UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
1600 EAST LAMAR BLVD
ARLINGTON, TEXAS 76011-4511

May 10, 2013

Jeremy Browning, Site Vice President
Arkansas Nuclear One
Entergy Operations, Inc.
1448 SR 333
Russellville, AR 72802-0967

SUBJECT: ARKANSAS NUCLEAR ONE - NRC INTEGRATED INSPECTION REPORT 05000313/2013002 AND 05000368/2013002

Dear Mr. Browning:

On March 31, 2013, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at the Arkansas Nuclear One, Units 1 and 2 facilities. The enclosed inspection report documents the inspection results which were discussed on April 25, 2013, with you 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.

No findings were identified during this inspection.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's Agency wide Document Access and Management System (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Sincerely,

/RA/

Donald B. Allen, Chief
Project Branch E
Division of Reactor Projects

Docket Nos.: 50-313, 50-368
License Nos: DPR-51, NPF-6

Enclosure: Inspection Report 05000313/2013002 and 05000368/2013002
w/ Attachment: Supplemental Information

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SRI:DRP/E	RI:DRP/E	RI:DRP/E	SPE:DRP/E	C:DRS/EB1	C:DRS/EB2
ASanchez	WSchaup	AFairbanks	RAzua	TFarnholtz	GMiller
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05/10/2013	05/10/2013	05/10/2013	05/8/2013	05/9/2013	05/13/2013
C:DRS/PSB1	C:DRS/PSB2	C:DRS/TSB	C:DRS/OB	BC:DRP/E	
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U.S. NUCLEAR REGULATORY COMMISSION

REGION IV

Docket: 05000313; 05000368

License: DPR-51; NPF-6

Report: 05000313/2013002; 05000368/2013002

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: January 1 through March 31, 2013

Inspectors: A. Sanchez, Senior Resident Inspector
W. Schaup, Resident Inspector
A. Fairbanks, Resident Inspector
G. Guerra, Emergency Preparedness Inspector
J. Laughlin, Emergency Preparedness Inspector, NSIR

Approved By: Don Allen, Chief
Project Branch E
Division of Reactor Projects

SUMMARY OF FINDINGS

IR 05000313/2013002; 05000368/2013002; 01/01/2013-03/31/2013, Arkansas Nuclear One, Units 1 and 2, Integrated Resident and Regional Report.

The report covered a 3-month period of inspection by resident inspectors, an announced baseline inspection by a region-based inspector and an in-office inspection by a headquarters inspector. No 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

None

B. Licensee-Identified Violations

None

REPORT DETAILS

Summary of Plant Status

Unit 1 began the period operating at 100 percent reactor power. On March 24, 2013, Unit 1 entered Mode 3 to begin refueling outage 1R24. On March 31, 2013, the collapse of a temporary overhead crane and resultant main generator stator drop caused a loss of offsite electrical power. Both emergency diesel generators (EDG) automatically started and supplied electrical power to Unit 1 safety-related components.

Unit 2 began the period operating at 100 percent reactor power. On March 31, 2013, the Unit 2 reactor automatically tripped, and entered Mode 3, after the collapse of a temporary overhead crane and resultant main generator stator drop on the Unit 1 turbine deck which caused the Unit 2 reactor coolant pump B to trip.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection (71111.01)

Readiness for Impending Adverse Weather Conditions

a. Inspection Scope

Since thunderstorms with potential tornados and high winds were forecast in the vicinity of the facility for January 29, 2013, the inspectors reviewed the plant personnel's overall preparations/protection for the expected weather conditions. On January 28 and 29, 2013, the inspectors walked down the transformer yard and service water intake structure because their safety-related functions could be affected, or required, as a result of high winds or tornado-generated missiles or the loss of offsite power. The inspectors evaluated the plant staff's preparations against the site's procedures and determined that the staff's actions were adequate. During the inspection, the inspectors focused on plant-specific design features and the licensee's procedures used to respond to specified adverse weather conditions. The inspectors also toured the plant grounds to look for any loose debris that could become missiles during a tornado. The inspectors evaluated operator staffing and accessibility of controls and indications for those systems required to control the plant. Additionally, the inspectors reviewed the SAR and performance requirements for the systems selected for inspection, and verified that operator actions were appropriate as specified by plant-specific procedures. The inspectors also reviewed a sample of corrective action program (CAP) items to verify that the licensee-identified adverse weather issues at an appropriate threshold and dispositioned them through the CAP in accordance with station corrective action procedures. Specific documents reviewed during this inspection are listed in the attachment.

