UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
611 RYAN PLAZA DRIVE, SUITE 400
ARLINGTON, TEXAS 76011-4005

November 4, 2003

Craig G. Anderson, Vice President,
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Russellville, AR 72801-0967

SUBJECT: ARKANSAS NUCLEAR ONE - NRC INTEGRATED INSPECTION REPORT 0500313/2003004 and 0500368/2003004

Dear Mr. Anderson:

On September 20, 2003, 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 September 23, 2003, 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, the NRC has identified two findings which are presently characterized as unresolved, requiring additional NRC review. The first one involves the failure to properly implement corrective actions after discovery that ultrasonic flow test instrumentation failed to meet established guidelines for use. The second involves a finding for failing to properly conduct a surveillance test on the safety-related service water system. Although neither finding presents an immediate safety concern because the conditions identified no longer exist, additional review is required by the NRC staff to assess the significance of these findings.

Also, based on the results of this inspection, the NRC has determined that a Severity Level IV violation of NRC requirements occurred. Additionally, the NRC has identified two issues that were evaluated under the risk significance determination process as having very low safety significance (Green). The NRC has also determined that violations are associated with these issues. All three of these violations are being treated as noncited violations (NCVs), consistent with Section VI.A of the Enforcement Policy. These NCVs are described in the subject inspection report. If you contest the violations or significance of these NCVs, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington DC 20555-0001; with copies to the Regional Administrator, U.S. Nuclear

Regulatory Commission Region IV, 611 Ryan Plaza Drive, Suite 400, Arlington, Texas 76011-4005; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington DC 20555-001; and the NRC Resident Inspector at Arkansas Nuclear One 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 (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/

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

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

Enclosure:
NRC Inspection Report 05000313/2003004 and 05000368/2003004
w/Attachment: Supplement Information

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ADAMS: ■ Yes ☐ No Initials: __ljs___ **DMB (IE35)**
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RIV:RI:DRP/D	RI:DRP/D	SRI:DRP/D	PE:DRP/E	SPE:DRP/D
KDWeaver	ELCrowe	RWDeese	DLStearns	JAClark
E - LJSmith	***/RA/***	***E - LJSmith***	***/RA/***	***E - LJSmith***
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ASPE:DRP/D	C:DRS/OB	C:DRP/D		
JLTaylor	ATGody	LJSmith		
E - LJSmith	***E - LJSmith***	***/RA/***		
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U.S. NUCLEAR REGULATORY COMMISSION

REGION IV

Dockets:	50-313, 50-368
Licenses:	DPR-51, NPF-6
Report:	50-313/03-04 and 50-368/03-04
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 22, 2003, through September 20, 2003
Inspectors:	J. Clark, Senior Project Engineer E. Crowe, Project Engineer R. Deese, Senior Resident Inspector D. Stearns, Project Engineer T. Stetka, Senior Operations Engineer J. Taylor, Reactor Inspector K. Weaver, Resident Inspector
Approved By:	Linda Joy Smith, Chief, Project Branch D Division of Reactor Projects

Enclosure

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SUMMARY OF FINDINGS

IR 05000313/2003004, 05000368/2003004; 06/22/2003 - 09/20/2003; Arkansas Nuclear One, Units 1 and 2; Heat Sink Performance, Postmaintenance Testing, Surveillance Testing, Other Activities.

This report covered a 3-month period of inspection by resident and region-based inspectors and announced inspections by an operations specialist. Two Green noncited violations (NCVs), one Severity Level IV noncited violation, and two unresolved items were identified. The significance of most findings is indicated by their color (Green, White, Yellow, or Red) using Inspection Manual Chapter 0609, "Significance Determination Process." 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

- Severity Level IV. A noncited violation of 10 CFR 50.59 was identified by the inspectors when the licensee did not submit a license amendment request for a modification to the L-3 spent fuel area crane. The modification, which increased the maximum critical load rating to allow for a different type of spent fuel storage cask to be carried over the control rooms of both units, created the possibility for a malfunction of the L-3 crane that had a different result than previously evaluated. The licensee subsequently submitted a license amendment request for the modification on February 24, 2003.

  This issue involves traditional enforcement because it involves a violation of 10 CFR 50.59 and is more than minor because there was a reasonable likelihood that the change would require NRC review and approval prior to its implementation. The finding affects the initiating events cornerstone objective attributable to fuel handling equipment performance and has very low safety significance because, after identification of the problem, the licensee did not transfer spent fuel casks until the license amendment was approved. Consequently, the finding is categorized as a Severity Level IV noncited violation in accordance with the NRC Enforcement Policy (Section 4OA5).

Cornerstone: Mitigating Systems

- TBD. The inspectors identified a violation of 10 CFR Part 50, Appendix B, Criterion XI, associated with the conduct of testing service water flow through safety-related heat exchangers. The accuracy and installation of the ultrasonic flow meter utilized by the licensee for the heat exchanger thermal performance testing did not meet established guidelines. Additionally, the accuracy of the resistance temperature detectors used to measure fluid temperatures during the performance of safety-related heat exchanger thermal performance testing was less than the value assumed by the licensee. Also,

the licensee's practice of utilizing calibration data to establish instrument accuracy did not account for or allow for instrument drift which was not an industry accepted practice.

The issue is greater than minor because it was analogous to Example 2.a of Appendix E of Manual Chapter 0612 because testing errors brought into question the capability of the service water systems to cool certain safety-related components. Preliminary evaluation of the safety significance revealed the violation is probably of very low safety significance based upon subsequent analysis performed by the licensee. Further inspection and review is necessary to conclude whether the licensee's evaluation of the significance is adequate (Section 1R07).

- TBD. The inspectors identified a violation of 10 CFR 50, Appendix B, Criterion XVI, for failure to take corrective action associated with deficiencies in their use of ultrasonic flow instrumentation previously identified by NRC personnel in 1994. The licensee switched to a more accurate ultrasonic flow meter after previous questioning, but failed to address certain aspects of its use which NRC personnel had questioned on the previous model. Specifically, the inspectors found no evidence that the licensee had taken actions to calibrate the instruments for actual pipe wall thickness, install the instruments downstream/upstream of significant flow disturbances, or evaluate the location of instrument installation for their newer more accurate ultrasonic flow meter.

  The issue is greater than minor because it was analogous to Example 4.d of Appendix E of Manual Chapter 0612 because uncorrected surveillance tests led to errors in service water flow measurement. Preliminary evaluation of the safety significance revealed the violation is probably of very low safety significance based upon subsequent analysis performed by the licensee. Further inspection and review is necessary to conclude whether the licensee's evaluation of the significance is adequate (Section 1R07).

- Green. A violation of 10 CFR Part 50, Appendix B, Criterion XVI, revealed itself when the licensee did not take prompt action to correct lube oil leakage from a degraded exhaust manifold gasket on the Unit 2 Emergency Diesel Generator 2K-4B. The leakage was known and documented by the licensee for approximately 10 months and the failure to correct it subsequently led to an exhaust manifold fire during surveillance testing on August 27, 2003.

  The finding is more than minor since it was analogous to Example 4.f of Appendix E of Manual Chapter 0612 because it involved creation of a fire hazard. The finding has very low safety significance (Green) because the emergency diesel generator remained available to perform its safety function and the fire did not spread to other components (Section 1R19).

