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

May 2, 2008

Mr. Timothy G. Mitchell
Vice President Operations
Arkansas Nuclear One
Entergy Operations, Inc.
1448 S.R. 333
Russellville, AR 72802-0967

SUBJECT: ARKANSAS NUCLEAR ONE - NRC INTEGRATED INSPECTION REPORT 05000313/2008002 AND 05000368/2008002

Dear Mr. Mitchell:

On March 23, 2008, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Arkansas Nuclear One, Units 1 and 2, facility. The enclosed integrated report documents the inspection findings, which were discussed on April 4, 2008, with you and other members of your staff.

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

This report documents one NRC-identified finding and one self-revealing finding of very low safety significance. Both of these findings involved violations of NRC requirements. However, because of the very low safety significance and because they are entered into your corrective action program, the NRC is treating these findings as noncited violations consistent with Section VI.A.1 of the NRC Enforcement Policy. If you contest these 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 DC 20555-0001; with copies to the Regional Administrator, U.S. Nuclear Regulatory Commission Region IV, 611 Ryan Plaza Drive, Suite 400, Arlington, Texas 76011-4005; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington DC 20555-0001; and the NRC Resident Inspector at Arkansas Nuclear One, Units 1 and 2, 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 (if any) will be made available electronically for public inspection

in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document 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/

Jeff Clark, P.E.
Chief, Project Branch E
Division of Reactor Projects

Dockets: 50-313
50-368
Licenses: NPF-51
NPF-6

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NRC Inspection Report 05000313/2008002 and 05000368/2008002
w/Attachment: Supplemental Information

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SUNSI Review Completed: GDR ADAMS: √ Yes No Initials: GDR
√ Publicly Available Non-Publicly Available Sensitive √ Non-Sensitive

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SPE:DRP/E	SPE:DRP	RI:DRP/E	RI:DRP/E	SRI:DRP/E
GDReplogle	GMiller	CHYoung	JEJosey	AASanchez
/RA/	/RA electronic/	E-JAClark	E-JAClark	/RA elec./
5/02/08	4/29/08	4/29/08	5/2/08	4/28/08

C:DRS/OB	C:DRS/PSB	C:DRS/EB1	C:DRS/EB2	C:DRP/E
RELantz	MPShannon	RBywater	LJSmith	JAClark
/RA PJE for/	/RA/	/RA/	/RA DProulx for/	/RA/
5/02/08	5/02/08	5/02/08	5/02/08	5/2/08

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U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Dockets:	50-313, 50-368
Licenses:	NPF-51, NPF-6
Report:	05000313/2008002 and 05000368/2008002
Licensee:	Entergy Operations, Inc.
Facility:	Arkansas Nuclear One, Units 1 and 2
Location:	Junction of Hwy. 64W and Hwy. 333 South Russellville, Arkansas
Dates:	January 1 through March 23, 2008
Inspectors:	A. Sanchez, Senior Resident Inspector G. Miller, Senior Project Engineer, RIV C. Young, P.E., Resident Inspector J. Josey, Resident Inspector B. Rice, General Engineer
Approved By:	Jeff Clark, P.E., Chief, Project Branch E Division of Reactor Projects

SUMMARY OF FINDINGS

IR 05000313/2008002, 05000368/2008002; 01/01/08 - 03/23/08; Arkansas Nuclear One, Units 1 and 2; Integrated Resident and Regional Report; Surveillance Testing, Other Activities.

This report covered a 3-month period of inspection by resident inspectors. The inspection identified two findings. The significance of most findings is indicated by their color (Green, White, Yellow, or Red) using Inspection Manual Chapter 0609, "Significance Determination Process." Findings for which the significance determination process does not apply may be Green or be assigned a severity level after NRC management's review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 3, dated July 2000.

A. NRC-Identified and Self-Revealing Findings

Cornerstone: Barrier Integrity

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

  The finding was more than minor because it was similar to nonminor Example 4.a in NRC Inspection Manual Chapter 0612, Appendix E, "Examples of Minor Issues." Specifically, the scaffolding had an adverse impact on a safety-related containment isolation valve. In addition, this finding was associated with the configuration control attribute of the Barrier Integrity Cornerstone and affected the cornerstone objective to provide reasonable assurance that physical design barriers protect the public from radio nuclide releases caused by accidents or events. Using the Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheet, the finding had very low safety significance because the condition did not represent a degradation of the barrier functions of the control room or auxiliary building; did not represent an actual open pathway in the physical integrity of reactor containment; and did not involve an actual reduction in the function of hydrogen ignitors in the reactor containment. The finding had a crosscutting aspect in the human performance area, work practices component [H.4(c)], because the licensee failed to ensure supervisory and management oversight of work activities such that nuclear safety was supported (Section 1R22).

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

  This finding was more than minor because it was associated with the procedure quality attribute of the Barrier Integrity Cornerstone and affected the cornerstone objective to provide reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. Using the Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheet, the finding was of very low safety significance because it did not represent an actual open pathway in the physical integrity of reactor containment or involve an actual reduction in defense-in-depth for the atmospheric pressure control or hydrogen control functions of the containment. This finding has a crosscutting aspect in the area of human performance area associated with resources in that the licensee did not ensure that procedures were available and adequate to assure nuclear safety. Specifically, the licensee failed to provide complete and accurate procedures to allow detection of a degradation of the containment air lock door seals [H 2(c)] (Section 4OA5).

