



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

February 12, 2009

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

Subject: ARKANSAS NUCLEAR ONE - NRC INTEGRATED INSPECTION
05000313/2008-005 AND 05000368/2008-005

Dear Mr. Mitchell:

On December 31, 2008, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Arkansas Nuclear One, Units 1 and 2, facility. The enclosed integrated inspection report documents the inspection findings, which were discussed on January 19, 2009, with you and other members of your staff.

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

This report documents five NRC identified findings of very low safety significance (Green). All of these findings were determined to involve violations of NRC requirements. Additionally, three licensee-identified violations, which were determined to be of very low safety significance, are listed in this report. However, because of the very low safety significance and because they are entered into your corrective action program, the NRC is treating these findings as noncited violation, consistent with Section VI.A.1 of the NRC Enforcement Policy. If you contest these violations or the significance of the noncited violations, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, D.C. 20555-0001, with copies to the Regional Administrator, U.S. Nuclear Regulatory Commission, Region IV, 612 E. Lamar Blvd, Suite 400, Arlington, Texas, 76011-4125; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555-0001; and the NRC Resident Inspector at the Arkansas Nuclear One facility.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, and its enclosure, will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records 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/

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

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

Enclosure:
NRC Inspection Report 05000313/2008005; 05000368/2008005
w/Attachment

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U.S. NUCLEAR REGULATORY COMMISSION

REGION IV

Dockets: 05000313, 50-368

Licenses: DPR-51, DPR-6

Report: 05000313/2008005 and 0500368/2008005

Licensee: Entergy Operations, Inc.

Facility: Arkansas Nuclear One, Units 1 and 2

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

Dates: September 24 through December 31, 2008

Inspectors: A. Sanchez, Senior Resident Inspector
J. Josey, Resident Inspector
K. Clayton, Senior Reactor Inspector
M. Bloodgood, Reactor Inspector
I. Anchondo, Reactor Inspector in-training (NSPDP)

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

SUMMARY OF FINDINGS

IR 05000313/2008005, 05000368/20080058; 09/24/08 - 12/31/08; Arkansas Nuclear One, Units 1 and 2, Integrated Resident Report and Regional Report; Maintenance Risk Assessments, Refueling and Outage Activities, Identification and Resolution of Problems, Event Follow Up.

The report covered a 3-month period of inspection by resident inspectors and an announced baseline inspection by regional based inspector. The inspectors identified five Green findings, all five were noncited violations. The significance of most findings is indicated by their color (Green, White, Yellow, or Red) using Inspection NRC 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 review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 4, dated December 2006.

A. NRC-Identified Findings and Self-Revealing Findings

Cornerstone: Initiating Events

- Green. While performing a review in accordance with Operating Experience Smart Sample FY2007-03, "Crane and Heavy Lift Inspection, Supplemental Guidance for Inspection Procedure 71111.20," the inspectors identified a noncited violation of Technical Specification 5.4.1, "Procedures," associated with the licensee's failure to ensure that adequate procedures were available for removal and reinstallation of the Unit 1 reactor vessel head. Specifically, Procedures OP-1504.007, "Unit 1 Reactor Vessel Closure Head Removal and Storage," Revision 14; and OP-1504.009, "Unit 1 Reactor Vessel Closure Head Installation, Revision 17, allowed the vessel closure head to be lifted to a height which exceeded the maximum analyzed height in the head drop analysis. This issue was entered into the licensee's corrective action program as Condition Report ANO-1-2008-1555.

The finding was determined to be more than minor because it was associated with the procedure quality attribute of the initiating events cornerstone, and it directly affected the cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Using NRC Manual Chapter 0609, "Significance Determination Process," Appendix G, "Shutdown Operations Significance Determination Process," the inspectors determined that the finding was not a loss of shutdown control. The finding was further evaluated using Manual Chapter 0609, Appendix G, Attachment 1, "Shutdown Operations Significance Determination Process Phase 1 Operational Checklists for Both PWRs and BWRs," Checklist 3. The finding was determined to have very low safety significance because the event did not: 1) affect core heat removal, 2) inventory control, 3) power availability guidelines, 4) containment control guidelines, and 5) reactivity guidelines. The finding had a crosscutting aspect in the area of Human Performance associated with Resources [H.2(c)], because the licensee failed to provide complete, accurate and up-to-date procedures and work packages for the removal and installation of the reactor vessel closure head (Section 1R20.1).

- Green. The inspectors identified a Green noncited violation of Technical Specification 5.4.1, "Procedures," associated with the licensee's failure to adequately implement the fire protection program. Specifically, again on multiple occasions station personnel exceeded or challenged combustible limits specified in Procedure EN-DC-161, "Control of Combustibles," Revision 2, without taking the prescribed compensatory actions. The inspectors also identified that, in some cases, the procedure was not even invoked.

The inspectors determined that the failure of station personnel to follow Procedure EN-DC-161, "Control of Combustibles," Revision 2, was a performance deficiency and therefore a finding. The finding was determined to be more than minor because it affected the protection against external factors attribute and it directly affected the Initiating Events Cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Using NRC Manual Chapter 0609, Appendix F, "Fire Protection Significance Determination Process," Phase 1 worksheet, the finding was determined to have very low safety significance because the condition represented a low degradation of a fire prevention and administration controls. The finding had a crosscutting aspect in the area of Problem Identification and Resolution associated with the Corrective Action Program because the licensee failed to take appropriate actions to address an adverse trend in a timely manner, which allowed the adverse trend to continue and reoccur on multiple occasions [P.1(d)] (Section 40A2.3).

- Green. The inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," associated with a fire that occurred in the Arkansas Nuclear One switchyard while Entergy Arkansas contractors performed welding activities. Specifically, the licensee failed to correct a significant condition adverse to quality stemming from a long history of procedural violations of Procedure EN-DC-127, "Control of Hot Work and Ignition Sources." The licensee entered the issue into their corrective action as Condition Report ANO-C-2008-2305.

The inspectors determined that the licensee's failure to adequately implement corrective actions from previously identified trend of small fires since 2003, which constitutes a significant condition adverse to quality, was a performance deficiency and therefore a finding. The finding was determined to be more than minor because it affected the protection against external factors attribute and it directly affected the Initiating Events Cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Using NRC Manual Chapter 0609, Appendix F, "Fire Protection Significance Determination Process," Phase 1 worksheet, the finding was determined to have very low safety significance because the condition represented a low degradation of a fire prevention and administration controls. The finding had a crosscutting aspect in the area of Human Performance associated with Work Practices in that the licensee failed to ensure supervisory and management oversight of work activities, especially contractors, such that nuclear safety was supported [H.4(c)] (Section 40A3.3).

Cornerstone: Mitigating Systems

- Green. The inspectors identified a noncited violation of 10 CFR 50.65(a)(4), "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," associated with the licensee's failure to perform an adequate risk assessment for planned maintenance. Specifically, the licensee inappropriately assumed that disassembly of Door 340, a high-energy line break barrier, constituted normal plant ingress and egress. As such, this assumption resulted in an inadequate risk assessment, which failed to adequately evaluate the proposed condition of Door 340 and provide appropriate risk management actions for this condition. This issue was entered into the licensee's corrective action program as Condition Report ANO-2-2008-2231.

The finding was more than minor because it was similar to the nonminor considerations of Maintenance Rule Example 7.e in NRC Manual Chapter 0612, Appendix E, "Examples of Minor Issues," in that the licensee's risk assessment contained incorrect assumptions that changed the outcome of the assessment and required additional risk management activities. The inspectors evaluated this finding using NRC Manual Chapter 0609, Appendix K, "Maintenance Risk Assessment and Risk Management Significance Determination Process" because the finding is a maintenance risk assessment issue. Flowchart 1, "Assessment of Risk Deficit," requires the inspectors to determine the risk deficit associated with this issue. This finding was determined to be of very low safety significance because the incremental core damage probability deficit was less than 1×10^{-6} . This finding had a crosscutting aspect in the area of Human Performance associated with Decision Making [H.1(b)], in that the licensee's engineering staff failed to use conservative assumptions and failed to verify the validity of the underlying assumptions used when evaluating the potential effects of disabling a high energy line break barrier for maintenance in accordance with 10 CFR 50.65(a)(4) (Section 1R13).

Cornerstone: Barrier Integrity

- Green. The inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," associated with the licensee's failure to adequately implement Station Procedure EN-MA-118, Revision 4, "Foreign Material Exclusion." Specifically, on multiple occasions during Refueling Outage 1R21, the licensee failed to implement appropriate foreign material exclusion controls in areas designated as Zone 1 foreign material exclusion areas in accordance with Station Procedure EN-MA-118. This issue was entered into the licensee's corrective action program as Condition Report ANO-1-2008-2491.

The finding was more than minor because it was similar to the non minor considerations of Example 3.j in NRC Manual Chapter 0612, Appendix E, "Examples of Minor Issues," in that significant programmatic deficiencies were identified associated with this issue that could lead to worse errors if left uncorrected. Specifically, station personnel's continued failure to implement appropriate foreign material exclusion controls would result in the introduction of foreign material into critical areas, such as the spent fuel pool or the reactor cavity, which in turn would result in degradation and adverse impacts on

materials and systems associated with these areas. Using NRC Manual Chapter 0609, "Significance Determination Process," Phase 1 worksheet, the finding was determined to have very low safety significance because the finding was only associated with the fuel barrier. This finding had a crosscutting aspect in the area of Human Performance associated with Work Practices [H.4(b)] in that the licensee failed to effectively train personnel on the foreign material exclusion procedure which resulted in a failure to follow procedure by workers and supervisors (Section 1R20.2).

B. Licensee-Identified Violations

Violations of very low safety significance, which were identified by the licensee, have been reviewed by the inspectors. Corrective actions taken or planned by the licensee have been entered into the licensee's corrective action program. These violations and condition report numbers are listed in Section 4OA7.

REPORT DETAILS

Summary of Plant Status

Unit 1 began the inspection period at 100 percent power. On October 26, 2008, at 7:59 a.m., Unit 1 entered Mode 3 to begin Refueling Outage 1R21. On December 12, 2008, at 5:14 a.m., Unit 1 operators closed the main generator output breakers to end Refueling Outage 1R21. At 8:55 a.m., Unit 1 operators initiated a manual trip of the reactor, and entered Mode 3, due to unanticipated Group 7 control rod drops into the core that reduced reactor power from 32 percent to 7 percent. Following troubleshooting and the replacement of the Group 7 linear programmer (suspected cause of the control rod drops) Unit 1 commenced a reactor startup on December 13, 2008. On December 13, 2008, at 6:13 a.m., Unit 1 closed main generator output breakers and began ascension to 100 percent reactor power. On December 16, 2008, Unit 1 achieved essentially 100 percent reactor power.

On December 20, 2008, at 12:12 p.m., reactor operators initiated a manual reactor trip due to unanticipated Group 7 control rod drops into the core. Following a more extensive investigation, troubleshooting, and replacement activities, Unit 1 commenced reactor startup on December 23, 2008, at 8:09 a.m. On December 24, 2008, at 5:01 a.m., Unit 1 achieved 100 percent reactor power and remained at essentially 100 percent reactor power for the rest of the inspection period.

Unit 2 began the inspection period at 100 percent reactor power and maintained that power for the entire inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity, and Emergency Preparedness

1R04 Equipment Alignments (71111.04)

.1 Partial Walkdown

a. Inspection Scope

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

- September 30, 2008, Unit 2, Emergency Diesel Generator 2K-4A
- October 1, 2008, Unit 1, Emergency Feedwater Pump P-7A

The inspectors selected these systems based on their risk significance relative to the reactor safety cornerstones at the time they were inspected. The inspectors attempted to identify any discrepancies that could affect the function of the system, and, therefore, potentially increase risk. The inspectors reviewed applicable operating procedures, system diagrams, Updated Final Safety Analysis Report, technical specification requirements, administrative technical specifications, outstanding work orders, condition reports, and the impact of ongoing work activities on redundant trains of equipment in order to identify conditions that could have rendered the systems incapable of performing their intended functions. The inspectors also walked down accessible

portions of the systems to verify system components and support equipment were aligned correctly and operable. The inspectors examined the material condition of the components and observed operating parameters of equipment to verify that there were no obvious deficiencies. The inspectors also verified that the licensee had properly identified and resolved equipment alignment problems that could cause initiating events or impact the capability of mitigating systems or barriers and entered them into the corrective action program with the appropriate significance characterization. Specific documents reviewed during this inspection are listed in the attachment.