- Green. A noncited violation of 10 CFR Part 50, Appendix B, Criterion V, for failure to provide an adequate procedure for surveillance testing of the Unit 1 safety-related switchgear room Cooler VCH-4B revealed itself. On August 12, 2003, during an attempted run of the chiller, when the normal room chiller was to be removed from service for maintenance, the Cooler VCH-4B compressor tripped. Because the

surveillance procedure did not have a low acceptance criterion for compressor discharge pressure, the chiller was returned to service after its previous surveillance which recorded a degraded compressor discharge pressure and allowed to further degrade in the form of Freon leakage until it failed to run.

The finding is greater than minor because it affected the mitigating systems cornerstone objective of ensuring the operability, availability, reliability, or function of systems that respond to initiating events. The finding has very low safety significance because, with compensatory measures, the remaining room cooling capability was sufficient to maintain the components in the switchgear room within the licensee's room heatup analysis (Section 1R22).

B. Licensee-Identified Violations

None

REPORT DETAILS

Summary of Plant Status

Unit 1 began the inspection period at 100 percent power and remained there until July 25, 2003 when Heater Drain Pump P-8A failed due to an electrical short. Operators lowered power to approximately 74 percent and then later stabilized the plant at 85 percent power. The heater drain pump motor was replaced and on August 1 operators raised reactor power to 100 percent. Due to indications of oil spray from the Pump P-8A motor bearing, Unit 1 operators subsequently reduced reactor power back down to approximately 73 percent on August 2, 2003. On August 3, following investigation and troubleshooting activities, Unit 1 operators raised power to 100 percent. Unit 1 remained at 100 percent power until August 29, 2003, when the unit experienced an automatic reactor trip due to a lightning strike in close proximity to the Arkansas Nuclear One (ANO) switchyard which affected the turbine electric hydraulic control system. On August 30, Unit 1 operators took the reactor critical and subsequently on September 2, Unit 1 achieved 100 percent power. The unit remained there until September 19 when an unplanned downpower to 66 percent was initiated when heater drain Pump P-8B failed. The pump was replaced and Unit 1 returned to 100 percent power on September 20 and remained there the remainder of the inspection period.

Unit 2 began the inspection period at 100 percent power and remained there until July 3, 2003, when Unit 2 operators reduced reactor power to approximately 56 percent in response to a loss of the Unit 2 plant monitoring system and the core operating limits supervisory system (COLSS). Following investigation and troubleshooting activities, Unit 2 operators commenced a power escalation and returned Unit 2 to 100 percent reactor power the same day. On July 4, Unit 2 operators reduced reactor power to approximately 96 percent in response to a COLSS power margin control room alarm. On July 4, following investigation of the COLSS power margin control room alarm, Unit 2 operators commenced a power increase and on July 5, Unit 2 achieved 100 percent reactor power. Unit 2 remained at or near 100 percent power until August 8, when Unit 2 began an end of cycle reactor power coast down leading to Refueling Outage 2R16. On August 23, with Unit 2 still in coastdown, circulating water Pump A was secured due to high screen differential pressure. Power was reduced from 86 to 84 percent during screen cleaning. The circulating water pump did not restart and power was lowered to 74 percent to maintain acceptable condenser vacuum. Power remained at or near there until September 5 when the coastdown resumed. At the end of the inspection period, Unit 2 was at approximately 67 percent reactor power.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

1R01 Adverse Weather Protection (71111.01)

a. Inspection Scope

During the week of September 18, 2003, the inspectors reviewed one sample of Arkansas Nuclear One (ANO) personnel's protection of the engineered safety features (ESF) electrical systems for both units from sustained hot weather conditions.

This review included walkdowns of the switchgear and battery rooms on both units focusing on hot weather susceptibilities, reviews of the system's designed ventilation features, and a review of the licensee's actions and procedures to ensure the ESF batteries, load centers, and motor control centers remained operable in hot weather. Procedure 1104.27, "Battery and Switchgear Emergency Cooling," Revision 20, was reviewed in this effort to ascertain the readiness of actions taken on any losses of system cooling.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignments (71111.04)

a. Inspection Scope

Partial System Walkdowns. The inspectors performed two partial system walkdowns of systems important to reactor safety during this inspection period in order to verify the operability of the systems. The inspectors reviewed system operating instructions and required system valve and breaker lineups and then compared them to operator logs, system control room indications, valve positions, breaker positions, and control circuit indications to verify these components were in their required configuration for making their systems operable. The inspectors also examined component material condition. The following walkdown inspections were conducted:

- On July 8, 2003, the inspectors walked down the Unit 1 reactor building service water system.

- On July 16, 2003, the inspectors walked down the Unit 2 boric acid gravity feed subsystem of the chemical volume and control system while maintenance was being performed on boric acid gravity feed Valve 2CV-4290-2.

b. Findings

No findings of significance were identified

1R05 Fire Protection (71111.05Q)

a. Inspection Scope

The inspectors referenced the Fire Hazards Analysis Report, Revision 7, during the following inspections of seven fire areas to ensure that conditions were consistent with the requirements of the licensee's fire protection program for fire protection systems design, control of transient combustibles and ignition sources, fire detection and suppression capability, fire barriers, and any related compensatory measures:

- Unit 1 intake structure, Fire Area N
- Unit 1 north switchgear room, Fire Zone 99M
- Unit 1 south switchgear room, Fire Zone 100N
- Unit 2 auxiliary building corridor, Elevation 335, Fire Zone 2040-JJ
- Unit 2 auxiliary building, Elevation 335, Fire Zone 2054
- Unit 2 high pressure safety injection (HPSI) Room C, Fire Zone 2010-LL
- Unit 2 spent fuel pool, Elevation 404, Fire Zone 2151-A

b. Findings

No findings of significance were identified.

1R06 Flood Protection Measures (71111.06)

a. Inspection Scope

The inspectors reviewed one sample of the ANO's internal flooding protection features associated with the general flood protection measures for the Unit 2 HPSI Pump C room. Specifically, the inspectors reviewed flood protection measures associated with replacement of the HPSI Pump C suction piping located in the HPSI Pump C room. In order to replace the piping, the flood door for the HPSI Pump C room was propped open to facilitate the necessary equipment. The inspectors performed a walkdown of the area reviewing internal flooding vulnerabilities, questioned maintenance personnel on contingencies for having the door propped open, and reviewed the protective features and procedures for mitigating the impact of any flooding.

b. Findings

No findings of significance were identified.

1R07 Heat Sink Performance (71111.11S)

a. Inspection Scope

Biennial Programmatic and Functional Performance Review. Between July 14-18, 2003, the inspectors reviewed applicable licensee documents related to heat exchanger performance testing. The purpose of this biennial review was to verify (1) that testing, inspection/maintenance, or monitoring of biotic fouling controls are singularly or in combination adequate to ensure proper heat transfer; (2) methods used to inspect heat exchangers are consistent with expected degradation; (3) established acceptance criteria are consistent with accepted industry standards, or equivalent, including acceptability of the cleaning interval; (4) as found results are appropriately dispositioned such that the final condition is acceptable; and (5) the performance of ultimate heat sinks and their subcomponents.

