



**UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
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ARLINGTON, TEXAS 76011-8064**

May 1, 2001

Craig G. Anderson, Vice President,
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Arkansas Nuclear One
Entergy Operations, Inc.
1448 S.R. 333
Russellville, Arkansas 72801-0967

**SUBJECT: ARKANSAS NUCLEAR ONE - NRC INSPECTION REPORT
50-313/00-13; 50-368/00-13**

Dear Mr. Anderson:

On March 31, 2001, the NRC completed an inspection at your Arkansas Nuclear One, Units 1 and 2, facility. The enclosed report documents the inspection findings which were discussed on March 31, 2001, with you and other members of your staff.

This 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. Within these areas, the inspection consisted of selected examination of procedures and representative records, observations of activities, and interviews with personnel.

Based on the results of this inspection, the NRC has identified one issue that was evaluated under the risk significance determination process as having very low safety significance (Green). The NRC has also determined that a violation is associated with this issue. This violation is being treated as a noncited violation (NCV), consistent with Section VI.A.1 of the Enforcement Policy. The NCV is described in the subject inspection report. If you contest the violation or significance of the NCV, 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; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at the Arkansas Nuclear One, Units 1 and 2 facility.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response will be made available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/NRC/ADAMS/index.html> (the Public Electronic Reading Room).

Entergy Operations, Inc.

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Should you have any questions concerning this inspection, we will be pleased to discuss them with you.

Sincerely,

/RA/

Linda Joy Smith, Chief
Project Branch D
Division of Reactor Projects

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

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NRC Inspection Report
50-313/00-13; 50-368/00-13

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ENCLOSURE

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Dockets: 50-313
50-368

Licenses: DPR-51
NPF-6

Report No: 50-313/00-13
50-368/00-13

Licensee: Entergy Operations, Inc.

Facility: Arkansas Nuclear One, Units 1 and 2, facility

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

Dates: December 31, 2000, through March 31, 2001

Inspectors: R. Bywater, P.E., Senior Resident Inspector
B. Baca, Health Physicist
T. Gody, Senior Resident Inspector
W. Maier, Senior Emergency Preparedness Inspector
J. Melfi, Project Engineer
M. Peck, Reactor Engineer
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K. Weaver, Resident Inspector
L. Willoughby, Project Engineer
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Approved By: Linda Joy Smith, Chief, Project Branch D
Division of Reactor Projects

SUMMARY OF FINDINGS

Arkansas Nuclear One, Units 1 and 2 NRC Inspection Report 50-313/00-013; 50-368/00-013

IR 05000313-00-13, IR 05000368-00-13; on 12/31/2000-03/31/2001; Entergy Operations, Inc., Arkansas Nuclear One, Units 1 and 2. Integrated Resident and Regional Report.

The inspection was conducted by resident inspectors, region-based project engineers, region-based emergency preparedness inspectors, a region-based physical security inspector, region-based engineering and maintenance inspector, and a region-based senior health physicist. The inspection identified one Green finding that was a noncited violation. The significance of the finding is indicated by its color and was determined using MC 0609, "Significance Determination Process" (SDP).

A. Inspector Identified Findings

Cornerstone: Mitigating Systems

Green. During an audit of fire watch post log sheets, the inspectors determined that a person who did not have required fire watch training had performed hourly fire watch patrols in the Unit 2 intake structure on approximately 12 occasions between April 18-20, 2000, and in the Unit 2 emergency diesel generator corridor on approximately 33 occasions between April 11 and May 4, 2000. Unit 2 Technical Specification 6.8.1.f required that written procedures shall be established, implemented, and maintained covering Fire Protection Program implementation. Procedure 1000.152 was a procedure that implemented the Fire Protection Program and required that fire watch personnel be trained in their duties. Not having a trained individual perform fire watch duties is a violation of Procedure 1000.152 and Technical Specification 6.8.1.f.

This noncited violation was determined to have very low safety significance because for each location, the fire mitigation frequency and initiating event frequency were estimated to be low (approximately 1 per 10^4 - 10^5 year) using the fire protection significance determination process. The exposure time of inadequate hourly fire watch patrols during the period of concern was less than 3 days, which produced a Green result in the risk significance determination matrix (Section 1R05.1).

B. Licensee Identified Violations

Violations of very low significance, which were identified by the licensee, have been reviewed by the inspectors. Corrective actions taken or planned by the licensee appear reasonable. These violations are listed in Section 4OA7 of this report.

Report Details

Summary of Plant Status

Unit 1 began the inspection period operating at 100 percent power. On January 5, 2001, a power reduction was commenced due to increasing main generator hydrogen leakage and the unit was manually tripped when hydrogen leakage increased rapidly. Following repair of a hydrogen line, the unit was brought back online on January 7 and was returned to 100 percent power on January 8. On March 16, Unit 1 operators reduced power and on March 17 the unit was removed from service to begin Refueling Outage 1R16. The unit remained shutdown for refueling for the remainder of the inspection period.

Unit 2 began the inspection period operating at 100 percent power. On January 11, 2000, Unit 2 operators reduced power in response to a suspected condenser tube leak. On January 12, the unit was taken offline due to high turbine vibrations. The reactor was maintained critical. Condenser tube leaks were repaired and attempts were made to place the unit online and increase power between January 12 and January 16, but high turbine vibrations required taking the unit offline several times. On January 16, the unit was placed back in service but condenser tube leakage elevated again. The unit was taken offline and the reactor was manually shutdown and placed in Mode 4 on January 17. Following condenser inspections and repairs, the reactor was restarted and the unit placed online on January 23. The unit was returned to 100 percent power on January 24 and remained at 100 percent power for the remainder of the inspection period.

1. REACTOR SAFETY Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity, Emergency Preparedness

1R04 Equipment Alignment (71111.04)

.1 Unit 2 High Pressure Safety Injection System

a. Inspection Scope

Inspectors performed a complete system walkdown of the Unit 2 high pressure safety injection system. The walkdown included verification of mechanical and electrical system line up, review of outstanding maintenance work requests, system deficiencies, temporary modifications, and operator workarounds. The inspectors used Procedure 2104.039, Revision 40, "HPSI System Operation."

b. Findings

No findings of significance were identified.

.2 Unit 1 Emergency Diesel Generators (EDGs)

a. Inspection Scope

Inspectors verified correct equipment alignment of the Unit 1 EDG 1 when the redundant Unit 1 EDG 2 was out of service for planned maintenance on two separate occasions.

The inspectors also verified correct equipment alignment of the Unit 1 EDG 2 when the redundant Unit 1 EDG 1 was out of service for planned maintenance on two separate occasions. The inspectors used Procedure 1104.036, Revision 39, "Emergency Diesel Generator Operation," station drawings, and the Updated Final Safety Analysis Report.

b. Findings

No findings of significance were identified.

.3 Unit 1 Emergency Feedwater

a. Inspection Scope

Using Procedure 1106.006, "Emergency Feedwater Pump Operation," Revision 61, the inspectors verified proper equipment alignment for operability of the Unit 1 Emergency Feedwater Pump P-7A while Pump P-7B was in a test configuration and inoperable.

b. Findings

No findings of significance were identified.

.4 Unit 1 Reactor Building Spray Train A

a. Inspection Scope

Using Procedure 1104.005, "Reactor Building Spray System Operation," Revision 40, the inspectors verified complete proper equipment alignment for operability of the Unit 1 Train A reactor building spray system.

b. Findings

No findings of significance were identified.

.5 Unit 1 Service Water System

a. Inspection Scope

The inspectors performed a partial walkdown of the Unit 1 service water system. Service Water Piping & Instrument Diagram M-210, Revision 133, was used to verify the correct line up of the system.

