



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION IV  
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November 2, 2006

Jeffrey S. Forbes, Vice President,  
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Entergy Operations, Inc.  
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Russellville, Arkansas 72801-0967

SUBJECT: ARKANSAS NUCLEAR ONE - NRC INTEGRATED INSPECTION REPORT  
05000313/2006004 AND 05000368/2006004

Dear Mr. Forbes:

On September 23, 2006, 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 October 2, 2006, 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.

Based on the results of this inspection, one finding of very low safety significance (Green) was identified.

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/

Zachary K. Dunham, Chief  
Project Branch E  
Division of Reactor Projects

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

Entergy Operations, Inc.

-2-

Enclosure:

NRC Inspection Report 05000313/2006004 and 05000368/2006004  
w/Attachment: Supplemental Information

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CHYoung	RWDeese	JCKirkland	ECrowe	VGGaddy
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C:DRS/PSB	C:DRS/EB1	C:DRS/EB2	C:DRP/E	
MPShannon	JAClark	LJSmith	ZKDunham	
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**U.S. NUCLEAR REGULATORY COMMISSION  
REGION IV**

Dockets: 50-313, 50-368

Licenses: DPR-51, NPF-6

Report: 05000313/2006004 and 05000368/2006004

Licensee: Entergy Operations, Inc.

Facility: Arkansas Nuclear One, Units 1 and 2

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

Dates: June 24 through September 23, 2006

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## SUMMARY OF FINDINGS

IR 05000313/2006004, 05000368/2006004; 06/24/06 - 09/23/06; Arkansas Nuclear One, Units 1 and 2; Adverse Weather Protection.

This report covered a 3-month period of inspection by resident inspectors and specialist inspectors. One Green finding was identified. 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: Initiating Events

- Green. The inspectors reviewed a self-revealing finding associated with inadequate turbine building ventilation procedures which failed to maintain design temperatures within the turbine building. As a result, on July 19, 2006, Unit 1 experienced a trip of the thermal overloads for Intermediate Cooling Water Pump P-33C caused by high ambient temperatures in the turbine building. Due to the co-location of all of the intermediate cooling water pump circuit breakers in the same area of the turbine building and similarly installed thermal overloads in the breakers, the inspectors considered the possibility of a loss of all intermediate cooling water system cooling due to high ambient temperatures. The licensee entered the deficiency into their corrective action program as Condition Report ANO-1-2006-0967 for resolution.

The finding is more than minor because it affected the initiating events cornerstone objective of limiting the likelihood of those events that upset plant stability and challenge critical safety functions and affected the cornerstone attribute of procedure quality. The finding was determined to be of very low safety significance because the auxiliary feedwater pump and the emergency feedwater system would have remained available for mitigation of any plant transient combined with a loss of the intermediate cooling water system, and because weather conditions which could have possibly induced a loss of all intermediate cooling water pumps were present for less than 30 days. This finding had a human performance crosscutting aspect which affected the resources component. Specifically, the licensee's turbine building ventilation procedures did not assure a proper turbine building ventilation lineup under hot weather conditions. (Section 1R01)

### B. Licensee-Identified Violations

None

## REPORT DETAILS

### Summary of Plant Status

Unit 1 began the report period at 100 percent rated thermal power and operated there for the entire report period.

Unit 2 began the inspection period at 100 percent rated thermal power and operated there until September 3, 2006, when the unit began a coastdown until September 19, 2006, when the unit shut down for Refueling Outage 2R18. The unit remained shut down 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

###### a. Inspection Scope

The inspectors completed a review of the licensee's readiness of seasonal susceptibilities involving extreme high temperatures. The inspectors: (1) reviewed plant procedures, the Updated Final Safety Analysis Report (USFAR), and Technical Specifications (TSs) to ensure that operator actions defined in adverse weather procedures maintained the readiness of essential systems; (2) walked down portions of the four systems listed below to ensure that adverse weather protection features (ventilation, 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.

- July 18-19, 2006, Units 1 and 2, service water system and alternate ac diesel generator, Unit 1 intermediate cooling water system, and Unit 1 emergency feedwater system

Documents reviewed by the inspectors included:

- Operating Procedure OP-1104.039, "Plant Heating and Cold Weather Operations," Revision 17
- Operating Procedure OP-2106.032, "Unit Two Freeze Protection Guide," Revision 11

The inspectors completed one sample.

b. Findings

Introduction. A self-revealing Green finding regarding inadequate licensee procedures for maintaining the design temperature of the Unit 1 turbine building resulted in the tripping of a running Unit 1 intermediate cooling water (ICW) pump.

Description. On July 19, 2006, the Unit 1 ICW Pump P-33C tripped while it was supplying the nuclear loop of the ICW system. As designed, ICW Pump P-33B automatically started and resumed cooling the ICW system's nuclear loop loads. Operators investigating the cause of the pump trip noted that the pump's thermal overloads were tripped.

The licensee concluded that the thermal overloads were affected by the high ambient temperatures in the turbine building and installed an emergency temporary alteration to Motor Control Centers B-12 and B-21, which supply power for ICW Pumps P-33A and P-33C. The temporary alteration consisted of opening these pumps' breaker cubicle doors on their associated motor control centers and supplying forced ventilation inside the cubicles with fans.