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

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05)

.1 Quarterly Fire Inspection Tours

a. Inspection Scope

The inspectors conducted fire protection walkdowns that were focused on availability, accessibility, and the condition of firefighting equipment in the following risk-significant plant areas:

- December 12, 2008, Unit 1, Fire Zone 32-K/33-K, Unit 1 reactor building north and south sides
- December 12, 2008, Unit 2, Fire Zone 2200-MM, Unit 2 turbine building
- December 30, 2008, Unit 1, Fire Zone 104-S, South electrical equipment room
- December 31, 2008, Unit 1, Fire Zone Unit 1 Intake, Unit 1 intake structure

The inspectors reviewed areas to assess if licensee personnel had implemented a fire protection program that adequately controlled combustibles and ignition sources within the plant; effectively maintained fire detection and suppression capability; maintained passive fire protection features in good material condition; and had implemented adequate compensatory measures for out of service, degraded or inoperable fire protection equipment, systems, or features, in accordance with the licensee's fire plan. The inspectors selected fire areas based on their overall contribution to internal fire risk as documented in the plant's Individual Plant Examination of External Events with later additional insights, their potential to affect equipment that could initiate or mitigate a plant transient, or their impact on the plant's ability to respond to a security event. Using the documents listed in the attachment, the inspectors verified that fire hoses and extinguishers were in their designated locations and available for immediate use; that fire detectors and sprinklers were unobstructed, that transient material loading was within the analyzed limits; and fire doors, dampers, and penetration seals appeared to be in satisfactory condition. The inspectors also verified that minor issues identified during the inspection were entered into the licensee's corrective action program. Specific documents reviewed during this inspection are listed in the attachment.

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

b. Findings

A finding associated with inadequate control of combustible materials is documented in Section 4OA2.3. A finding associated with inadequate corrective action for an adverse trend in fires is documented in Section 4OA3.3. No additional findings of significance were identified.

1R06 Flood Protection Measures (71111.06)

a. Inspection Scope

The inspectors reviewed the Updated Final Safety Analysis Report, the flooding analysis, and plant procedures to assess susceptibilities involving internal flooding; reviewed the corrective action program to determine if licensee personnel identified and corrected flooding problems; inspected underground bunkers/manholes to verify the adequacy of sump pumps, level alarm circuits, cable splices subject to submergence, and drainage for bunkers/manholes; and verified that operator actions for coping with flooding can reasonably achieve the desired outcomes. The inspectors also walked down the area listed below to verify the adequacy of equipment seals located below the flood line, floor and wall penetration seals, watertight door seals, common drain lines and sumps, sump pumps, level alarms, and control circuits, and temporary or removable flood barriers. Specific documents reviewed during this inspection are listed in the attachment.

- December 30, 2008, Unit 2, North electrical equipment room

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

b. Findings

No findings of significance were identified.

1R08 In-service Inspection Activities (71111.08)

.1 Inspection Activities Other Than Steam Generator Tube Inspection, Pressurized Water Reactor Vessel Upper Head Penetration Inspections, Boric Acid Corrosion Control (71111.08-02.01)

a. Inspection Scope

The inspection procedure requires review of two or three types of nondestructive examination activities and, if performed, one to three welds on the reactor coolant system pressure boundary. It also requires review of one or two examinations with relevant indications (if any were found) that have been accepted by the licensee for continued service.

The inspectors directly observed the following nondestructive examinations:

<u>SYSTEM</u>	<u>WELD IDENTIFICATION</u>	<u>EXAMINATION TYPE</u>
Decay Heat Removal System	Decay Heat Line Pipe Weld DH-36-020	PT, UT
Decay Heat Removal System	Decay Heat Line Pipe Weld DH-36-019	PT

The inspectors reviewed records for the following nondestructive examinations:

SYSTEM	WELD IDENTIFICATION	EXAMINATION TYPE
Decay Heat Removal System	Decay Heat Line Pipe Weld DH-036-19	UT
Charging and Letdown System	BWST Pipe Elbow Weld FS-61	RT
Reactor Coolant System	Reactor Vessel Upper Head	Visual Only
Reactor Coolant System	Reactor Vessel Upper Head	Visual only
Reactor Coolant System	Pressurizer Nozzle (PSC-1001) Overlay Weld OVL-01	UT

During the review and observation of each examination, the inspectors verified that activities were performed in accordance with ASME Boiler and Pressure Vessel Code requirements and applicable procedures. Indications were compared with previous examinations and dispositioned in accordance with ASME Code and approved procedures. The qualifications of all nondestructive examination technicians performing the inspections were verified to be current.

None of the above observed or reviewed nondestructive examinations identified any relevant indications and cognizant licensee personnel stated that no relevant indications were accepted by the licensee for continued service.

The inspectors directly observed a portion of the following welding activities:

<u>SYSTEM</u>	<u>WELD IDENTIFICATION</u>	<u>EXAMINATION TYPE</u>
Safety Injection System	Core Flood to Vessel Dissimilar Metal Weld Inlay CF-1	Inlay, Automated Weld Machine
Decay Heat System	Decay Heat to Vessel Dissimilar Metal Weld	Overlay, Automated Machine

The inspectors verified, by review, that the welding procedure specifications and the welders had been properly qualified in accordance with ASME Code, Section X, requirements. The inspectors also verified through record review that essential variables for the welding process were identified, recorded in the procedure qualification record, and formed the bases for qualification of the welding procedure specifications. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of one sample as defined by Inspection Procedure 71111.08-05.

b. Findings

No findings of significance were identified.

.2 Vessel Upper Head Penetration Inspection Activities (71111.08-02.02)

a. Inspection Scope

The licensee performed the required visual inspection of pressure-retaining components above the reactor pressure vessel head. The head was replaced two outages ago (Refueling Outage 1RF19) during the fall of 2005. Although not required by the in-service inspection program during this outage, a visual inspection was performed of components above the head outside of the insulation package. The inspectors reviewed the results of this inspection for evidence of leaks or boron deposits at reactor pressure boundaries and related insulation above the head. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of one sample as defined by Inspection Procedure 71111.08-05.

b. Findings

No findings of significance were identified.

.3 Boric Acid Corrosion Control Inspection Activities (71111.08-02.03)

a. Inspection Scope

The inspectors evaluated the implementation of the licensee's boric acid corrosion control program for monitoring degradation of those systems that could be adversely affected by boric acid corrosion.

The inspection procedure required review of a sample of boric acid corrosion control walkdown visual examination activities through either direct observation or record review. The inspectors reviewed the documentation associated with the licensee's boric acid corrosion control walkdown as specified in Procedure OP 1032.037, "Inspection and Identification of Boric Acid Leaks for ANO-1 and ANO-2," Revision 4. Visual records of the components and equipment were also reviewed by the inspectors. The inspection procedure required verification that visual inspections emphasize locations where boric acid leaks can cause degradation of safety significant components. The inspectors verified through record review that the boric acid corrosion control inspection efforts were directed towards locations where boric acid leaks can cause degradation of safety-related components. Additionally, the inspectors independently performed examinations of piping and components containing boric acid during a walkdown of the containment and the auxiliary buildings. On those components where boric acid was identified, the engineering evaluations gave assurance that the ASME Code wall thickness limits were properly maintained. The evaluations also confirmed that the corrective actions performed for evidence of boric acid leaks were consistent with requirements of the ASME Code. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of one sample as defined by Inspection Procedures 71111.08-05.

b. Findings

No findings of significance were identified.

.4 Steam Generator Tube Inspection Activities (71111.08-02.04)

a. Inspection Scope

The inspection procedure specified performance of an assessment of in situ screening criteria to assure consistency between assumed nondestructive examination flaw sizing accuracy and data from the Electric Power Research Institute examination technique specification sheets. It further specified assessment of appropriateness of tubes selected for in situ pressure testing, observation of in situ pressure testing, and review of in situ pressure test results. No conditions were identified that warranted in situ pressure testing. The steam generators were replaced in Refueling Outage 1RF19 during the fall of 2005 with enhanced once-thru steam generator models containing Alloy 690 thermally treated tubes. Due to the tube support plate wear and the bowing of tie rods in the Steam Generator A, a 100 percent review of all tubes in both steam generators was performed during this outage. The utilization of an X-probe to disposition tube support plate locations was also performed to validate the model used for generator operability considerations.

In addition, the inspectors reviewed both the licensee site-validated and qualified acquisition and analysis technique sheets used during this refueling outage and the qualifying EPRI examination technique specification sheets to verify that the essential variables regarding flaw sizing accuracy, tubing, equipment, technique, and analysis had been identified and qualified through demonstration. The inspectors reviewed acquisition technique and analysis technique sheets, which are identified in the attachment.

The inspection procedure specified comparing the estimated size and number of tube flaws detected during the current outage against the previous outage operational assessment predictions to assess the licensee's prediction capability. The number of identified indications fell within the range of prediction and was quite consistent with predictions from the vendor for the previous outage. No new damage mechanisms were identified during this inspection. There were no tubes plugged for Steam Generator A prior to this outage and one tube was plugged for Steam Generator B due to a 28 percent thru-wall wear indication. There were two tubes plugged at the factory for Steam Generator A. Because of this outage, the anticipated plugging rates are estimated to be less than 10 tubes per steam generator.

The inspection procedure specified confirmation that the steam generator tube eddy current test scope and expansion criteria meet technical specification requirements, Electric Power Research Institutes' guidelines, and commitments made to the NRC. The inspectors evaluated the recommended steam generator tube eddy current test scope established by technical specification requirements and the licensee's degradation assessment report. The inspectors compared the recommended test scope to the actual test scope and found that the licensee had accounted for all known flaws and as a minimum had established a test scope that met technical specification requirements, EPRI guidelines, and commitments made to the NRC.

As mentioned above, the base scope inspection plan required 100 percent tube inspection for this outage (Refueling Outage 1RF21). The inspection scope for Refueling Outage 1RF21 included:

- (1) 100 percent bobbin in both generators from tube end to tube end
- (2) Visual examination of the pre-service welded plugs – (two in "B") and the post service plug (one in "A")
- (3) Diagnostic testing of all Bobbin I-codes with the Plus Point/X-probe
- (4) A 20 percent sample of dents (>1 volt) was performed with the Plus Point/X-probe
- (5) The six tubes adjacent to the tie rods were analyzed using the bobbin probe. Additional testing with a diagnostic probe was necessary because wear was detected
- (6) All tube support plate wear indications were tested with the X-Probe for depth characterization and orientation
- (7) A secondary side visual inspection that included:
 - a. Annulus inspection for loose parts
 - b. First span inspection of the affected bowed tie rods (two worse cases)
 - c. Visual inspections of the upper tube support plates (14 and 15) and upper annular areas down to and including the upper shroud ring

- (8) There were three locations that contained potential loose parts in Refueling Outage 1RF20. These three locations required testing with the X-probe as noted in Condition Report ANO-1-2007-966
- (9) Orifice plate position verification

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

These activities constitute completion of one sample as defined by Inspection Procedure 71111.08-05.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification Program (71111.11)

a. Inspection Scope

On October 21, 2008, the inspectors observed a crew of licensed operators in the plant's simulator to verify that operator performance was adequate, evaluators were identifying and documenting crew performance problems and training was being conducted in accordance with licensee procedures. The inspectors evaluated the following areas:

- Licensed operator performance
- Crew's clarity and formality of communications
- Crew's ability to take timely actions in the conservative direction
- Crew's prioritization, interpretation, and verification of annunciator alarms
- Crew's correct use and implementation of abnormal and emergency procedures
- Control board manipulations
- Oversight and direction from supervisors
- Crew's ability to identify and implement appropriate technical specification actions and emergency plan actions and notifications

The inspectors compared the crew's performance in these areas to pre-established operator action expectations and successful critical task completion requirements. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of one quarterly licensed-operator requalification program sample as defined in Inspection Procedure 71111.11.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness (71111.12)

a. Inspection Scope

The inspectors evaluated degraded performance issues involving the following risk significant systems:

- December 19, 2008, Unit 1, Unit 1 structures
- December 31, 2008, Unit 2, Low pressure safety injection

The inspectors reviewed events such as where ineffective equipment maintenance has resulted in valid or invalid automatic actuations of engineered safeguards systems and independently verified the licensee's actions to address system performance or condition problems in terms of the following:

- Implementing appropriate work practices
- Identifying and addressing common cause failures
- Scoping of systems in accordance with 10 CFR 50.65(b)
- Characterizing system reliability issues for performance
- Charging unavailability for performance
- Trending key parameters for condition monitoring
- Ensuring proper classification in accordance with 10 CFR 50.65(a)(1) or (a)(2)
- Verifying appropriate performance criteria for structures, systems, and components classified as having an adequate demonstration of performance through preventive maintenance, as described in 10 CFR 50.65(a)(2), or as requiring the establishment of appropriate and adequate goals and corrective actions for systems classified as not having adequate performance as described in 10 CFR 50.65(a)(1)

The inspectors assessed performance issues with respect to the reliability, availability, and condition monitoring of the system. In addition, the inspectors verified maintenance effectiveness issues were entered into the corrective action program with the appropriate significance characterization. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of two quarterly maintenance effectiveness samples as defined in Inspection Procedure 71111.12-05.

b. Findings

No findings of significance were identified.

