused Assessment	August 20, 2010
	Snapshot Assessment	January 26, 2011
QA-7-2011-ANO-1	QA Audit Report – Emergency Preparedness Prgrm	May 25, 2011

CONDITION REPORTS (CR-ANO)

C-2009-00854	C-2009-01209	C-2009-01314
C-2009-01779	C-2009-01315	C-2009-01337
C-2010-01062	C-2010-01898	C-2010-01976
C-2010-02328	C-2010-02474	C-2010-02502
C-2010-02544	C-2010-02886	C-2011-00322
C-2011-01227	C-2011-01290	C-2011-01308
C-2011-01370	C-2011-01497	

**Section 1EP6: Drill Evaluation**

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
OP-1903.010	Emergency Action Level Classification	43
OP-1903.011	Emergency Response/ Notifications	38

CONDITION REPORTS (CR-ANO)

C-2011-1370	C-2011-1388	C-2011-1498
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**Section 4OA1: Performance Indicator Verification**

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
EN-LI-114	Performance Indicator Process	4
OP-1607.001	Reactor Coolant Sampling System	17
OP-2607.001	Unit 2 Reactor Coolant System Sampling	17



OP-1604.012	Iodine Dose Equivalent (IDE) and Xenon Dose Equivalent (DEX) Determinations	10
EN-EP-201	Performance Indicators	12

SIMULATOR SCENARIOS

SES-1-004	SES-1-026	SES-1-032	SES-1-035	SES-2-003
SES-2-025				

**Section 40A2: Identification and Resolution of Problems**

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
EN-LI-102	Corrective Action Process	16