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05)

.1 Fire Protection Record Review

a. Inspection Scope

The inspectors reviewed completed fire watch post log sheets (Form 1000.120B, Revision 9) and personnel training records to ensure that fire watch patrols for fire protection feature deficiencies had been performed by trained and qualified fire watch personnel as required by Procedure 1000.152, "Units 1 & 2 Fire Protection System Specifications," Revision 3, and Procedure 1000.120, Revision 9, "ANO Fire Watch Program."

b. Findings

During an audit of fire watch post log sheets, the inspectors determined that personnel, who did not have required fire watch training, had performed hourly fire watch patrols. Use of an untrained fire watch was determined to be a noncited violation (NCV) of very low safety significance.

The inspectors found during an audit of fire watch post log sheets that between April 18-20, 2000, a person who did not have required fire watch training had performed hourly fire watch patrols in the Unit 2 intake structure on approximately 12 occasions; and, between April 11 and May 4, 2000, a person who did not have required fire watch training had performed hourly fire watch patrols in the Unit 2 EDG corridor on approximately 33 occasions.

This finding was determined to have a credible impact on safety, because an untrained fire watch may not have been able to properly extinguish a fire, if one had occurred. The finding involved a degradation of a fire protection feature, because the degraded fire barriers were not properly compensated. The finding was evaluated using Appendix F, "Fire Protection," of Manual Chapter 0609, "Significance Determination Process," and Inspection Procedure 71111.05 and was found to have very low safety significance (Green), because the fire mitigation frequency and initiating event frequency were low. For each location, the fire mitigation frequency and initiating event frequency were estimated to approximately 1 per 10^4 - 10^5 year. The exposure time of inadequate hourly fire watch patrols during the period of concern was less than 3 days.

Unit 2 Technical Specification 6.8.1.f required that written procedures shall be established, implemented, and maintained covering the Fire Protection Program implementation. Procedure 1000.152 was a procedure that implemented the Fire Protection Program and required that fire watch personnel be trained in their duties. Failure to follow the procedure and Technical Specification is a violation that has credible impact on safety and is characterized by the SDP as having very low risk significance (Green). This issue was captured in the licensee's corrective action program as Condition Report (CR) ANO-C-2000-228. As a result, the violation is being treated as a NCV, consistent with Section VI.A.1 of the NRC Enforcement Policy (NCV 50-368/0013-01).

.2 Fire Protection Walkdowns

a. Inspection Scope

The inspectors performed fire protection walkdowns to assess the material condition of plant fire protection equipment, proper control of transient combustibles, and operational status of fire barriers used to prevent fire propagation. The following risk-significant areas were inspected to confirm compliance with these Fire Protection Program requirements:

- Unit 1 north and south EDG exhaust fan enclosures
- Unit 1 EDG rooms
- Unit 2 engineered safety features rooms
- Unit 1 reactor building

b. Findings

No findings of significance were identified.

1R07 Heat Sink Performance (71111.07)

a. Inspection Scope

Inspectors determined that credit could be given for the completion of NRC Inspection Procedure 71111.07 in the Reactor Oversight Inspection Program from the follow up of previously identified service water system unresolved items documented in NRC Inspection Report 50-13/00-10; 50-368/00-10.

b. Findings

The findings for this subject are documented in NRC Inspection Report 50-313/00-10; 50-368/00-10.

1R12 Maintenance Rule Implementation (71111.12)

.1 Maintenance Rule Equipment Failure Review

a. Inspection Scope

The inspectors reviewed the following equipment failures to verify that licensee personnel properly implemented the requirements of 10 CFR 50.65, "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants":

- CR ANO-1-2000-0221, "Damaged Terminal Lug on Torque Switch for Unit 1 Service Water Valve CV-3814"

- CR ANO-2-2001-0032, "The Recirculation Header Lines from the High Pressure Safety Injection Pumps to the Refueling Water Tank Failed to Meet Code Requirements"
- CR ANO-2-2000-0939, "High Pressure Safety Injection Pump Flow Measured Four Times Higher Than Expected During Full Flow Testing"
- CR ANO-2-2000-0342, "Error Discovered in Hydraulic Model of Containment Spray Header Piping Element P-064"
- CR ANO-1-2000-0192, "Weld Defect Discovered on Casing Drain Line for Reactor Building Spray Pump P-35B"
- CR ANO-1-2000-0197, "Unexpected EFIC System Trouble Alarms Caused by Withdrawn Module Problem"
- CR ANO-1-2000-0289, "Emergency Feedwater Pump P-7A Suction Pressure Transmitter Out of Tolerance"
- CR ANO-1-2000-0387, "Feedwater Flow from Emergency Feedwater Pump P-7A to the 'B' Steam Generator Found to be Oscillating Outside Required Band of 520 GPM to 530 GPM"
- CR ANO-2-2000-0892, "Emergency Feedwater Pump 2K-3 Turbine Coupling Collar Disengaged During Pump Surveillance Run"
- Licensee Event Report (LER) 50-368/1999-003-00, "One Excore Nuclear Instrument Channel Inoperable Longer Than Allowed By Technical Specifications Due To Detector Failure"
- LER 50-368/1999-004-00, "Two Trip Functions Of One Core Protection Calculator Were Potentially Inoperable Longer Than Allowed By Technical Specifications Due To Excore Detector Drift"
- LER 50-368/1999-005-00, "Two Trip Functions Of One Core Protection Calculator Were Potentially Inoperable Longer Than Allowed By Technical Specifications Due To Excore Channel Test Switch Malfunction"
- LER 50-368/2000-001-00, "Pressurizer Heater Sleeves And A Reactor Coolant System (RCS) Hot Leg Resistance Temperature Detector Nozzle Were Leaking Due To Primary Water Stress Corrosion Cracking"
- LER 50-313/2000-003-00, "RCS Hot Leg Nozzle Welds Cracked Due To Primary Water Stress Corrosion Cracking Resulting From The Use Of Alloy 182 Weld Metal Exposed To RCS Water In A Highly Restrained Weld Joint That Was Not Stress Relieved"

The inspectors used the Maintenance Rule field flow chart to determine if the licensee properly dispositioned the failures.

b. Findings

No findings of significance were identified.

.2 Effectiveness of Current Maintenance Rule Program Activities

a. Inspection Scope

Inspectors determined the requirements of the licensee's Maintenance Rule Program through a review of Procedures LI-102, "EOI Corrective Action Process," Revision 0; OE-100, "Operating Experience at EOI Nuclear Stations," Revision 0; and System Engineering Deskguide, "Maintenance Rule Program." These documents implemented the requirements of 10 CFR 50.65 at Arkansas Nuclear One.

The inspectors reviewed CRs, maintenance preventable functional failure determinations, and Category (a)(1) recovery schemes. The items sampled were for issues associated with Maintenance Rule functions of structures, systems, and components (SSCs) associated with Unit 2 main steam system, Unit 1 low pressure injection system, Unit 1 decay heat removal system, Unit 1 make-up and purification system, Unit 2 radiation monitoring system, and Unit 1 process radiation monitoring system. For the identified systems and related functions, the inspectors assessed the Maintenance Rule Program performance related to:

- Adequacy of cause determination for degraded performance or failure to meet performance criteria
- Adequacy of corrective actions
- Adequacy of established goals and subsequent monitoring of functions placed in Category (a)(1)
- Adequacy of program revisions to scoping, risk significance, performance criteria, and monitoring of the subject SSCs
- The creation of new risk-significant functions to improve performance monitoring

The inspectors conducted interviews with the licensee's engineering and maintenance personnel to gain an understanding of actions taken with regard to specific issues. The inspectors also evaluated system engineers knowledge of the Maintenance Rule Program electronic data base and programmatic knowledge related to performance criteria and monitoring periods.

b. Findings

No findings of significance were identified.