Biennial Testing and Inspection Performance Review. The inspectors observed a heat exchanger performance test for the Unit 1 Emergency Diesel Generator (EDG) 1. This selection was based upon the EDG's high ranking in the plant-specific risk assessment. The inspectors monitored the test and reviewed the test data to verify the following items:

- test acceptance criteria and results appropriately considered differences between testing conditions and design conditions
- inspection results were appropriately categorized against pre-established engineered acceptance criteria, and were acceptable
- the frequency of testing or inspection was sufficient to detect degradation prior to loss of heat removal capabilities below design-basis values
- test results considered test instrument inaccuracies and differences
- the licensee had developed acceptance criteria for its bio-fouling controls

b. Findings

.1 Inadequate Instrumentation Used During Service Water Heat Exchanger Thermal Performance Testing

Introduction. The inspectors identified a violation of 10 CFR Part 50, Appendix B, Criterion XI, for failing to properly conduct a surveillance test on safety-related equipment. The installation and accuracy of the test instrumentation failed to meet guidelines established by the licensee's procedures and Electric Power Research Institute (which the licensee stated in interviews they were utilizing). The inspectors were unable to determine the safety significance of this violation without further inspection. This issue is unresolved.

Description. On July 14, 2003, an inspector observed a heat exchanger performance test for Unit 1 EDG 1, conducted in accordance with ANO Procedure 1309.018, "EDG Cooler Thermal Test," Revision 3, August 2002. The inspector observed the installation of test equipment and the data gathering phase of the heat exchanger performance test. Another inspector later interviewed the system engineer performing the heat exchanger performance test. In documentation provided by the system engineer, the inspectors learned the licensee was crediting the ultrasonic flow meter error as ±5 percent. The ±5 percent is in excess of the ±3 percent established in the guidelines utilized by the licensee for the thermodynamic conditions established across the heat exchanger for the test. Additionally, the ultrasonic flow meter was installed on a carbon steel pipe of 6-inch diameter during the test. The ultrasonic flow meter was calibrated for 1 and 2-inch pipe diameters on stainless steel pipe. The licensee later indicated their ultrasonic flow instrument error was not bounded in all cases by ±5 percent.

The inspector observing the heat exchanger performance test for the Unit 1 EDG 1 observed the ultrasonic flow instrument was placed on a straight run of inlet piping with 3-5 pipe diameters upstream and downstream of the flow instrument. This is contrary to the guidance provided by the industry of 15 pipe diameters. The inspector questioned the system engineer concerning this point and learned the licensee had not performed an evaluation to determine that characteristic flow existed at the point flow was measured with the ultrasonic instrument.

The licensee utilized resistor temperature detectors to measure the temperatures of the two fluids entering and exiting the heat exchanger during the test. The vendor provided these resistor temperature detectors with a specified tolerance of ±0.4 percent. The licensee utilized ±0.288 percent of the actual reading of the calibration test performed by licensee personnel. This practice does not account for or allow for instrument drift and is not an industry accepted practice (IEEE-ISA).

The inspectors brought their observations to the system engineer that had been in charge of the testing. The inspectors also asked about similar testing performed on other station equipment serviced by the service water cooling system. The licensee formed a site team to evaluate all equipment on which a heat exchanger performance test had been performed utilizing the above mentioned equipment. The licensee informed the inspectors that only three heat exchangers were close to margin with respect to their design basis. These heat exchangers were the Unit 2 low pressure safety injection pump seal cooler; the red train Unit 2 EDG Heat Exchanger 2E-20A and the green train Unit 2 EDG Heat Exchanger 2E-20B. The licensee stated these heat exchangers were still operable and had available margin above design limits. The inspectors evaluated the documentation provided to support the licensee's position and could not agree with all of the licensee's assumptions. While the evaluation was logically and mathematically correct, the inspectors could find no readily available standard or industry guidance to support the evaluation. Therefore, further inspection is necessary to adequately disposition this issue.

Analysis. The inspectors determined that this issue was more than minor because it was analogous to Example 2.a of Appendix E of Manual Chapter 0612 in that testing errors brought into question the capability of the service water systems to cool certain safety related components. The inspectors also determined the finding affected the mitigating systems cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The inspectors used the guidance in NRC Manual Chapter 0609 in an attempt to determine the significance of the findings. The inspectors found that insufficient information existed to determine the extent of the safety function that was potentially lost.

Enforcement. 10 CFR Part 50, Appendix B, Criterion XI, states in part, “A test program shall be established to assure that all testing required to demonstrate that structures, systems, and components will perform satisfactorily in service is identified and performed in accordance with written test procedures which incorporate the

requirements and acceptance limits contained in applicable design documents." Criterion XI further states, "Test procedures shall include provision for assuring that all prerequisites for the given test have been met, that adequate test instrumentation is available and used, and that the test is performed under suitable environmental conditions."

Contrary to 10 CFR Part Part 50, Appendix B, Criterion XI, the licensee utilized instrumentation in a manner which failed to establish the component being tested would perform satisfactorily in service when called upon to mitigate the consequences of an accident. Specifically, the accuracy of the instrumentation appears to be insufficient for its application. The instrument's installation point on system piping does not ensure turbulent flow exists which is necessary to ensure thermal gradients are accounted for. The inspectors were unable to determine the safety significance of this apparent violation without further inspection. The licensee has entered this issue in their corrective action program as CR-ANO-C-2003-0568. Preliminary evaluation of the safety significance revealed the violation is probably of very low safety significance based upon subsequent analysis performed by the licensee. Further inspection and review is necessary to conclude whether the licensee's evaluation of the significance is adequate. Therefore, this inspection finding is being considered an unresolved item (URI) (0500313, 368/2003004-01).

.2 Failure to Correct Instrument Inaccuracies During Service Water Heat Exchanger Thermal Performance Testing, Mitigating Systems

Introduction. The inspectors identified a violation of 10 CFR Part 50, Appendix B, Criterion XVI, for failing to properly implement corrective actions after discovery that test instrumentation failed to meet established guidelines. The inspectors discovered conditions identified by NRC inspectors in 1994 that still existed. The inspectors were unable to determine the safety significance of this violation without further inspection. This issue is unresolved.

Description. The inspectors learned through interviews and documentation that NRC personnel had discovered in 1994 that ultrasonic flow meters used in heat exchanger thermal performance testing did not meet the previous bounding value of 5 percent accuracy. The previous discovery identified the following:

- Flow meter calibration for a specific test pipe wall thickness, a specific test flow rate, and a specific test temperature did not match the actual use of the instrument

- Flow meters were not installed downstream/upstream of significant flow disturbances (length of straight pipe 10-15 pipe diameters)

- Actual pipe wall thickness was not measured for accurate input into the flow meter

The licensee indicated they had changed to the Polysonic UT flow meter which is a more accurate ultrasonic flow instrument. However, the inspectors found no evidence the licensee had taken actions to calibrate the instruments for actual pipe wall thickness, install the instruments downstream/upstream of significant flow disturbances, or evaluate the location of instrument installation. This issue is closely tied to the first issue (instrument accuracy) which requires further inspection. Therefore, further inspection is also necessary to adequately disposition this issue.

Analysis. The inspectors determined that the issues was more than minor because it was analogous to Example 4.d of Appendix E of Manual Chapter 0612 in that uncorrected surveillance tests led to errors in service water flow measurement. The inspectors also determined the finding affected the mitigating systems cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The inspectors used the guidance in NRC Manual Chapter 0609 in an attempt to determine the significance of the finding. The inspectors found that insufficient information existed to determine the extent of the safety function that was potentially lost.