On July 31, 2006, while investigating the ICW pump breakers with thermography equipment, a system engineer noted that the air blowing from the turbine building ventilation duct read between 115 and 120°F. Further investigation revealed that turbine building Ventilation Fan VEF-5A was taking suction from the turbine building and not from outside of the building as would have been expected during the hot summer weather. The licensee further investigated and discovered that the temperature element associated with controlling the suction damper for Ventilation Fan VEF-5A had failed low causing the undesired recirculation lineup. The licensee initiated Condition Report (CR) ANO-1-2006-0967 to document the problem and issued a corrective action to review the condition for its effect on summertime reliability of the unit.

The inspectors reviewed the licensee's response to the CR and questioned whether the overloads and their settings on ICW Pump P-33C were similar to those on ICW Pumps P-33A and P-33B. The inspectors noted that such a condition could have resulted in all ICW pumps becoming unavailable during the condition where high ambient temperatures existed in the turbine building. Such a condition could initiate a plant transient due to loss of cooling to the main feed pump lube oil coolers, the control rod drive mechanisms, or the reactor coolant pumps. The licensee informed the inspectors that the thermal overloads were identical on all three pumps. The licensee also informed the inspectors that the thermal overloads used for the ICW pumps were not temperature compensated (as was the case in the equivalent Unit 2 system), a feature which could have aided in preventing the vulnerability of losing power to all ICW pumps as a result of high ambient temperatures.

The inspectors discovered that the licensee performed checks of the turbine building ventilation system in their Operating Procedure OP-1015.044, "Summer Reliability Operations," Revision 1. These checks, however, only consisted of verifying the turbine



building ventilation fans were running; no checks of damper positions or instrumentation operation were included. The inspectors determined that ventilation damper positions were not checked on operator rounds, nor was detailed guidance given for operational checks in the system Operating Procedure OP-1104.050, "Turbine Building, Intake Structure, and Miscellaneous Ventilation," Revision 3. Additionally, the inspectors learned that the turbine building ventilation system had been classified as run-to-failure in the preventative maintenance program and, therefore, was not subject to any preventative maintenance procedures. The inspectors considered the licensee's procedures for verification of turbine building ventilation to be inadequate for ensuring the turbine building design temperature specification of less than 105°F was not exceeded. The inspectors concluded that continued operability of the ICW pumps during hot weather conditions had not been adequately assured.

Analysis. The performance deficiency associated with this finding was the licensee's failure to provide adequate procedures for ensuring that turbine building ventilation system was maintained in accordance with Procedure OP 1000.006, "Procedure Control," Revision 55. Procedure OP 1000.006 provides that procedures be appropriate for operation of systems. The finding is greater than minor because it is associated with the initiating events cornerstone attribute of procedural quality and affects the associated cornerstone objective of limiting the likelihood of those events that upset plant stability and challenge critical safety functions. The Phase 1 worksheets in Manual Chapter 0609, "Significance Determination Process," were used to conclude that a Phase 2 analysis was required because the finding contributed to both the likelihood of a reactor trip and the likelihood that mitigation equipment would not be available. The inspectors performed a Phase 2 analysis using Appendix A, "Technical Basis For At Power Significance Determination Process," of Manual Chapter 0609, "Significance Determination Process," and the Phase 2 worksheets for Arkansas Nuclear One. The inspectors assumed that the condition increased the likelihood of a plant transient in which the main feedwater system would be lost because of a loss of its lube oil cooling. Also, the inspectors assumed that the condition existed for less than 30 days after reviewing historical turbine building temperatures and historical local area weather data. Based on the results of the Phase 2 analysis, the finding was determined to have very low safety significance. The most limiting core damage scenarios were plant transients (reactor trips) which would have been mitigated by the auxiliary feedwater pump, the emergency feedwater system, and the high pressure injection system. This finding had a human performance crosscutting aspect which affected the resources component. Specifically, the licensee's turbine building ventilation procedures did not assure a proper turbine building ventilation lineup under hot weather conditions

Enforcement. No violation of regulatory requirements occurred. The inspectors determined that the finding did not represent a noncompliance because it occurred on nonsafety-related equipment. Licensee personnel entered this issue into the CAP as CR ANO-1-2006-0967: Finding (FIN) 05000313/2006004-01, "Loss of Running Intermediate Cooling Water Pump Due to High Ambient Temperatures in the Turbine Building."

## .2 Readiness for Impending Adverse Weather Conditions

The inspectors completed a review of the licensee's readiness for impending adverse weather involving severe thunderstorm and tornado warnings. The inspectors: (1) reviewed plant procedures, the UFSAR, 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 three 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 or tornadoes developed; and (4) reviewed plant modifications, procedure revisions, and operator work arounds to determine if recent facility changes challenged plant operation.

- September 22, 2006, Unit 1 offsite electrical distribution, spent fuel pool, and service water systems

Documents reviewed by the inspectors included:

- Operating Procedure OP-2203.008, "Natural Emergencies Abnormal Operating Procedure," Revision 9

The inspectors completed one sample.

## 1R04 Equipment Alignment (71111.04)

### .1 Partial Walkdown

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 CAP to ensure problems were being identified and corrected.

- July 11, 2006, Unit 2, instrument buses related to maintenance on Inverter 2Y11
- August 17, 2006, Units 1 and 2, emergency feedwater systems during maintenance overhaul of the alternate ac emergency diesel generator

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed two samples.