.3 Periodic Assessment Reviews

a. Inspection Scope

The inspectors reviewed four of the licensee's reports documenting the performance of the last two Maintenance Rule Program periodic assessments for each unit. These periodic assessments were conducted to meet the requirements of 10 CFR 50.65(a)(3). The assessments covered the periods and were issued on the dates indicated in the table below:

UNIT 1		UNIT 2	
Assessment Period	Issue Date	Assessment Period	Issue Date
October 25, 1996- May 10, 1998	December 22, 1998	June 9, 1997- February 25, 1999	August 11, 1999
May 10, 1998- October 10, 1999	July 21, 2000	January 1, 1999- June 1, 2000	October 7, 2000

The inspectors' review was conducted to determine if the reports 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 examined the licensee's staff evaluative efforts for the following elements in the reports:

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

The inspectors also verified that the issuance of the two most recent assessments met the regulatory timeliness requirements.

b. Findings

No findings of significance were identified.

.4 Identification and Resolution of Problems

a. Inspection Scope

Through the review and examination of CRs, root cause analyses, goal setting, and Category (a)(1) recovery schemes, the inspectors evaluated the use of the licensee's corrective action program as it pertained to the Maintenance Rule Program. In addition, system engineers were interviewed to gain understanding of the engineers' performance in relation to specific SSC issues or problems. The purpose of this review was to establish that the corrective action program was entered at the appropriate threshold and effectively utilized for the purposes of:

- starting the cause evaluation and determination of appropriate corrective action when performance criteria or condition limits were exceeded,
- identifying and correcting performance-related issues or conditions identified during the periodic assessment, and
- identifying and correcting specific and common issues or conditions brought to light through activities such as performance trending or data analysis.

The inspectors also examined the licensee's staff identification of issues and implementation of corrective action in support of the licensee's Maintenance Rule Program. The inspectors further examined the corrective action program to determine if it was sufficiently integrated with the Maintenance Rule Program to identify programmatic issues or weaknesses.

b. Findings

No findings of significance were identified.

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

a. Inspection Scope

The inspectors reviewed daily and weekly work schedules to determine when risk-significant activities were scheduled. The inspectors reviewed selected activities regarding risk evaluations and overall plant configuration control. The inspectors discussed emergent work issues with operations and work control personnel and reviewed the potential impact of these activities to verify that the work was adequately planned, controlled, and executed. The inspection included the following maintenance activities:

- Unit 1 EDG 1 maintenance outage - week of January 22, 2001

- Unit 1 EDG 2 maintenance outage - week of January 15
- Unit 1 EDG 1 maintenance outage - week of January 29
- Unit 1 EDG 2 maintenance outage - week of February 5
- Unit 2 EDG voltage regulator circuit failure
- Unit 2 reactor vessel level monitoring system failure
- Motor-driven fire Pump P-6A cable pull through Unit 1 transformer yard
- Unit 2 turbine-driven emergency feedwater Pump 2P-7A steam trap maintenance
- The inspectors also reviewed the 1R16 Shutdown Operations Protection Plan, Revision 7, which communicated a simplified list of available safety functions to Arkansas Nuclear One personnel during the Unit 1 refueling outage. In addition, the inspectors reviewed the licensee's work prioritization and risk determination routinely throughout the outage as identified on the 1R16 shutdown risk status reports to verify that activities were properly planned, controlled, and executed.

b. Findings

No findings of significance were identified.

1R14 Personnel Performance During Nonroutine Evolutions (71111.14)

a. Inspection Scope

The inspectors observed, reviewed, and evaluated operator response to the following nonroutine plant evolutions and events to verify that operator response was appropriate and in accordance with procedures:

- Unit 1 excessive hydrogen leakage from the main turbine generator and subsequent manual reactor trip on January 5, 2001
- Unit 2 power reduction and shutdown for condenser problems (January 11-24)
- Unit 1 shutdown for Refueling Outage 1R16 and reduced inventory conditions

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15)

a. Inspection Scope

The inspectors reviewed the following operability evaluations for technical adequacy and assessed the impact of the condition on continued plant operation:

- CR ANO-1-2001-0067, "Emergency Diesel Generator Water Jacket Heater"
- CR ANO-2-2001-0019, "Greater than Expected Unit 2 Turbine Generator Power Output"
- CR ANO-2-2001-0069, "Unit 2 Refueling Building Openings"
- CR ANO-2-2001-0200, "Nonconservative Maximum EDG Scavenging Air Temperature"

b. Findings

No findings of significance were identified.

1R16 Operator Workarounds (71111.16)

.1 Review of the Cumulative Effects of Operator Workarounds

a. Inspection Scope

The inspectors assessed the licensee's ability to implement abnormal and emergency operating procedures from a cumulative effect review of Unit 1, Unit 2, and common operator workarounds. The inspectors also interviewed operators and observed operator rounds to identify any workarounds that were not included on the workaround list.

b. Findings

No findings of significance were identified.

1R19 Postmaintenance Testing (71111.19)

a. Inspection Scope

The inspectors verified selected risk-significant systems and components meet the design/licensing bases requirements and commitments following maintenance activities. The inspectors performed this verification by witnessing tests and reviewing test data. The inspectors verified the licensee properly returned the equipment to the positions/status required for the systems or components to perform its safety function after completion of testing. Postmaintenance tests observed/reviewed included:

- Procedure 1104.036, Supplement 6, "Emergency Diesel Generator Operation, DG 2 Fuel Transfer Pump Capacity Test"
- Procedure 1104.036, Section 7.0, "DG Start from Control Room, Slow Idle Test"
- Procedure 1104.036, Attachment D, "Placing DG 2 in Emergency Standby Condition"
- Procedure 1104.036, Attachment B, "DG 2 Valve Lineup"
- Procedure 1104.036, Supplement 8, "DG 2 Overspeed Test"
- Procedure 1104.036, Supplement 2, "DG 2 Monthly Test"
- Procedure 1402.066, "18-Month Inspection, Hot Torquing"
- Procedure 15.035, Attachment D, "Valve Operating"
- Procedure 2302.034, "Power Ascension Test Control Procedure, Unit 2"
- Procedure 1104.036, Revision 39, "Emergency Diesel Generator Operation," Supplement 5, "DG 1 Fuel Transfer Pump Capacity Test"
- Procedure 1104.036, Revision 39, Supplement 7, "DG 1 Overspeed Test"
- Procedure 1104.036, Revision 39, Supplement 1, "DG 1 Monthly Test"

The inspectors also verified the licensee identified and entered postmaintenance testing problems into the corrective action program at the appropriate threshold.

b. Findings

No findings of significance were identified.

1R20 Refueling and Outage Activities (71111.20)

.1 Review of the Unit 1 Outage Plan

a. Inspection Scope

The inspectors reviewed the licensee's outage risk assessment and Shutdown Operations Protection Plan to verify that the licensee appropriately considered risk in planning and scheduling activities.

b. Findings

No findings of significance were identified.

.2 Monitoring of Shutdown Activities

a. Inspection Scope

The inspectors reviewed plant data records, control room logs, and observed control room operators perform Unit 1 shutdown activities to assess the licensee's compliance with Technical Specification and procedural requirements. The inspectors observed licensee compliance with the following procedures:

- 1102.016, Revision 1, "Power Reduction and Plant Shutdown"
- 1101.010, Revision 52, "Plant Shutdown and Cooldown"
- 1104.004, Revision 68, "Decay Heat Removal Operating Procedure"

b. Findings

No findings of significance were identified.