On February 20, 2013, a winter-weather advisory was issued for an expected ice storm. The inspectors observed the preparations and planning for the significant winter weather

potential. The inspectors reviewed licensee procedures and discussed potential compensatory measures with control room personnel. The inspectors focused on plant management's actions for implementing the station's procedures for ensuring adequate personnel for safe plant operation and emergency response would be available. The inspectors conducted a site inspection, including various plant structures and systems, to check for maintenance or other apparent deficiencies that could affect system operations during the predicted significant weather. The inspectors also reviewed CAP items to verify that plant personnel were identifying adverse weather issues at an appropriate threshold and entering them into their CAP in accordance with station corrective action procedures. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of two readiness for impending adverse weather condition samples as defined in Inspection Procedure 71111.01-05.

b. Findings

No findings were identified.

1R04 Equipment Alignment (71111.04)

Partial Walkdown

a. Inspection Scope

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

- February 11, 2013, Unit 1 emergency diesel generator 1 while the alternate AC diesel generator was unavailable due to emergent work
- February 11, 2013, Unit 2 emergency diesel generator 2 while the alternate AC diesel generator was unavailable due to emergent work
- February 22, 2013, Unit 2 low pressure safety injection train A with low pressure safety injection train B inoperable during planed maintenance
- February 27, 2013, Unit 2 high pressure safety injection train B with high pressure safety injection train A out of service due to excessive leakage

The inspectors selected the system 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, SAR, 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 CAP with the appropriate significance characterization. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of four partial system walkdown samples as defined in Inspection Procedure 71111.04-05.

b. Findings

No findings were identified.

1R05 Fire Protection (71111.05)

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:

- March 13, 2013, Unit 1, Fire Zone 129-F, control room
- March 13, 2013, Unit 2, Fire Zone 2199-G, control room
- March 14, 2013, Unit 1, Fire Zone 197-X, turbine bldg (EL. 386'-0")
- March 14, 2013, Unit 2, Fire Zone 2200-MM, turbine bldg (EL. 386'-0")

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

These activities constitute completion of four quarterly fire protection inspection samples as defined in Inspection Procedure 71111.05-05.

b. Findings

No findings were identified.

1R06 Flood Protection Measures (71111.06)

a. Inspection Scope

The inspectors reviewed the SAR, the flooding analysis, and plant procedures to assess susceptibilities involving internal flooding; reviewed the CAP to determine if licensee personnel identified and corrected flooding problems; and verified that operator actions for coping with flooding can reasonably achieve the desired outcomes. The inspectors also inspected the areas listed below to verify the adequacy of equipment seals located below the flood line, floor and wall penetration seals, watertight door seals, common drain lines and sumps, sump pumps, level alarms, and control circuits, and temporary or removable flood barriers. Specific documents reviewed during this inspection are listed in the attachment.

- March 27, 2013, Unit 1, 354-foot auxiliary building floor drains

These activities constitute completion of one flood protection measure inspection sample as defined in Inspection Procedure 71111.06-05.

b. Findings

No findings were identified.

1R11 Licensed Operator Requalification Program and Licensed Operator Performance (71111.11)

.1 Quarterly Review of Licensed Operator Requalification Program

a. Inspection Scope

On February 15, 2013, the inspectors observed a crew of licensed operators in the Unit 1 simulator during requalification testing and the Unit 2 simulator during training. The inspectors assessed the following areas:

- Licensed operator performance

- The ability of the licensee to administer the evaluations and the quality of the training provided
- The modeling and performance of the control room simulator
- The quality of post-scenario critiques
- Follow-up actions taken by the licensee for identified discrepancies

These activities constitute completion of two quarterly licensed operator requalification program samples as defined in Inspection Procedure 71111.11.

b. Findings

No findings were identified.

.2 Quarterly Observation of Licensed Operator Performance

a. Inspection Scope

The inspectors observed the performance of on-shift licensed operators in the plant's main control room. At the time of the observations, the plant was in a period of heightened activity or risk due to reactivity changes to the plant. The inspectors observed the operators' performance of the following activities:

- February 4, 2013, Unit 1 withdrawal of axial power shaping rods from 75 percent to 100 percent per station procedure OP-1105.009, "Control Rod Drive System Operating Procedure," Revision 42, for end of cycle
- March 24, 2013, Unit 1 power reduction and plant shutdown per station procedure OP-1102.016, "Power Reduction and Plant Shutdown," Revision 21

In addition, the inspectors assessed the operators' adherence to plant procedures, including OP-1015.001, "Conduct of Operations," and other operations department policies.