### .2 Complete Walkdown

The inspectors: (1) reviewed plant procedures, drawings, the UFSAR, TSs, and vendor manuals to determine the correct alignment of the Unit 2 low pressure safety injection system; (2) reviewed outstanding design issues, operator work arounds, and UFSAR

documents to determine if open issues affected the functionality of the low pressure safety injection system; and (3) verified that the licensee was identifying and resolving equipment alignment problems.

Documents reviewed by the inspectors included:

- CR ANO-2-2006-1089
- Operating Procedure OP-2104.040, "LPSI System Operations," Revision 36
- Plant Drawing M-2232, Sheet 1, Revision 116
- Work Order 50267034-01

The inspectors completed one sample.

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05)

.1 Quarterly Inspection

a. Inspection Scope

The inspectors walked down the six 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.

- July 11, 2006, Unit 2 Fire Zone 2076-HH, electrical equipment room
- July 14, 2006, Unit 2 Fire Zone 2055-JJ, lower south piping penetration room
- July 27, 2006, Unit 2 Fire Zone 2084-DD, upper south piping penetration room
- August 13, 2006, Unit 1 Fire Zone N, diesel driven fire pump room
- August 25, 2006, Unit 2 Fire Zone 2151-A, fuel storage room
- September 1, 2006, Unit 2 Fire Zone 2098-L, cable spreading room

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed six samples.

b. Findings

No findings of significance were identified.

1R06 Flood Protection Measures (71111.06)

Semi-annual Internal Flooding

a. Inspection Scope

The inspectors: (1) reviewed the UFSAR, the flooding analysis, and plant procedures to assess seasonal susceptibilities involving internal flooding; (2) reviewed the UFSAR and CAP to determine if the licensee identified and corrected flooding problems; (3) inspected underground bunkers/manholes to verify the adequacy of (a) sump pumps, (b) level alarm circuits, (c) cable splices subject to submergence, and (d) drainage for bunkers/manholes; (4) verified that operator actions for coping with flooding can reasonably achieve the desired outcomes; and (5) walked down the area listed below to verify the adequacy of: (a) equipment seals located below the floodline, (b) floor and wall penetration seals, (c) watertight door seals, (d) common drain lines and sumps, (e) sump pumps, level alarms, and control circuits, and (f) temporary or removable flood barriers.

- August 31, 2006, Unit 1 auxiliary building - 335' elevation

Documents reviewed by the inspectors included:

- Operating Procedure OP-1203.012H, "Annunciator K09 Corrective Action," Revision 31
- Operating Procedure OP-1203.012S, "Annunciator K113 Corrective Action," Revision 23
- Upper Level Document ULD-0-TOP-17, "ANO Flooding Topical," Revision 0
- Engineering Report 92-R-0024-01

The inspectors completed one sample.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification Program (71111.11)

.1 Quarterly Review

a. Inspection Scope

On August 17, 2006, the inspectors observed testing and training of Unit 1 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 first training scenario observed involved malfunctions related to main turbine abnormal conditions such as generator voltage regulator failure, generator winding failure, and turbine support system failures. The second training scenario observed involved malfunctions of the reactor coolant makeup system such as loss of letdown control, trip of operating charging pump, and voiding of makeup system. Both scenarios were conducted during a single simulator session for licensed operators.

Documents reviewed by the inspectors included:

- Simulator Scenario A1SPGLOR070103, "MUP Normal and Abnormal Ops," Revision 0
- Simulator Scenario A1SPGLOR070104, "Turbine Controls Anomalies," Revision 0

The inspectors completed one sample.

b. Findings

No findings of significance were identified.

.2 Biennial Review (Unit 2)

The licensed operator requalification program involves two training cycles that are conducted over a 2-year period. In the first cycle, the annual cycle, the operators are administered an operating test consisting of job performance measures (JPMs) and scenarios. In the second part of the training cycle, the biennial cycle, operators are administered an operating test and a written examination. The inspectors reviewed the results of the annual requalification program for Unit 1 and the biennial cycle for Unit 2.

a. Inspection Scope

To assess the performance effectiveness of the licensed operator requalification program, the inspectors conducted personnel interviews, reviewed both the operating and written examinations, and observed ongoing operating examination activities.

The inspectors interviewed five licensee personnel, consisting of three operators, one instructor, and a training supervisor to determine their understanding of the policies and practices for administering requalification examinations. The inspectors also reviewed

operator performance on the written and operating examinations. These reviews included observations of portions of the operating examination by the inspectors. The operating examinations observed included six JPMs and two scenarios that were used in the current biennial requalification cycle. These observations allowed the inspectors to assess the licensee's effectiveness in conducting the operating test to ensure operator mastery of the training program content.

The results of these examinations were reviewed to determine the effectiveness of the licensee's appraisal of operator performance and to determine if feedback of performance analyses into the requalification training program was being accomplished. The inspectors interviewed members of the training department and reviewed minutes of training review group meetings to assess the responsiveness of the licensed operator requalification program to incorporate the lessons learned from both plant and industry events. Examination results were also assessed to determine if they were consistent with the guidance contained in NUREG 1021, "Operator Licensing Examination Standards for Power Reactors", Revision 9, and NRC Manual Chapter 0609, Appendix I, "Operator Requalification Human Performance Significance Determination Process." All but one of the operators passed the written examination. The one operator that failed the written examination was remediated and successfully re-examined.

b. Findings

No findings of significance were identified.