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

a. Inspection Scope

The inspectors reviewed licensee personnel's evaluation and management of plant risk for the maintenance and emergent work activities affecting risk-significant and safety-related equipment listed below to verify that the appropriate risk assessments were performed prior to removing equipment for work:

- October 1, 2008, Unit 2, Opening high energy line break Door 340 for maintenance
- October 9, 2008, Unit 1, Mobile crane use in the vicinity of safety-related equipment
- October 15, 2008, Unit 1, Refueling Outage 1R21 risk assessment and contingency plans
- November 7, 2008, Unit 2, Switchyard work on station auto transformer

The inspectors selected these activities based on potential risk significance relative to the reactor safety cornerstones. As applicable for each activity, the inspectors verified that licensee personnel performed risk assessments as required by 10 CFR 50.65(a)(4) and that the assessments were accurate and complete. When licensee personnel performed emergent work, the inspectors verified that the licensee personnel promptly assessed and managed plant risk. The inspectors reviewed the scope of maintenance work, discussed the results of the assessment with the licensee's probabilistic risk analyst or shift technical advisor, and verified plant conditions were consistent with the risk assessment. The inspectors also reviewed the technical specification requirements and inspected portions of redundant safety systems, when applicable, to verify risk analysis assumptions were valid and applicable requirements were met. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of four maintenance risk assessments and emergent work control inspection samples as defined in Inspection Procedure 71111.13-05.

b. Findings

Introduction. The inspectors identified a Green noncited violation of 10 CFR 50.65(a)(4), "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," associated with the licensee's failure to perform an adequate risk assessment for planned maintenance. Specifically, the licensee inappropriately assumed that disassembly of Door 340, a high-energy line break barrier, constituted normal plant ingress and egress. As such, this assumption resulted in an inadequate risk assessment, which failed to adequately evaluate the proposed condition of Door 340 and provide appropriate risk management actions for this condition.

Description. On September 29, 2008, while performing a plant tour of the Unit 2 turbine building, the inspectors noticed that station maintenance personnel were in the process of moving a scavenging air blower for an emergency diesel generator. The inspectors also noted that there had been a ramp constructed up to the diesel generator room

access corridor, and it appeared that the licensee was in the process of blower change out for an emergency diesel generator.

The inspectors subsequently inquired of the operators in the control room about the work in process associated with the blower. During this discussion, the inspectors were made aware of the licensee's intention to remove the center mullion of Door 340 to allow the new blower to be moved into the diesel generator access corridor and the old blower to be taken out. Based on this information, the inspectors inquired about how the risk associated with this activity had been assessed since Door 340 was a high-energy line break barrier for the diesel generator room access corridor, and what risk management actions were required for this work. The operators provided the inspectors with a copy of Engineering Change 10614, "Opening of Doors 259, 260, and 340 for Movement of Equipment," Revision 0, which was the stations risk assessment that had been prepared for this activity.

During the inspectors review it was noted that Engineering Change 10614 generically stated that this evaluation applies only to situations other than ingress and egress of plant personnel and equipment (e.g. door maintenance or running hoses through the door), and that high energy line break barriers are always allowed to be breached for ingress and egress of plant personnel and equipment. The engineering change identified that opening Door 340 for maintenance had previously been evaluated from a high energy line break perspective by Engineering Request ANO-2004-0799-001, "Re-evaluation of HELB for maintenance on Security Doors 257, 270, and 340," Revision 0. This evaluation had established contingency actions associated with the opening of Door 340 for maintenance that had been cited for use in this assessment. Specifically, the contingency actions were:

- The automatic closure mechanism attached to the open door shall be operational, that is, not disabled.
- The open door shall not be placed into a configuration that would prevent it from freely swinging closed, i.e., shall not be blocked in any manner.
- The door opening should be limited to the minimum opening necessary to complete the job. This condition minimizes localized room heat up should a high-energy line break occur, but is not a requirement to prevent the room from becoming harsh.
- If a tornado warning is declared in the area, the door shall be promptly closed until the warning is lifted.

The engineering change also identified that there was the potential of direct spray into the diesel generator access corridor; and as such, it was determined that the mullion for Door 340 must remain part of the high-energy line break barrier configuration. However, the engineering change went on to state that, as long as the mullion was removed only for ingress and egress of plant equipment and was immediately restored following movement of equipment through the doorway, no high energy line break criteria would be violated.

The inspectors questioned the licensee's position that disassembly of Door 340 was normal ingress and egress. The inspectors pointed out that, by removal of the mullion,

the licensee had defeated the automatic closure capability of the door and in the event of a high energy line break this would expose the diesel generator room access corridor to direct spray, which would result in elevated temperatures for which the safety-related equipment in the corridor was not analyzed which could result in inoperable safety-related equipment. The inspectors also pointed out to the licensee that one of the assumptions for the contingency actions of Engineering Request ANO-2004-0799-001 was that the automatic closure mechanism would ensure prompt closure of Door 340, which would limit heat up of the corridor.

The inspectors determined that the licensee's assumption that removal of Door 340's mullion was normal ingress and egress was incorrect. As such, this incorrect assumption was used as a basis for removal of a hazard barrier without an adequate risk assessment and appropriate risk management actions. The licensee initiated Condition Report ANO-2-2008-2231 to capture this issue in the corrective action plan.

Analysis. The inspectors determined that the licensee's failure to adequately assess the risk associated with the removal of a hazard barrier and develop appropriate risk management actions for this activity was a performance deficiency. The finding was more than minor because it was similar to the non minor considerations of Maintenance Rule, Example 7.e, in NRC Manual Chapter 0612, Appendix E, "Examples of Minor Issues," in that the licensee's risk assessment contained incorrect assumptions that changed the outcome of the assessment and required additional risk management activities. The inspectors evaluated this finding using NRC Manual Chapter 0609, Appendix K, "Maintenance Risk Assessment and Risk Management Significance Determination Process," because the finding is a maintenance risk assessment issue. Flowchart 1, "Assessment of Risk Deficit," requires the inspectors to determine the risk deficit associated with this issue. This finding was determined to be of very low safety significance because the incremental core damage probability deficit was less than 1×10^{-6} . This finding had a crosscutting aspect in the area of Human Performance associated with Decision Making [H.1(b)], in that the licensee's engineering staff failed to use conservative assumptions and failed to verify the validity of the underlying assumptions used when evaluating the potential effects of disabling a high energy line break barrier for maintenance in accordance with 10 CFR 50.65(a)(4).

Enforcement. Title 10 CFR 50.65 (a)(4) requires, in part, that before performing maintenance activities, the licensee shall assess and manage the increase in risk that may result from the proposed maintenance activities. Contrary to the above, on September 29, 2008, the licensee failed to adequately assess and manage the increase in risk associated with the activity of emergency diesel generator blower change out. Because this finding is of very low safety significance and has been entered into the corrective action program as Condition Report ANO-2-2008-2231 this violation is being treated as a noncited violation consistent with Section VI.A of the NRC Enforcement Policy: NCV 05000368/2008005-01, "Failure to Perform an Adequate Risk Assessment when Disabling a Station High Energy Line Break Barrier."

1R15 Operability Evaluations (71111.15)

a. Inspection Scope

The inspectors reviewed the following issues:

- October 10, 2008, Unit 2, Emergency Diesel Generator 2K-4A

- October 23, 2008, Unit 2, Component Cooling Water Containment Isolation Valve 2CV-5255-1
- November 20, 2008, Unit 1, Decay heat removal test and recirculation header throttle valve

The inspectors selected these potential operability issues based on the risk-significance of the associated components and systems. The inspectors evaluated the technical adequacy of the evaluations to ensure that technical specification operability was properly justified and the subject component or system remained available such that no unrecognized increase in risk occurred. The inspectors compared the operability and design criteria in the appropriate sections of the technical specifications and Updated Safety Analysis Report to the licensee's evaluations, to determine whether the components or systems were operable. Where compensatory measures were required to maintain operability, the inspectors determined whether the measures in place would function as intended and were properly controlled. The inspectors determined, where appropriate, compliance with bounding limitations associated with the evaluations. Additionally, the inspectors also reviewed a sampling of corrective action documents to verify that the licensee was identifying and correcting any deficiencies associated with operability evaluations. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of three operability evaluations inspection sample(s) as defined in Inspection Procedure 71111.15-04

b. Findings

No findings of significance were identified.

1R18 Plant Modifications (71111.18)

a. Inspection Scope

The inspectors reviewed the following temporary/permanent modification to verify that the safety functions of important safety systems were not degraded:

- December 29, 2008, Unit 1, Temporary gantry crane to support tendon inspection

The inspectors reviewed the temporary modification and the associated safety evaluation screening against the system design bases documentation, including the Updated Final Safety Analysis Report and the technical specifications, and verified that the modification did not adversely affect the system operability/availability. The inspectors also verified that the installation and restoration were consistent with the modification documents and that configuration control was adequate. Additionally, the inspectors verified that the temporary modification was identified on control room drawings, appropriate tags were placed on the affected equipment, and licensee personnel evaluated the combined effects on mitigating systems and the integrity of radiological barriers.

These activities constitute completion of one sample for temporary plant modifications as defined in Inspection Procedure 71111.18-05

b. Findings

No findings of significance were identified.

1R19 Postmaintenance Testing (71111.19)

a. Inspection Scope

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

- October 14, 2008, Unit 1 Turbine Driven Emergency Feedwater Pump P-7A Suction Valve CV-2802 from the condensate storage tank following valve preventative maintenance
- October 14, 2008, Unit 2 Turbine Driven Emergency Feedwater Pump 2P-7A Suction Valve 2CV-0795-2 from condensate storage tank following valve preventative maintenance
- December 4, 2008, Unit 1 Decay Heat Removal Pump P-34A following inboard and outboard seal replacement
- December 10-11, 2008, Unit 1 Turbine Driven Emergency Feedwater Pump P-7A following governor maintenance

The inspectors selected these activities based upon the structure, system, or component's ability to affect risk. The inspectors evaluated these activities for the following (as applicable):

- The effect of testing on the plant had been adequately addressed; testing was adequate for the maintenance performed
- Acceptance criteria were clear and demonstrated operational readiness; test instrumentation was appropriate

The inspectors evaluated the activities against the technical specifications, the Updated Final Safety Analysis Report, 10 CFR Part 50 requirements, licensee procedures, and various NRC generic communications to ensure that the test results adequately ensured that the equipment met the licensing basis and design requirements. In addition, the inspectors reviewed corrective action documents associated with postmaintenance tests to determine whether the licensee was identifying problems and entering them in the corrective action program and that the problems were being corrected commensurate with their importance to safety. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of four postmaintenance testing inspection samples as defined in Inspection Procedure 71111.19-05.

b. Findings

No findings of significance were identified.