Enforcement. 10 CFR Part 50, Appendix B, Criterion XVI, states in part, “Measures shall be established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformances are promptly identified and corrected.”

Contrary to 10 CFR Part 50, Appendix B, Criterion XVI, the licensee continued to utilize instrumentation in a manner which failed to establish that the component being tested would perform satisfactorily in service when called upon to mitigate the consequences of an accident. Specifically, the licensee failed to evaluate the wall thickness and flow disturbance of the piping where ultrasonic flow meters were installed to evaluate the thermal performance of safety-related heat exchangers. These conditions were not accounted for in the calibration of the ultrasonic flow meters. Also there was no evidence these conditions were included in calculations related to the calculation of the thermal performance of safety-related heat exchangers. These conditions had been previously identified by NRC inspectors. The licensee has entered this issue in their corrective action program as CR-ANO-C-2003-0568. The inspectors were unable to determine the safety significance of this violation without further inspection. Preliminary evaluation of the safety significance revealed the apparent violation is probably of very low safety significance because of its close tie to the previously mentioned apparent violation. Further inspection and review is necessary to conclude whether the licensee’s evaluation of the significance is adequate. Therefore, this inspection finding is being considered a URI (0500313, 368/2003004-02).

1R11 Licensed Operator Requalification (71111.11B)

a. Inspection Scope

Quarterly Review. The inspectors observed two sessions of licensed operator requalification training activities in the Units 1 and 2 simulators to assess the licensee's effectiveness in conducting the requalification program and to verify that licensed individuals received the appropriate level of training required to maintain their licenses. The specific observations are listed below:

- On July 24, 2003, the inspectors observed the Unit 1 licensed operator simulator qualification training Scenario SPG 04-01-04, "Summer Reliability Contingencies," conducted for Unit 1 Training Cycle 4.

- On July 24, 2003, the inspectors also observed the Unit 2 licensed operator simulator qualification training Scenario SPG 2-04-01-05, "Unannounced Casualties," conducted for Unit 2 Training Cycle 4.

The inspectors compared their observations for each of these scenarios to the applicable Units 1 and 2 abnormal operating procedures, emergency plan procedures and applicable Technical Specifications. In addition, the inspectors attended the critiques following the scenarios held by the Units 1 and 2 training organizations to assess individual performance.

Biennial Inspection. The inspector evaluated examination security measures and procedures for compliance with 10 CFR 55.49 and evaluated the licensee's sample plan for the written examinations for compliance with 10 CFR 55.59 and NUREG-1021, as referenced in the facility requalification program procedures. In addition, the inspector reviewed remedial training for examination failures of one crew and three operators for compliance with facility procedures and responsiveness toward addressing the failed areas.

Furthermore, the inspector: (1) interviewed three personnel (one operator, one instructor, and one evaluator) regarding the policies and practices for administering examinations; (2) observed the administration of two dynamic simulator scenarios to one operating crew and one dynamic simulator scenario to a staff crew by facility evaluators; and (3) observed one facility evaluator administer two job performance measures in the control room simulator in a dynamic mode, and two facility evaluators administer three job performance measures (for two candidates each) in the plant under simulated conditions. As a part of these interviews and during the operating examination administration, the inspector assessed the effectiveness of the examination security process.

The inspector also reviewed the end of the testing cycle requalification examination test results. These results were assessed to determine if they were consistent with

NUREG 1021 guidance and Manual Chapter 0609, Appendix I, “Operator Requalification Human Performance Significance Determination Process,” requirements.

Additionally, the inspector assessed the Unit 1, plant-referenced simulator to determine if the simulator was adequate for use in operator licensing examinations and for satisfying experience requirements as prescribed in 10 CFR 55.46, “Simulation Facilities.”

To accomplish this assessment, the inspector reviewed a sample of simulator performance test records (e.g., transient tests, steady state tests, acceptance testing, reactor core testing, and scenario based tests), discrepancy report listing (both opened and closed), selected discrepancy reports, and other processes to ensure that simulator fidelity is commensurate with the requirements of 10 CFR 55.46.

b. Findings

No findings of significance were identified.

1R12 Maintenance Implementation (71111.12Q)

a. Inspection Scope

The inspectors reviewed performance-based problems involving one selected in-scope structure, system, or component (SSC) to assess the effectiveness of the Maintenance Rule Program. The inspectors independently verified that licensee personnel properly implemented 10 CFR 50.65, “Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants.” The inspectors used the reactor oversight process Inspection Procedure 71111.12, “Maintenance Effectiveness,” to perform the inspection. The following equipment performance problem was reviewed:

- Repeat failures of Unit 2 intake structure ventilation exhaust Fan 2VEF-25B to automatically start during ESF signal actuations

The inspectors focused the review on whether the SSCs that experienced problems were properly characterized in the scope of the program. They also reviewed whether the SSC failure or performance problem was properly characterized. The inspectors assessed the adequacy of the licensee's significance classification for the SSC. This included the appropriateness of the performance criteria established for the SSC (if applicable) and the adequacy of corrective actions for SSCs classified in accordance with 10 CFR 50.65 a(1) as applicable.

b. Findings

No findings of significance were identified.

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

a. Inspection Scope

The inspectors evaluated and discussed with the licensee the two risk assessments listed below to verify that assessments were performed when required. The inspectors reviewed these assessed risk configurations against actual plant conditions and any inprogress evolutions or external events to verify that the assessments were accurate, complete, and appropriated for the conditions. In addition, the inspectors walked down the control room and plant areas to verify that compensatory measures identified by the risk assessments were appropriately performed.

- Unit 1 Reactor Building Spray System A system outage on July 8, 2003
- Unit 2 EDG 2K-4B outage on September 27-28, 2003

b. Findings

No findings of significance were identified.

1R14 Personnel Performance During Nonroutine Plant Evolutions and Events (71111.14)

a. Inspection Scope

For the three nonroutine events described below, the inspectors reviewed operator logs, plant computer data, and strip charts to determine what occurred and how the operators responded, and to determine if the response was in accordance with plant procedures and Technical Specification requirements.

- On July 3, 2003, operators reduced Unit 2 power to approximately 56 percent in response to a loss of the Unit 2 plant monitoring system which resulted in a loss of the COLSS. After returning 100 percent power, Unit 2 plant power was reduced to approximately 96 percent in response to a COLSS power margin control room alarm. The inspectors observed and reviewed operator response to verify that required actions of Technical Specifications and station procedures were taken.

- On August 29, 2003, the inspectors observed the response to a reactor trip on Unit 1. Lightning interference with the main turbine control system resulted in closure of the main turbine control valves and subsequent high pressure trip of the reactor. The inspectors observed licensee operators as they verified proper shutdown of the reactor, controlled steam generator water levels with the emergency feedwater system which was complicated by a partially opened main feed block valve, and controlled steam generator pressure with the turbine bypass valves.