.3 Control of Outage Activities

a. Inspection Scope

The inspectors reviewed plant conditions and observed selected refueling outage activities throughout the outage to verify that the licensee maintained the plant in a configuration consistent with the requirements of Technical Specifications and with the assumptions of the Shutdown Operations Protection Plan. The inspectors verified that emergent issues were properly assessed for their impact on plant risk.

Electrical power availability was periodically verified to meet Technical Specification requirements and outage risk assessment recommendations. Control room operators were interviewed to determine if they were cognizant of plant conditions. The inspectors reviewed equipment tagout activities, controls for reactivity management, and RCS inventory.

.b Findings

No findings of significance were identified.

.4 Reduced RCS Inventory

a. Inspection Scope

The inspectors observed, in part, Unit 1 reduced RCS inventory operations to verify that the licensee had appropriately considered the risk associated with this activity. The inspectors verified that licensee commitments in response to Generic Letter 88-17, "Loss of Decay Heat Removal (10 CFR 50.54)," had been properly translated into procedures. The inspectors also verified that multiple sources of electrical power, multiple RCS level indications, and multiple RCS temperature indications were available.

The inspectors also observed licensee compliance with Procedure 1103.011, Revision 26, "Draining and Nitrogen Blanketing the Reactor Coolant System."

b. Findings

No findings of significance were identified.

.5 Identification and Resolution of Problems

a. Inspection Scope

The inspectors screened CRs that documented problems identified during the Unit 1 outage to verify that problems were identified at an appropriate threshold and that they were dispositioned appropriately prior to plant startup.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors observed the performance of and/or reviewed documentation of the following surveillance activities:

- Procedure 1015.035, Revision 10, Attachment F, "Valve Operations, Category E Valve Position Independent Verification Check Without Shutdown Cooling and Monthly Surveillance Check" (Unit 2)
- Procedure 1015.035, Revision 10, Attachment F, "Valve Operations, Category E Valve Position Independent Verification Check Without Shutdown Cooling and Monthly Surveillance Check" (Unit 2)
- Procedure 1015.003B, Revision 45, "Unit Two Operations Logs"
- Procedure 1106.006, Revision 61, Supplement 1, "Emergency Feedwater Pump Operation, Electrical Emergency Feedwater Pump P-7B Monthly Test" (Unit 1)
- Procedure 2305.002, Revision 12, "Reactor Coolant System Leak Detection" (Unit 2)
- Procedure 1104.036, Revision 39, Supplement 1, "DG 1 Monthly Test" (Unit 1)
- Procedure 2105.001, Revision 23, "CPC/CEAC Operations" (Unit 2)
- Procedure 2104.036, Revision 44, Supplement 2, "2DG2 Monthly Test" (Unit 2)

b. Findings

No findings of significance were identified.

1R23 Temporary Plant Modifications (71111.23)

a. Inspection Scope

The inspectors observed temporary plant modification installation and reviewed the associated documentation for Temporary Alteration 01-2-002, "Post Accident Monitoring System Power Supply" (Unit 2).

b. Findings

No findings of significance were identified.

1EP2 Alert and Notification System Testing (71114.02)

a. Inspection Scope

The inspectors performed the following actions to evaluate the adequacy of the licensee's offsite siren and tone alert radio systems for alerting the public in the event of a nuclear emergency:

- Reviewed licensee commitments for the siren and tone alert radio systems contained in the initial and updated system design reports, the emergency plan, and station procedures
- Reviewed changes to the systems and effects on commitments
- Evaluated the adequacy of siren test and maintenance procedures
- Reviewed Year 2000 siren test records
- Interviewed state emergency management personnel responsible for siren maintenance and testing
- Observed weekly siren and tone alert radio tests performed by offsite authorities
- Verified test results for a selected siren

b. Findings

No findings of significance were identified.

1EP3 Emergency Response Organization Augmentation Testing (71114.03)

a. Inspection Scope

The inspectors performed the following actions to evaluate the licensee's system for notification of emergency response organization members and activation of onsite emergency response facilities:

- Reviewed emergency response organization notification and facility activation goals and commitments in the emergency plan and station procedures
- Reviewed the adequacy of design, operation, and testing of the primary and backup notification systems
- Observed simulated operation of the primary notification system
- Reviewed augmentation drill results, CRs documenting augmentation system problems, and the adequacy of corrective actions
- Reviewed an emergency planning department self-assessment on the augmentation system
- Reviewed the qualification status for a sample of 34 emergency response organization members
- Interviewed five communicators responsible for performing emergency response organization augmentation notifications to evaluate the adequacy of training for this task
- Interviewed five emergency response organization members to determine their knowledge of responsibilities for response augmentation

b. Findings

No findings of significance were identified.

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

a. Inspection Scope

The inspectors reviewed the Arkansas Nuclear One Emergency Plan and Changes, Revision 26, and Procedure 1903.010, Revision 36, "Emergency Action Level Classification," to determine if these revisions and changes were made in accordance with NRC regulations.

b. Findings

No findings of significance were identified.

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

a. Inspection Scope

The inspectors performed the following actions to evaluate emergency preparedness related efforts to correct weaknesses and deficiencies:

- Reviewed the adequacy of corrective actions taken for emergency preparedness problems identified in the 2000 biennial exercise
- Reviewed quality assurance audit and surveillance reports for calendar years 1999-2000
- Interviewed the lead auditor for the last quality assurance audit
- Reviewed emergency preparedness CRs and action items for the adequacy and timeliness of corrective actions
- Reviewed emergency planning department self-assessments for the last calendar year to determine the quality of self-initiated corrective actions

b. Findings

No findings of significance were identified.

1EP6 Drill Evaluation (71114.06)

a. Inspection Scope

The inspectors observed portions of the site wide emergency preparedness drill conducted on February 28, 2001, to evaluate the drill conduct and the adequacy of the licensee's performance critique. The drill was conducted in the Unit 1 simulator and all emergency facilities (emergency operations facility, technical support center, and the operations support center) were activated. State and local emergency response officials also participated in the drill.

b. Findings

No findings of significance were identified.

2. RADIATION SAFETY
Cornerstone: Public Radiation Safety [PS]

2PS3 Radiological Environmental Monitoring Program and Radioactive Material Control Program (71122.03)

a. Inspection Scope

The inspectors interviewed members of the licensee's staff responsible for implementing the radiological environmental, meteorological monitoring, and radioactive material control programs. The inspectors observed the following activities and equipment:

- Collection and preparation for shipment of airborne particulate and iodine samples for analysis at Entergy's central facility (River Bend Station)
- Meteorological instrument data displays at the primary and backup meteorological towers and in the control room
- The survey of materials for release from the radiologically controlled area

The following items were reviewed and compared with regulatory requirements to determine whether the licensee had an adequate program to verify the impact of radioactive effluent releases to the environment and to ensure that the licensee's surveys and controls were adequate to prevent the inadvertent release of licensed materials into the public domain:

- Implementing procedures for the radiological environmental monitoring program
- Number and location descriptions of the environmental sampling stations as specified in the offsite dose calculation manual
- Environmental sample analytical results
- Calibration and maintenance records for environmental air sampling equipment and radiation measurement instrumentation
- 1999 land use census results, changes to the radiological environmental monitoring program, and technical justifications
- 1999 and 2000 (draft) Annual Radiological Environmental Operating Reports
- Implementing procedures for the meteorological monitoring program
- Meteorological instrument operability, reliability, and annual meteorological data recovery

- Procedures, methods, and instruments used to survey, control, and release materials from the radiologically controlled area
- Calibration procedures and records for instruments used to perform radiological surveys prior to material release
- Detection sensitivities of radiation survey instruments used for the release of potentially contaminated materials from the radiologically controlled area
- Criteria used for the unrestricted release of potentially contaminated material from the controlled access area
- Audit QAP-28-2000, "Environmental Monitoring"
- CRs ANO-C-1999-0128, ANO-C-1999-0221, ANO-C-1999-0227, ANO-C-2000-0295, ANO-C-2001-0117, ANO-1-1999-0157, ANO-1-2000-0276, ANO-1-2000-0438, ANO-2-1999-0307, ANO-2-1999-0344

b. Findings

No findings of significance were identified.