1R20 Refueling and Other Outage Activities (71111.20)

a. Inspection Scope

The inspectors reviewed the outage safety plan and contingency plans for the Unit 1 Refueling Outage 1R21, conducted between October 26, 2008, and December 12, 2008, to confirm that licensee personnel had appropriately considered risk, industry experience, and previous site-specific problems in developing and implementing a plan that assured maintenance of defense-in-depth. During the refueling outage, the inspectors observed portions of the shutdown and cool down processes and monitored licensee controls over the outage activities listed below:

- Configuration management, including maintenance of defense-in-depth, is commensurate with the outage safety plan for key safety functions and compliance with the applicable technical specifications when taking equipment out of service
- Clearance activities, including confirmation that tags, were properly hung and equipment appropriately configured to safely support the work or testing
- Installation and configuration of reactor coolant pressure, level, and temperature instruments to provide accurate indication, accounting for instrument error
- Status and configuration of electrical systems to ensure that technical specifications and outage safety-plan requirements were met, and controls over switchyard activities
- Monitoring of decay heat removal processes, systems, and components
- Verification that outage work was not impacting the ability of the operators to operate the spent fuel pool cooling system
- Reactor water inventory controls, including flow paths, configurations, and alternative means for inventory addition, and controls to prevent inventory loss
- Controls over activities that could affect reactivity
- Maintenance of secondary containment as required by the technical specifications
- Refueling activities, including fuel handling and sipping to detect fuel assembly leakage
- Startup and ascension to full power operation, tracking of startup prerequisites, walkdown of the drywell (primary containment) to verify that debris had not been left which could block emergency core cooling system suction strainers and reactor physics testing
- Licensee identification and resolution of problems related to refueling outage activities

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

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

b. Findings

.1 Inadequate Procedure for Reactor Vessel Head Lift

Introduction. While performing a review in accordance with Operating Experience Smart Sample FY 2007-03, "Crane and heavy lift inspection, supplemental guidance for Inspection Procedure 71111.20," the inspectors identified a Green noncited violation of Technical Specification 5.4.1, "Procedures," associated with the licensee's failure to ensure that adequate procedures were available for removal and reinstallation of the Unit 1 reactor vessel head. Specifically, Procedures OP-1504.007, Revision 14, "Unit 1 Reactor Vessel Closure Head Removal and Storage," and OP-1504.009, Revision 17, "Unit 1 Reactor Vessel Closure Head Installation," allowed the vessel closure head to be lifted to a height which exceeded the maximum analyzed height in the head drop analysis.

Description. In preparation for the Unit 1 Refueling Outage 1R21, the inspectors were performing reviews in accordance with Operating Experience Smart Sample FY 2007-03, "Crane and heavy lift inspection, supplemental guidance for Inspection Procedure 71111.20." Accordingly, on October 29, 2008, the inspectors reviewed Station Procedure OP-1504.007, "Unit 1 Reactor Vessel Closure Head Removal and Storage," and identified that the procedure would allow the head to be lifted a total height of 57 inches.

On October 30, 2008, the inspectors reviewed the licensee's head drop analysis, Calculation CALC-95-R-1005-01, "ANO-1 Reactor Vessel Heavy Load Lift Evaluation," Revision 1. During this review, the inspectors noted that prior to vessel head replacement in Refueling Outage 1R19, the previous revision of Calculation CALC-95-R-1005-01 had allowed the vessel head to be lifted to a total height of 60 inches. However, after vessel head replacement in Refueling Outage 1R19, Calculation CALC-95-R-1005-01 had been revised to account for the new heavier vessel head, and as such, the calculation only allowed the vessel head to be lifted to a total height of 51.25 inches.

The inspectors informed the licensee of this discrepancy and their concerns that the vessel head was lifted to a height that exceeded the maximum analyzed height in the head drop analysis. The licensee entered this issue into their corrective action program as Condition Report ANO-1-2008-1555. Subsequently, the licensee performed a review and determined that during Refueling Outages 1R19 and 1R20, the vessel head was not lifted any higher than 57 inches.

Analysis. The inspectors determined that the licensee's failure to ensure that adequate procedures were available for removal and installation of the reactor vessel closure head was a performance deficiency. The finding was determined to be more than minor because it was associated with the procedure quality attribute of the Initiating Events Cornerstone, and it directly affected the cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Using NRC Manual Chapter 0609, "Significance Determination Process," Appendix G, "Shutdown Operations Significance Determination Process," the inspectors determined that the finding was not a loss of shutdown control.

The finding was further evaluated using Manual Chapter 0609, Appendix G, Attachment 1, "Shutdown Operations Significance Determination Process Phase 1 Operational Checklists for Both PWRs and BWRs," Checklist 3. The finding was determined to have very low safety significance because the event did not: (1) affect core heat removal, (2) inventory control, (3) power availability guidelines, (4) containment control guidelines, and (5) reactivity guidelines. The finding had a crosscutting aspect in the area of Human Performance associated with the Resources Component [H.2(c)], because the licensee failed to provide complete, accurate and up-to-date procedures and work packages for the removal and installation of the reactor vessel closure head.

Enforcement. Unit 1 Technical Specifications, Section 5.4.1.a, "Procedures," requires, in part, that written procedures shall be established, implemented, and maintained covering the applicable procedures recommended in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978. Regulatory Guide 1.33, Appendix A, Section 9.d.6, requires, in part, that maintenance that can affect the performance of safety-related equipment should be performed in accordance with written procedures, documented instructions, or drawings appropriate to the circumstances. Contrary to the above, from November 2005 through October 2008 the licensee failed to implement written procedures, documented instructions, or drawings appropriate to the circumstances for maintenance that can affect the performance of safety-related equipment. Specifically, the licensee failed to ensure that adequate procedures were available for removal and reinstallation of the Unit 1 reactor vessel head. Because this finding is of very low safety significance and has been entered into the corrective action program as Condition Report ANO-1-2008-1555, this violation is being treated as a noncited violation consistent with Section VI.A of the NRC Enforcement Policy: NCV 05000313/2008005-02, "Inadequate Procedure for Reactor Vessel Head Lift."

.2 Failure to Adequately Implement Foreign Material Exclusion Controls

Introduction. The inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," associated with the licensee's failure to adequately implement Station Procedure EN-MA-118, "Foreign Material Exclusion," Revision 4. Specifically, on multiple occasions during Refueling Outage 1R21, the licensee failed to implement appropriate foreign material exclusion controls in areas designated as Zone 1 foreign material exclusion areas in accordance with Station Procedure EN-MA-118.

Description. While performing a tour of the Unit 1 turbine deck on October 28, 2008, the inspectors observed the foreign material exclusion monitor for the turbine generator Zone 1 foreign material exclusion work area failed to properly identify and log all items being carried into the area. Specifically, the inspectors observed a worker enter the area with paperwork in their rear pocket and the monitor did not stop the individual. The inspectors noted that this was contrary to Station Procedure EN-MA-118, step 5.14[34], which states, "Ensure that items are logged into the foreign material exclusion zone with a detailed description of the item and the quantity." The inspectors also noted that Station Procedure EN-MA-118, Section 3[16], defines a Zone 1 foreign material exclusion area as:

“...an area requiring the highest level of FME control. Establish a Zone 1 where final inspection or immediate and safe retrieval of foreign material is not possible

due to configuration or other circumstances (e.g., ALARA concerns, work over open water, partially filled tanks, vertical piping runs) AND when FMI could adversely impact equipment or system performance.”

The licensee entered this issue into their corrective action program as Condition Report ANO-C-2008-2174.

On October 31, 2008, while observing Unit 1 reactor vessel head removal activities, the inspectors noted several instances where refuel team members were not implementing appropriate foreign material exclusion controls in accordance with Station Procedure EN-MA-118. Specifically, the inspectors noted that several refuel team members working in the vicinity of the posted Zone 1 foreign material exclusion area of the refueling cavity were not coordinating with the foreign material exclusion monitor to log items into and out of the area. The inspectors also noted that the items being carried into the area were not properly secured by lanyards, as required by Station Procedure EN-MA-118, step 5.11[1]. The inspectors also noted that the foreign material exclusion monitor had been located such that they were not in a position to be able to see the Zone 1 boundary area. As such, the monitor was not aware that the refuel team had located a toolbox adjacent to the Zone 1 boundary that contributed to the loss of accountability of items entering the area. The inspectors informed the licensee of their concerns.

The licensee entered this issue into their corrective action program and performed an apparent cause evaluation as documented in Condition Report ANO-1-2008-1624. The licensee determined that a weakness in the foreign material exclusion plan guidance was the apparent cause of this event. Contributing to this was foreign material exclusion monitor plan did not include enough change management to address application of new procedure requirements to field conditions, and personnel were not familiar enough with the new foreign material exclusion procedure requirements to be proficient in the field when working from memory.

Subsequently, on November 11, 2008, while performing a tour of the Unit 1 spent fuel pool floor, the inspectors noted that work activities were in process in the posted Zone 1 foreign material exclusion area without a dedicated foreign material exclusion monitor. It did not appear that all items were being appropriately logged into and out of the area. The inspectors noted this was contrary to Station Procedure EN-MA-118, step 5.11[6], which states, "A foreign material exclusion monitor shall control personnel and material access to the foreign material exclusion Zone 1 whenever work is in progress." When inspectors inquired about the station procedures, the supervisor stated that the individuals were responsible for logging their material into and out of the area and a monitor was not required. When the inspectors informed the supervisor that they believed that the workers were not in compliance with Station Procedure EN-MA-118, specifically step 5.11[6], work was stopped in the area until the issue could be resolved. Subsequently, the licensee determined that a dedicated foreign material exclusion monitor was required in accordance with station procedure. The licensee entered this issue into their corrective action program as Condition Report ANO-1-2008-1943.

During subsequent tours of the Unit 1 spent fuel pool floor on November 12 and 13, the inspectors continued to identify issues dealing with foreign material exclusion controls in the Zone 1 foreign material exclusion area around the Unit 1 spent fuel pool. Specifically, on November 12 while reviewing the foreign material exclusion logbook, the

inspectors identified a mop head in the Zone 1 foreign material exclusion area that was not logged in the logbook. On November 13 while the inspectors were observing work activities in the area, they noted that the foreign material exclusion monitor was not being made aware of all materials that were being brought into and out of the foreign material exclusion zone, and as such, area accountability was not being maintained. The licensee entered these issues into their corrective action program as Condition Reports ANO-1-2008-1996 and ANO-1-2008-2039.

During closeout of the Unit 1 containment building, a posted Zone 1 foreign material exclusion area, the inspectors noted that the foreign material exclusion monitor would visually verify all material going into the Zone 1 area; however, they were not visually verifying all material being brought out of the Zone 1 area. The inspectors noted that their placement prevented them from being able to see individuals as they were exiting the area, and as such, they were not able to account for any items that were deposited in the trash at the exit points. The inspectors questioned the adequacy of this practice and presented their concerns to the licensee. The licensee entered this issue into the corrective action program as Condition Report ANO-1-2008-2628.

The licensee subsequently initiated Condition Report ANO-1-2008-2491 as a roll up condition report for foreign material exclusion control issues to determine why program performance was not per expectations. During their review, the licensee determined that there were approximately 26 instances where station personnel failed to properly implement the foreign material exclusion program as required by Station Procedure EN-MA-118. The licensee performed an Apparent Cause Evaluation of this issue and determined that inadequate training/procedural knowledge and inattention to detail from both the supervisors and craft personnel were the apparent causes of these events.

The inspectors concluded that these examples of stations personnel's failure to follow Station Procedure EN-MA-118, "Foreign Material Exclusion," did not directly result in the introduction of foreign material into a critical system. However, craft personnel, including supervisors, did not have adequate training or procedure knowledge to adequately implement procedural requirements when performing work in Level 1 foreign material exclusion zone. Therefore, these instances were indicative of a programmatic issue with proper implementation of the foreign material exclusion control program.

Analysis. The inspectors determined that the failure of station personnel to follow Station Procedure EN-MA-118, "Foreign Material Exclusion," was a performance deficiency. The finding was more than minor because it was similar to nonminor Example 3.j in NRC Manual Chapter 0612, Appendix E, "Examples of Minor Issues," in that significant programmatic deficiencies were identified associated with this issue that could lead to worse errors if left uncorrected. Specifically, station personnel's continued failure to implement appropriate foreign material exclusion controls would result in the introduction of foreign material into critical areas, such as the spent fuel pool or the reactor cavity, which in turn would result in degradation and adverse impacts on materials and systems associated with these areas. Using NRC Manual Chapter 0609, "Significance Determination Process," Phase 1 worksheet, the finding was determined to have very low safety significance because the finding was only associated with the fuel barrier. This finding had a crosscutting aspect in the area of Human Performance associated with Work Practices [H.4(b)] in that the licensee failed to effectively train

personnel on the foreign material exclusion procedure, which resulted in a failure to follow procedure, by workers and supervisors.