.3 Annual Review (Unit 1)

a. Inspection Scope

The inspectors conducted an in-office review of the annual requalification training program to determine the results of this program. Fifty-nine operators (23 reactor operators and 36 senior reactor operators) were examined during this requalification cycle. In addition, nine operating crews were examined on the facility's simulator. All of the operating crews passed the simulator examinations and all operators passed the operating examinations.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness (71111.12)

.1 Quarterly Review

a. Inspection Scope

The inspectors reviewed the two below listed maintenance activities 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.

- August 16, 2006, Unit 1, Main Feedwater Isolation Valves CV-2630 and CV-2680
- September 21, 2006, Unit 1, intermediate cooling water pumps

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed two samples.

b. Findings

No findings of significance were identified.

.2 Triennial Periodic Evaluation (71111.12T)

a. Inspection Scope

The inspectors reviewed the last assessment performed in 2006 dated June 16, 2006.

The inspectors reviewed the program for the monitoring of risk-significant functions associated with SSCs using reliability and unavailability. The performance monitoring of nonrisk-significant functions using plant level criteria was also reviewed.

The inspectors evaluated whether the report contained adequate assessment of the performance of the Maintenance Rule program as well as conformance with applicable programmatic and regulatory requirements. To accomplish this, the inspectors verified that the licensee appropriately and correctly addressed the following attributes in the assessment reports:

- Program treatment of nonrisk-significant SSC functions monitored against plant level performance criteria
- Program adjustments made in response to unbalanced reliability and availability
- Application of industry operating experience
- Performance review of Category (a)(1) systems
- Evaluation of the bases for system category status change (e.g., (a)(1) to (a)(2) or (a)(2) to (a)(1))
- Effectiveness of performance and condition monitoring at component, train, system, and plant levels
- Review and adjustment of definitions of functional failures

The inspectors reviewed procedures, action requests, and Category (a)(1) recovery plans associated with the above activities for components in the following systems, which completed the required minimum of four samples:

- emergency diesel generators
- auxiliary building heating ventilation and air conditioning
- standby service water system
- emergency feedwater system

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

Risk Assessment and Management of Risk

The inspectors reviewed the five below listed assessment activities 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.

- July 24-29, 2006, Unit 1, scheduled maintenance activities for the week
- July 31 - August 5, 2006, Unit 2, scheduled maintenance activities for the week
- August 14-18, 2006, Units 1 and 2, alternate ac diesel generator maintenance
- August 23, 2006, Unit 1, Containment Spray Pump P-35B planned maintenance during severe weather
- August 24-25, 2006, Unit 2, shutdown operations protection plan

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed five samples.

b. Findings

No findings of significance were identified.



1R14 Operator Performance During Nonroutine Plant Evolutions and Events  
(71111.14, 71153)

a. Inspection Scope

The inspectors: (1) reviewed operator logs, plant computer data, and/or strip charts for the below listed evolutions to evaluate operator performance in coping with nonroutine events and transients; (2) verified that operator actions were in accordance with the response required by plant procedures and training; and (3) verified that the licensee has identified and implemented appropriate corrective actions associated with personnel performance problems that occurred during the nonroutine evolutions sampled.

- June 30, 2006, Unit 1, spent fuel pool/cast pit gate leakage
- July 11, 2006, Unit 2, inadvertent manual actuation of Channel 3 main steam line actuation signal due to a dropped control room recorder

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed two samples.

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) used the significance determination process to evaluate the risk significance of degraded or inoperable equipment; and (6) verified that the licensee has identified and implemented appropriate corrective actions associated with degraded components.

- July 19, 2006, Unit 1, Emergency Feedwater Admission Valves SV-2613 and SV-2663 during hot ambient conditions
- July 21, 2006, Unit 1, Station Inverter Y-28 unplanned transfer to its alternate power supply
- July 26, 2006, Units 1 and 2, control room emergency recirculation system related to control room habitability

- August 11, 2006, Unit 1, backed up floor drains in rooms containing 125 volt dc safety-related Station Battery Banks D06 and D07

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed four samples.

b. Findings

No findings of significance were 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.

- June 27, 2006, Unit 2, Emergency Diesel Generator 2K4A following 18-month overhaul
- July 21, 2006, Unit 1, Station Inverter Y-28 repairs following unplanned transfer to its alternate power source
- August 21, 2006, Unit 1, Service Water Valve CV-3813 following corrective maintenance
- September 8, 2006, Units 1 and 2 alternate ac emergency diesel generator overhaul

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed four samples.

b. Findings

No findings of significance were identified.

1R20 Refueling and Outage Activities (71111.20)

a. Inspection Scope

During the beginning of the Unit 2 Refueling Outage 2R18 from September 19-23, 2006, 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) reactor coolant system instrumentation, (3) electrical power, (4) decay heat removal, (5) inventory control, (6) reactivity control, (7) containment closure, (8) cooldown activities, and (9) licensee identification and implementation of appropriate corrective actions associated with refueling and outage activities.

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 six below listed surveillance activities 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 ASME 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.

- June 28, 2006, Unit 2, reactor coolant system leakage detection surveillance
- June 27, 2006, Unit 1, Service Water Valve CV-3812 quarterly test
- July, 12, 2006, Unit 1, service water supply to emergency feedwater pump suction Motor-Operated Valve CV-3850 and Emergency Feedwater Pump P-7A suction for condensate storage tank Motor-Operated Valve CV-2800
- July 13, 2006, Unit 2, Containment Spray Pump 2P-35A (pump inservice test)

- August 1, 2006, Unit 2, Low Pressure Safety Injection Pump 2P-60A
- August 11, 2006, Unit 2, Station Battery 2D12 quarterly surveillance

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed six samples.

b. Findings

No findings of significance were identified.