3. SAFEGUARDS
Cornerstone: Physical Protection

3PP1 Access Authorization (71130.01)

a. Inspection Scope

The inspectors performed the following inspection activities:

- Reviewed LERs and safeguards event logs to identify problems in the access authorization program
- Reviewed procedures, audits, and self-assessments of the following programs/areas: behavior observation, access authorization, fitness-for-duty, supervisor and escort training, and requalification training
- Interviewed five supervisors/managers and six individuals who had escorted visitors into the protected and/or vital areas to determine their knowledge and understanding of their responsibilities in the behavior observation program
- Reviewed CRs, LERs, safeguards event logs, audits, selected security event reports, and self-assessments for the licensee's access authorization program to determine the licensee's ability to identify and resolve problems

b. Findings

No findings of significance were identified.

3PP2 Access Control (71130.02)

a. Inspection Scope

The inspectors performed the following inspection activities:

- Reviewed LERs and safeguards event logs to identify problems with access control equipment
- Reviewed procedures and audits for testing and maintenance of access control equipment and for granting and revoking unescorted access to protected and vital areas
- Interviewed security personnel concerning the proper operation of the explosive and metal detectors, X-ray devices, and key card readers
- Observed licensee testing of access control equipment and the ability of security personnel to control personnel, packages, and vehicles entering the protected area
- Reviewed procedures to verify that a program was in place for controlling and accounting for hard keys to vital areas
- Reviewed the licensee's process for granting access to vital equipment and vital areas to authorized personnel having an identified need for that access
- Reviewed CRs, LERs, safeguards event logs, audits, selected security event reports, and self-assessments for the licensee's access control program in order to assess the licensee's ability to identify and resolve problems with the access control program
- Interviewed key security department and plant support personnel to determine their knowledge and use of the corrective action reports and resolution of problems regarding repair of security equipment

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES (OA)

4OA1 Performance Indicator Verification (71151)

.1 Drill and Exercise Performance

a. Inspection Scope

The inspectors reviewed classification, notification, and protective action recommendation results from the 2000 biennial exercise and selected emergency preparedness drills and simulator scenarios from calendar year 2000 to verify the accuracy of the reported performance indicator data for that year.

b. Findings

No findings of significance were identified.

.2 Emergency Response Organization Drill Participation

a. Inspection Scope

The inspectors reviewed drill participation data for calendar year 2000 for a sample of 35 key emergency response organization members to verify the accuracy of data reported for this performance indicator for that year.

b. Findings

No findings of significance were identified.

.3 Alert and Notification System Reliability

a. Inspection Scope

The inspectors reviewed siren test results from calendar year 2000 to verify the accuracy of data reported for this performance indicator for that year.

b. Findings

No findings of significance were identified.

.4 Physical Protection

a. Inspection Scope

The inspectors reviewed the program for collection and submittal of physical protection performance indicator data. Specifically, a random sampling of security event logs and corrective action reports were reviewed for the following program performance areas:

- Protected area security equipment
- Personnel screening program performance
- Fitness-for-duty/personnel reliability program performance

b. Findings

No findings of significance were identified.

.5 Resident Inspection

a. Inspection Scope

The inspectors verified the licensee's safety system functional failures, RCS leakage, and Unit 2 unplanned power changes performance indicators to determine the accuracy and completeness of the licensee's data. The inspectors reviewed the following:

- Monthly operating reports
- Licensee performance indicator technique sheets
- Control room logs
- Procedure 2305.002, Revision 12, "Reactor Coolant System Leak Detection" (Unit 2)
- Procedure 1103.013, Revision 18, "RCS Leak Detection" (Unit 1)
- RCS leakrate test results for Units 1 and 2
- CR ANO-1-2000-0221, CR ANO-2-2001-0032, CR ANO-2-2000-0939, CR ANO-2-2000-0342, CR ANO-1-2000-0192, CR ANO-1-2000-0197, CR ANO-1-2000-0289, CR ANO-1-2000-0387, and CR ANO-2-2000-0892

b. Findings

No findings of significance were identified.

4OA3 Event Followup (71111.14, 71153)

.1 LER Reviews

a. Inspection Scope

The inspectors reviewed the following LERs in accordance with the SDP, relevant sections of the Updated Final Safety Analysis Report, and the associated CRs to assess the safety significance of the LERs and the adequacy of the licensee's corrective actions.

b. Findings

(Closed) LER 50-313/1999-001-00: Control Room Emergency Ventilation Actuation Due to Radiologically Contaminated Spent Fuel Pool Filter Transportation Error. The inspectors found that the licensee failed to address the issue of the leaking bags used to transport the radioactive filter in their root cause determination and corrective actions documented in CR ANO-C-1999-0142. Nevertheless, the inadvertent control room emergency ventilation system actuation and leaking bag resulted in no radiological consequences. The inspectors concluded that this was a minor issue and not subject to enforcement.

(Closed) LER 50-368/1999-001-00 and LER 50-368/1999-001-01: Technical Specifications Requirements for As-Left Lift Settings of Main Steam Safety Valves Were Not Met Due to Errors in the Determination of Effective Seating Area by the Vendor During Test Device Qualification and Four Main Steam Safety Valve As-Found Lift Values Did Not Meet Technical Specification Requirements. Prior to a Unit 2 refueling outage in January 1999, the licensee identified that four main steam safety valves had as-found lift settings greater than three percent above their setpoints. Each valve was reset to an as-left setting within one percent of the required setpoint. During the licensee's evaluation of this event, it was determined that the test equipment used to measure the lift setpoints had been inaccurately qualified for use on the Unit 2 main steam safety valves. After correcting for the error, it was determined that only one valve had an out of tolerance as-found setting. The error resulted in the final as-left settings of four valves being outside the as-left Technical Specification limit of plus or minus one percent of the specified setpoint (but were within three percent). Two of those valves were in that condition for longer than allowed by the Technical Specification action statement by approximately 2.5 hours. All ten of the main steam safety valves were subsequently replaced during the outage with valves tested at an offsite facility. The licensee performed an evaluation of the appropriate events in the Updated Final Safety Analysis Report and determined that with the as-found setpoint values, sufficient relief capacity was available to ensure that the primary and secondary design limits as well as the emergency core cooling system performance criteria were not violated. Based on this fact, the risk significance of this issue was characterized as very low (Green) consistent with the SDP. See Section 4OA7.1. These issues are in the licensee's corrective action program as CR ANO-2-1999-0275 and CR ANO-2-1999-0011.

(Closed) LER 50-368/1999-002-00: Station Battery Cell-To-Cell and Terminal Connection Tightness Was Not Verified as Required by Technical Specifications Due to Requirements Being Inadvertently Omitted During Procedure Revisions. The licensee identified this issue while reviewing a Technical Specification amendment for potential applicability to electrical surveillance procedures. Connector tightness had been verified during other maintenance activities. The inspectors concluded that this was a minor issue and not subject to enforcement. It is in the licensee's corrective action program as CR ANO-2-1999-0194.