B. Licensee-Identified Violations

None.

REPORT DETAILS

Summary of Plant Status

Unit 1 began the inspection period at essentially 100 percent power. On January 3, 2008, Unit 1 reduced reactor power to 85 percent for turbine governor valve testing. The reactor was returned to 100 percent power on January 4, 2008. On February 5, 2008, the load dispatcher requested that the total electrical output for Arkansas Nuclear One be reduced due to a tornado in a nearby town that destroyed the 500 kV and 161 kV transmission lines to the Pleasant Hills substation. Considering that the Unit 2 reactor was nearing a refueling outage (end of life), the licensee decided to reduce Unit 1 reactor power to approximately 26 percent power. On February 8, 2008, the licensee, with discussion with the load dispatcher, decided to increase reactor power to 40 percent. Following repair and restoration of the 500 kV and 161 kV Pleasant Hills transmission lines, Unit 1 returned to 100 percent power on February 25, 2008. Unit 1 continued to operate at essentially 100 percent power for the remainder of the inspection period.

Unit 2 began the inspection period at essentially 100 percent power. On February 7, 2008, Unit 2 reduced reactor power to 80 percent power due to the loss of the 500 kV and 161 kV Pleasant Hills transmission lines. On February 25, 2008, following repair of the 500 kV and 161 kV Pleasant Hills transmission lines, Unit 2 reactor power was increased to approximately 98 percent power. Full power was achieved on February 27, 2008. On March 16, 2008, Unit 2 entered Mode 3 to begin Refueling Outage 2R19. Unit 2 remained in a refueling outage for the remainder of the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

1R01 Adverse Weather Protection (71111.01)

.1 Readiness for Seasonal Susceptibilities

The inspectors completed a review of the licensee's readiness for seasonal susceptibilities involving low temperatures. The inspectors: (1) reviewed plant procedures, the Updated Final Safety Analysis Report (USFAR), and Technical Specifications (TS) to ensure that operator actions defined in adverse weather procedures maintained the readiness of essential systems; (2) walked down portions of the two systems listed below to ensure that adverse weather protection features (heat tracing, space heaters, weatherized enclosures, temporary chillers, etc.) were sufficient to support operability including the ability to perform safe shutdown functions; (3) evaluated operator staffing levels to ensure the licensee could maintain the readiness of essential systems required by plant procedures; and (4) reviewed the corrective action program (CAP) to determine if the licensee identified and corrected problems related to adverse weather conditions.

- February 28, 2008, Units 1 and 2 fire protection systems
- February 28, 2008, Unit 2 battery rooms

The inspectors completed one sample.

b. Findings

No findings of significance were identified.

.2 Readiness for Impending Adverse Weather Conditions

a. Inspection Scope

On January 8, 2008, the inspectors completed a review of the licensee's readiness for impending adverse weather involving severe thunderstorms. The inspectors: (1) reviewed plant procedures, the USFAR, and TSs to ensure that operator actions defined in adverse weather procedures maintained the readiness of essential systems; (2) walked down portions of the below listed two systems to ensure that adverse weather protection features (heat tracing, space heaters, weatherized enclosures, temporary chillers) were sufficient to support operability, including the ability to perform safe shutdown functions; (3) reviewed maintenance records to determine that applicable surveillance requirements were current before the anticipated severe thunderstorms developed; and (4) reviewed plant modifications, procedure revisions, and operator work arounds to determine if recent facility changes challenged plant operation.

- Unit 2 emergency feedwater system
- Units 1 and 2 offsite power distribution

The inspectors completed one sample.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment (71111.04)

Partial Equipment Walkdown

a. Inspection Scope

The inspectors: (1) walked down portions of the two below listed risk important systems and reviewed plant procedures and documents to verify that critical portions of the selected systems were correctly aligned and (2) compared deficiencies identified during the walk down to the licensee's UFSAR and corrective action program (CAP) to ensure problems were being identified and corrected.

- January 24, 2008, Unit 1, emergency switchgear room Chiller VCH-4A while Chiller VCH-4B was out of service

- January 29, 2008, Unit 1, Train B emergency feedwater system while Train A emergency feedwater system was out of service

The inspectors completed two samples.

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05)

Quarterly Inspection (71111.05Q)

a. Inspection Scope

The inspectors walked down the four below listed plant areas to assess the material condition of active and passive fire protection features and their operational lineup and readiness. The inspectors: (1) verified that transient combustibles and hot work activities were controlled in accordance with plant procedures; (2) observed the condition of fire detection devices to verify they remained functional; (3) observed fire suppression systems to verify they remained functional and that access to manual actuators was unobstructed; (4) verified that fire extinguishers and hose stations were provided at their designated locations and that they were in a satisfactory condition; (5) verified that passive fire protection features (electrical raceway barriers, fire doors, fire dampers steel fire proofing, penetration seals, and oil collection systems were in a satisfactory material condition; (6) verified that adequate compensatory measures were established for degraded or inoperable fire protection features and that the compensatory measures were commensurate with the significance of the deficiency; and (7) reviewed the UFSAR to determine if the licensee identified and corrected fire protection problems.