- On September 19, 2003, the inspectors reviewed the operators' response to a loss of heater drain Pump P-8B on Unit 1. The pump failed due to an electrical short requiring an unplanned power reduction to 66 percent rated power. The inspectors reviewed the applicable annunciator response procedures to verify proper operator response was taken.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15)

a. Inspection Scope

The inspectors reviewed four operability determinations to assess the correctness of evaluations, the use of compensatory measures, if needed, and compliance with the Technical Specifications. The inspectors' review included a verification that operability determinations were made as specified by the licensee's Procedure LI-102, “Corrective Action Process,” Revision 2, and Procedure 1015.047, “Condition Reporting and Immediate Reportability Determinations,” Revision 16. The technical adequacy of the determinations was reviewed and compared to the Technical Specifications, Technical Requirements Manual, Updated Final Safety Analysis Report, associated licensing-basis documentation, as appropriate. The operability determinations that were reviewed were documented in the following condition reports (CRs) and engineering request (ER):

- ER-ANO-2003-291-000 Unit 2 control room emergency air conditioning Compressors 2VE-1A and -1B oil level evaluation
- CR-ANO-2-2003-1157 Unit 2 EDG 2K-4B exhaust manifold leaks
- CR-ANO-C-2003-0697 Alternate AC generator programmable logic controller failures
- CR-ANO-1-2003-0712 Unit 1 intake structure smoke detectors

b. Findings

No findings of significance were identified.

1R19 Postmaintenance Testing (71111.19)

a. Inspection Scope

The inspectors observed performance of twelve surveillance test procedures and reviewed test data of five selected risk-significant SSCs to assess whether the SSCs satisfied the Technical Specifications, the Updated Final Safety Analysis Report, the

Technical Requirements Manual, and licensee procedural requirements; and to determine if the testing appropriately demonstrated that the SSCs were operationally ready and capable of performing their intended safety functions. For the maintenance activities identified below, the inspectors observed the postmaintenance testing activities in the control room or locally and/or reviewed the test data obtained from the field. The inspectors observed whether the tests were performed in accordance with procedures, that the procedures' acceptance criteria were consistent with the Technical Specifications, the supporting license change application, and the results recorded met the test acceptance criteria. These activities included:

- Unit 1, installation and testing of a new uninterruptable power supply (UPS) for Fire Protection Panel C-456 using Engineering Request ER-ANO-2003-0426-000 and Maintenance Action Item (MAI) 26163 on July 7-11, 2003

- Unit 1 postmaintenance valve stroke testing of the reactor building spray valve CV-2812 following maintenance conducted July 7 - 11, 2003

- Unit 2, postmaintenance testing of Unit 2 steam generator atmospheric dump Valve 2CV-1052 following maintenance activities using Work Order Package 50276182-1 on July 8, 2003

- Unit 2, postmaintenance testing of Reactor Trip Circuit Breaker AB-211, following maintenance overhaul using Procedure OP-416.037, "GE AK-5 Circuit Breakers Overhaul," Revision 0, and Work Order Package 50273710-1 on July 8, 2003

- Unit 1, postmaintenance valve stroke testing of Train A high pressure injection block Valves CV-1219 and CV-1278 following maintenance conducted on July 16, 2003

- Unit 2, postmaintenance testing of boric acid gravity feed Valve 2CV-90 on July 16, 2003

- Unit 1, postmaintenance of high pressure injection Pump P-36A using Procedure OP-1104.002, "Makeup and Purification System Operation," Supplement 3, Revision 57, and Work Order Package 50267355 on August 15, 2003

- Unit 2, postmaintenance testing following replacement of exhaust manifold gaskets on EDG 2K-4B using Procedure OP 2104.036, "Emergency Diesel Generator Operations," Supplement 2c, Revision 46, on August 29, 2003

- Unit 1, postmaintenance testing of main feed block Valve B (CV-2675) using Work Order Package 00028216-01 on August 31, 2003

- Unit 1, postmaintenance testing of emergency feedwater steam admission Valve CV-2663 using Work Order Package 00028223-01 on August 31, 2003

- Unit 2, postmaintenance testing of letdown divert Valve 2CV-4826 following adjustment of the valve's closing torque using Procedure OP-2305.002, “Reactor Coolant System Leak Detection,” Revision 13, on September 8, 2003

- Postmaintenance testing of the alternate AC generator following restoration of the programmable logic controller memory using Procedure OP-2104.037, “Alternate AC Generator Operation,” Revision 6, on September 10, 2003

b. Findings

Introduction. A Green, self-revealing, noncited violation (NCV) of 10 CFR Part 50, Appendix B, Criterion XVI, was identified when the licensee did not take prompt corrective action to repair a leaking exhaust manifold on the EDG 2K-4B. The lack of prompt corrective action resulted in lube oil leakage from the degraded exhaust manifold gasket which subsequently led to a small fire on the diesel generator during surveillance testing.

Description. On September 27, 2003, during a planned monthly surveillance test run for EDG 2K-4B, a small fire occurred on the exhaust manifold. The fire resulted from oil leakage past the exhaust manifold gasket for Cylinders 7, 8, and 9 and onto the external surface of the manifold. The oil on the exhaust manifold flashed into flames when the exhaust manifold surface temperature reached approximately 500°F. The fire burned for less than 1 minute and was extinguished when the engine was tripped locally. The engine had just reached full load at the time of the fire.

The EDG 2K-4B is a Fairbanks-Morse opposed piston diesel. This type of diesel is susceptible to oil leakage past the piston rings into the cylinder especially from the top piston which has oil on the surfaces above the piston. During standby conditions and at low loads, oil leaking past the piston rings will collect in the cylinders. At low loads the exhaust temperatures are not sufficient to burn the oil in the cylinder and the excess oil will be exhausted into the exhaust manifold with the exhaust gasses. At full load, the combustion temperature is sufficient to completely burn any oil seeping past the piston rings. When interviewed by the inspectors, licensee engineers were familiar with these engine operational and design attributes and were knowledgeable that the oil carried over into the engine exhaust coming into contact with a hot exhaust manifold in the presence of air could ignite.

On October 28, 2002, Maintenance Action Item (MAI) 75097 was written for EDG 2K-4B noting that an oil leak had developed on the exhaust manifold for Cylinders 7, 8, and 9. This oil leak was indication that the manifold gasket had deteriorated and was allowing unburned oil to leak past the gasket and onto the exhaust manifold. The licensee intended to continue use of the diesel with the known leakage until the next scheduled maintenance period in February 2004. This maintenance period was later deferred due

to emergent maintenance on other equipment. Also, MAI 78526 was initiated on January 15, 2003, noting oil seeping from the heat shield bolt holes. This was another indication of oil seepage past the manifold gaskets. Licensee engineers were aware of these MAIs and their potential for causing a fire, but work to repair the leaking exhaust gasket was not emphasized as a high priority to repair. Subsequently, on September 27, 2003, during a surveillance test run of the EDG 2K-4B, an exhaust manifold fire occurred.

The licensee did not promptly correct the degraded exhaust manifold gasket thereby allowing a fire to ignite. While the EDG was available to perform its safety function after the fire, maintenance and operations personnel had to remove the EDG from service in order to replace all exhaust manifold gaskets to correct the oil leaks to prevent future recurrence.