These activities constitute completion of two quarterly licensed operator performance samples as defined in Inspection Procedure 71111.11.

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:

- February 27, 2013, Unit 2 with high pressure safety injection header inoperable due to excessive leakage from 2CV-5103-1 high pressure safety injection orifice bypass valve
- March 6, 2013, Unit 1 refueling outage 1R24 risk assessment
- March 8, 2013, Unit 1 reactor building crane risk evaluation
- March 8, 2013, Unit 2 channel C plant protection system work in conjunction with auxiliary feedwater work
- March 25, 2013, Unit 2 with startup transformer 2 in pull to lock to support Unit 1 outage

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 five maintenance risk assessments and emergent work control inspection samples as defined in Inspection Procedure 71111.13-05.

b. Findings

No findings were identified.

1R15 Operability Evaluations and Functionality Assessments (71111.15)

a. Inspection Scope

The inspectors reviewed the following assessments:

- January 28, 2013, Unit 1, VCH-4A emergency switchgear chiller failed surveillance test
- February 4, 2013, Unit 1, reactor protection system train A control rod drive breaker failed source interrupt test
- February 9, 2013, Unit 2, 2CV-1060-2 main steam isolation valve with main steam header B support snubber 2EBD-2-H16 degraded
- February 19, 2013, Unit 2, 2CV-5126-1 high pressure safety injection pump recirculation valve seismic restraint degraded
- February 27, 2013, Unit 2 high pressure safety injection header inoperable due to excessive leakage from 2CV-5103-1 high pressure safety injection orifice bypass valve
- March 25, 2013, Unit 1, P-34A decay heat removal pump outboard bearing oil level found below minimum operability limit

The inspectors selected these operability and functionality assessments based on the risk significance of the associated components and systems. The inspectors evaluated the technical adequacy of the evaluations to ensure technical specification operability was properly justified and to verify 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 SAR to the licensee'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. Additionally, the inspectors 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 six operability evaluations inspection samples as defined in Inspection Procedure 71111.15-05.

b. Findings

No findings were identified.

1R19 Post-Maintenance Testing (71111.19)

a. Inspection Scope

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

- January 22, 2013, Unit 1, CV-7909 control room return isolation damper following solenoid replacement
- February 27, 2013, Unit 2, 2CV-5103-1 high pressure safety injection header bypass valve following packing adjustment
- March 10, 2013, Unit 2, 2CV-5103-1 high pressure safety injection header bypass valve following valve rebuild

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 (as applicable):

- 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 SAR, 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 post-maintenance tests to determine whether the licensee was identifying problems and entering them in the CAP 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 three post-maintenance testing inspection samples as defined in Inspection Procedure 71111.19-05.

b. Findings

No findings were identified.

1R20 Refueling and Other Outage Activities (71111.20)

a. Inspection Scope

The inspectors reviewed the outage safety plan and contingency plans for the portion of the Unit 1 refueling outage, beginning March 24, 2013 through March 31, 2013, to confirm that licensee personnel had appropriately considered risk, industry experience, and previous site-specific problems in developing and implementing a plan that assured maintenance of defense in depth. During this portion of the refueling outage, the inspectors observed portions of the shutdown and cooldown processes and monitored licensee controls over the outage activities listed below.

- Configuration management, including maintenance of defense in depth, is commensurate with the outage safety plan for key safety functions and compliance with the applicable technical specifications when taking equipment out of service.
- Installation and configuration of reactor coolant pressure, level, and temperature instruments to provide accurate indication, accounting for instrument error.
- Monitoring of decay heat removal processes, systems, and components.
- Reactor water inventory controls, including flow paths, configurations, and alternative means for inventory addition, and controls to prevent inventory loss.
- Controls over activities that could affect reactivity.
- Licensee identification and resolution of problems related to refueling outage activities.

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

These activities constitute completion of one refueling outage and other outage inspection sample as defined in Inspection Procedure 71111.20-05.

b. Findings

No findings were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors reviewed the SAR, 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
- Test data
- Testing frequency and method demonstrated technical specification operability
- Test equipment removal
- Restoration of plant systems
- 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.

- January 30, 2013, Unit 1, emergency diesel generator 2 monthly surveillance
- March 19, 2013, Unit 1, reactor building electrical penetration, E-53, local leak rate test
- March 19, 2013, Unit 2, containment cooling system 14-day surveillance test

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

These activities constitute completion of three surveillance testing inspection samples as defined in Inspection Procedure 71111.22-05.

b. Findings

No findings were identified.