- January 8, 2008, Unit 2, Fire Zone 2101-AA, north switchgear room
- January 11, 2008, Unit 1, Fire Zone 149-E, upper north electrical penetration, hot tool, and decontamination room
- March 3, 2008, Unit 2, Fire Zone 2073-DD, access corridor, pump,and tank area
- March 21, 2008, Unit 2, Fire Zone 2040-JJ, access corridor, charging pump, radwaste and boron management system areas

The inspectors completed four samples.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification Program (71111.11)

Resident inspector Quarterly Review (71111.11Q)

a. Inspection Scope

The inspectors observed testing and training of senior reactor operators and reactor operators to identify deficiencies and discrepancies in the training to assess operator performance and to assess the evaluator's critique. The training scenario involved the crew response to a loss of all feedwater on the Unit 1 simulator, February 21, 2008.

Documents reviewed by the inspectors included:

- Simulator Training Scenario A1SPGLOR080401, “Overheating EOP,” Revision 0
- Emergency Operating Procedure EOP-1202.004, “Overheating,” Revision 5
- Procedure OP-1903.010, “Emergency Action Level Classification,” Revision 39

The inspectors completed one sample.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness (71111.12)

a. Inspection Scope

The inspectors reviewed the below listed maintenance activity to: (1) verify the appropriate handling of structure, system, and component (SSC) performance or condition problems; (2) verify the appropriate handling of degraded SSC functional performance; (3) evaluate the role of work practices and common cause problems; and (4) evaluate the handling of SSC issues reviewed under the requirements of the Maintenance Rule, 10 CFR Part 50, Appendix B, and TSs.

- March 21, 2008, Unit 1, emergency switchgear chillers

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed one sample.

b. Findings

No findings of significance were identified.

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

.1 Risk Assessment and Management of Risk

a. Inspection Scope

The inspectors reviewed the three assessment activities listed below to verify: (1) performance of risk assessments when required by 10 CFR 50.65 (a)(4) and licensee procedures prior to changes in plant configuration for maintenance activities and plant operations; (2) the accuracy, adequacy, and completeness of the information considered in the risk assessment; (3) that the licensee recognizes, and/or enters as applicable, the appropriate licensee-established risk category according to the risk assessment results and licensee procedures; and (4) that the licensee identified and corrected problems related to maintenance risk assessments.

- January 10, 2008, Units 1 and 2, mobile crane use for oily water separator transfer pump maintenance

- February 1, 2008, Unit 1, emergency feedwater initiation control, Channel B maintenance

- March 5, 2008, Unit 2, Refueling Outage 2R19 risk assessment and contingency plans

The inspectors completed three samples.

b. Findings

No findings of significance were identified.

.2 Emergent Work Control

a. Inspection Scope

The inspectors: (1) verified that the licensee performed actions to minimize the probability of initiating events and maintained the functional capability of mitigating systems and barrier integrity systems; (2) verified that emergency work-related activities such as troubleshooting, work planning/scheduling, establishing plant conditions, aligning equipment, tagging, temporary modifications, and equipment restoration did not place the plant in an unacceptable configuration; and (3) reviewed the UFSAR to determine if the licensee identified and corrected risk assessment and emergency work control problems.

- February 15, 2008, Unit 2, alternate AC diesel generator starting air compressor relief valve repair

The inspectors completed one sample.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15)

a. Inspection Scope

The inspectors: (1) reviewed plants status documents, such as operator shift logs, emergent work documentation, deferred modifications, and standing orders, to determine if an operability evaluation was warranted for degraded components; (2) referred to the UFSAR and design basis documents to review the technical adequacy of licensee operability evaluations; (3) evaluated compensatory measures associated with operability evaluations; (4) determined degraded component impact on any TSs; (5) verified that the degraded SSC or compensatory measures taken to address the degrade SSC does not result in changes to the UFSAR; or if there is a change to the UFSAR that a proper 10 CFR 50.59 review has been performed; (6) used the significance determination process to evaluate the risk significance of degraded or inoperable equipment; and (7) verified that the licensee has identified and implemented appropriate corrective actions associated with degraded components.

- January 15, 2008, Unit 1, Valve CV-3850, Loop I service isolation to the Pump P-7B electric emergency feedwater pump

- January 22, 2008, Unit 1, containment personnel hatch local leak rate testing (LLRT)

- January, 30, 2008, Unit 1, fuel handling area Ventilation Fan 2VEF-14B

- February 7, 2008, Unit 1, Train B emergency feedwater system

- February 29, 2008, Unit 1, Train A emergency feedwater system
- March 13, 2008, Unit 1, emergency safeguards actuation system digital actuation Channel 1

The inspectors completed six samples.

b. Findings

No findings of significance were identified.

1R18 Plant Modifications (71111.18)

.1 Temporary Plant Modifications

a. Inspection Scope

The inspectors reviewed the UFSAR, plant drawings, procedure requirements, and TSs to ensure that the below listed temporary modification was properly implemented. The inspectors: (1) verified that the modification did not have an affect on system operability/availability, (2) verified that the installation was consistent with the modification documents, (3) ensured that the postinstallation test results were satisfactory and that the impact of the temporary modification on permanently installed SSC's were supported by the test, (4) verified that the modifications were identified on control room drawings

and that appropriate identification tags were placed on the affected drawings, and (5) verified that appropriate safety evaluations were completed. The inspectors verified that licensee identified and implemented any needed corrective actions associated with temporary modifications.