(Closed) LER 50-368/1999-003-00: Failure of Channel D Excore Nuclear Instrument during Plant Startup Following Refueling Outage 2R13 on February 23, 1999, due to

Excess Electronic Noise. The NRC issued a Notice of Enforcement Discretion to allow plant startup contrary to the limitations prescribed by Technical Specification Table 3.3-1 as referenced by Technical Specification 3.3.1.1. As reactor power was increased, the Channel D excore nuclear instrument passed surveillance testing and the licensee determined that it was operable during Mode 1 power operations on March 7, 1999. The inspectors found that the condition of the excore detector could not have been reasonably determined prior to plant startup. A review of the circumstances surrounding the need for the Notice of Enforcement Discretion revealed that no violation of NRC requirements occurred. This issue is in the licensee's corrective action program as CR ANO-2-1999-0303.

(Closed) LER 50-368/1999-004-00: Excessive Drift of Channel D Excore Nuclear Instrument Middle Fission Detector During Mode 1 Power Operations on March 8, 1999, Due to Loss of Fill Gas. On April 14, 1999, the licensee discovered that an operability justification for a detector signal drift issue associated with an apparent loss of fill gas from the middle fission detector was based on incorrect assumptions. The licensee subsequently determined that the Channel D core protection calculator (CPC) setpoints for local power density and departure from nucleate boiling ratio had been nonconservative since about March 8, 1999. In accordance with Technical Specification 3.3.1.1, Table 3.3-1, Actions 2 and 3, the licensee declared the Channel D excore nuclear instrument inoperable and placed the appropriate linear power and CPC trip functions in bypass. In their corrective action documents, the licensee noted that Channel D operability was required by Technical Specifications due to work being conducted on other channels for a total of 20 days, 6 hours, and 32 minutes during the period from March 7 to April 14. Additionally, the licensee noted that during a single 5-hour and 16-minute period, a data logger was installed on Channel B while a tri-annual surveillance was being conducted on Channel A, which had the inoperable condition of Channel D been known, would have required an entry into Technical Specification 3.0.3. Technical Specification 3.0.3 requires the licensee to, within 1 hour, initiate actions necessary to have the unit in hot standby within 6 hours. The licensee performed an evaluation of the safety significance of this condition which determined that at the period of core life that this condition existed, the departure from nucleate boiling ratio and local power density values calculated by Channel D CPC would actually have been conservative and that no specified acceptable fuel design limit would have been approached during a design-basis event. Based on this fact, the risk significance of this issue was characterized as very low (Green) consistent with the SDP. See Section 4OA7.2. This issue is in the licensee's corrective action program as CR ANO-2-1999-0378.

(Closed) LER 50-368/1999-005-00: Two Trip Functions of One CPC Channel Were Potentially Inoperable Longer than Allowed by Technical Specifications Due to Excore Channel Test Switch Malfunction. On August 31, 1999, the licensee determined that a test switch failure on Channel B CPC resulted in the system being inoperable since August 25, 1999, while Channel D was inoperable and in bypass or trip (see LER 50-368/1999-004 above) which was a violation of plant Technical Specification 3.3.1.1. The licensee further determined that on August 31, 1999, from 8:15 a.m. (CST) to 10:45 a.m. (CST), Channel C was bypassed for testing, which was a violation of Technical Specification 3.0.3. The limited duration of this condition and its

effect on Channel B CPC only mitigated the safety significance of this issue. Based on this fact, the risk significance of this issue was characterized as very low (Green) consistent with the SDP. See Section 4OA7.3. This issue is in the licensee's corrective action program as CR ANO-2-1999-0581.

(Closed) LER 50-368/2000-001-00: RCS Boundary Leakage Identified while Unit 2 was in Cold Shutdown on July 30, 2000. While in cold shutdown for a steam generator tube inspection, the licensee identified 12 pressurizer heater sleeves and one RCS hot leg resistance temperature detector nozzle leaks. The licensee determined that the failure mechanism was primary water stress corrosion cracking of Alloy 600 materials. The measured unidentified reactor coolant leak rate before shutdown was 0.149 gpm. The Technical Specification limit for unidentified leakage is 1 gpm. The pressure boundary leakage was not identified until after the unit was shutdown. No violations were identified by the inspectors. The issue was addressed in the licensee's corrective action program as CR ANO-2-2000-0292.

(Closed) LER 50-313/2000-002-00: Both Low Pressure Injection/Decay Heat Removal Pumps Potentially Rendered Inoperable as a Result of an Inadequate Design which Failed to Consider Critical Cooling Water Parameters and Bearing Tolerances. This LER is closed based on the inspectors' review of LER 50-313/2000-002-01, documented in NRC Inspection Report 50-313/01-05; 50-368/01-05.

(Closed) LER 50-368/2000-002-00: As-Found Lift Settings of Three Main Steam Safety Valves Were Below Technical Specification Requirements Due to Different Methods for As-Found and As-Left Tests, As-Left Setpoint Bias, and Setpoint Drift. Prior to a Unit 2 refueling outage in September 2000, the licensee identified that three main steam safety valves had as-found lift settings greater than three percent below their setpoints. The valves were adjusted so that their as-left setpoint was within plus or minus one percent of their specified setpoint. The licensee performed an evaluation of the appropriate events in the Updated Final Safety Analysis Report and determined that, with the as-found setpoint values, there could be an increase in the offsite radiological release during a steam generator tube rupture event by less than two percent over the previously analyzed results and much less than 10 CFR Part 100 limits. This issue was reportable to the NRC as operation prohibited by Technical Specifications but the condition was corrected following discovery in accordance with the Technical Specification action requirements. No violations were identified by the inspectors. This issue is in the licensee's corrective action program as CR ANO-2-2000-0422.

(Closed) LER 50-313/2000-003-00: RCS Boundary Leakage Identified While Unit 1 was in Cold Shutdown on February 15, 2000. While in cold shutdown for a scheduled maintenance outage, the licensee identified that seven of eight RCS hot leg level instrumentation nozzles were leaking. The licensee determined that the failure mechanism was primary water stress corrosion cracking of Alloy 182 weld materials. The measured unidentified reactor coolant leak rate before shutdown was 0.093 gpm. The Technical Specification limit for unidentified leakage is 1 gpm. The RCS strength boundary leakage was not identified until after the unit was shutdown. No violations were identified by the inspectors. The issue was addressed in the licensee's corrective action program as CR ANO-1-2000-0097.

(Closed) LER 50-313/2001-001-00: Manual Reactor Trip Due to Excessive Main Generator Hydrogen Leakage Caused by a Failed Generator Vent Line. On January 5, 2001, the Unit 1 operators manual tripped the reactor due to excessive hydrogen leakage from the main generator. The cause of the leak was a failed pipe support in the main generator hydrogen cooling system that allowed excessive vibration and ultimate failure of a vent pipe. Following completion of corrective maintenance to replace the piping and repair the pipe support, the reactor was restarted and tied to the grid on January 7. No violations were identified by the inspectors and the issue was addressed in the licensee's corrective action program as CR ANO-1-2001-0009.

.2 Followup and Closure of Open Items

a. Inspection Scope

The inspectors reviewed the following previously identified open items to determine if they could be closed.

b. Findings

(Closed) Inspection Followup Item (IFI) 50-313/9907-01; 50-368/9907-01: Number of Armed Response Personnel. During a previous security inspection, the inspectors identified a concern regarding the difference between the number of armed response personnel committed to in the industrial security plan and the additional number of armed response personnel used during the 1994 Operational Safeguards Response Evaluation. During the 1994 Operational Safeguards Response Evaluation, the licensee elected to utilize four more armed response personnel (per shift) than provided in its industrial security plan. This number was in addition to the security shift commander and the personnel manning the central and secondary alarm stations.