Cornerstone: Emergency Preparedness

1EP2 Alert and Notification System Evaluation (71114.02)

a. Inspection Scope

The inspector discussed with licensee staff the operability of offsite emergency warning systems and backup alerting methods, to determine the adequacy of licensee methods for testing the alert and notification system in accordance with 10 CFR Part 50, Appendix E. The licensee's 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, "Upgraded Public Alert and Notification System Arkansas Nuclear One," dated May 2009. The specific documents reviewed during this inspection are listed in the attachment.

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

b. Findings

No findings were identified.

1EP3 Emergency Response Organization Staffing and Augmentation (71114.03)

a. Inspection Scope

The inspector 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 inspector 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. The specific documents reviewed during this inspection are listed in the attachment.

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

b. Findings

No findings were identified.

1EP4 Emergency Action Level and Emergency Plan Changes (IP 71114.04)

a. Inspection Scope

The NSIR headquarters staff performed an in-office review of the latest revisions of various Emergency Plan Implementing Procedures (EPIPs) and the Emergency Plan located under ADAMS accession numbers ML12353A042, ML13057A592, and ML130230023 as listed in the Attachment.

The licensee determined that in accordance with 10 CFR 50.54(q), the changes made in the revisions resulted in no reduction in the effectiveness of the Plan, and that the revised Plan continued to meet the requirements of 10 CFR 50.47(b) and Appendix E to 10 CFR Part 50. The NRC review was not documented in a safety evaluation report and did not constitute approval of licensee-generated changes; therefore, this revision is subject to future inspection. The specific documents reviewed during this inspection are listed in the Attachment.

These activities constitute completion of three samples as defined in Inspection Procedure 71114.04-05.

b. Findings

No findings were identified.

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

a. Inspection Scope

The inspector reviewed the licensee's CAP requirements in the Arkansas Nuclear One's procedures. The inspector reviewed summaries of CAP documents assigned to the emergency preparedness department and emergency response organization between June 2011 and January 2013, and selected 27 for detailed review against the program requirements. The inspector 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. The specific documents reviewed during this inspection are listed in the attachment.

The inspector also reviewed:

- Licensee audits, assessments, drill evaluations, and post-event after action reports conducted between June 2011 and January 2013;
- Memorandum of Understanding between the licensee and offsite agencies and organizations relied upon to support site emergency response efforts;
- Licensee procedures and training for the evaluation of changes to the site emergency plans; and

- Procedures for equipment relied upon to support site emergency response efforts.

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

b. Findings

No findings were identified.

4. OTHER ACTIVITIES

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

4OA1 Performance Indicator Verification (71151)

.1 Data Submission Issue

a. Inspection Scope

The inspector reviewed data submitted by the licensee for the first quarter 2012 through the fourth quarter 2012 performance indicators to identify any obvious inconsistencies prior to its public release in accordance with Inspection Manual 0608, "Performance Indicator Program."

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

b. Findings

No findings were identified.

.2 Unplanned Scrams per 7000 Critical Hours (IE01)

a. Inspection Scope

The inspectors sampled licensee submittals for the unplanned scrams per 7,000 critical hours performance indicator for both Unit 1 and Unit 2 for the period from the first quarter 2012 through the fourth quarter 2012. 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 narrative logs, issue reports, event reports, and NRC integrated inspection reports for the period of January 2012 through December 2012, 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 are described in the attachment to this report.

These activities constitute completion of two unplanned scrams per 7,000 critical hours samples as defined in Inspection Procedure 71151-05.

b. Findings

No findings were identified.

.3 Unplanned Power Changes per 7000 Critical Hours (IE03)

a. Inspection Scope

The inspectors sampled licensee submittals for the unplanned power changes per 7,000 critical hours performance indicator for both Unit 1 and Unit 2 for the period from the first quarter 2012 through the fourth quarter 2012. 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 narrative logs, issue reports, maintenance rule records, event reports, and NRC integrated inspection reports for the period of January 2012 through December 2012 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 are described in the attachment to this report.

These activities constitute completion of two unplanned transients per 7,000 critical hours samples as defined in Inspection Procedure 71151-05.

b. Findings

No findings were identified.

.4 Unplanned Scrams with Complications (IE04)

a. Inspection Scope

The inspectors sampled licensee submittals for the unplanned scrams with complications performance indicator for both Unit 1 and Unit 2 for the period from the first quarter 2012 through the fourth quarter 2012. 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 narrative logs, issue reports, event reports, and NRC integrated inspection reports for the period of January 2012 through December 2012 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 are described in the attachment to this report.

These activities constitute completion of two unplanned scrams with complications samples as defined in Inspection Procedure 71151-05.

b. Findings

No findings were identified.