- March 5, 2008, Unit 2, temporary modification to supply power to charging Pump 2P36B

The inspectors completed one sample.

b. Findings

No findings of significance were identified.

.2 Permanent Plant Modifications

a. Inspection Scope

The inspectors reviewed key affected 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 modification listed below. The inspectors verified that: (1) modification preparation, staging, and implementation does not impair emergency/abnormal operating procedure actions, key safety functions, or operator response to loss of key safety functions; (2) postmodification testing maintained the plant in a safe configuration during testing by verifying that unintended system interactions will not occur, SSC performance characteristics still meet the design basis, the appropriateness of modification design

assumptions, and the modification test acceptance criteria has been met; and (3) the licensee has identified and implemented appropriate corrective actions associated with permanent plant modifications.

- February 12, 2008, Unit 1 turbine-driven emergency feedwater pump steam admission condensate removal Flow Orifice FO-2603

The inspectors completed one sample.

b. Findings

No findings of significance identified.

1R19 Postmaintenance Testing (71111.19)

a. Inspection Scope

The inspectors selected the four below listed postmaintenance test activities of risk significant systems or components. For each item, the inspectors: (1) reviewed the applicable licensing basis and/or design-basis documents to determine the safety functions, (2) evaluated the safety functions that may have been affected by the maintenance activity, and (3) reviewed the test procedure to ensure it adequately tested the safety function that may have been affected. The inspectors either witnessed or reviewed test data to verify that acceptance criteria were met, plant impacts were evaluated, test equipment was calibrated, procedures were followed, jumpers were properly controlled, the test data results were complete and accurate, the test equipment was removed, the system was properly realigned, and deficiencies during testing were documented. The inspectors also reviewed the UFSAR to determine if the licensee identified and corrected problems related to postmaintenance testing.

- February 5, 2008, Unit 2, emergency feedwater flow control Valve 2CV-1026-2

- February 19, 2008, Unit 1, Train B emergency feedwater condensate storage tank suction Valve CV-2800

- February 28, 2008, Unit 2, containment spray and low pressure safety injection recirculation Valve 2SI-18

- March 19, 2008, Unit 2, High Pressure Safety Injection Pump 2P-89C

The inspectors completed four samples.

b. Findings

No findings of significance were identified.

1R20 Refueling and Outage Activities (71111.20)

a. Inspection Scope

The inspectors reviewed the following risk significant refueling items or outage activities to verify defense in depth commensurate with the outage risk control plan, compliance with the TSs, and adherence to commitments in response to Generic Letter 88-17, "Loss of Decay Heat Removal": (1) the risk control plan, (2) tagging/clearance activities, (3) reactor coolant system instrumentation, (4) electrical power, (5) decay heat removal, (6) spent fuel pool cooling, (7) inventory control, (8) reactivity control, (9) refueling activities, (10) cooldown activities, and (11) licensee identification and implementation of appropriate corrective actions associated with refueling and outage activities. The inspectors' containment inspections included observation of the containment sump for damage and debris, supports, braces, and snubbers for evidence of excessive stress, water hammer, or aging.

The inspectors completed one sample.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors reviewed the UFSAR, procedure requirements, and TSs to ensure that the five surveillance activities listed below demonstrated that the SSC's tested were capable of performing their intended safety functions. The inspectors either witnessed or reviewed test data to verify that the following significant surveillance test attributes were adequate: (1) preconditioning; (2) evaluation of testing impact on the plant; (3) acceptance criteria; (4) test equipment; (5) procedures; (6) jumper/lifted lead controls; (7) test data; (8) testing frequency and method demonstrated TS operability; (9) test equipment removal; (10) restoration of plant systems; (11) fulfillment of American Society of Mechanical Engineer Code requirements; (12) updating of performance indicator data; (13) engineering evaluations, root causes, and bases for returning tested SSCs not meeting the test acceptance criteria were correct; (14) reference setting data; and (15) annunciators and alarms setpoints. The inspectors also verified that the licensee identified and implemented any needed corrective actions associated with the surveillance testing.

- February 6, 2008, Unit 2, Emergency Feedwater Pump 2P-7A
- February 29, 2008, Unit 1, reactor coolant system leak detection
- March 3, 2008, Unit 2, Control Room Emergency Chiller 2VE-1B
- March 14, 2008, Unit 2, Emergency Diesel Generator 1
- March 19, 2008, Unit 2, outside containment chill water return containment isolation Valve 2CV-3251-1

The inspectors completed five samples.

b. Findings

Introduction. The inspectors documented a Green self-revealing noncited violation of 10 CFR Part 50, Appendix B, Criterion V, “Instructions, Procedures, and Drawings,” for the failure to follow a site scaffolding procedure, in that operators and the scaffolding certifying official failed to identify that scaffolding impeded the operation of the outboard chill water return containment isolation valve. The valve could not close to perform its safety function.

Description. On March 13, 2008, scaffolding was constructed in the area of Valve 2CV-3851-1, the outside containment chill water return containment isolation valve, to support outage maintenance on Valve 2CV-3200-2, fire water to containment isolation valve. A scaffolding evaluation had been performed on February 18, 2008, to support building of the scaffolding. During their review of this issue, the inspectors noted that Station Procedure CS-S-002, “Scaffold Design Engineering Standard,” Revision 1, Section 5.1.10.3 required:

> Scaffolds are not to be located in such a manner that will interfere with the safe operation of, or access to, operable safety-related equipment.