1R23 Temporary Plant Modifications (71111.23)

a. Inspection Scope

The inspectors reviewed the UFSAR, plant drawings, procedure requirements, and TS's to ensure that the one below listed temporary modifications were 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.

- August 1-2, 2006, Unit 1, Motor Control Centers B-12 and B-22

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed one sample.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA2 Identification and Resolution of Problems (71152)

.1 Routine Review of Identification and Resolution of Problems

The inspectors performed a daily screening of items entered into the licensee's CAP. This assessment was accomplished by reviewing work orders and CRs 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 followup through other baseline inspection procedures.

## .2 Selected Issue Followup Inspection

### a. Inspection Scope

In addition to the routine review, the inspectors selected the two below listed issues for a more in-depth review. The inspectors considered the following during the review of the licensee's actions: (1) complete and accurate identification of the problem in a timely manner; (2) evaluation and disposition of operability/reportability issues; (3) consideration of extent of condition, generic implications, common cause, and previous occurrences; (4) classification and prioritization of the resolution of the problem; (5) identification of root and contributing causes of the problem; (6) identification of corrective actions; and (7) completion of corrective actions in a timely manner.

- August 15, 2006, Units 1 and 2, cumulative effects of operator workarounds
- August 29, 2006, Units 1 and 2, unplanned instances of safety-related inverters swapping to their alternate power supplies

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

The inspectors completed two samples.

b. Findings

No findings of significance were identified. The inspectors, however, did note concerns with two licensee actions regarding Unit 1 Inverter Y-28.

In February 2006, Inverter Y-28 was taken out of service for unscheduled corrective maintenance. At that time, the inverter vendor inspected the inverter and noted that the electronic chokes were degraded and informed licensee engineers. The licensee engineers failed to enter this condition in the for CAP. In August 2006, Inverter Y-28 was taken out of service for an unscheduled failure which the licensee determined the most likely cause to be a failure of the electronic chokes. Because the condition had been identified in February but not brought to management attention, this failure could have potentially been avoided. Because of the function of Inverter Y-28, the inspectors concluded any potential noncompliance with the licensee's corrective action procedures associated with this condition would have been minor in nature.

In May 2006, Inverter Y-28 was again taken out of service for unscheduled corrective maintenance. The cause of its failure was determined to be a cocked relay card which had not been identified during the February 2006 closeout inspection. Because of the function of Inverter Y-28, the inspectors concluded any potential noncompliance with the licensee's maintenance procedures associated with this condition would have been minor in nature.

The inspectors reviewed CR ANO-1-2006-0198, CR ANO-1-2006-0687, CR ANO-1-2006-0938, and CR ANO-1-2006-0964 which detail these issues and their corrective actions.

.3 Routine Review of Maintenance Rule Identification and Resolution of Problems

a. Inspection Scope

As part of the Maintenance Rule triennial periodic evaluation inspection (Section 1R12.2), the inspectors evaluated the use of the corrective action system within the Maintenance Rule program for issues associated with risk significant systems. The review was accomplished by the examination of a sample of corrective action documents associated with systems that were or had been in Maintenance Rule Category (a)(1), including recovery plans for improving system performance. The purpose of the review was to establish that the CAP was entered at the appropriate threshold for the purpose of:

- Implementation of the corrective action process when a performance criterion was exceeded.
- Correction of performance-related issues or conditions identified during the periodic evaluation.
- Correction of generic issues or conditions identified during programmatic assessments, audits, or surveillances.

b. Findings

No findings of significance were identified.

40A3 Event Followup (71153)

Operator Performance During Nonroutine Plant Evolutions and Events

a. Inspection Scope

The inspectors: (1) reviewed operator logs, plant computer data, and/or strip charts for the below listed evolution to evaluate operator performance in coping with nonroutine events and transients; (2) verified that operator actions were in accordance with the response required by plant procedures and training; and (3) verified that the licensee has identified and implemented appropriate corrective actions associated with personnel performance problems that occurred during the nonroutine evolutions sampled.

- August 13, 2006, Unit 2, plant down power to 85 percent rated thermal power for unplanned repairs to Main Feedwater Pump 2P-1A electric hydraulic servo control valve

b. Findings

No findings of significance were identified.

40A5 Other Activities

.1 (Closed) NRC Temporary Instruction 2515/167: Assurance of Industry Implementation of Key Shutdown Voluntary Initiatives

The inspectors reviewed refueling outage documents and interviewed licensee personnel to verify the licensee was implementing the key voluntary shutdown initiatives as described in NUMARC 91-06, "Guidelines for Industry Actions to Assess Shutdown Management," and in Generic Letter 88-17, "Loss of Decay Heat Removal (Generic Letter No. 88-17) 10 CFR 50.54(f)." Appropriate documentation of the results of this inspection was provided to NRC headquarters staff for further analysis, as required by the Temporary Instruction. This completes the Region IV inspection Temporary Instruction requirements for Arkansas Nuclear One.

40A6 Meetings, Including Exit

The inspectors briefed Ms. S. Cotton and other members of the licensee's staff of the results of the licensed operator requalification program inspection on June 15, 2006. The licensee acknowledged the findings presented. After final review of the overall biennial requalification examinations on Unit 2 and the annual requalification examinations on Unit 1, the inspectors conducted a teleconference exit with the licensee on August 23, 2006.