Enforcement. 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," requires, in part, that activities affecting quality shall be prescribed by documented instructions, procedures or drawings, of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures, or drawings. Contrary to the above, between October 28, 2008, and December 10, 2008, the inspectors identified six examples where the licensee failed to adequately implement foreign material exclusion controls as required by Station Procedure EN-MA-118. Because this finding is of very low safety significance and has been entered into the corrective action program as Condition Report ANO-1-2008-2491, this violation is being treated as a noncited violation consistent with Section VI.A of the NRC Enforcement Policy: NCV 05000313/2008005-03, "Failure to Adequately Implement Foreign Material Exclusion Controls."

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors reviewed the Updated Final Safety Analysis Report, procedure requirements, and technical specifications to ensure that the four surveillance activities listed below demonstrated that the systems, structures, and/or components tested were capable of performing their intended safety functions. The inspectors either witnessed or reviewed test data to verify that the significant surveillance test attributes were adequate to address the following:

- Preconditioning
- Evaluation of testing impact on the plant
- Acceptance criteria
- Test equipment
- Procedures
- Jumper/lifted lead controls
- Test data
- Testing frequency and method demonstrated technical specification operability
- Test equipment removal
- Restoration of plant systems
- Fulfillment of ASME Code requirements
- Updating of performance indicator data

- Engineering evaluations, root causes, and bases for returning tested systems, structures, and components not meeting the test acceptance criteria were correct
- Reference setting data
- Annunciators and alarms setpoints

The inspectors also verified that licensee personnel identified and implemented any needed corrective actions associated with the surveillance testing.

- December 5-6, 2008, Unit 1, Local leak rate test of the emergency escape hatch
- December 6, 2008, Unit 1, Local leak rate test of the fuel transfer tube, which includes Containment Isolation Valve SP-45 and a blind flange inside containment
- December 18, 2008, Unit 1, Service Water Boundary Valve CV-3820
- December 31, 2008, Unit 2, In-service test of Low Pressure Safety Injection Pump P-60B

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

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

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification (71151)

.1 Data Submission Issue

a. Inspection Scope

The inspectors performed a review of the data submitted by the licensee for the third Quarter 2008 performance indicators for any obvious inconsistencies prior to its public release in accordance with Inspection NRC Manual Chapter 0608, "Performance Indicator Program."

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

b. Findings

No findings of significance were identified.

.2 Safety System Functional Failures

a. Inspection Scope

The inspectors sampled licensee submittals for the safety system functional failures performance indicator for both Units 1 and 2 for the period from the second quarter 2007 through the third quarter 2008. To determine the accuracy of the performance indicator data reported during those periods, performance indicator definitions and guidance contained in NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 5, and NUREG-1022, "Event Reporting Guidelines 10 CFRs 50.72 and 50.73" definitions and guidance were used. The inspectors reviewed the licensee's operator narrative logs, operability assessments, maintenance rule records, maintenance work orders, issue reports, event reports, and NRC integrated inspection reports for the period of April 2007 through September 2008 to validate the accuracy of the submittals. The inspectors also reviewed the licensee's corrective action program database to determine if any problems had been identified with the performance indicator data collected or transmitted for this indicator and none was identified. Specific documents reviewed are described in the attachment to this report.

These activities constitute completion of one safety system functional failures sample as defined in Inspection Procedure 71151-05.

b. Findings

No findings of significance were identified.

40A2 Identification and Resolution of Problems (71152)

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

.1 Routine Review of Identification and Resolution of Problems

a. Inspection Scope

As part of the various baseline inspection procedures, discussed in previous sections of this report, the inspectors routinely reviewed issues during baseline inspection activities and plant status reviews to verify that they were being entered into the licensee's corrective action program at an appropriate threshold; that adequate attention was being given to timely corrective actions; and that adverse trends were identified and addressed. The inspectors reviewed attributes that included the complete and accurate identification of the problem; the timely correction, commensurate with the safety significance; the evaluation and disposition of performance issues, generic implications, common causes, contributing factors, root causes, extent of condition reviews, and previous occurrences reviews; and the classification, prioritization, focus, and timeliness of corrective. Minor issues entered into the licensee's corrective action program because of the inspectors' observations are included in the attached list of documents reviewed.

These routine reviews for the identification and resolution of problems did not constitute any additional inspection samples. Instead, by procedure, they were considered an

integral part of the inspections performed during the quarter and documented in Section 1 of this report.

b. Findings

No findings of significance were identified.

.2 Daily Corrective Action Program Reviews

a. Inspection Scope

In order to assist with the identification of repetitive equipment failures and specific human performance issues for follow-up, the inspectors performed a daily screening of items entered into the licensee's corrective action program. The inspectors accomplished this through review of the station's daily corrective action documents.

The inspectors performed these daily reviews as part of their daily plant status monitoring activities and, as such, did not constitute any separate inspection samples.

b. Findings

No findings of significance were identified.

.3 Semi-Annual Trend Review

a. Inspection Scope

The inspectors performed a review of the licensee's corrective action program and associated documents to identify trends that could indicate the existence of a more significant safety issue. The inspectors focused their review on repetitive equipment issues but also considered the results of daily corrective action item screening discussed in Section 4OA2.2, above, licensee trending efforts, and licensee human performance results. The inspectors nominally considered the 6-month period of June 2008 through December 2008, although some examples expanded beyond those dates where the scope of the trend warranted.

The inspectors also included issues documented outside the normal corrective action program in major equipment problem lists, repetitive and/or rework maintenance lists, departmental problem/challenges lists, system health reports, quality assurance audit/surveillance reports, self-assessment reports, and Maintenance Rule assessments. The inspectors compared and contrasted their results with the results contained in the licensee's corrective action program trending reports. Corrective actions associated with a sample of the issues identified in the licensee's trending reports were reviewed for adequacy.

These activities constitute completion of one single semi-annual trend inspection sample as defined in Inspection Procedure 71152-05.

b. Findings

Introduction. The inspectors identified a Green noncited violation of Technical Specification 5.4.1, "Procedures," associated with the licensee's failure to adequately implement the fire protection program. Specifically, again on multiple occasions, station

personnel exceeded or challenged combustible limits specified in Station Procedure EN-DC-161, "Control of Combustibles," Revision 2, without taking the prescribed compensatory actions. The inspectors also identified that, in some cases, the procedure was not even invoked.

Description. On October 24, 2008, the inspectors identified a concern with seven barrels of resin and a laundry cart left outside of the designated storage location on the Elevation 354 in the Unit 1 auxiliary building. The inspectors noted that the barrels and the laundry cart appeared to exceed the allowable transient Class A combustible limit for the area of 100 pounds as set forth in Station Procedure EN-DC-161. The inspectors discussed the issue with the licensee, who corrected the situation and entered the issue into their corrective action program as Condition Report ANO-1-2008-1349.

On November 10, 2008, while on a plant tour of the Unit 1 auxiliary building and work activities associated with the Unit 1 refueling outage, the inspectors identified two concerns associated with both decay heat removal vault trains. In Decay Heat Vault A, the inspectors identified that, although a transient combustible review form was completed, the material in the area exceeded the amount expected. Decay Heat Vault B did not have a transient combustible review form completed even though transient combustibles were left unattended in the vault. It was determined that the licensee had not followed Station Procedure EN-DC-161 by not accounting for transient combustibles on the transient combustible review (Train A) and did not complete a transient combustible form and as a result did not establish a hourly fire watch for the area (Train B). This represents two examples of the licensee failing to adequately implement the fire protection program. The licensee corrected the immediate issue and entered the issue into their corrective action program as Condition Report ANO 1-2008-1941.

On December 10, 2008, again while on a tour of the auxiliary building, the inspectors identified transient combustibles in the "Zero Transient Combustible Area" in Room 57 just below the borated water storage tank outlet valves. The inspectors again notified the control room shift manager and operations took immediate action, established a continuous fire watch, and entered the issue into their corrective action program as Condition Report ANO-1-2008-2627. This represents another example of the licensee failing to adequately implement the fire protection program. Although the licensee declared this area as a "zero transient combustible area," the area did contain functional and adequate detection and suppression, and as such did not represent a high level of degradation.

The inspectors also performed a review of the licensee's corrective action program to assess recent performance associated with control of transient combustible and identified several other deficiencies.

- On November 4, 2008, Condition Report ANO-1-2008-1735 was written to describe storage of transient combustibles (plastic tool cart) in Unit 1 auxiliary building stairwell on Elevation 335 even though storage of such material is prohibited and thus a violation of Station Procedure EN-DC-161.
- On November 12, 2008, Condition Report ANO-C-2008-2395 was written to describe the apparent ineffectiveness of Station Procedure EN-DC-161 training as maintenance and operations did not fair well in a recent survey.

- On November 17, 2008, Condition Report ANO-1-2008-2117 was written to describe storage of transient combustibles (temporary lighting) in Unit 1 auxiliary building stairwell even though storage of such material is prohibited and thus a violation of Station Procedure EN-DC-161.

The inspectors reviewed Condition Report ANO-C-2007-1719, which performed an apparent cause evaluation regarding a strong trend of violations or had potentially violated the requirements of Station Procedure EN-DC-161. The evaluation concluded that the causes included misuse of work-incomplete tags (used for material left out in the field), procedural guidance not clear, and poor management expectations for compliance of these procedures. The evaluation also discovered that a series of condition reports identifying the same issue dating back to 2003 with no improvement. It was determined that training, which had been performed in each of the three instances prior to this, was not effective and that the real issue is that the importance of combustible control was not being effectively and clearly communicated to the plant staff. Following the completion of the corrective actions, the licensee continues to have instances of procedural noncompliance with transient combustibles.

The inspectors determined that, in each case, the additional fire loading caused by the transient combustibles did not cause the fire area to exceed the maximum allowable fire loading. However, due to multiple violations of Station Procedure EN-DC-161 by different organizations, and particularly the violations relating to "Zero Transient Combustible Areas," is indicative of a continued programmatic issue with proper implementation of the control of combustible materials aspect of the fire protection program.

Analysis. The inspectors determined that the failure of station personnel to follow Station Procedure EN-DC-161, "Control of Combustibles," Revision 2, was a performance deficiency and therefore a finding. The finding was more than minor because it was similar to nonminor Example 3.j in NRC Manual Chapter 0612, Appendix E, "Examples of Minor Issues," in that significant programmatic deficiencies were identified associated with this issue that could lead to worse errors if left uncorrected. Specifically, the failure to follow EN-DC-161 would result in excess transient combustibles in plant areas which resulted in exceeding administrative limits for the quantity of transient combustible materials allowed. Using NRC Manual Chapter 0609, Appendix F, "Fire Protection Significance Determination Process," Phase 1 worksheet, the finding was determined to have very low safety significance because the condition represented a low degradation of fire prevention and administration controls because the quantity of combustible materials was small and the areas had operable fire detection and suppression. The finding had a crosscutting aspect in the area of Problem Identification and Resolution associated with the Corrective Action Program because the licensee failed to take appropriate actions to address an adverse trend in a timely manner, which allowed the adverse trend to continue and reoccur on multiple occasions [P.1(d)].

Enforcement. Unit 1 Technical Specification 5.4, "Procedures," requires that written procedures be established, implemented, and maintained covering fire protection program implementation. Station Procedure EN-DC-161, "Control of Combustibles," Revision 2, requires that if a transient combustible limit of a fire zone is exceeded, then an hourly fire watch must be established, and if transient combustibles are stored in a "zero transient combustible" area, then a continuous fire watch must be established in

accordance with Procedure OP-1000.120, "ANO Fire Impairment Program," Revision 17. Contrary to this, between October 24, 2008, and December 10, 2008, five examples of transient combustibles in the Unit 1 auxiliary building without a posted fire watch was identified. Because this finding is of very low safety significance and has been entered into the corrective action program as Condition Reports ANO-C-2009-0104, and ANO-C-2007-1719, this violation is being treated as a noncited violation consistent with Section VI.A of the enforcement policy: NCV 05000313/2008005-04, "Failure to Control Transient Combustible Material in the Auxiliary Building."