During this inspection, the licensee stated that, within the next four months upon finalization of its revised defensive strategy, the industrial security plan would be modified to reflect the additional number of armed response personnel needed to defend against the design-basis threat.

(Closed) Violation 50-313/01013-2000081: Inadequate Design Control Resulted in Degraded Condition that had the Potential to Affect Both Low Pressure Injection/Decay Heat Removal Pumps. This violation is closed based on the inspectors' review of LER 50-313/2000-002-01 documented in NRC Inspection Report 50-313/01-05; 50-368/01-05.

4OA6 Meetings, including Exit

The inspectors presented the emergency preparedness inspection results to Mr. Randy Fuller, Emergency Planning Manager, and other licensee personnel on January 12, 2001. The licensee acknowledged the findings presented. No proprietary information was identified.

The inspectors presented the physical protection inspection results to Mr. Craig Anderson, Vice President, and other members of licensee management on February 8, 2001. The licensee acknowledged the findings presented. No proprietary information was identified.

The inspectors presented the Maintenance Rule Program implementation inspection results to Mr. Bob Bement, General Manager, and other licensee personnel on March 16, 2001. The licensee acknowledged the findings presented. No proprietary information was identified.

The inspectors presented the radiological environmental monitoring and radioactive material control program inspection results to Mr. Bob Bement, General Manager, and other licensee personnel on March 30, 2001. The licensee acknowledged the findings presented. No proprietary information was identified.

The inspectors presented the inspection results of the resident inspections to Mr. Craig Anderson, Vice President, and other members of licensee management on April 11, 2001. No proprietary information was identified.

4OA7 Licensee-Identified Violations - The following findings of very low significance were identified by the licensee and are violations of NRC requirements which meet the criteria of Section VI of the NRC Enforcement Policy, NUREG-1600, for being dispositioned as NCV.

<u>NCV Tracking Number</u>	<u>Requirement Licensee Failed to Meet</u>
.1 NCV 50-368/0013-02	Technical Specification 3.7.1.1 requires that all main steam line code safety valves shall be operable with lift settings as specified in Table 3.7-5. If one or more main steam line code safety valves are inoperable, actions must be taken in accordance with Action a. of Technical Specification 3.7.1.1. Contrary to the above, on January 7-8, 1999, two main steam line code safety valves did not have lift settings in accordance with Table 3.7-5, and the requirements of Action a. of Technical Specification 3.7.1.1 were not met. The finding was of very low safety significance because the licensee performed an evaluation of the appropriate events in the Updated Final Safety Analysis Report and determined that with the as-found setpoint values, sufficient relief capacity was available to ensure that the primary and secondary design limits as well as the emergency core cooling system performance criteria were not violated. This condition was identified by the licensee and corrective actions were specified in CRs ANO 2-1999-0275 and ANO 2-1999-0011. This condition was reported in LERs 50-368/1999-001-01 and 50-368/1999-001-00 (See Section 4OA3.1).

- .2 NCV 50-368/0013-03 Technical Specification 3.3.1.1 requires that the reactor protective instrumentation channels and bypasses of Table 3.3-1 shall be operable. Contrary to the above, on several occasions between March 7 and April 14, 1999, the minimum required channels operable required by Table 3.3-1 were not met and the required actions were not taken. The finding was of very low significance because the licensee performed an evaluation which determined that, at the period of core life that this condition existed, the departure from nucleate boiling ratio and local power density values calculated by Channel D CPC would actually have been conservative and that no specified acceptable fuel design limit would have been approached during a design-basis event. This condition was identified by the licensee and corrective actions were specified in CR ANO-2-1999-0378. This condition was reported in LER 50-368/1999-004-00 (See Section 4OA3.1).
- .3 NCV 50-368/0013-04 Technical Specification 3.3.1.1 requires that the reactor protective instrumentation channels and bypasses of Table 3.3-1 shall be operable. Contrary to the above, between August 25-31, 1999, the number of operable channels did not meet the requirements of Table 3.3-1 and the required actions were not taken. The finding was of very low significance because of the limited duration of this condition and its effect on Channel B CPC. This condition was identified by the licensee and corrective actions were specified in CR ANO-2-1999-0581. This condition was reported in LER 50-368/1999-005-00 (See Section 4OA3.1).
- .4 NCV 50-368/0013-05 Unit 1 Technical Specification 6.8.1.a required that written procedures shall be established, implemented, and followed as identified in Appendix A of Regulatory Guide 1.33, November 1972. Procedure 1015.001, Revision 52, "Conduct of Operations," a procedure required by Technical Specification 6.8.1.a, required that limiting conditions for operations entries for removal from service for surveillance testing, preventive maintenance, adjustment, or repair be recorded in the station log and plant/safety system status board. On March 13, 2001, an operator removed an access cover from Unit Cooler VUC-1C, which provided essential room cooling capability for the Train B low pressure injection Pump P-34B and reactor building spray Pump P-35B without authorization. This resulted in these pumps being inoperable for 28 hours and 15 minutes until the condition was discovered. The allowed outage time for these

components was 36 hours. The status of Unit Cooler VUC-1C and the required limiting conditions for operations entries for Pumps P-34B and P-35B were not made in the station log or plant/safety system status board as required by Procedure 1015.001. The finding was of very low significance because the allowed outage time for these components was not exceeded and the redundant train components were operable. This condition was identified by the licensee and corrective actions were specified in CR ANO-1-2001-170.

- .5 NCV 50-313/13-06;50-368/13-06 Technical Specification 6.8.1 requires written procedures be established, implemented, and maintained covering the activities referenced in Appendix A of Regulatory Guide 1.33, Revision 2, February 1978. Appendix A, Section 7 references procedures for control of radioactivity. Procedure 1012.020, Radioactive Material Control, Change 006-01-0, Section 6.10, states that any item or material, other than liquids or granular solids and not otherwise excepted, may be unconditionally released from radiological restrictions when it has been evaluated to have no accessible areas that may have become contaminated and has no detectable contamination greater than the minimum sensitivity of the combined survey method and instrument. Items with detectable radioactive contamination greater than the minimum sensitivity of the licensee's instruments were released from the controlled access area on February 12, March 18, and May 4, 1999, as described in the licensee corrective action program in Condition Reports 2-1999-0307, 2-1999-0344, and C-1999-0128. There were no more than 5 occurrences and a member of the public did not receive more than 5 millirems; therefore, this finding had very low significance.

ATTACHMENT

SUPPLEMENTAL INFORMATION

PARTIAL LIST OF PERSONS CONTACTED

Licensee

C. Anderson, Vice President, Arkansas Nuclear One
R. Bement, General Manager, Arkansas Nuclear One
D. Callaway, Environmental Specialist, Chemistry
R. Carter, Assistant Manager, Unit 2 Operations
M. Chisum, Manager, System Engineering, Unit 2
H. Cooper, Manager, Corporate Security
M. Cooper, Licensing Specialist
S. Cotton, Manager, Training and Emergency Planning
R. Eichenberger, Assistant Manager, Unit 1 Operations
N. Eggemeyer, Manager, Technical Support
R. Fuller, Manager, Emergency Planning
K. Head, Manager, Safety Analysis
P. Harris, Shift Manager, Unit 1
M. Higgins, Supervisor, Security Operations
J. Hoffpauir, Plant Manager, Unit 2
B. James, Manager, Maintenance
D. James, Manager, Licensing
J. Kowalewski, Unit 1 System Engineering Manager
R. Lane, Director, Engineering
T. Manskar, Supervisor, Instrumentation and Controls
J. Miller, Manager, Unit 1 Operations
T. Mitchell, Manager, Unit 2 Operations
T. Nickels, Superintendent, Radiation Protection
R. Partridge, Superintendent, Chemistry
M. Prock, Supervisor, Chemistry
D. Provencher, Employee Concerns Program
S. Pyle, Licensing Specialist
K. Tate, Supervisor, Security Access Authorization, Fitness-for-Duty, Medical
G. Thornton, Environmental Technician, Chemistry
J. Vandergrift, Director, Nuclear Safety Assurance
D. Wagner, Supervisor, Quality Assurance
P. Weaver, Specialist, Quality Assurance
H. Williams, Jr., Superintendent, Plant Security
T. Woodsen, Maintenance Rule Coordinator
C. Zimmerman, Plant Manager, Unit 1