Analysis. The finding affected the mitigating systems cornerstone and was considered more than minor because it was analogous to Example 4.f of Appendix E of Manual Chapter 0612 because it involved creation of a fire hazard. Because the finding did not screen as potentially risk significant due to a seismic, fire, flooding, or severe weather initiating event, it was determined to be of very low safety significance (Green). In this screening, the fire was assumed to not impair the safety function of the EDG until it was removed from service to repair the exhaust manifold. The fire was also assumed to be contained and not readily spreadable to other components.

Enforcement. 10 CFR Part 50, Appendix B, Criterion XVI, requires that measures shall be established to assure that conditions adverse to quality are promptly identified and corrected. Contrary to the above, the licensee did not take prompt corrective actions to correct the degraded exhaust manifold gasket on EDG 2K-4B after identification of the problem on October 28, 2002, and on January 15, 2003, resulting in a small fire on the exhaust manifold on September 27, 2003. The fire did not spread nor did it affect the function of the EDG until the EDG was removed from service for repairs as called for in CR ANO-2-2003-1158. Because this failure to take prompt corrective action is of very low safety significance and was documented in the licensee's corrective action program, this violation is being treated as an NCV, consistent with Section VI.A of the NRC Enforcement Policy (NCV 05000368/2003004-03).

1R20 Refueling and Outage Activities (71111.20)

a. Inspection Scope

The inspectors observed licensee actions and plans for the unplanned outage resulting from the Unit 1 reactor trip on August 29, 2003. The inspectors observed licensee forced outage planning and execution activities. The inspectors' review also included scheduling, outage configuration management, decay heat removal operation and management, and tag out and clearance activities.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors observed from either the control room or locally the performance of and/or reviewed the documentation for the following eight surveillance tests. This was done to verify that the surveillance tests were performed in accordance with approved licensee procedures and met Technical Specification requirements. In addition, the applicable test data was also reviewed to verify whether they met Technical Specifications, Updated Final Safety Analysis Report, and licensee procedure requirements.

- Unit 1, Procedure OP-1104.005, “Reactor Building Spray System Operation,” Revision 42, Supplement 3
- Unit 1, Procedure 1104.027, “Battery and Switchgear Emergency Cooling,” Revision 20
- Unit 1, Procedure OP-1104.036,”Emergency Diesel Generator Operation,” Revision 41
- Unit 1, Procedure 1104.036, “Emergency Diesel Generator Operation,” Supplement 1, Revision 41
- Unit 1, Procedure 1304.205, “Unit 1 EFIC Channel A Monthly Test, SG Pressure Greater Than 750 PSIG,” Revision 10
- Unit 2, Procedure 2302.01, “Incore Detector Channel Check,” Revision 12
- Unit 2, Procedure 2104.007, “Control Room Emergency Air Conditioning and Ventilation,” Supplement 1, “2VE-1A/2VUC-27A/2VSF-9 Monthly,” Revision 25
- Unit 1, Procedure 1412.081, “Battery Chargers Cleaning and Inspection,” Revision 5

b. Findings

Introduction. A Green violation of 10 CFR Part 50, Appendix B, Criterion V, was self-revealed when the Unit 1 switchgear room safety-related Chiller VCH-4B tripped during maintenance on the normal switchgear room cooler due to an inadequate surveillance test procedure which failed to identify that Chiller VCH-4B was degraded.

Description. On August 12, 2003, the Chiller VCH-4B emergency switchgear chiller was placed in service to cool the Unit 1 south emergency switchgear room to support maintenance on the normal cooling Unit VUC-2A. One hour and 45 minutes later, Unit 1 operators received an alarm and found the chiller not running. Chiller VCH-4B was later restarted and compressor discharge pressure was found to be approximately 100 psig, where the expected pressure was approximately 175 psig. Freon was added to Chiller VCH-4B. Further troubleshooting revealed small Freon leaks which were repaired.

Review of past surveillance data indicated that the last time the surveillance had been accomplished, the compressor discharge pressure was 145 psig, which was noticeably lower than the compressor discharge pressures of 175 psig seen during the past surveillances. Upon review of Procedure 1104.027, “Battery and Switchgear Emergency Cooling,” Revision 20, no low acceptance criterion to discern adequate cooling capacity of the chiller was found. Absence of this criterion gave licensee personnel no indication as to the degraded state of Chiller VCH-4B. As a result, after the previous surveillance test with an indication that compressor operation was not normal, operators returned the Chiller VCH-4B to service while it was degraded.

As part of the corrective action plans for CR ANO-1-2003-00868, Chiller VCH-4A and VCH-4B low compressor discharge pressure acceptance limits will be included in the monthly surveillance Procedure 1104.027, “Battery and Switchgear Emergency Cooling.”

Analysis. The finding affected the objective of the mitigating systems cornerstone of ensuring the availability, reliability, and capability of systems that respond to initiating events, attributable to poor maintenance procedural quality and therefore was considered more than minor. The finding has very low safety significance because, with compensatory measures, the remaining room cooling capability was sufficient to maintain the components in the switchgear room within the licensee's room heatup analysis.

Enforcement. 10 CFR Part 50, Appendix B, Criterion V, requires that activities affecting quality shall be prescribed by documented procedures which shall include acceptance criteria for determining that important activities have been satisfactorily accomplished. Contrary to the above, the licensee did not include acceptance criteria to satisfactorily demonstrate adequate cooling ability of the Chiller VHC-4B room cooler in their surveillance test procedure. The failure of the chiller did not cause any equipment in the south switchgear room to become inoperable. The licensee initiated CR ANO-2-2003-1158 to repair the chiller and add acceptance criteria to their surveillance procedures for Chiller VCH-4B and its associated chiller on the opposite safety train. Because this issue is of very low safety significance and was documented in the licensee's corrective action program, this violation is being treated as an NCV, consistent with Section VI.A of the NRC Enforcement Policy (NCV 05000313/2003004-04).

1R23 Temporary Plant Modifications (71111.23)

a. Inspection Scope

The inspectors reviewed the two temporary alterations listed below to assess the following attributes: (1) the adequacy of the safety evaluation; (2) the consistency of the installation with the modification documentation; (3) the updating of drawings and procedures, as applicable; and (4) the adequacy of the postinstallation testing.

- Temporary Alteration Package 03-1-005, evaluated under Engineering Request (ER) ANO-2003-0551-000 on July 28, 2003, which aligned the moisture separator reheater distiller drain tanks to the condenser to allow an increase in plant power with the heater drain Pump P-8A out of service.

- Temporary Alteration Package 03-2-002, evaluated under ER-ANO-2003-0538-000 on July 24, 2003, which installed a fan and duct work to provide a temporary cooler air supply to Battery Room 2D12

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification (71151)

a. Inspection Scope

The inspectors sampled licensee submittals for the performance indicators listed below for the period from June 2002 through May 2003. The inspectors verified: (1) the accuracy of the performance indicator data reported during that period and (2) used the performance indicator definitions and guidance contained in NEI 99-02, "Regulatory Assessment Indicator Guideline," Revision 2, to verify the basis in reporting for each data element.

Reactor Safety Cornerstone

- Reactor coolant system specific activity, Units 1 and 2
- Safety system functional failures, Units 1 and 2

The inspectors reviewed operator log entries, chemistry log entries, daily shift manager reports, plant computer data, CRs, MAI paperwork, maintenance rule data, and performance indicator data sheets to determine whether the licensee adequately verified the two performance indicators listed above. This number was compared to the number reported for the performance indicator during the current quarter. Also, the inspectors interviewed licensee personnel responsible for compiling the information.

b. Findings

No findings of significance were identified.