.5 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 firsrt quarter 2012 through the 4th quarter 2012. To determine the accuracy of the performance indicator data reported during those periods, performance indicator definitions and guidance contained in Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revisions 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 Nuclear Energy Institute guidance. Specifically, the inspector reviewed licensee records and processes including procedural guidance on assessing opportunities for the performance indicator; assessments of performance indicator opportunities during predesignated control room simulator training sessions, performance during the 2012 biennial exercise, and performance during other drills. The specific documents reviewed are described in the attachment to this report.

These activities constitute completion of the drill/exercise performance sample as defined in Inspection Procedure 71151-05.

b. Findings

No findings were identified.

.6 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 first quarter 2012 through the fourth quarter 2012. To determine the accuracy of the performance indicator data reported during those periods, performance indicator definitions and guidance contained in Nuclear Energy Institute 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 Nuclear Energy

Institute guidance. Specifically, the inspector 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. The specific documents reviewed are described in the attachment to this report.

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

b. Findings

No findings were identified.

.7 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 first quarter 2012 through the fourth quarter 2012. To determine the accuracy of the performance indicator data reported during those periods, performance indicator definitions and guidance contained in Nuclear Energy Institute 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 Nuclear Energy Institute 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. The specific documents reviewed are described in the attachment to this report.

These activities constitute completion of the alert and notification system sample as defined in Inspection Procedure 71151-05.

b. Findings

No findings were identified.

4OA2 Problem Identification and Resolution (71152)

.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 CAP 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 CAP 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 CAP. 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.

4OA3 Follow-up of Events and Notices of Enforcement Discretion (71153)

.1 (Closed) LER 05000313/2011001 Violation of Technical Specification Due to the Failure to Enter the Appropriate Technical Specification or Complete the Associated Required Action Prior to the Appropriate Completion Time

From the period of January 22, 2008, through January 4, 2011, Arkansas Nuclear One periodically implemented compensatory measures during planned maintenance of emergency switchgear chillers, VCH-4A and VCH-4B. During some of these instances, compliance with Technical Specifications 3.8.4, "DC Sources-Operating," and Technical Specification 3.8.9 "Distribution Systems-Operating" were not met. Arkansas Nuclear One Unit 1 did not enter or remain in the appropriate technical specification for an inoperable system, subsystem, train or component when all the necessary attendant non-technical specification support equipment that are required for the system, subsystem, train, component or device to perform its specified safety function are also

capable of performing their support function. VCH-4A or B individually have not been shown to be capable of supporting 100 percent of the room cooling requirements of both trains of vital switchgear when one of the chillers is out of service without implementing additional compensatory actions. Therefore, reliance on the opposite train chiller alone is not sufficient to maintain all cooling requirements of the affected train's vital switchgear. The licensee has ceased reliance on non-safety related Unit 1 coolers and additional compensatory measures and technical specification compliance is being met. A misapplication of industry guidance resulted in the use of non-safety related unit coolers and additional compensatory measures as an acceptable alternative. The issue was entered into the CAP as Condition Report (CR) CR-ANO-1-2011-0204. An NRC identified non-cited violation was documented in Inspection Report 05000313/2010005-01.

This licensee event report is closed.

.2 (Closed) LER 05000313/2012001 Violation of Technical Specification Due to the Failure to Enter the Appropriate Technical Specifications or Complete the Associated Required Actions Due to Misapplication of Technical Specification Bases

On December 7, 2011, VCH-4A emergency switchgear room chiller was removed from service for planned maintenance for 27.3 hours and on December 19, 2011, VCH-4B emergency switchgear room chiller was removed from service for planned maintenance for 15.5 hours. During both maintenance periods, Arkansas Nuclear One did not enter Technical Specifications 3.8.4, "DC Sources-Operating," and Technical Specification 3.8.9 "Distribution Systems-Operating", but instead entered Technical Specification 3.7.7 Condition A for one loop of service water system being inoperable with a 72 hour completion time. The service water specification was applied as allowed by a recent technical specification bases change that incorporated an allowance to enter the 72 hour technical specification for service water and invoke Technical Specification 3.0.6 which requires a safety function determination for the emergency switchgear chiller. The licensee has ceased this practice and will enter all applicable technical specifications associated with the emergency switchgear as required. The issue was entered into the CAP as CR-ANO-1-2012-0043. An NRC identified non-cited violation was documented in Inspection Report 05000313/2012005-01.

This licensee event report is closed.