Contractors

D. Barnhouse, Security Compliance, The Wackenhut Corporation

Arkansas Department of Health

D. Baldwin, Supervisor, Programs and Emergency Management Section
C. Meyer, Supervisor, Russellville Office
D. Snellings, Director, Division of Radiation Control and Emergency Management

ITEMS OPENED AND CLOSED

Opened and Closed

50-368/0013-01	NCV	Individual Without Required Training Performed Fire Watch Patrols (Section 1R05).
50-368/0013-02	NCV	Main Steam Safety Valve Settings Did Not Meet Technical Specification Requirements (Out of Tolerance High) (Sections 4OA3 and 4OA7).
50-368/0013-03	NCV	Technical Specification Violation Due to Inoperability of Channel D Excore Nuclear Instrument (Sections 4OA3 and 4OA7).
50-368/0013-04	NCV	Technical Specification Violation Due to Channel B CPC Test Switch Malfunction While Channel D Excore Nuclear Instrument Was Inoperable (Sections 4OA3 and 4OA7).
50-368/0013-05	NCV	Operator Error Resulted in Unplanned Technical Specification Action Statement Entry for Train B Low Pressure Injection and Reactor Building Spray Pumps (Section 4OA7).
50-313/13-06; 50-368/13-06	NCV	Failure to control radioactive material (Section 4OA7).

Closed

50-313/1999-001-00	LER	Control Room Emergency Ventilation Actuation Due to Radiologically Contaminated Spent Fuel Pool Filter Transportation Error (Section 4OA3).
50-368/1999-001-00	LER	Four Main Steam Safety Valve As-Found Lift Values Did Not Meet Technical Specification Requirements (Section 4OA3).
50-368/1999-001-01	LER	Technical Specifications Requirements for As-Left Lift Settings of Main Steam Safety Valves Were Not Met Due to Errors in the Determination of Effective Seating Area by the Vendor During Test Device Qualification (Section 4OA3).

50-368/1999-002-00	LER	Station Battery Cell-To-Cell and Terminal Connection Tightness Was Not Verified as Required by Technical Specifications Due to Requirements Being Inadvertently Omitted During Procedure Revisions (Section 4OA3).
50-368/1999-003-00	LER	Failure of Channel D Excore Nuclear Instrument during Plant Startup Following Refueling Outage 2R13 on February 23, 1999, due to Excess Electronic Noise (Section 4OA3).
50-368/1999-004-00	LER	Excessive Drift of Channel D Excore Nuclear Instrument Middle Fission Detector During Mode 1 Power Operations on March 8, 1999, Due to Loss of Fill Gas (Section 4OA3).
50-368/1999-005-00	LER	Two Trip Functions of One CPC Channel Were Potentially Inoperable Longer than Allowed by Technical Specifications Due to Excore Channel Test Switch Malfunction (Section 4OA3).
50-368/2000-001-00	LER	RCS Boundary Leakage Identified while Unit 2 was in Cold Shutdown on July 30, 2000 (Section 4OA3).
50-313/2000-002-00	LER	Both Low Pressure Injection/Decay Heat Removal Pumps Potentially Rendered Inoperable as a Result of an Inadequate Design which Failed to Consider Critical Cooling Water Parameters and Bearing Tolerances (Section 4OA3).
50-368/2000-002-00	LER	As-Found Lift Settings of Three Main Steam Safety Valves Were Below Technical Specification Requirements Due to Different Methods for As-Found and As-Left Tests, As-Left Setpoint Bias, and Setpoint Drift (Section 4OA3).
50-313/2000-003-00	LER	RCS Boundary Leakage Identified While Unit 1 was in Cold Shutdown on February 15, 2000 (Section 4OA3).
50-313/2001-001-00	LER	Manual Reactor Trip Due to Excessive Main Generator Hydrogen Leakage Caused by a Failed Generator Vent Line (Section 4OA3).
50-313/9907-01; 50-368/9907-01	IFI	Number of Armed Response Personnel (Section 4OA3).
50-313/01013-2000081	VIO	Inadequate Design Control Resulted in Degraded Condition that had the Potential to Affect Both Low Pressure Injection/Decay Heat Removal Pumps (Section 4OA3).

LIST OF ACRONYMS AND INITIALISMS USED

CFR	Code of Federal Regulations
CPC	core protection calculator
CR	condition report
EDG	emergency diesel generator
IFI	inspection followup item
LER	licensee event report
NCV	noncited violation
NRC	Nuclear Regulatory Commission
RCS	reactor coolant system
SSC	structures, systems, and components

LIST OF DOCUMENTS REVIEWED

Emergency Plan and Implementing Procedures

Arkansas Nuclear One Emergency Plan, Revision 26	
1903.011, Revision 25	Emergency Response/Notifications
1903.061, Revision 29	Communication Equipment Tests
1903.062, Revision 16	Communications System Operating Procedure
1903.064, Revision 7	Emergency Response Facility - Control Room

Emergency Planning Desk Guides

EP-002, Revision 4	Early Warning System
EP-005, Revision 1	ERO Respirator Qualification Surveillance
EP-013, Revision 0	Emergency Planning Action Tracking System
EP-014, Revision 0	Emergency Planning Performance Indicators

Miscellaneous Documents

Policy PL-140, Revision 1	Emergency Response Organization: Respiratory Guidelines
Policy PL-147	Personnel Expectation Related to Emergency Response at Energy Nuclear Sites
OP 1000.104, Revision 15	Condition Reporting and Corrective Action
OP 1063.021, Revision 23	Emergency Response Training Program
Final Report on ANO Alert and Notification System dated June 11, 1985	
Quarterly Augmentation Drill Reports from December 1998 through December 2000	
Emergency Planning CRs dated 1999-2001	

Emergency Planning Action Item Tracking System Items dated 1999-2001

Quality Assurance Surveillances SR-010-2000, SR-012-2000, "Exercise Performance"

Quality Assurance Audits QAP-13-99, QAP-13-2000, "Emergency Planning"

Drawings

M-217, Revision 38

M-216, Revision 50

M2236, Revision 86

M2230, Revision 35

M-2232, Revision 108

Maintenance Work Requests Reviewed

MAI 9081

MAI 21296

MAI 21297

MAI 21298

MAI 21300

MAI 21301

MAI 21303

MAI 22752

MAI 24418

MAI 24420

MAI 27647

Condition Reports

CR-ANO-2-2000-0920

CR-ANO-2-2000-0939

CR-ANO-2-2000-0958

CR-ANO-2-2000-0968

CR-ANO-2-2000-1079

CR-ANO-2-2001-0032

CR-ANO-2-2000-0048

CR-ANO-2-2000-0074

CR-ANO-2-2000-0085

CR-ANO-2-2000-0270

CR-ANO-2-2000-0289

CR-ANO-2-2000-0291

CR-ANO-2-2000-0303

CR-ANO-2-2001-0009

CR-ANO-2-2001-0070