On August 24, 2006, the Temporary Instruction 167 inspectors conducted an exit meeting with Mr. J. Forbes, Vice President, Operations, and other licensee personnel. No proprietary information was reviewed.

On September 1, 2006, the maintenance rule inspectors conducted a telephonic exit meeting with Mr. F. Van Buskirk, licensing, and other licensee personnel. No proprietary information was reviewed.

The resident inspectors presented the inspection results of the resident inspections to Mr. J. Forbes, Vice President, Operations, and other members of the licensee's management staff on October 2, 2006. The licensee acknowledged the findings presented. The inspectors noted that while proprietary information was reviewed, none would be included in this report.

ATTACHMENT: SUPPLEMENTAL INFORMATION



## SUPPLEMENTAL INFORMATION

### KEY POINTS OF CONTACT

#### Licensee Personnel

L. Barr, Instructor/Evaluator, Operations Training, Unit 2  
B. Berryman, Manager, Operations Unit 1  
M. Blanchard, Instructor/Evaluator, Operations Training, Unit 2  
J. Browning, Manager, Operations Unit 2  
C. Burghard, Senior Reactor Operator  
B. Byford, Supervisor, Simulator Training  
L. Cawyer, Reactor Operator  
B. Coble, Instructor/Evaluator, Operations Training, Unit 2  
S. Cotton, Manager, Training  
B. Daiber, Supervisor, Systems Engineering  
J. Eichenberg, Manager, Corrective Actions and Assessments  
J. Forbes, Vice President, Operations  
J. Giles, Manager, Technical Support  
M. Gulick, Instructor/Evaluator, Operations Training, Unit 2  
A. Hawkins, Licensing Specialist  
G. Hines, Maintenance Rule Coordinator  
J. Hoffpauir, Manager, Maintenance  
R. Holleyfield, Manager, Emergency Planning  
B. Hurley, Instructor/Evaluator, Operations Training, Unit 2  
D. James, Manager, Licensing  
J. Kowalewski, Director, Engineering  
T. Marlow, Director, Nuclear Safety Assurance  
T. Mayfield, Supervisor, Operations Training, Unit 2  
J. Miller, Jr., Manager, System Engineering  
T. Mitchell, General Manager, Plant Operations  
C. O'Dell, Senior Reactor Operator  
R. Reynolds, Plant Nurse  
C. Tyrone, Manager, Quality Assurance  
F. Van Buskirk, Licensing Specialist  
P. Williams, Supervisor, Systems Engineering

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

#### Opened and Closed

05000313/2006004-01    FIN    Loss of running intermediate cooling water pump due to high ambient temperatures in the turbine building (Section 1R01)

#### Closed

None

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 1R04: Equipment Alignment

##### Plant Drawings

E-2014, Sheet 1, Revision 49	E-2015, Sheet 2, Revision 36	M-206, Sheet 1, Revision 125
E-2014, Sheet 2, Revision 37	E-2015, Sheet 3, Revision 35	M-204, Sheet 4, Revision 64
E-2014, Sheet 3, Revision 37	E-2015, Sheet 4, Revision 42	M-2206, Sheet 1, Revision 144
E-2014, Sheet 4, Revision 45	E-2017, Sheet 1B, Revision 7	
E-2015, Sheet 1, Revision 42	M-204, Sheet 3, Revision 31	

##### Procedures

NUMBER	TITLE	REVISION
OP-1106.006	Emergency Feedwater Pump Operation	65
OP-2106.006	Emergency Feedwater System Operation	57
OP-2107.003	Inverter and 120 VAC Electrical System Operation	20

#### Section 1R05: Fire Protection

##### Plant Drawings

FP-2101, Sheet 1, Revision 15	FP-2104, Sheet 1, Revision 30	FP-2110, Sheet 1, Revision 7
FP-2103, Sheet 1, Revision 27	FP-2105, Sheet 1, Revision 24	

##### Procedures

NUMBER	TITLE	REVISION
	Arkansas Nuclear One Fire Hazards Analysis	9
PFP-U1	ANO Prefire Plan (Unit 1) - Section 1b-add-unit1-intake.doc	2
PFP-U2	ANO Prefire Plan (Unit 2) - Section 2b-354-2084-dd.doc	2

Section 1R11: Licensed Operator Requalification Program

Procedures

NUMBER	TITLE	REVISION
	Training Desk Guide 4.4	8
EN-NS-112,	Medical Program	1
DG-TRNA-032- SIMEVALS	Simulator Performance Evaluation	12
DG-TRNA-4.5- SIMTRNG	Conducting Simulator Training	9
1064.023	JPM, Change 007-01-0	
1064.032	Simulator Training, Change 019-01-0	
EN-TQ-201	Systematic Approach to Training Process	1
1063.008	Operations Training Sequence, Change 034-01-0	

Scenarios

NUMBER	TITLE	REVISION
SES-2-016	Dynamic Exam Scenario	5
SES-2-013	Dynamic Exam Scenario	4

JPMs

NUMBER	TITLE	REVISION
JPM-A2JPM-RO- EOP01	Secure Containment Spray (during recovery actions for SIAS)	7
A2JPM-RO-FSST15	Fires in Areas Affecting Safe Shutdown (Alternate Success Path)	0
A2JPM-RO-XFCEA	Transfer a CEA to the Hold Bus	9
A2JPM-SRO-EAL9	Determine Emergency Action Level/Protective Action Recommendation	0
JPM-A2JPM-RO-SIT01	Perform a High Pressure Fill of a SIT (Alternate Success Path)	9
JPM-A2JPM-RO- MTG02	Perform a Manual Synchronization of the Main Turbine Generator to the System	4
A2JPM-RO-SFPFL	Line up to Fill the Spent Fuel Pool from CVCS	7