The inspectors noted that this step had been marked as being met. In addition, this evaluation provided supplementary instructions to the workers that required a walkdown. On March 13, 2008, postinstallation inspections and walkdowns were performed and plant personnel found the scaffolding acceptable.

On March 18, 2008, during performance of as found stroke time testing and remote position verification surveillance testing in accordance with Procedure OP-2305.005, “Valve Stroke and Position Verification,” Revision 26, the outside containment chill water return containment isolation valve failed to close. The licensee determined that a scaffold pole was positioned such that it prevented the valve from closing. The licensee removed the scaffold pole and the valve was satisfactorily tested.

The inspectors determined that the licensee had multiple opportunities to identify that the scaffolding had the potential to affect operation of the outside containment chill water return containment isolation valves ability to close. Specifically:

- Personnel constructing the scaffolding had the opportunity to identify that the scaffold could potentially obstruct the travel path of the valve operator.

- Operations personnel had the opportunity to identify that the scaffolding had the potential to impact operation of safety-related equipment during both the scaffolding planning evaluation in February 2008 and subsequent postinstallation walkdowns in March 2008.

- Personnel inspecting and certifying the scaffolding for use had the opportunity to identify that the scaffolding had the potential to impact operation of safety-related equipment during acceptance inspections on March 13, 2008.

Analysis. The failure to adequately implement the scaffolding procedure was a performance deficiency. The finding was more than minor because it was similar to nonminor Example 4.a in NRC Inspection Manual Chapter 0612, Appendix E, "Examples of Minor Issues." Specifically, the scaffolding had an adverse impact on a safety-related

containment isolation valve. In addition, this finding was associated with the configuration control attribute of the Barrier Integrity Cornerstone and affected the cornerstone objective to provide reasonable assurance that physical design barriers protect the public from radio nuclide releases caused by accidents or events. Using the Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheet, the finding had very low safety significance because the condition did not represent a degradation of the barrier functions of the control room or auxiliary building; did not represent an actual open pathway in the physical integrity of reactor containment; and did not involve an actual reduction in the function of hydrogen ignitors in the reactor containment. The finding had a crosscutting aspect in the human performance area, work practices component [H.4(c)], because the licensee failed to ensure supervisory and management oversight of work activities such that nuclear safety was supported.

Enforcement. 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," requires, in part, that activities affecting quality shall be prescribed by documented instructions, procedures or drawings, of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures, or drawings. Procedure CS-S-002 required, "Scaffolds are not to be located in such a manner that will interfere with the safe operation of, or access to, operable safety related equipment." Contrary to the above, on March 13, 2008, maintenance personnel construct scaffolding such that it did interfere with the safe operation of operable safety-related equipment. Because the finding was of very low safety significance and had been entered into the licensee's CAP as CR-ANO-2-2008-0473, this violation is being treated as an NCV consistent with Section VIA of the Enforcement Policy: NCV 05000368/2008002-01, "Scaffolding Rendered Containment Isolation Valve Inoperable."

Cornerstone: Emergency Preparedness

1EP6 Drill Evaluation (71114.06)

a. Inspection Scope

For the below listed drills and simulator-based training evolution contributing to drill/exercise performance, emergency response organization, and performance indicators, the inspectors: (1) observed the training evolution to identify any weaknesses and deficiencies in classification, notification, and protective action requirements development activities; (2) compared the identified weaknesses and deficiencies against licensee identified findings to determine whether the licensee is properly identifying failures; and (3) determined whether licensee performance was in accordance with the guidance of the Nuclear Energy Institute (NEI) 99-02, "Regulatory Assessment Indicator Guideline," Revision 5, acceptance criteria.

- February 20, 2008, Unit 1, full scale emergency response organization drill involving a simulated loss of coolant accident and offsite release resulting in a general emergency

The inspectors completed one sample.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

Cornerstone: Initiating Events

4OA1 Performance Indicator Verification (71151)

a. Inspection Scope

The inspectors sampled licensee submittals for the six performance indicators listed below for the period from January 1 through December 31, 2007, for Units 1 and 2. The definitions and guidance of NEI 99-02, "Regulatory Assessment Indicator Guideline," Revision 5, were used to verify the licensee's basis for reporting each data element in order to verify the accuracy of performance indicator data reported during the assessment period. The inspectors reviewed licensee event reports, monthly operating reports, and operating logs as part of the assessment. Licensee performance indicator data were also reviewed against the requirements of Procedure EN-LI-114, "Performance Indicator Process," Revision 3.

- Unplanned scrams per 7,000 critical hours
- Unplanned scrams with complications
- Unplanned transients per 7,000 critical hours

The inspectors completed six samples.

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems (71152)

.1 Routine Review of Identification and Resolution of Problems

a. Inspection Scope

The inspectors performed a daily screening of items entered into the licensee's CAP. This assessment was accomplished by reviewing condition reports, work orders, problem evaluation reports, and control room logs and attending corrective action review and work control meetings. The inspectors: (1) verified that equipment, human performance, and program issues were being identified by the licensee at an appropriate threshold and that the issues were entered into the CAP; (2) verified that corrective actions were commensurate with the significance of the issue; and (3) identified conditions that might warrant additional follow up through other baseline inspection procedures.

b. Findings

No findings of significance were identified.