.3 Unit 2 Inadvertent Safety Injection Actuation, Containment Isolation Actuation, and Containment Cooling Actuation

a. Inspection Scope

On January 2, 2013, Unit 2 experienced an inadvertent safety injection actuation, containment isolation actuation, and containment cooling actuation while technicians were performing plant protection system matrix testing. This resulted in an automatic start of the EDGs, high pressure safety injection pumps and low pressure safety injection

pumps and the re-positioning of numerous safety-related components to their actuated state. The inspectors were present in the Unit 1 control room at the time of the event and immediately responded to the Unit 2 control room. Inspectors observed operator actions, procedure execution, communications, and command and control functions. The inspectors also performed a thorough and complete control room walkdown and reviewed plant data records to verify proper plant performance. The inspectors also reviewed the initial licensee notification to verify it met the requirements specified in NUREG-1022, "Event Reporting Guidelines," Revision 2.

b. Findings

No findings were identified.

.4 Unit 1 Stator Drop and Unit 2 Reactor Trip

a. Inspection Scope

On March 31, 2013, Unit 1 was in Mode 6 and preparing to offload the reactor and Unit 2 was at 100 percent power. While moving the Unit 1 main generator stator out of the turbine building, the temporary overhead crane collapsed. This resulted in dropping the stator onto the turbine deck. The stator then rolled and dropped approximately 30 feet into the train bay. The drop caused the Unit 2 reactor coolant pump B to trip from the induced vibrations, which then led to a plant protection system reactor trip of the Unit 2 reactor. Inspectors responded to the site and to the Unit 1 and Unit 2 control rooms.

The temporary overhead crane collapse resulted in an immediate loss of offsite power to Unit 1. Both EDGs immediately started and loaded the 4160 volt vital busses. The reactor and the spent fuel pool lost cooling for a short period of time and both experienced a minimal amount of heat up until cooling was re-established.

Unit 2 entered Mode 3 and was stable with all major equipment functioning as designed. At 9:23 a.m., Unit 2 experienced a start-up transformer 3 lockout due to water intrusion into the 2A1 switchgear from a ruptured firewater header. The 2A1 bus fast transferred to start-up transformer 2 as designed, but the 2A2 bus did not transfer to start-up transformer 2 because the feeder breaker was in pull-to-lock to support Unit 1 outage work in the switchyard. EDG 2 automatically started and loaded the 4160 volt vital bus as designed. Unit 2 operations declared a Notification of Unusual Event at 10:33 a.m. due to the catastrophic failure of the start-up transformer 3 feeder breaker to the 2A1 bus.

The inspectors observed operator actions, procedure execution, communications, and command and control functions. The inspectors also performed a thorough control room walkdown of each control room and reviewed plant data records to verify proper plant performance. The inspectors also reviewed the initial licensee notification to verify it met the requirements specified in NUREG-1022, "Event Reporting Guidelines," Revision 2.

b. Findings

No findings were identified.

4OA6 Meetings, Including Exit

Exit Meeting Summary

On February 15, 2013, the inspector presented the onsite emergency preparedness inspection results to Mr. Jeremy Browning, Site Vice President, and other members of the licensee's staff. The inspector asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

On April 25, 2013, the inspectors presented the integrated inspection results to Mr. Jeremy Browning, Site Vice President, and other members of the licensee staff. The licensee acknowledged the issues presented. The inspector asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

J. Browning, Site Vice President
P. Butler, Systems Engineering Supervisor
R. Byford, Manager, Training
M. Chisum, General Manager Plant Operations
D. Edgell, System Engineering Manager
R. Fuller, Nuclear Oversight Manager
W. Greeson, Engineering Programs Manager
M. Hall, Licensing Specialist
R. Harris, Manager, Emergency Preparedness
R. Holeyfield, Emergency Preparedness
D. James, Nuclear Safety Assurance Director
D. Marvel, Radiation Protection Manager
K. McCormick, Supervisor, Quality Assurance
J. McCoy, Engineering Director
N. Mosher, Licensing Specialist
C. O'Dell, Production Manager
D. Perkins, Maintenance Manager
S. Pyle, Licensing Manager
W. Renz, Director, Emergency Preparedness
T. Sherrill, Chemistry Manager
J. Tobin, Security Manager
D. White, Emergency Preparedness Planner
P. Williams, Operations Manager

NRC Personnel

D. Allen, Branch Chief

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

05000313/2011001	LER	Violation of Technical Specification Due to the Failure to Enter the Appropriate Technical Specification or Complete the Associated Required Action Prior to the Appropriate Completion Time (Section 4OA3)
05000313/2012001	LER	Violation of Technical Specification Due to the Failure to Enter the Appropriate Technical Specifications or Complete the Associated Required Actions Due to Misapplication of Technical Specification Bases (Section 4OA3)

LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather Protection

PROCEDURES

NUMBER	TITLE	REVISION
OP-1203.025	Unit 1 Natural Emergencies	37
OP-2203.008	Unit 2 Natural Emergencies	22
EN-EP-302	Severe Weather Response	0

CONDITION REPORTS

CR-ANO-1-2013-00203

Section 1R04: Equipment Alignment

PROCEDURES

NUMBER	TITLE	REVISION
OP-2104.037	Alternate AC Diesel Generator Operations	24
OP-2107.001	Electrical System Operations	99
OP-1104.036	Emergency Diesel Generator Operations	63
OP-2104.036	Emergency Diesel Generator Operations	83
OP-2104.040	LPSI System Operations	62

Section 1R05: Fire Protection

PROCEDURES

NUMBER	TITLE	REVISION
FHA	ANO Fire Hazard Analysis	13
PFP-U1	ANO Pre-Fire Plan Unit 1	15
PFP-U2	ANO Pre-Fire Plan Unit 2	11

Section 1R06: Flood Protection Measures

PROCEDURES

NUMBER	TITLE	REVISION
EN-DC-346	Cable Reliability Program	2

Section 1R11: Licensed Operator Requalification Program

PROCEDURES

NUMBER	TITLE	REVISION
COPD-030	ANO Reactivity Management Program	2
OP-1105.009	CRD System Operating Procedure	42
OP-1102.016	Power Reduction and Plant Shutdown	21
OP-1102.010	Plant Shutdown and Cooldown	69
EN-TQ-216	Training and Qualification Curriculum	3
EN-TQ-210	Conduct of Simulator Training	6

Section 1R13: Maintenance Risk Assessment and Emergent Work Controls

PROCEDURES

NUMBER	TITLE	REVISION
OP-1203.025	Natural Emergencies	35
COPD-024	Risk Assessment Guidelines	44

ENGINEERING CHANGE

EC-42235

Section 1R15: Operability Evaluations

PROCEDURES

NUMBER	TITLE	REVISION
EN-OP-104	Operability Evaluations	5
OP-1304.125	Unit 1 RPS-A / CRD Breaker Trip Test	025
EN-MA-118	Foreign Material Exclusion	9

CONDITION REPORTS

CR-ANO-1-2013-0183 CR-ANO-22-2013-0332 CR-ANO-1-2013-0599 CR-ANO-2-2013-0271
CR-ANO-1-2013-0134

WORK ORDERS

52398755-01 52326271-01 52397520-01

Section 1R19: Post-Maintenance Testing

PROCEDURES

NUMBER	TITLE	REVISION
EN-WM-107	Post Maintenance Testing	3
EN-WM-105	Planning	9
EN-MA-101	Fundamentals of Maintenance	9
EN-MA-125	Troubleshooting Control of Maintenance Activities	9
EN-WM-102	Work Implementation and Closeout	6
OP-2104.007	Control Room Emergency Air Conditioning and Ventilation	59
OP-2305.005	Valve Stroke and Position Indication Verification	34
OP-2104.039	HPSI System Operation	72

WORK ORDERS

50236728 52335199 00332514 00101159

CONDITION REPORTS

CR-ANO-2-2013-0375

Section 1R20: Refueling and Other Outage Activities

PROCEDURES

NUMBER	TITLE	REVISION
OP-1104.004	Decay Heat Removal Operating Procedure	106
OP-1504.007	Unit 1 Reactor Vessel Closure Head Removal and Storage	024
OP-1102.016	Power Reduction and Plant Shutdown	21
OP-1102.010	Plant Shutdown and Cooldown	69
OP-1103.011	Draining and N_2 Blanketing the RCS	42

Section 1R22: Surveillance Testing

PROCEDURES

NUMBER	TITLE	REVISION
OP-1104.036	Emergency Diesel Generator Operation	062
OP-2104.33	Containment Atmosphere Control / Supplement 3 / Containment Cooler 14 Day Test	72
OP-1305.038	Unit 1 Local Leak Rate Testing of Electrical Penetrations	0

CORRECTIVE ACTION DOCUMENT NAME

CR-ANO-2-2001-0607

Section 1EP2: Alert Notification System Testing

DOCUMENT TYPE

NUMBER	TITLE	DATE
Form 4003	Arkansas Department of Health Siren Testing Procedure	June 2012
	Upgraded Public Alert and Notification System	May 2009
	Testing Records from Arkansas Department of Health, Nuclear Planning and Response Program	