4OA2 Problem Identification and Resolution (71152)

Cross-References to Problem Identification and Resolution Findings Documented Elsewhere

Section 1R07 describes a finding for inadequate incorporation of a past NRC inspection finding associated with the use of ultrasonic flow meters and on service water flow issues that the licensee never fully incorporated into their service water testing program. Consequently, the licensee was not accurately measuring service water flow because this finding was not incorporated.

Section 1R19 describes a finding for a failure to promptly take action on a known deficiency with the Unit 2 EDG exhaust manifold. Licensee personnel were cognizant of the potential for an exhaust manifold fire on this EDG, but failed to promptly repair the leaks to avert the condition.

4OA3 Event Followup

(Closed) Licensee Event Report (LER) 05000313/2001004-00: Automatic Reactor Trip on High Reactor Coolant System Pressure Due to Failure of a Card in the Main Turbine Electro-Hydraulic Control System

On July 24, 2001, the licensee experienced an unplanned reactor trip. The reference card in the main turbine electro-hydraulic control system experienced an unforseen failure primarily due to localized heating of the card. The card failure caused the main turbine governor valves to partially close, resulting in an increase of reactor coolant system pressure above the reactor trip high pressure setpoint. This LER was reviewed by the inspectors and no findings of significance were identified. The licensee documented problems associated with the reactor trip in CR ANO-1-2001-0786. This event did not constitute a violation of NRC requirements.

4OA5 Other Activities

a. (Closed) URI 05000313/2002005-01: Failure to provide accurate and complete information in response to and NRC Generic Letter regarding a Unit 1 primary water chemistry sulfate excursion

On November 8, 2002, the inspectors identified that a 1988 Unit 1 primary water chemistry sulfate excursion was not documented in the licensee's response to NRC Generic Letter 97-01. During heatup following 1988 Unit 1 Refueling Outage 1RF8, primary water chemistry sulfate levels exceeded guidelines of the Electric Power Research Institute because of an earlier unintended intrusion of demineralizer resin into

the reactor coolant system. NRC Generic Letter 97-01 requested the licensee provide information regarding occurrences of resin intrusion into the reactor coolant system and effects on reactor coolant system chemistry.

This issue was discussed with personnel from the Office of Nuclear Reactor Regulation. They noted that the licensee's submittal referred to a Babcock and Wilcox Owners Group (BWOG) Report, which documented licensee inputs in response to Generic Letter 97-01. A supplement to this report (also considered to be incorporated by reference) included an evaluation of the sulfate excursion. Since the ANO-1 resin intrusion event of 1988 was documented in the BWOG' s supplemental response to GL 97-01, and since the licensee referenced the BWOG's generic responses in the licensee's plant-specific 120-day response for ANO-1, there was no regulatory basis for issuing a 10 CFR 50.9 violation.

From a safety perspective, the required actions and augmented inspection requirements of NRC Executive Order EA-03-009 (February 2003) supercede any actions and inspections that were recommended to be taken in previous NRC generic communications on PWR vessel head penetration nozzles (including those stated in GL 97-01 and NRC Bulletins 2001-01, 2002-01, and 2002-02). These augmented inspection requirements address the potential for primary water stress corrosion cracking to occur in the ANO-1 vessel head penetration nozzles. This issue is closed.

b. (Closed) 05000313, 368/2003002-02: Failure to Obtain a License Amendment for Upgrade of the Spent Fuel Area Crane

Introduction. The inspectors identified a Severity Level IV violation of 10 CFR 50.59 when the licensee failed to initially submit a license amendment request for a modification to the L-3 spent fuel area crane.

Description. In 2001, the licensee changed vendors and styles of spent fuel storage casks. Part of this change required modification to upgrade the L-3 spent fuel area crane to lift the newer, heavier Holtec casks. For this modification, the licensee conducted a 10 CFR 50.59 evaluation and concluded that the proposed modification did not require a license amendment. The licensee concluded that the upgraded crane design met the requirements of NUREG-0554, "Single-Failure-Proof Cranes for Nuclear Power Plants," and NUREG-0612, "Control of Heavy Loads at Nuclear Power Plants." Therefore, the licensee concluded that the upgraded crane design was acceptable for implementation without the need for an NRC license amendment.

The inspectors disagreed with this conclusion. The inspectors acknowledged the new crane was intended to meet single-failure-proof design standards and utilized a trolley design documented in a vendor topical report that was previously approved by the NRC. However, the inspectors noted that Generic Letter 85-11, "Completion of Phase II of 'Control of Heavy Loads at Nuclear Power Plants' NUREG-0612," identified that installation of a single-failure-proof crane design may reasonably be expected to eliminate most, perhaps 90 percent, of load drop probability, meaning the failure

probability was not zero. The inspectors concluded that the increase in the maximum critical load rating of the crane (from 100-130 tons), combined with a required load path that would carry a loaded spent fuel storage cask over the control rooms, would require a license amendment.

The inspectors, managers from the NRC Region IV office, and representatives of the NRC Office of Nuclear Reactor Regulation informed the licensee of this conclusion in a telephone call on February 13, 2003. The inspectors also informed the licensee that failure to submit a license amendment request for this modification was a potential violation of 10 CFR 50.59. The licensee entered this issue into its corrective action program as CR ANO-C-2003-0092. The licensee subsequently submitted a license amendment request for the Crane L-3 modification to the NRC on February 24, 2003.

Analysis. This is an item for traditional enforcement because it involves a violation of 10 CFR 50.59, an issue which impacts NRC oversight ability. The inspectors considered this issue more than minor because there was a reasonable likelihood that the change would require NRC review and approval prior to its implementation. In accordance with NRC enforcement procedures, the significance of this finding was evaluated using the SDP in order to assign a severity level. The finding was determined to affect the initiating events cornerstone objective attributable to fuel handling equipment performance. The finding was then found to not screen as risk significant due to a seismic, fire, flooding, or severe weather initiating event, and therefore was determined to be of very low safety significance. The inspectors also factored in their analysis the fact that the upgraded crane had not been used to transport a loaded spent fuel storage cask and was under administrative controls preventing its use in this manner, pending approval of the license amendment.

Enforcement. 10 CFR 50.59 requires, in part, that a licensee obtain a license amendment implementing a proposed change to the facility as described in the final safety analysis report if the change would create a possibility for a malfunction of an SSC important to safety with a different result than any previously evaluated. Contrary to the above, prior to February 2003, the licensee did not submit a license amendment for a change to their facility, specifically the modification to the L-3 spent fuel area crane, when the change created the possibility for a malfunction of the L-3 crane that would result in a 130 ton load drop. The change to the final safety analysis report for the crane modification erroneously stated that the crane was immune to potential dropped loads, but the actual change to the facility created a possibility of the drop of a 130 ton cask, which exceeded the licensee's previously evaluated load drop analysis discussed in Section 15.1.23.1 of the Unit 2 final safety analysis report for a 100 ton load drop. The licensee subsequently submitted a license amendment request on February 24, 2003, and did not transport loaded spent fuel storage casks as detailed in CR ANO-C-2003-0092. Because this failure to submit a license amendment request is of very low safety significance and was documented in the licensee's corrective action program, this violation is being treated as an NCV, consistent with Section VI.A of the

NRC Enforcement Policy (NCV 05000313, 368/2003004-05). Because the SDP determined that this issue was of very low safety significance, it was categorized as Severity Level IV in accordance with the NRC Enforcement Policy.