.2 Semiannual Trend Review

a. Inspection Scope

The inspectors completed a semi-annual trend review of repetitive or closely-related issues that were documented in trend reports, problem lists, performance indicators, health reports, QA audits, corrective action documents, control room logs, corrective maintenance documents, etc., to identify trends that might indicate the existence of more safety significant issues. The inspectors review consisted of the 6-month period of October 1, 2007, through March 23, 2008. When warranted, some of the samples expanded beyond those dates to fully assess the issue. The inspectors compared and contrasted their results with the results contained in the licensee's quarterly trend reports. Corrective actions associated with a sample of their issues identified in the licensee's trend report were reviewed for adequacy.

When evaluating the effectiveness of the licensee's corrective actions for these issues, the following attributes were considered:

- Complete and accurate identification of the problem in a timely manner commensurate with its significance and ease of discovery
- Evaluation and disposition of operability and reportability issues
- Consideration of extent of condition, generic implications, common cause, and previous occurrences
- Classification and prioritization of the resolution of the problem commensurate with its safety significance
- Identification of root and contributing causes of the problem for significant conditions adverse to quality
- Identification of corrective actions which are appropriately focused to correct the problem
- Completion of corrective actions in a timely manner commensurate with the safety significance of the issue

b. Assessment and Observations

The trend review included Unit 2 fuel handling ventilation system performance problems. The licensee had identified that one of the fans was degraded, such that the fan was not operable during some high wind conditions. A faulty damper caused the problem, which was corrected. No other problems were noted. No findings of significance were identified.

4OA5 Other Activities

.1 (Closed) Unresolved Item 05000368/2007005-05: "Apparent Inadequate Procedure for Containment Air Lock Leakage Testing"

Introduction. The inspectors identified a Green noncited violation of 10 CFR Part 50, Appendix B, Criterion XI, "Test Control," involving unacceptable preconditioning during

Unit 2 containment escape hatch outer door LLRT. Specifically, the test procedure as written failed to identify leakage through the air lock outer door seals in excess of that allowed by the Containment Leakage Rate Testing Program.

Description. On December 4, 2007, the licensee conducted leakage testing of the Unit 2 containment escape air lock barrel per Procedure 2304.258, "Unit 2 Escape Airlock Leak Rate Test," Revision 16. The maintenance workers were unable to pressurize the air lock barrel to accident pressure per Step 8.3.10 of the procedure. Technicians at the scene noted excessive air leakage through the containment air lock outer door seals. Since the air lock inner door had passed an LLRT the previous week and had not been operated since then, operators concluded the leakage through the outer door seals caused the failure of the air lock barrel to pressurize. Operators declared the surveillance test invalid since accident pressure could not be achieved in the escape air lock barrel.

The inspectors determined that the declaration of the test as invalid lacked a valid technical basis. The inspectors noted the purpose of the leakage test was to detect leakage from the air lock. Since the air lock barrel could not be pressurized due to excessive leakage through the outer door, the inspectors concluded the surveillance test demonstrated a valid failure of the air lock outer door seals. Although the operators did not recognize the test results as a failed surveillance test, they did keep the air lock inner door locked closed, meeting the TS actions required for an inoperable air lock outer door.

On December 5, 2007, the licensee performed an LLRT on the Unit 2 containment escape hatch outer door seals. The door seals passed the LLRT with only minimal leakage. Despite the test result, the licensee replaced the outer door seals due to the excessive leakage through the seals that was reported during the air lock barrel test. Licensee engineers concluded the outer door seals passed the test as a result of differences in the LLRT and air lock barrel testing procedures. Specifically, the LLRT for the door requires installation of a strongback which is torqued into place to simulate accident pressure and prevent outward movement of the door when the seals are pressurized. After the outer door seals were replaced, the containment escape air lock passed its leakage surveillance tests on December 6, 2007. The licensee concluded the outer door seals had been degraded, which prevented pressurization of the air lock barrel during the previous surveillance test.

The inspectors also concluded that the outer door seals had been degraded and caused the failed surveillance test. The inspectors noted the allowed leakage rate for the air lock per the containment leakage rate testing program was five times greater than the allowed leakage rate through a single air lock door. Therefore, the leakage through the outer door seals during the air lock barrel test was likely well in excess of the allowed leakage for a single air lock door, indicating the outer door would not be able to perform its specified function and should be declared inoperable per TS. Since the outer door passed a subsequent LLRT, the inspectors concluded the licensee's LLRT approach was inadequate in that it failed to identify the degraded condition of the outer door seals. Specifically, the inspectors concluded the application of torque to the strongback compressed the door seals to form a tighter seal prior to leakage rate testing, inappropriately preconditioning the seals to pass the test.

The inspectors reviewed the calculations used by the licensee to develop the torque values to be applied to the door strongback. The inspectors noted the calculations determined a torque value based on matching the force generated by pressurizing the face of the door to accident pressure. The inspectors concluded this approach was

overly simplistic in that it failed to account for the reactive force that would be generated within the bolts attached to the strongback. In other words, when the air pressure acts to force the door open, the strongback will act to hold the door shut even without a preloaded torque applied. The maximum force that the strongback could withstand would thus be based on the amount of thread engagement and material properties (e.g., yield strength) of the steel in the bolts holding the strongback in place. The licensee's calculations failed to address any of these factors. Furthermore, although the licensee procedure directed the seals be tested at full accident pressure, TS 6.5.16, "Containment Leakage Rate Testing Program," only required the doors to be tested to a pressure of at least 10 psig.