A2JPM-RO-FPEM2	Perform Service Water Emergency Makeup to the Spent Fuel Pool [SFP] (with Loop 2 service water)	11
ANO-2-JPM-RO-MTG05	Perform a Manual Synchronization of the Main Turbine Generator to the System (Alternate Success Path)	4
ANO-2-JPM-RO-EDG02	Load the Diesel Generator	7

Written Examinations

U2 Biennial Written Exam 2006, Test 1, Revision 0  
U2 Biennial Written Exam 2006, Test 3, Revision 0  
U2 Biennial Written Exam 2006, Test 5, Revision 0

Assessments

Arkansas Nuclear One Operations Training Corporate Assisted Assessment, July 1, 2005

LO-ALO-2006-00059 CA-1, Focused Assessment of Objective 5 from ACAD 02-001 which evaluates the Conduct of Training and Trainee Evaluation in the Operations and Technical training programs, April 20 through May 2, 2006

Operations Training Accreditation Objective 1 Focused Assessment, February 8-9, 2006

Snapshot Assessment on Unit 2 Operations Pre-71111.11 Licensed Operator Requalification Program, May 15-17, 2006

CRs

ANO-C-2005-01025  
ANO-C-2005-01268

Licensee Event Reports (LERs)

LER 2004-002  
LER 2004-003  
LER 2005-001

Miscellaneous

Training Performance Indicators, Revision 2  
TEAR ANO 2006-32, Capture All Recommendations that Need to be Addressed by TRG  
Medical Records for Six Operators  
LO-ALO-2006-00038, Include Actions from Objective 1 Assessment, February 13, 2006

Section 1R12: Maintenance Effectiveness

CRs

ANO-1-2003-0346	ANO-1-2005-2933	ANO-1-2006-1053
ANO-1-2003-0916	ANO-1-2006-0940	

Procedures

NUMBER	TITLE	REVISION
OP-1102.001	Plant Preheatup and Precritical Checklist, Supplement 3	62
OP-1105.005	Emergency Feedwater Initiation and Control, Supplement 2	28

Miscellaneous

NUMBER	TITLE	REVISION
CEP-IST-1	IST Bases Document	4

Maintenance Effectiveness Triennial Review

Procedures

NUMBER	TITLE	REVISION
COPD-024	Risk Assessment Guidelines	017
ENS-DC-121	Maintenance Rule Monitoring Program	4
CES-19	Maintenance Rule Structural Monitoring at Arkansas Nuclear One	3

CRs

ANO-1-2005-1334	ANO-1-2005-2795	ANO-1-2006-0101	ANO-1-2006-0966
ANO-1-2005-1575	ANO-1-2005-2821	ANO-1-2006-0178	ANO-1-2006-0968
ANO-1-2005-1903	ANO-1-2005-2825	ANO-1-2006-0187	ANO-2-2005-1866
ANO-1-2005-1984	ANO-1-2005-2848	ANO-1-2006-0250	ANO-2-2005-1919
ANO-1-2005-2182	ANO-1-2005-2878	ANO-1-2006-0424	ANO-2-2005-2075
ANO-1-2005-2185	ANO-1-2005-2947	ANO-1-2006-0454	ANO-2-2005-2138
ANO-1-2005-2303	ANO-1-2005-2951	ANO-1-2006-0463	ANO-2-2005-2177
ANO-1-2005-2490	ANO-1-2005-3001	ANO-1-2006-0581	ANO-2-2005-2178
ANO-1-2005-2493	ANO-1-2005-3011	ANO-1-2006-0732	ANO-2-2005-2180
ANO-1-2005-2494	ANO-1-2005-3018	ANO-1-2006-0734	ANO-2-2005-2198
ANO-1-2005-2496	ANO-1-2005-3028	ANO-1-2006-0764	ANO-2-2005-2218
ANO-1-2005-2613	ANO-1-2005-3034	ANO-1-2006-0771	ANO-2-2005-2222
ANO-1-2005-2634	ANO-1-2005-3037	ANO-1-2006-0866	ANO-2-2005-2240
ANO-1-2005-2725	ANO-1-2005-3087	ANO-1-2006-0903	ANO-2-2005-2260
ANO-1-2005-2793	ANO-1-2006-0036	ANO-1-2006-0945	ANO-2-2005-2268