Section 1EP3: Emergency Response Organization Augmentation Testing

PROCEDURES

NUMBER	TITLE	REVISION
EN-EP-306	Drills and Exercises	4

Section 1EP4: Emergency Action Level and Emergency Plan Changes

DOCUMENT TYPE

NUMBER	TITLE	REVISION / DATE
	Emergency Plan	36, 37
	Evacuation Time Estimate Study Update	

Section 1EP5: Maintenance of Emergency Preparedness

DRILLS

NUMBER	TITLE	REVISION / DATE
	Arkansas Nuclear One Emergency Plan	36
	ANO Development of Evacuation Time Estimates	September 2012
	ANO On-Shift Staffing Analysis Final Report	December 13, 2012
EP-2012-0015	2012 Radiological Emergency Preparedness Exercise (REX-2012)	April 11, 2012
EP-2012-0020	Radiological Emergency Preparedness – Full Scale Drill	February 22, 2012
EP-2011-0036	Radiological Emergency Preparedness – Full Scale Drill	September 14, 2011
EP-2011-0027	Radiological Emergency Preparedness – Full Scale Drill	June 1, 2011
EP-2009-0042	Off-site Monitoring Drill	December 4, 2009

PROCEDURES

NUMBER	TITLE	REVISION
1903.004	Administration and Maintenance of the Emergency Plan and Implementing Procedures	26
1903.0065	Emergency Response Facility - Technical Support Center	25

PROCEDURES

NUMBER	TITLE	REVISION
1903.0066	Emergency Response Facility – Operation Support Center	21
1903.0067	Emergency Response Facility – Emergency Operations Facility	30
1903.0069	Equipment Important to Emergency Preparedness	0
EN-QV-109	Audit Process	22
EN-EP-305	Emergency Planning 10CFR50.54(q) Review Program	3
EN-EP-306	Drills and Exercises	4

NUMBER		
QA-7-2012-ANO-1	QA Audit Report – Emergency Preparedness Program	July 16, 2012
QA-7-2011-ANO-1	QA Audit Report – Emergency Preparedness Program	May 25, 2011
ALO-2012-023	Snapshot Assessment – Preparation for the 2012 EP NRC Graded Exercise Inspection	March 29, 2012
HQNLO-2011-190	Self Assessment – EP Communications – Everbridge Implementation	September 26, 2012
HQNLO-2011-195	EAL Site Comparison Focused Self Assessment	November 25, 2012
QS-2012-ANO-002	Second Follow-up to ANO 2011 Emergency Plan Audit QA-07-2011-ANO-1	January 10, 2012
QS-2011-ANO-010	Follow-up to ANO 2011 Emergency Plan Audit QA-07-2011-ANO-1	September 14, 2011
QS-2012-ANO-017	Follow-up to QAF CR-ANO-C-2012-00677 and CR-ANO-C-2012-00905	June 5, 2012
EN-QA-129	Vulnerability Review for QA-07-2012-ANO-1	June 28, 2011
	Entergy Nuclear Emergency Plan Master Audit Plan – Audit Number 7	16

CORRECTIVE ACTION DOCUMENTS

2011-02221	2011-02332	2011-02402	2011-02550	2011-02571
2011-02855	2011-03252	2011-03370	2012-00098	2012-00164
2012-00353	2012-00358	2012-00483	2012-00515	2012-00584
2012-00677	2012-00905	2012-00940	2012-00947	2012-00948
2012-00952	2012-01122	2012-01696	2012-01697	2012-01879
2012-03123	2012-03487	2013-00387		

Emergency Response Staffing Drills

March 27, 2012 June 22, 2012 September 11, 2012 November 27, 2012
December 8, 2012

Section 1EP6: Drill Evaluation

PROCEDURES

NUMBER	TITLE	REVISION
OP-1903.011	Emergency Response/ Notifications	42
SE-1-EN-3	Shift Engineer (STA) PI Drill Evaluation Session	1
EN-EP-311	Emergency Response Data System (ERDS) Activation via The Virtual Private Network (VPN)	0
EN-EP-310	Emergency Response Organization Notification System	1

Section 4OA1: Performance Indicator Verification

PROCEDURES

NUMBER	TITLE	REVISION
EN-FAP-EP-005	Fleet Administrative Procedure – Emergency Preparedness Indicators	0
EN-LI-114	Performance Indicator Process	6

Section 4OA2: Identification and Resolution of Problems

CONDITION REPORTS

CR-ANO-1-2013-00164