The inspectors considered the licensee's justifications for the application of torque to the strongback during leakage testing (simulating accident pressure, preventing door movement) were not valid since: (1) the pressure response of containment postaccident is likely to vary considerably based on the nature of the accident and the response of the containment pressure control systems (e.g., containment spray) and will not result in a constant force on the door seals; (2) with respect to the outer door, the pressure response of the air lock barrel postaccident will be dependent on the leakage rate through the inner door such that the air lock may not pressurize despite significant leakage as demonstrated during the failed surveillance on December 4, 2007; and (3) prevention of outward movement of an air lock door does not necessitate a preloaded torque resulting in compression of the door seals since the strongback will resist door movement even if the bolts are only engaged finger-tight with the door.

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

Enforcement. 10 CFR Part 50, Appendix B, Criterion XI, "Test Control," requires, in part, that testing is performed under suitable environmental conditions. Suitable environmental conditions include those that are representative of the expected standby configuration and the condition in which the equipment would be when required to perform its safety function. Contrary to this, on December 5, 2007, the licensee failed to assure that testing was performed under suitable environmental conditions. Specifically, Procedure 2304.258, "Unit 2 Escape Airlock Leak Rate Test," Revision 16, failed to adequately demonstrate operability of the air lock door seals. Because this violation was of very low safety significance and was entered in the CAP as CR-ANO-2007-1687, this violation is being treated as an NCV consistent with Section VI.A.1 of the NRC Enforcement Policy: NCV 05000368/2008002-02, "Inadequate Containment Air Lock Leakage Testing."

4OA6 Meetings, Including Exit

The resident inspectors presented the inspection results to Mr. T. Mitchell, Vice President, Operations, and other members of the licensee's management staff on April 4, 2008. The licensee acknowledged the findings presented. The inspectors noted that while proprietary information was reviewed, none was included in this report.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

J. Bacquet, ALARA Supervisor
B. Berryman, General Manager, Plant Operations
C. Bregar, Nuclear Safety Assurance Director
B. Byford, Supervisor, Simulator Training
K. Canitz, Simulator Instructor
A. Clinkingbeard, Operations, Unit 1
J. Cork, Evaluator, Operations Training, Unit 1
S. Cotton, Manager, Training & Development
S. Cupp, Supervisor, Simulator Support
G. Doran, Quality Assurance Auditor
J. Eichenberger, Acting Director, Nuclear Safety
M. Fields, Senior Reactor Operator
D. Fowler, Supervisor, Quality Assurance
R. Holeyfield, Manager, Emergency Planning
D. James, Licensing Manager
R. Martin, Supervisor, Operations Training, Unit 1
D. Marvel, Acting, Radiation Protection Manager
T. Mitchell, Vice President, Operations
C. Murray, Reactor Operator
R. Pace, Manager, Planning, Scheduling, and Outages
C. Reasoner, Engineering Director
R. Scheide, Licensing Specialist
R. Schwartz, Radiation Protection Specialist
D. Slusher, Instructor, Operations Training Unit 1
J. Smith, Quality Assurance Manager
R. Soukup, Instructor, Operations Training, Unit 1
B. Starkey, Radiation Protection Supervisor
D. Stoltz, ALARA Coordinator
C. Tyrone, Manager, Quality Assurance
F. Van Buskirk, Licensing Specialist
R. Walters, Operations Manager

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed

05000368/2008002-01	NCV	Scaffolding Rendered Containment Isolation Valve Inoperable (Section 1R22)
05000368/2008002-02	NCV	Inadequate Containment Air Lock Leakage Testing (Section 4OA5)

Closed

05000368/2007005-05	URI	Apparent Inadequate Procedure for Containment Air Lock Leakage Testing (Section 4OA5)

Discussed

None

LIST OF DOCUMENTS REVIEWED

In addition to the documents referred to in the inspection report, the following documents were selected and reviewed by the inspectors to accomplish the objectives and scope of the inspection and to support any findings:

Section 1R01: Adverse Weather Protection

Procedures

NUMBER	TITLE	REVISION
OP-1104.032	Fire Protection Systems	60
OP-2106.032	Unit 2 Freeze Protection Guide	14
OP-1104.039	Plant Heating and Cold Weather Operations	19
OP-1104.007	Screen Wash System	22
OP-2203.008	Natural Emergencies	14
OP-1203.025	Natural Emergencies	23

CRs

ANO-1-2007-2445
ANO-1-2008-0020
ANO-1-2008-0079
ANO-1-2008-0211
ANO-2-2007-1797
ANO-C-2008-0023
ANO-C-2008-0047

Section 1R04: Equipment Alignment

Procedures

NUMBER	TITLE	REVISION
OP-1106.006	Emergency Feedwater Pump Operation	72
OP-1000-024	Control of Maintenance	53
EN-IS-109	Compressed Gas Cylinder Handling and Storage	3

Drawings

NUMBER	
M-221, Sheet 2, Revision 27	M-204, Sheet 3, Revision 31
M-204, Sheet 5, Revision 16	

