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

August 5, 2010

Brad Berryman, (Acting) Vice President, Operations
Entergy Operations, Inc.
Arkansas Nuclear One
1448 S.R. 333
Russellville, AR 72802

Subject: ARKANSAS NUCLEAR ONE - NRC INTEGRATED INSPECTION REPORT 05000313/2010003 AND 05000368/2010003

Dear Mr. Berryman:

On June 30, 2010, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Arkansas Nuclear One facility. The enclosed integrated inspection report documents the inspection findings, which were discussed on July 8, 2010, with Mr. Kevin Walsh, Vice President, Operations and 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 two NRC-identified findings and five self-revealing findings of very low safety significance (Green). Four of these findings were determined to involve violations of NRC requirements. Additionally, two 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 violations, consistent with Section VI.A.1 of the NRC Enforcement Policy. If you contest the violations or the significance of the noncited violation(s), 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 addition, if you disagree with the crosscutting aspect assigned to any finding in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the Regional Administrator, Region IV, and the NRC Resident Inspector at Arkansas Nuclear One.

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/ Ray Azua for

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

Dockets: 05000313; 05000368
Licenses: DPR-51; NPF-6

Enclosure:
NRC Inspection Report 05000313/2010003; 05000368/2010003
w/Attachment: Supplemental Information

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ADAMS: □ No xYes	x SUNSI Review Complete	Reviewer Initials: RVA
	x Publicly Available	x Non-Sensitive
	□ Non-publicly Available	□ Sensitive

RIV:SRI/DRP/B	RI/DRP/B	RI/DRP/B	SPE/DRP/PBE	C:DRS/PSB2	C:DRS/EB1
ASanchez	JJosey	JRotton	RAzua	GWerner	TFarnholtz
/RA/ Via Email	***/RA/via email***	***/RA/***	***/RA/***	***/RA/***	***/RA/***
08/5/2010	08/5/2010	08/5/2010	08/2/2010	08/2/2010	08/3/2010
C:DRS/EB2	C:DRS/TSB	C:DRS/OB	C:DRS/PSB1	C:DRP/PBE	
NO'Keefe	MHay	MHaire	MShannon	JClark	
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U.S. NUCLEAR REGULATORY COMMISSION

REGION IV

Dockets:	05000313, 05000368
Licenses:	DPR-51, NPF-6
Report:	05000313/2010003 and 0500368/2010003
Licensee:	Entergy Operations, Inc.
Facility:	Arkansas Nuclear One, Units 1 and 2
Location:	Junction of Hwy. 64 West and Hwy. 333 South Russellville, Arkansas
Dates:	April 1 through June 30, 2010
Inspectors:	A. Sanchez, Senior Resident Inspector J. Josey, Resident Inspector J. Rotton, Resident Inspector D. Stearns, Health Physicist N. Greene, Health Physicist G. George, Reactor Inspector E. Uribe, Reactor Inspector
Approved By:	Jeff Clark, P.E., Chief, Project Branch E Division of Reactor Projects

SUMMARY OF FINDINGS

IR 05000313/2010003; 05000368/2010003; 04/01/2010 – 06/30/2010; Arkansas Nuclear One, Integrated Resident and Regional Report; Adverse Weather Protection, Refueling Activities, Radiological Hazard Assessment and Exposure Control, and Occupational ALARA Planning and Controls, Problem Identification and Resolution, Event Follow-Up.

The report covered a 3-month period of inspection by resident inspectors and an announced baseline inspections by regional inspectors. Four Green noncited violations of significance were identified. The significance of most findings is indicated by their color (Green, White, Yellow, or Red) using Inspection Manual Chapter 0609, "Significance Determination Process." Findings for which the significance determination process does not apply may be Green or be assigned a severity level after NRC management 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. The inspectors identified a noncited violation of Technical Specification 5.4.1.a for failure to follow Procedure OP-1203.025, "Natural Emergencies," Revision 30. Specifically, on April 23, 2010, the licensee entered Procedure OP-1203.025 due to a tornado watch/warning and failed to identify and control potential missile hazards in and around the Unit 1 transformer yard. The licensee entered this issue into the corrective action program as Condition Report CR-ANO-C-2010-1003.

  Failure of the licensee to assess and control potential missile hazards on site, in and around transformer yards was a performance deficiency. Specifically, the licensee failed to follow Procedure OP-1203.025, "Natural Emergencies," Revision 30 and adequately secure missile hazards on site. The performance deficiency was determined to be more than minor because it was associated with the external hazards attribute and directly affected the Initiating Events Cornerstone objective to limit the likelihood of those events that upset plant stability while in shutdown or at power conditions, and is therefore a finding. Specifically, the failure of the licensee to secure missile hazards on site, especially around the safety related transformers increased the likelihood of a loss of power event that could result in upsetting plant stability. The inspectors evaluated the significance of the finding using Manual Chapter 0609, "Significance Determination Process," Appendix G, Checklist 3, and determined the finding to be of a very low safety significance, Green, because the finding did not cause the loss of mitigating capability of core heat removal, inventory control, power availability, containment control, or reactivity control. The finding was determined to have a crosscutting aspect in the area of problem identification and resolution, associated with the corrective action program, P.1(d), in that the licensee failed to take appropriate corrective actions to address safety issues and

adverse trends in a timely manner, commensurate with their safety significance and complexity. Specifically, the licensee failed to take effective corrective action from a previous NRC-identified issue, in that the corrective actions did not ensure that the control room operators had adequate guidance to asses and control potential missile hazards on site prior to the onset of severe weather (Section 1R01.3).