40A3 Event Follow-up (71153)

.1 Unit 1 Manual Reactor Trip - December 12, 2008

a. Inspection Scope

On December 12, 2008, inspectors responded to a Unit 1 manual reactor trip site wide announcement. Earlier that morning Unit 1 had closed turbine generator output breakers ending Refueling Outage 1R21. The reactor was on hold at approximately 32 percent reactor power for planned physics testing when Group 7 control rods fell, in a ratcheted fashion, from 90 percent withdrawn to almost full insertion. It was at this time that the senior reactor operator ordered a manual reactor trip to shutdown the reactor. The inspectors arrived in the control room, assessed the reactor condition, and determined that the reactor was stable in Mode 3 and that there were no complications. The inspectors discussed the event and the reactor condition prior to and following the trip with operators, shift manager, other operations management, and reviewed licensee's procedures and plant indications to verify proper operator actions and plant response. The inspectors also reviewed the initial licensee notification to verify that it met the requirements specified in NUREG-1022, Revision 2, "Event Reporting Guidelines." The inspectors also reviewed the licensee's post reactor trip report to assess the adequacy of the review and proposed corrective actions prior to plant restart.

The licensee's troubleshooting and failure modes analysis led them to suspect that the Group 7 control rod programmer was the cause of the event although the licensee could not duplicate or identify any obvious failure. The programmer was replaced with another programmer on site. Following postmaintenance testing of the new programmer, the licensee commenced a reactor startup on December 13, 2008. Unit 1 achieved 100 percent reactor power without incident on December 16, 2008.

b. Findings

No findings of significance were identified.

.2 Unit 1 Manual Reactor Trip - December 20, 2008

a. Inspection Scope

On December 20, 2008, inspectors responded to the site following pager notification that the Unit 1 reactor was manually tripped due to ratcheted Group 7 control rod movement into the core. Unit 1 was at 100 percent power when Group 7 control rods began to drop into the core from 90 percent withdrawn to about 70 percent. The inspectors observed control room operators, walk down control panels, and discussed the sequence of events with operators, shift manager, and other operations personnel and determined

that the reactor responded as expected, no abnormalities occurred and that operators responded as licensee procedures and training would dictate. The inspectors also reviewed the initial licensee notification to verify that it met the requirements specified in NUREG-1022, Revision 2, "Event Reporting Guidelines." The inspectors also reviewed the licensee's post reactor trip report to assess the adequacy of the review and proposed corrective actions prior to plant restart.

Due to the similarity of the previous event on December 12, 2008, the licensee repeated and expanded their troubleshooting activities and obtained vendor assistance, as well as other plants with similar control rod control system designs. The licensee performed a thorough physical inspection of all electrical devices and discovered several relay and wiring issues that, while did not produce a repeatable cause of the event, could not be ruled out as contributing or causing the event. The licensee replaced or repaired all discrepancies and performed postmaintenance testing on the system. The licensee also implemented a monitoring plan to electrically monitor and record various electric outputs, voltages, and signals to review for anomalies. On December 23, 2008, the licensee commenced a reactor start up. The start up was observed by the resident inspectors. Unit 1 achieved 100 percent power on December 24, 2008.

b. Findings

No findings of significance were identified.

.3 Switchyard Fire during Welding Activities – November 5, 2008

a. Inspection Scope

On November 5, 2008, inspectors reviewed and followed up on a fire that developed in the ANO switchyard during welding activities by Entergy Arkansas contractors. The fire involved a bag of trash under the welding activity and was extinguished within a short period of time by other workers in the switchyard. There were no effects or damage to Unit 1 (in a refueling outage) or Unit 2 (operating at 100 percent) as the power line where the fire occurred was de-energized and no other combustible material was located in the area to allow the fire to persist and spread. The inspectors also reviewed the initial licensee notification to verify that it met the requirements specified in NUREG-1022, "Event Reporting Guidelines," Revision 2.

b. Findings

Introduction. The inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," associated with a fire that occurred in the Arkansas Nuclear One switchyard while Entergy Arkansas Transmission and Distribution contractors performed welding activities. Specifically, the licensee failed to correct a significant condition adverse to quality stemming from a long history of procedural violations of Station Procedure EN-DC-127, "Control of Hot Work and Ignition Sources."

Description. On November 5, 2008, welding was being performed on the 345 kV Fort Smith Line "C" phase wave trap. The line was de-energized for numerous maintenance and modification activities. Unit 1 was defueled and Unit 2 was at 100 percent power. The welding was being performed approximately 40 feet above the ground when slag from the activity fell into a bag of trash sitting directly below the activity. The bag of trash quickly caught on fire and was identified by the welder and the fire watch, but because

the two workers were in the lift, which was grounded to the structure, they could not have quickly lowered the lift to extinguish the fire. The workers then caught the attention of another crew nearby and they quickly extinguished the fire. These other workers were also performing welding activities in the switchyard and were all briefed and had fire extinguishing equipment to combat fires. It must also be mentioned that the bag of trash was the only combustible in the area and even if the fire would not have been extinguished, it would have been out shortly. The inspectors determined that this instance did not represent a high level of degradation.

During the follow up, the inspectors identified that the contractors were not required to use Station Procedure EN-DC-127 by Arkansas Nuclear One, despite the procedural applicability to all activities inside the owner-controlled area. When this fact was brought to the attention of the licensee, the switchyard contractors were required to follow Station Procedure EN-DC-127 requirements.

The inspectors also identified and reviewed several other examples of Station Procedure EN-DC-127 violations and issues, which included:

- On November 11, 2008, the inspectors identified grinding on turbine blades with combustibles within the 35-foot radius of the hot work activity, which was procedurally prohibited. The issue was entered into the corrective action program as Condition Report ANO-1-2008-1939.
- On November 13, 2008, the inspectors identified three separate hot work violation (combustibles within the 35-foot radius) associated work in the auxiliary and turbine buildings. The issue was entered into the corrective action program as Condition Report ANO-1-2008-2035.
- On November 24, 2008, the inspectors identified an issue with transient combustibles within the 35-foot welding radius, but hot work was not in progress. The issue was entered into the corrective action program as Condition Report ANO-1-2008-2267.

In each of these instances, the inspectors determined that, due to the location of the work, and the number of trained individuals in the vicinity to extinguish a fire should it occur, they did not represent a high level of degradation.

The inspectors also reviewed a fire that had occurred on October 29, 2008, in the Unit 1 turbine building. A small fire was reported extinguished to the Unit 1 control room under the Feedwater Heater E-5B on a scaffold. An operator was sent to the scene to investigate, confirmed that the fire was extinguished, and established a fire re-flash watch. It was determined that the hot work party failed to adequately prepare the work area and make the area safe by removing or protecting combustible materials and plant equipment from ignition sources as required by Station Procedure EN-DC-127 and, therefore, constituted a procedural violation. Due to the location of the fire and individuals trained to extinguish fires being present in the area, this was determined to this instance did not represent a high level of degradation.

The inspectors also reviewed Condition Report ANO-C-2007-1234, which was written to investigate and correct a series of small fires at Arkansas Nuclear One since 2003. The condition report was classified as a Category A condition report, and by definition of

Station Procedure EN-LI-102, "Corrective Action Process," Revision 8, a significant condition adverse to quality and corrective actions developed are designed to preclude repetition (prevent recurrence). A root-cause analysis was performed and documented numerous causes contributing to the number of fire events. Some of these causes included: training on Station Procedure EN-DC-127 hot work procedure and enhance and clarify the procedure, management failed to communicate expectations for hot work and procedural compliance, and that hot work procedures were adequately implemented by the staff.

A corrective action plan was developed and put into place in late 2007 and early 2008 to prevent the recurrence of fires at Arkansas Nuclear One. An effectiveness review was completed at the end of the 2008. It was determined that, though there was some improvement in Station Procedure EN-DC-127 violations over most periods, the two outages (Unit 2 in the Spring 2008 and Unit 1 Fall of 2008), especially the Unit 1 outage, had numerous violations and three fire/smoke events and all were associated with contractors. The number of issues did not meet their predetermined evaluation criteria and the corrective action did not prevent reoccurrence of fires at Arkansas Nuclear One.

The inspectors agree with the licensee's assessment and have had several meetings to discuss the continuing issues and trends identified. The inspectors have determined that the continued failure of the licensee to prevent fires, a significant condition adverse to quality, from recurring, was a violation and that the issue is one that the licensee needs to continue to address.

Analysis. The inspectors determined that the licensee's failure to adequately implement corrective actions from previously identified trend of small fires since 2003, which constitutes a significant condition adverse to quality, was a performance deficiency and therefore a finding. The finding was determined to be more than minor because it affected the protection against external factors attribute and it directly affected the Initiating Events Cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Using NRC Manual Chapter 0609, Appendix F, "Fire Protection Significance Determination Process," Phase 1 worksheet, the finding was determined to have very low safety significance because the condition represented a low degradation of a fire prevention and administration controls. The finding had a crosscutting aspect in the area of Human Performance associated with Work Practices in that the licensee failed to ensure supervisory and management oversight of work activities, especially contractors, such that nuclear safety was supported [H.4(c)].

Enforcement. 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Actions," requires, in part, that "Measures shall be established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformance's are promptly identified and corrected. In the case of significant conditions adverse to quality, the measures shall assure that the cause of the condition is determined and corrective action taken to preclude repetition." Contrary to the above, the licensee failed to perform adequate corrective action to prevent recurrence of fires due to failure to properly use Station Procedure EN-DC-127, "Control of Hot Work and Ignition Sources." Because this finding is of very low safety significance and has been entered into the corrective action program as Condition Report ANO-C-2008-2565, this violation is being treated as a noncited violation

consistent with Section VI.A of the NRC Enforcement Policy:
NCV 05000368/2008005-05, "Failure to Correct and Prevent Recurrence of a Significant Condition Adverse to Quality Associated with Fires."

40A5 Other Activities

.1 Quarterly Resident Inspector Observations of Security Personnel and Activities

a. Inspection Scope

During the inspection period, the inspectors performed observations of security force personnel and activities to ensure that the activities were consistent with Arkansas Nuclear One's security procedures and regulatory requirements relating to nuclear plant security. These observations took place during both normal and off-normal plant working hours.

These quarterly resident inspector observations of security force personnel and activities did not constitute any additional inspection samples. Rather, they were considered an integral part of the inspectors' normal plant status review and inspection activities.

b. Findings

No findings of significance were identified.

.2 Implementation of Temporary Instruction 2515/176, "Emergency Diesel Generator Technical Specification Surveillance Requirements Regarding Endurance and Margin Testing"

a. Inspection Scope

The objective of Temporary Instruction 2515/176 was to gather information to assess the adequacy of nuclear power plant emergency diesel generator endurance and margin testing as prescribed in plant-specific technical specifications. The inspectors reviewed the licensee's technical specifications, procedures, calculations, and interviewed licensee personnel to complete the temporary instruction. The information gathered while completing this temporary instruction was forwarded to the Office of Nuclear Reactor Regulation for further review and evaluation on December 31, 2008.

b. Findings

No findings of significance were identified.

.3 International Atomic Energy Agency (IAEA) Operational Safety Review Team (OSART) Assessment - June 15-July 2, 2008

a. Inspection Scope

The International Atomic Energy Agency is an independent intergovernmental, science and technology-based organization, in the United Nations family, that serves as the global focal point for nuclear cooperation. One of the services provided is an independent assessment of licensee performance by senior staff members from the IAEA member states. This assessment team is called an Operational Safety Review Team, or OSART. The focus of the review by the OSART is on the safety and reliability

of plant operation through review of the operation of the plant and the performance of the licensee's management and staff. The NRC believes that it would be beneficial for the US Nuclear power industry to continue to volunteer and participate in the OSART missions. To help ensure that U.S. licensees participate in the operational safety assessment review team missions, the NRC has decided to and will grant a one-time regulatory inspection credit (a reduction in the baseline program) for those baseline programs that overlap with the OSART review as directed and outlined in Manual Chapter 2515, Section 08.05, "Baseline Inspection Credit for Operational Safety Review Team Effort." dated May 01, 2008.