CRs

ANO-1-2008-0124
ANO-C-2008-0204

Section 1R05: Fire Protection

Procedures

NUMBER	TITLE	REVISION
FHA	Arkansas Nuclear One Fire Hazards Analysis	11
PFP-U1	ANO Prefire Plan (Unit 1)	
PFP-U2	ANO Prefire Plan (Unit 2)	9
OP-1000.152	Unit 1 & 2 Fire Protection System Specifications	7
EN-DC-127	Control of Hot Work and Ignition Sources	4
EN-DC-161	Control of Combustibles	1

Drawings

FZ-2038, Sheet 1, Revision 2	FZ-1041, Sheet 1, Revision 1
FZ-2018, Sheet 1, Revision 2	FZ-2020, Sheet 1, Revision 2
FZ-2021, Sheet 1, Revision 2	FZ-2029, Sheet 1, Revision 2

Calculations

NUMBER	TITLE	REVISION
CALC-85-E-0053-15	Fire Area B Combustible Loading Calculation	47
CALC-85-E-0053-34	Fire Area HH Combustible Loading Calculation	0

CRs

ANO-2-2008-0017

Section 1R12: Maintenance Effectiveness

Procedures

NUMBER	TITLE	REVISION
EN-LI-102	Corrective Action Process	12
EN-DC-205	Maintenance Rule Monitoring	0
EN-DC-204	Maintenance Rule Scope and Basis	0

CRs

ANO-1-2008-0204	ANO-1-2007-1483	ANO-1-2007-1793
ANO-1-2008-0156	ANO-1-2007-1656	ANO-1-2007-1796
ANO-C-2007-1621	ANO-1-2007-1764	

Section 1R13: Maintenance Risk Assessments and Emergent Work Control

Procedures

NUMBER	TITLE	REVISION
COPD-024	Risk Assessment Guidelines	23

Work Order

51564940

Calculation

NUMBER	TITLE	REVISION
CALC-951018D101-03	Breezeway Height and Height of 161 kV and 500 kV Power Lines	1

Miscellaneous Document

Plant Risk Assessment dated January 31, 2008

CRs

ANO-C-2008-0030	ANO-C-2008-0121

Section 1R15: Operability Evaluations

Procedures

NUMBER	TITLE	REVISION
EN-OP-104	Operability Determinations	2
OP-1304-045	Unit 1 ESAS Digital Subsystem NO. 1 Monthly Test	20

CRs

ANO-1-2008-0050 ANO-2-2008-0125 ANO-1-2007-2216
ANO-1-2008-0090 ANO-1-2008-0324 ANO-1-2007-2338
ANO-C-2008-0154

Work Order

00133058

Section 1R18: Plant Modifications

Procedures

NUMBER	TITLE	REVISION
OP-2305.016	Remote Features Periodic Testing	21
OP-2203.014	Alternate Shutdown	21
OP-2107.002	ESF Electrical System Operation	22

CRs

ANO-1-2007-2338 ANO-1-2007-2216

Work Order

132483

Miscellaneous

Engineering Change 4317, “Resize FO-2603 EFW K-3 Steam Admission Flow Orifice”

Section 1R19 Post maintenance Testing

Procedures

NUMBER	TITLE	REVISION
OP-1103.013	RCS Leak Detection	29
OP-2104.007	Control Room Emergency Air Conditioning and Ventilation	35
OP-1106.006	Emergency Feedwater Pump Operation	72
OP-2106.006	Emergency Feedwater System Operations	63
OP-5120.010	Unit 1 & Unit 2 MOV Testing	9

Work Orders

00093169	51213935
00128338	51213936
81974	51213931
51211818	99851

Section 1R22: Surveillance Testing

Procedures

NUMBER	TITLE	REVISION
OP-2104.007	Control Room Emergency Air Conditioning and Ventilation	35
OP-1000.024	Control of Maintenance	53
CS-S-002	Engineering Standard	1
OP-2104.036	Emergency Diesel Generator Operations	56

CRs

ANO-2-2008-0473

Work Order

0099840
51213817

Section 1EP6: Drill Evaluation

Procedures

NUMBER	TITLE	REVISION
AOP-1203.039	Excess RCS Leakage	11

OP-1903.010	Emergency Action Level Classification	39
OP-1903.011	Emergency Response/Notifications	30
OP-1903.064	Emergency Response Facility Control Room	9
OP-1903.067	Emergency Response Facility – Emergency Operations Facility (EOF)	23

CRs

ANO-C-2008-0366	ANO-C-2008-0373	ANO-C-2008-0377
ANO-C-2008-0371	ANO-C-2008-0374	
ANO-C-2008-0372	ANO-C-2008-0375	

Section 4OA2: Identification and Resolution of Problems

CRs

	ANO-2-2008-0137
	ANO-2-2008-0142
ANO-C-2003-0271	
ANO-C-2003-0402	
ANO-2-2008-0125	

Work Orders

51214308	51214309
51214310	

Section 4OA3: Event Followup

Procedures

NUMBER	TITLE	REVISION
OP-2203.008	Natural Emergencies	14
OP-1203.025	Natural Emergencies	23

CRs

ANO-C-2008-0227	ANO-C-2008-0244
ANO-C-2008-0228	ANO-C-2008-0319

LIST OF ACRONYMS

CAP	corrective action program
CFR	Code of Federal Regulations
LLRT	local leak rate test
NEI	Nuclear Energy Institute
NRC	United States Nuclear Regulatory Commission
SSC	structure, system, and component
TS	Technical Specifications
UFSAR	Updated Final Safety Analysis Report