ANO-2-2005-2271	ANO-2-2005-2556	ANO-2-2006-0145	ANO-2-2006-0329
ANO-2-2005-2273	ANO-2-2005-2572	ANO-2-2006-0151	ANO-2-2006-0365
ANO-2-2005-2280	ANO-2-2005-2575	ANO-2-2006-0169	ANO-2-2006-0367
ANO-2-2005-2322	ANO-2-2005-2576	ANO-2-2006-0192	ANO-2-2006-0390
ANO-2-2005-2353	ANO-2-2005-2593	ANO-2-2006-0209	ANO-2-2006-0408
ANO-2-2005-2354	ANO-2-2005-2613	ANO-2-2006-0212	ANO-2-2006-0462
ANO-2-2005-2358	ANO-2-2006-0001	ANO-2-2006-0215	ANO-2-2006-0466
ANO-2-2005-2374	ANO-2-2006-0010	ANO-2-2006-0223	ANO-2-2006-0470
ANO-2-2005-2390	ANO-2-2006-0017	ANO-2-2006-0233	ANO-2-2006-0517
ANO-2-2005-2426	ANO-2-2006-0028	ANO-2-2006-0234	ANO-2-2006-0540
ANO-2-2005-2470	ANO-2-2006-0036	ANO-2-2006-0241	ANO-2-2006-0564
ANO-2-2005-2481	ANO-2-2006-0037	ANO-2-2006-0283	ANO-2-2006-0613
ANO-2-2005-2504	ANO-2-2006-0042	ANO-2-2006-0291	ANO-2-2006-0773
ANO-2-2005-2507	ANO-2-2006-0075	ANO-2-2006-0309	ANO-2-2006-1183
ANO-2-2005-2525	ANO-2-2006-0078	ANO-2-2006-0314	ANO-2-2006-1220
ANO-2-2005-2535	ANO-2-2006-0105	ANO-2-2006-0318	
ANO-2-2005-2536			

MISCELLANEOUS DOCUMENTS

ANOC-SE-06-00003, Maintenance Rule Periodic Assessment dated June 15, 2006

Regulatory Guide 1.160, "Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," Revision 2

NUMARC 93-01, "Industry Guideline for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," Revision 2

NEI 96-03, "Industry Guideline for Monitoring the Condition of Structures at Nuclear Power Plants," Revision D1

Qualification Card ENGNTS9, "Perform Tasks Associated With the Maintenance Rule"

Section 1R14: Operator Performance During Nonroutine Plant Evolutions and Events

Plant Drawings

E-2727, Sheet 5, Revision 12

Procedures

NUMBER	TITLE	REVISION
OP-2202.010	Standard Attachments - Attachment 14, "MSIS Reset"	7
OP-2304.091	Unit 2 Plant Protection System Channel C Cabinet Calibration	6

Section 1R15: Operability Evaluations

CRs

ANO-C-2006-1225	ANO-1-2006-0940	ANO-1-2003-0346
ANO-1-2006-0938	ANO-1-2006-1053	

Plant Drawings

M-263, Sheet 1, Revision 70

Procedures

NUMBER	TITLE	REVISION
EN-OP-104	Operability Determinations	1

Section 1R19 Postmaintenance Testing

Procedures

NUMBER	TITLE	REVISION
OP-2104.037	Alternate AC Diesel Generator Operations	8

Station Logs

NUMBER	TITLE	REVISION
OPS-B39	Alternate AC Diesel Generator Log	2/26/01

Work Orders

00091628-01	50966383 01
00091628-04	50966800 01
00091628-05	

Section 1R22 Surveillance Testing

Miscellaneous

CEP-IST-1, "IST Bases Document" Revision 4  
ASME OMa-1988 Part 6, "Inservice Testing of Pumps in Light-Water Reactor Power Plants"  
ASME OMa-1988 Part 10, "Inservice Testing of Valves in Light-Water Reactor Power Plants"  
System Training Manual STM 2-08, "Containment Spray System," Revision 7

Plant Drawings

M-204, Sheet 3, Revision 31

Procedures

NUMBER	TITLE	REVISION
OP-1106.06	Emergency Feedwater Pump Operation	65
OP-2104.005	Containment Spray	43
OP-2304.016	Unit 2 Process Radiation Monitoring Monthly Test	16
OP-2304.023	2D12 Quarterly Surveillance	15

Work Orders

51033036-01                      51036899-01

Section 4OA5 Other Activities

Procedures

NUMBER	TITLE	REVISION
1015.002	Decay Heat Removal and LTOP System Control	27
1015.008	Unit 2 SDC Control	19
COPD-003	Door Breach Checklist	11
2203.029	Loss of Shutdown Cooling	11
2103.011	Draining the Reactor Coolant System	30
1203.025	Natural Emergencies	20
2203.008	Natural Emergencies	9
1103.011	Draining and Blanketing of the RCS	28

Drawings

M-2913, Sheet 3, Revision 0



Miscellaneous Documents

NUMBER	TITLE	REVISION
N/A	Shutdown Operations Protection Plan	August 4, 2005
ULD-0-TOP-09	Loss of Decay Heat Removal Topical	1
N/A	Loss of Shutdown Cooling 2203.029 Technical Guidelines	11
STM 1-51-1	Refueling Machine and Reactor Building Fuel Handling Equipment	3
STM 2-51-1	Main Refueling Bridge and Reactor Building Fuel Handling Equipment	7
CALC 89-1005-10	ANO-1 Loss of DHR RCS Pressurization Estimates	1
CALC 89-E-0017-01	Time to Boiling and Time to Core Uncovery After Loss of Decay Heat Removal	7
CALC 91-E-0052-01	Prevention of ANO-1 RCS Pressurization due to Loss of Decay Heat Removal	2
CALC 89-E-0017-03	ANO-1 Reactor Building Pressure with Loss of Decay Heat Removal	4

**LIST OF ACRONYMS**

ANO	Arkansas Nuclear One
CAP	corrective action program
CFR	<i>Code of Federal Regulations</i>
CR	condition report
FIN	finding
ICW	intermediate cooling water
JPM	job performance measure
LER	licensee event report
SSC	structure, system, and component
TS	Technical Specification
UFSAR	Updated Final Safety Analysis Report