The resident inspectors began their preparations early 2008 and closely followed the OSART review from beginning to end. The inspectors ensured that all issues identified by the team did not represent an immediate safety or significant concern from safety and regulatory viewpoint. The inspectors reviewed the OSART assessment procedures and periodically met with the team leader to review and understand items and concerns identified by the team. Through the inspectors' review and assessment of OSART activities, review of the final OSART mission report of Arkansas Nuclear One, and discussions with NRC Region IV management, the decision was made to give Arkansas Nuclear One full regulatory inspection credit as described in Manual Chapter 2515. The NRC has made the final OSART report publicly available on the NRC website, Agency Documents Access and Management System (ADAMS) accession number ML083440148.

To ensure that the regulatory inspection credit is appropriately administered, all inspection activities that are affected will add Section 4OA5 Other Activities into the inspection report (stand alone or integrated) to state that regulatory inspection credit was given and how much was given to the licensee.

b. Findings

No findings of significance were identified.

4OA6 Meetings

Exit Meeting Summary

On November 10, 2008, the inspectors debriefed the inspection results to Mr. Cleve Reasoner, Engineering Director, and other members of the licensee staff. The licensee acknowledged the issues presented. The inspectors telephonically exited with Mr. Cleve Reasoner, Engineering Director, and other members of the licensee staff on November 25, 2008. The inspectors acknowledged review of proprietary material during the inspection, which had been or will be returned to the licensee.

On January 19, 2009, the inspectors presented the inspection results to Mr. T. Mitchell and other members of the licensee staff. The licensee acknowledged the issues presented. The inspector asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

40A7 Licensee-Identified Violations

The following violations of very low safety significance (Green) 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 NCVs.

- Title 10 CFR Part 50, Appendix B, Criterion III, "Design Control," requires, in part, that measures shall be established to assure that applicable regulatory requirements and the design basis, as defined in 10 CFR 50.2 and as specified in the license application, for those structure, systems, and components to which this appendix applies are correctly translated in specifications, drawings, procedures, and instructions. Contrary to the above requirement, the licensee failed to evaluate, as a design input, the as-built condition of the plant for Valves CV-1300, -1301 and -2667 for seismic qualification. This was licensee identified because it was discovered during a review of design calculations by licensee personnel. This finding was determined to have very low safety significance because it was confirmed not to result in loss of operability or functionality per Part 9900, Technical Guidance, "Operability Determination Process for Operability and Functionality Assessment." This issue was entered into the licensee's corrective action program as Condition Report ANO-1-2008-1463.
- Title 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Actions," requires, in part, that measures shall be established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformance are promptly identified and corrected. Contrary to the above, licensee personnel failed to promptly identify and correct a condition adverse to quality, associated with Core Flood Tank Check Valve MU-36A in December 2005 which resulted in a subsequent failure in June 2008. This finding was determined to have very low safety significance because: (1) the finding was not a qualification deficiency that resulted in a loss functionality of the core flood tank; (2) it did not lead to an actual loss of safety function of the system or train; (3) it did not result in the loss of one or more trains of nontechnical specification equipment; (4) it did not represent an actual loss of safety function of one or more nontechnical specification trains of equipment designated as risk-significant per 10 CFR 50.65, for greater than 24 hours; and (5) it did not screen as potentially risk-significant due to a seismic, flooding, or severe weather initiating event. This issue was entered into the licensee's corrective action program as Condition Reports ANO-1-2008-0684 and ANO-1-2005-2994.
- Unit 2 Technical Specification, Section 6.4.1.a, "Procedures," requires, in part, that written procedures shall be established, implemented, and maintained covering the applicable procedures recommended in Regulatory Guide 1.33, Revision 2, Appendix A, dated February 1978. Regulatory Guide 1.33, Appendix A, Section 9.a, requires, in part, that maintenance that can affect the performance of safety-related equipment should be performed in accordance with written procedures, documented instructions, or drawings appropriate to the circumstances. Contrary to the above requirement, the licensee failed to provide adequate procedures, which resulted in improper maintenance on safety-related snubbers. Specifically, during Refueling Outage 2R19, there were eight functional failures of Pacific Scientific snubbers, which were determined to be caused by improper maintenance. This was licensee identified because the failures were discovered during functional testing per technical specification surveillance testing requirements during Refueling Outage 2R19. The finding was determined to have very low safety significance because the issue did not screen as potentially risk significant

due to a seismic initiating event. This issue was placed into a rollup condition report in the corrective action program as Condition Report ANO-2-2008-0791, which included a root cause analysis.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

V. Bond, SYE Manager (Acting)
D. Fowler, QA Senior Lead
J. Gobell, MRP-139 Programs Owner
B. Greeson, Code Programs Manager
D. James, Licensing Manager
J. McCoy, Programs and Components Manager
D. Metheany, Steam Generator Programs Owner
T. Mitchell, Site Vice President
D. Moore, Radiation Protection Manager
E. Owen, Manager
K. Panther, ISI Program Manager
C. Reasoner, Engineering Director
T. Tullos, Superintendent Nuclear Industrial Safety and Human Performance
F. Van Buskirk, Licensing Specialist
R. Walters, Operations Manager
P. Williams, Design Engineering Manager

NRC Personnel

J. Josey, Resident Inspector
J. Rotton, Resident Inspector
A. Sanchez, Senior Resident Inspector

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed

05000368/2008005-01	NCV	Failure to Perform an Adequate Risk Assessment when Disabling a Station High Energy Line Break Barrier (Section 1R13)
05000313/2008005-02	NCV	Inadequate Procedure for Reactor Vessel Head Lift (Section 1R20)
05000313/2008005-03	NCV	Failure to Adequately Implement Foreign Material Exclusion Controls (Section 1R20)
05000313/2008005-04	NCV	Failure to Control Transient Combustible Material in the Auxiliary Building (4OA2.3)
05000313/2008005-5	NCV	Failure to Correct and Prevent Recurrence of a Significant Condition Adverse to Quality Associated with Fires (Section 4OA3)

Closed

None

Discussed

None

LIST OF DOCUMENTS REVIEWED

Section 1R04: Equipment Alignment

PROCEDURES

NUMBER	TITLE	REVISION
OP-2104.036	Emergency Diesel Generator Operations	56
OP-2416.045	Unit 2 EDG Periodic Maintenance	2
OP-2403.007	Unit 2 EDG Surveillance	18

DRAWINGS

M-2210 Sheet 1, Revision 85 M-2204 Sheet 1, Revision 13 M-2236 Sheet 1, Revision 93
M-2217 Sheet 3, Revision 16 M-204 Sheet 3, Revision 33

Section 1R05: Fire Protection

Procedures

NUMBER	TITLE	REVISION
FHA	Arkansas Nuclear One Fire Hazards Analysis	11
PFP-U1	ANO Prefire Plan (Unit 1)	9
PFP-U2	ANO Prefire Plan (Unit 2)	9
OP-1000.152	Units 1 & 2 Fire Protection System Specifications	7

Drawings

FZ-2057, Sheet 1, Revision 2	FZ-1044, Sheet 1, Revision 2
FZ-2044, Sheet 1, Revision 1	FZ-1065, Sheet 1, Revision 2
FZ-2043, Sheet 1, Revision 2	FZ-1067, Sheet 1, Revision 2
FZ-2037, Sheet 1, Revision 2	FZ-1066, Sheet 1, Revision 2
FZ-2023, Sheet 1, Revision 2	FZ-1030, Sheet 1, Revision 2
FZ-1064, Sheet 1, Revision 2	FZ-1062, Sheet 1, Revision 2
FZ-1063, Sheet 1, Revision 3	FZ-1061, Sheet 1, Revision 2

Section 1R06: Flood Protection Measures

CALCULATIONS

NUMBER	TITLE	REVISION
CALC-89-E-0048-35	ANO-2 Internal Flood Analysis	0
CALC-92-R-0024-01	Flooding Evaluation INPO SOER 85-5	0
CALC-92-R-0034-01	Flooding Evaluation INPO SOER 85-5 2 nd Iteration	0

MISCELLANEOUS

ULD-0-TOP-17, "ANO Flooding Topical," Revision 0

Section 1R08: In-service Inspection Activities

PROCEDURES

NUMBER	TITLE	REVISION
EN-DC-319	Inspection and Evaluation of Boric Acid Leaks	
OP-1032.037	Inspection and Identification of Boric Acid Leaks at ANO-1 and ANO-2	4
ETSS 1-3	Examination Technique Specification Sheets	0
51-9091046	ANO Unit 1 Outage 1RF21 Steam Generator Eddy Current Examination Technique Site Validation	0
ECR-5661	ANO-1 Steam Generator Eddy Current Examination Data Analysis Guidelines	0
2311.009L	Units 1 & 2 Pressure-Retaining Components Above RPV Head	9
CEP-NDE-0255	Radiography Examination (RT) for ASME, ANS, and AWI Welds	4
CEP-NDE-0641	Liquid Penetrant Examination (PT) for ASME Section XI Welds	4
CEP-NDE-0423	Manual Ultrasonic Examination (PT) of Austenitic Piping Welds for ASME Section XI	3
PDI-ISI-254-CF-SE (WDI-STD-150)	Remote In-service Examination of the Core Flood Nozzle to Safe End Welds	0

NDE PACKAGES

PROCEDURES

PACKAGE/WELD	TITLE	REVISION/DATE
FW-61	BWST Class 2 Pipe to Elbow RT Examination	October 28, 2008
ISI-PT-08-055/56	Decay Heat Elbow Weld 36-020 and 36--019 PT Examinations	November 4, 2008
ISI-UT-08-124/125	Decay Heat Elbow Weld 36-020 and 36-019 UT Examinations	November 4, 2008
PQR's	Various Personnel Qualification Records	varied

WELD DOCUMENTS

NUMBER	TITLE	REVISION/DATE
BOP-RT-08-096	BWST Class 2 Pipe to Elbow Report	October 28, 2008
PQR's	Various Personnel Qualification Records	varied

DRAWINGS

NUMBER	TITLE	REVISION
7-DH-102	Large Pipe Isometric Decay Heat Removal	9
7-DH-22A	Large Pipe Isometric Decay Heat Removal to Reactor	13

Section 1R11: Licensed Operator Requalification Program

NUMBER	TITLE	REVISION
A1SPGJIT1RSD	Just-In-Time Refueling Reactor/Plant Shutdown and Cooldown	1
OP-1102.016	Power Reduction and Plant Shutdown	13
OP-1102.010	Plant Shutdown and Cooldown	57
OP-1015.002	Decay heat Removal and LTOP System Control	31

Section 1R12: Maintenance Effectivness

PROCEDURES

NUMBER	TITLE	REVISION
EN-LI-102	Corrective Action Process	12
EN-DC-203	Maintenance Rule Program	1
EN-DC-204	Maintenance Rule Scope and Basis	1
EN-DC-205	Maintenance Rule Monitoring	2
EN-DC-206	Maintenance Rule (a)(1) Process	1

CONDITION REPORTS

ANO-1-2008-1210	ANO-1-2007-0401	ANO-1-2007-0483
ANO-1-2007-1019	ANO-1-2007-1188	ANO-1-2007-1923
ANO-1-2007-1926	ANO-1-2008-1210	

Section 1R12: Maintenance Effectivness

CONDITION REPORTS

ANO-1-2007-1019	ANO-2-2007-0772	ANO-2-2008-0793
ANO-1-2007-1926	ANO-2-2007-1200	ANO-2-2008-0803
ANO-1-2007-0401	ANO-2-2007-1709	ANO-2-2008-1811
ANO-1-2007-0483	ANO-2-2007-1367	ANO-2-2008-1407
ANO-1-2007-1188	ANO-2-2007-0777	ANO-2-2008-0792
ANO-1-2007-1923	ANO-2-2007-1369	ANO-2-2008-0647
ANO-2-2007-0253	ANO-1-2008-1210	ANO-2-2008-2317
ANO-2-2007-1533	ANO-1-2008-1210	
ANO-2-2007-1131	ANO-2-2008-0422	

Section 1R13: Maintenance Risk Assessments and Emergent Work Control

PROCEDURES

NUMBER	TITLE	REVISION
COPD-024	Risk Assessment Guidelines	21
COPD-003	Door Breach Checklist	12