4OA6 Meetings, Including Exit

The resident inspectors presented the inspection results to Mr. C. Eubanks, General Manager, Plant Operations, and other members of the licensee's management staff on September 23, 2003. 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

C. Anderson, Vice President, Operations
G. Ashley, Licensing Manager
B. Byford, Supervisor, Simulator Training
M. Chisum, Manager, Systems Engineering
L. Compton, Manager, Engineering Programs and Components
J. Cork, Operations Training Senior Instructor
S. Cotton, Director, Nuclear Safety Assurance
S. Cupp, Simulator Support
B. Eichenberger, Unit 1 Operations Manager
C. Eubanks, General Manager, Plant Operations
J. Giles, Supervisor, Operations Training (Unit 1)
M. Gohman, Unit 1 Shift Manager
B. Gordon, Manager, Planning and Scheduling
J. Hanson, Operations Training Senior Instructor
D. Hawkins, Specialist, Licensing
J. Hoffpauir, Plant Manager, Operations
D. James, Manager, Corrective Action and Assessment
J. Kowalewski, Director, Engineering
T. Mayfield, Supervisor, Operations Training (Unit 2)
J. Miller, Jr., Manager, Training and Development
T. Mitchell, Manager, Plant Manager, Operations
K. Nichols, Manager, Design Engineering
B. Patrick, Manager, Radiation Protection
S. Pullin, Operations Training Senior Instructor
S. Pyle, Licensing Specialist
D. Scheide, Licensing Specialist
D. Slasher, Operations Training Senior Instructor
C. Tyrone, Manager, Quality Assurance
F. Uptagrafft, Operations Training Senior Instructor
C. Zimmerman, Plant Manager, Support

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

05000313/2003004-01; 05000368/2003004-01	URI	Inadequate Instrumentation Used During Service Water Heat Exchanger Thermal Performance Testing (Section 1R07)

05000313/2003004-02; 05000368/2003004-02	URI	Failure to Correct Instrument Inaccuracies During Service Water Heat Exchanger Thermal Performance Testing, Mitigating Systems (Section 1R07)

Opened and Closed

05000368/2003004-03	NCV	Failure to Take Prompt Action to Correct Exhaust Manifold Leaks Leads to Fire on an EDG (Section 1R19)
05000313/2003004-04	NCV	Inadequate Surveillance Test Procedure Fails to Ensure Operability of a Safety-Related Switchgear Room Cooler (Section 1R22)
05000313/2003004-05 05000368/2003004-05	NCV	Failure to Obtain a License Amendment for Upgrade of the Spent Fuel Area Crane (Section 4OA5)

Closed

05000313/2001004-00	LER	Automatic Reactor Trip on High Reactor Coolant System Pressure Due to Failure of a Card in the Main Turbine Electro-Hydraulic Control System (Section 4OA3)
05000313/2002005-01	URI	Failure to Provide Accurate and Complete Information in response to and NRC Generic Letter Regarding a Unit 1 Primary Water Chemistry Sulfate Excursion (Section 4OA5)
05000313/2003002-02 05000368/2003002-02	URI	Failure to Obtain a License Amendment for Upgrade of the Spent Fuel Area Crane (Section 4OA5)

Discussed

NONE

LIST OF DOCUMENTS REVIEWED

In addition to the documents called out 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:

IR11: Licensed Operator Requalification

Procedures

TQ-202, Simulator Configuration Control, Revision 1

DG-TRANA-032-SIMEVALS, Simulator Performance Evaluation, Revision 10

1063.008, Operations Training Sequence, Change 030-00-0

DG-TRNA-202-SIMCONTROL, Simulator Modification Control, Revision 0

TQ-201, Systematic Approach to Training Process, Revision 1

DG-TRNA-202-CORETEST, Simulator Core Reload Acceptance Test, Revision 0

Written Examinations

1-03-06 Week 3 Part A RO

1-03-06 RO Exam 3

1-03-06 Week 3 Part A SRO

1-03-06 SRO Exam 3

Scenarios

ES-1-008, Dynamic Exam Scenario, Revision 3

ES-1-020, Dynamic Exam Scenario, Revision 8

ES-1-028, Dynamic Exam Scenario, Revision 6

ES-1-021, Dynamic Exam Scenario, Revision 7

Job Performance Measures (JPMs)

ANO-1-JPM-RO-EDG03, Shutdown EDG 1 Without an ES Start Signal, Revision 3

ANO-1-JPM-RO-CRD02, Perform Transfer to Auxiliary Supply, Revision 3

ANO-1-JPM-RO-AOP03, RO2 Alternate Shutdown Follow-up Actions Immediate Evacuation, Revision 7

ANO-1-JPM-RO-EOP-17, Defeat Startup Transformer Feeder Breakers Close Permissive Interlocks, Revision 7

ANO-1-JPM-RO-ED020, Place Battery Charger D04A in Service, Revision 10

ANO-1-JPM-RO-TURB02, Respond to Failure of the C01 HS to Open the Exciter Breaker, Revision 5

ANO-1-JPM-RO-CHEM1, Perform RCS Boration, Batch Feed Method, Revision 8

ANO-1-JPM-RO-CRD03, Transfer a Group of Rods to the Auxiliary Power Supply, Revision 6

Other Documents Reviewed

Licensed Operator Requalification Plan, 2001 Exam Year

1104.028, Attachment B, Temporary Installation of a Service Water Outlet at ICW Cooler E-28C, Change 023-01-0

A1LP-AO-ICW, Lesson Plan: Intermediate Cooling Water, Revision 7

Response to ER-ANO-2002-0780-000, September 11, 2002

STM 1-48, Compressed Air Systems, Revision 7

1104.032, Attachment E, Installation of the Temporary Fire Pump, Change 056-00-0

A1LP-AO-FPS, Fire Protection Systems, Revision 10

STM-50, Sampling Systems, Revision 2

A1SEM-LOR-OMMTG, Unit 1 Operations Manager Meeting, January 21, 2003

ANO-1 Unit 1 Sample Plan, 2003 Biennial License Requalification Exam

ANO-1 Open Discrepancy Reports, dated June 11, 2003

ANO-1 Closed Discrepancy Reports, dated June 11, 2003

ANO-1 Simulator Core Reload Acceptance Test for Cycle 18, dated April 4, 2003

Scenario Based Testing Checklists

ANO Unit 1, Opensim Simulator Acceptance Test, Revision 0

Unit 1 Plant Modifications since June 6, 2003

Individual Simulator Performance Evaluations

LIST OF ACRONYMS

ANO	Arkansas Nuclear One
BWOG	Babcock and Wilcox Owners Group
CFR	*Code of Federal Regulations*
COLSS	core operating limits supervisory system
CR	condition report
CRDM	control rod drive mechanism
EDG	emergency diesel generator
ESF	engineered safety features
ER	engineering request
HPSI	high pressure safety injection
LER	licensee event report
MAI	maintenance action item
NCV	noncited violation
SDP	Significance Determination Process
SSC	structure, system, or component
VHP	vessel head penetration