CALCULATIONS

NUMBER	TITLE	REVISION
CALC-94-R-0022-02	High Energy Line Break Doors and Hatches	6
CALC-94-R-0022-02	High Energy Line Break Doors and Hatches	6

MISCELLANEOUS

NUMBER	TITLE	REVISION
ER-ANO-2004-0735-000	Risk Associated with Opening a HELB Door	0
Engineering Change 10614	Opening of HELB Doors 259, 260, and 340 for Movement of Equipment	0
Engineering Change 11426	Opening of HELB Doors 259, 260, and 340	0
	Shutdown Operations Protection Plan	October 15, 200808

CONDITION REPORT

ANO-2-2008-2231

Section 1R15: Operability Evaluations

DOCUMENTS

NUMBER	TITLE	REVISION
OP-1502.004	Control of Unit 1 Refueling	41
OP-1504.009	Unit 1 Reactor Vessel Closure Head Installation	17
OP-1504.007	Unit 1 Reactor Vessel Closure Head Removal and Storage	14
OP-1504.038	Removal and Replacement of the Core Support Assembly	1
OP-1102.002	Plant Startup	80
OP-1102.015	Filling and Draining the Fuel Transfer Canal	24
OP-1103.011	Draining and N ₂ Blanketing The RCS	34
OP-1103.018	Maintenance of RCS Water Level	6
EN-OP-116	Infrequently Performed Tests or Evolutions	2
	ANO 1R21 Outage Presentation	
	1R21 Steam Generator Inspection Plan	1
	RP Package Brief of Outage Activities	
	1R21 Reactor Building Coordinator Meeting	

CONDITION REPORTS

ANO-1-2008-1873 ANO-C-2008-2307 ANO-1-2008-1641
ANO-2-2008-2274 ANO-2-2008-2366

Section 1R18: Plant Modifications

PROCEDURES

NUMBER	TITLE	REVISION
COPD-024	Risk Assessment Guidelines	21
EN-DC-136	Temporary Modifications	1
EN-DC-141	Design Inputs	5

CALCULATIONS

NUMBER	TITLE	REVISION
CALC-06-E-0007-01	Structural Analysis of L-28 Gantry	1
CALC-08-E-0011-01	Tendon Support Frame For Unit 1	0
CALC-08-E-0011-02	Evaluation of Tornado Wind Loads for Upper Support Frame Used For Tendon Inspection	0
CALC-08-E-0011-03	ANO-1: Upper Support Frame Tornado Calculation	0

MISCELLANEOUS

NUMBER	TITLE	REVISION
Engineering Change 8138	Temporary Support Structure for Performance of the ASME Code IWL Examination	3

CONDITION REPORTS

ANO-1-2006-0607 ANO-1-2008-1321 ANO-C-2008-2124
ANO-1-2008-1276 ANO-C-2006-1432

WORK ORDER

51568683

Section 1R19: Postmaintenance

DOCUMENTS

NUMBER	TITLE	REVISION
OP-1104.004	Decay Heat Removal Operating Procedure	81
OP-1106.006	Emergency Feedwater Pump Operation	76
OP-2106.006	Emergency Feedwater Pump Operation	

CONDITION REPORT

ANO-1-2008-2374

Section 1R20: Refueling and Other Outage Activities

DOCUMENTS

NUMBER	TITLE	REVISION
OP-1504.009	Unit 1 Reactor Vessel Closure Head Installation	17
OP-1504.007	Unit 1 Reactor Vessel Closure Head Removal and Storage	14
OP-1102.015	Filling and Draining the Fuel Transfer Canal	24
OP-1103.011	Draining and N ₂ Blanketing The RCS	34

CALCULATIONS

NUMBER	TITLE	REVISION
CALC-ANO C-CS-08-00001	NEI Heavy Load Drop Initiative	0

MISCELLANEOUS

Arkansas Nuclear One Shutdown Operations Protection Plan, Dated October 15, 2008

CONDITION REPORTS

ANO-1-2008-1555 ANO-1-2008-1870 ANO-C-2008-1769
ANO-1-2008-1644

Section 1R22: Surveillance Testing

PROCEDURES

NUMBER	TITLE	REVISION
OP-1304.020	Unit 1 Reactor Building Access and Ventilation Leak Rate Testing	30

WORK ORDER

51676394

CONDITION REPORTS

ANO-1-2008-2357 ANO-1-2008-1618 ANO-1-2008-1653

Section 4OA1: Performance Indicator Verification

PROCEDURES

NUMBER	TITLE	REVISION
EN-LI-114	Performance Indicator Process	0

Section 4OA2: Identification and Resolution of Problems

CONDITION REPORTS

ANO-1-2008-1349 ANO-1-2008-1735 ANO-2-2008-1835
ANO-1-2008-1941 ANO-1-2008-2117 ANO-2-2008-2244
ANO-1-2008-2627 ANO-C-2008-2395 ANO-C-2008-2305
ANO-C-2007-1719 ANO-1-2008-0855

PROCEDURES

NUMBER	TITLE	REVISION
EN-DC-127	Control of Hot Work and Ignition Sources	5

Section 4OA3: Event Follow-Up

CONDITION REPORTS

ANO-C-2007-1234 ANO-1-2008-2267 ANO-1-2008-2671
ANO-C-2008-2305 ANO-1-2008-2072 ANO-1-2008-2743
ANO-1-2008-1939 ANO-1-2008-1594
ANO-1-2008-2035 ANO-1-2008-1498

PROCEDURES

NUMBER	TITLE	REVISION
EN-LI-102	Corrective Action Process	8

MISCELLANEOUS

NUMBER	TITLE	DATE
OP-1015.037	Post Transient Review-Unit 1	December 13, 2008
OP-1015.037	Post Transient Review-Unit 1	December 20, 2008

Section 40A5: Other Activities (Temporary Instruction 172 and Temporary Instruction 176)

PROCEDURES

NUMBER	TITLE	REVISION
OP-1104.036	Emergency Diesel Generator Operation	48
OP-2305.049	EDG Periodic Tests	14
OP-2305.001	Integrated Engineering Safeguards Test	20
OP-2104.036	Emergency Diesel Generator Operations	62
CEP-NDE-0496	Manual UT of Dissimilar Metal Welds	3
PDI-UT-10	PDI Qualifications for ASME Appendix VIII	B
WPS 08-043-T-001	Bridge Layer for Decay Heat Nozzle WOL	1
WPS 08-08-T-001	Butter Stainless Steel Layer for Decay Heat Nozzle WOL	2
WPS 01-08-T-804	Weld Overlay Layers for Decay Heat Nozzle WOL	5
QAP 8.0	Control and Issue of Weld Filler Material	11
QAP 8.1	Material Receiving and Control Procedure	7
QAP 9.1	Workmanship and Visual Inspection Criteria for ASME Welding	14
QAP 9.3	Liquid Penetrant Inspection Procedure	18
QAP 9.6	High-Temperature Liquid Penetrant Inspection Procedure, Using Color Visible Solvent Removable Penetrant Technique	11
QAP 9.16	Liquid Penetrant Inspection Procedure Solvent Removable Visible Dye for Alloy 600 Weld Overlay	4

QAP 9.21	Welding Procedure and Performance	2
QAP 12.0	Control of Measuring and Test Equipment	13
SEP-A600-001	Alloy 600 Management Program	0
OP-2311.009	ANO Unit 1 and Unit 2 Alloy 600 Inspections	0
105294-TR-027	WSI Traveler Nozzle Onlay Repair Core Flood Nozzle	0

NDE PACKAGES

WELD	TITLE	REVISION
DH-ANO-001	Ultrasonic Examination for Decay Heat Nozzle	0
SI-21-064	Ultrasonic Examination for High Pressure Injection/Makeup Dual Function Nozzle	0

WELD DOCUMENTS

NUMBER	TITLE	REVISION/ DATE
10524-TR-006	Nozzle WOL Repair for Decay Heat Nozzle	0
10524-01	Weld Material Certificates of Compliance	0
PQR's	Various Personnel Qualification Records	varied
7-DH-102	Large Pipe Isometric Decay Heat Removal	9
7-DH-22A	Large Pipe Isometric Decay Heat Removal to Reactor	13

DRAWINGS

NUMBER	TITLE	REVISION/ DATE
ANO-52Q-01	Hot Leg Decay Heat Nozzle Weld Overlay Design	1
404517	Decay Heat Nozzle ANO Unit 1 Construction Drawing	1
ANO-52Q-02	RPV Core Flood Nozzle Weld Onlay Design	2

NOTE: Drawings that are not included in work order packages are included here

CALCULATIONS

NUMBER	TITLE	REVISION/ DATE
Calc No. 85-S-00002-01	ANO-2 Diesel Generator #1 and #2 Loading Calc.	16
Calc No. 85-E-0002-01	ANO-1 Diesel Generator #1 and #2 Load Study	15
CALC-ANO1-ME-07-00005	Operability Assessment of ANO-1 EOTSGs	0

CONDITION REPORTS

ANO-2-1991-0007	ANO-1-2007-00799	ANO-1-2007-01273	ANO-1-2008-00249
ANO-2-1992-0078	ANO-1-2007-00959	ANO-1-2007-01878	ANO-1-2008-00929
ANO-1-1999-0178	ANO-1-2007-01030	ANO-1-2007-02417	ANO-1-2008-01099
ANO-2-1999-0168	ANO-1-2007-01036	ANO-1-2007-01036	ANO-1-2008-01350
ANO-2-2001-0491	ANO-1-2007-01112	ANO-1-2007-01112	ANO-1-2008-01545
ANO-2-2001-0158	ANO-1-2007-01273	ANO-1-2007-01273	ANO-1-2008-01546
ANO-1-2004-1705	ANO-1-2007-01878	ANO-1-2007-01878	ANO-1-2008-01976
ANO-1-2007-00695	ANO-1-2007-02417	ANO-1-2007-02417	ANO-1-2008-02061
ANO-1-2007-00708	ANO-1-2007-01036	ANO-1-2008-02119	
ANO-1-2007-00770	ANO-1-2007-01112	ANO-1-2008-02181	

MISCELLANEOUS DOCUMENTS

NUMBER	TITLE	REVISION/ DATE
ANO-ECR-5795	Steam Generator Pre-Outage Degradation Assessment and Repair Criteria for 1RF21	0
EC-3742	Cycle 21 Steam Generator Operational Assessment Report	1
Areva 51-9061913	Root Cause Analysis for Tie Rod Bowing in ANO Unit 1 EOTSG's	0
IR 2006-115	EPRI Review of Arkansas Nuclear One Unit 1 Dissimilar Metal Weld Walk-down Information	1
EPRI Document	Core Flood Onlay Test Mockup Equivalency Testing Results	September 22, 2008
EPRI Document	Summary of Wesdyne International, LLC 10 Depth Sizing Results Obtained from the Inside Surface	August 13, 2008
EPRI Document	Nondestructive Evaluation: Ultrasonic Equivalency Testing of Weld Inlay Components, Technical Update	April 2008
WSI-MW-CRIL-001	Evaluation of Cr Content on First Layer of Weld Overlays for Top and Bottom Nozzles of Pressurizer	0

EC-607	Core Flood Nozzle Dissimilar Metal Butt Weld Alloy 82 and 182 Weld Metal Mitigation	0
R&RP 08-2080	Weld Repair/Replacement Package Request, "Core Flood Nozzle to Safe End Weld	0
Evaluation 06-1-0717	Boric Acid Evaluation CV-1228	February 1, 2006
Evaluation 07-1-0804	Boric Acid Evaluation CV-1228	March 27, 2007
Evaluation 06-1-0709	Boric Acid Evaluation CV-1228	March 22, 2006
Evaluation 05-1-0543	Boric Acid Evaluation CV-1228	February 22, 2006
Evaluation 05-1-0542	Boric Acid Evaluation P-35A	March 26, 2005
R&RP 08-2079	Weld Repair/Replacement Package Request, "Core Flood Nozzle to Safe End Weld:	0
ECN 9613	Core Flood Nozzle Dissimilar Metal Butt Weld Alloy 82 and 182 Mitigation	0
PQR-01-08-T-700	Core Flood Nozzle Weld Onlay	1
Technical Justification	Technical Justification for Core Flood Nozzle Weld Onlay Ultrasonic Testing	1