- Green. The inspectors documented a self-revealing finding associated with the third stage seal failure of reactor coolant pump P-32C on April 18, 2010. Specifically, during reassembly of reactor coolant pump P-32C, the licensee failed to recognize and maintain the gap between the pumps slinger ring and splash shield as a critical dimension which was required for successful operation of the seal assembly. This lack of recognition resulted in the failure of the pumps third stage seal, and an increase in reactor coolant system leak rate. This issue was entered into the licensee's corrective action program as Condition Report CR-ANO-1-2010-1896.

  The performance deficiency was determined to be more than minor because it was associated with the design control attribute of the Initiating Events Cornerstone, and affected the associated cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as at power operations, and is therefore a finding. Specifically, the failure to recognize and maintain the gap between the reactor coolant pumps slinger ring and splash shield as a critical dimension resulted in the failure of the pumps third stage seal. Using NRC Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheets, the finding was determined to have very low safety significance because assuming worst case degradation, the finding would not result in exceeding the technical specification limit for any reactor coolant system leakage; nor could the finding have likely affected other mitigation systems resulting in a total loss of their safety function. The inspectors determined that since the licensee had not recently re-evaluated what dimensions were critical to the seal's operation and vendor documents were not specific to this dimension; this finding did not represent current plant performance and therefore did not have a crosscutting aspect associated with it (Section 1R20(2)).

- Green. The inspectors documented a self-revealing finding for failure to implement Procedure OP-1015.033, "ANO Switchyard Controls," Revision 12. Specifically, On March 26, 2010, while performing 161 kV breaker B1205 postinstallation testing, several issues developed and testing activities transitioned into troubleshooting activities. Per the above mentioned procedure, a new component and plant impact statement should have been performed. The impact statement should have described the new work activities, objectives and potential for plant impacts so that a proper assessment could be made by operation's management to allow the work or not. These troubleshooting activities ultimately resulted in a lockout of the auto-transformer, which resulted in the lockout of startup transformers 1 and 3 (offsite power source) for Units 1

and 2, respectively. The licensee entered the issue into the corrective action program as Condition Report CR-ANO-C-2010-0726.

Failure to properly implement Procedure OP-1015.033, "ANO Switchyard Controls," Revision 12, was a performance deficiency. Specifically, the licensee did not stop and obtain a component and plant impact statement when test activities transitioned into troubleshooting activities in the Arkansas Nuclear One switchyard. The troubleshooting activities led to an auto lockout of the auto transformer and resulted in the loss of offsite power to startup transformers 1 and 3. The performance deficiency was determined to be more than minor because it is associated with the human performance attribute and 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 conditions, and is therefore a finding. The significance of the finding was determined using Manual Chapter 0609, "Significance Determination Process," Appendix G, Checklist 4, and determined to be of very low safety significance, because it did not cause the loss of mitigating capability of core heat removal, inventory control, power availability, containment control, or reactivity control. The finding was determined to have a crosscutting aspect in the area of human performance associated with work practices, H.4(c), in that the licensee failed to ensure supervisory and management oversight of work activities in the switchyard such that nuclear safety is supported. Specifically, the licensee became too involved helping solve the issue discovered in the switchyard and failed to recognize that Procedure OP-1015.033 needed to be implemented (Section 4OA3.1).

- Green. The inspectors documented a self-revealing noncited violation of Technical Specification 5.4.1.a, for failure to follow Procedure OP-1304.032, "Unit 1 Power Range Linear Amp Calibration at Power (NI Cal)," Revision 32, which resulted in a Unit 1 automatic reactor trip. Specifically, while at 20 percent reactor power, the licensee failed to place the reactor demand station, and the diamond rod control stations, of the Babcock and Wilcox integrated control system, in manual during nuclear instrumentation calibrations, which resulted in automatic control rod withdrawal and reactor trip on high power. The licensee entered this issue into the corrective action program as Condition Report CR-ANO-1-2010-2056.

  The inspectors determined that the licensee's failure to follow the nuclear instrumentation calibration procedure as written was a performance deficiency. Specifically, the licensee failed to properly implement Procedure OP-1304.032, "Unit 1 Power Range Linear Amp Calibration at Power (NI Cal)," Revision 32, and failed to place the integrated control system into manual while calibrating nuclear instrumentation detectors. The performance deficiency was determined to be more than minor because it was associated with the human performance attribute and directly affected the Initiating Events Cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical plant safety function during power operations, and is therefore a finding. Specifically,

the failure to follow the nuclear instrumentation calibration procedure resulted in an actual reactor trip. The inspectors evaluated the significance of the finding using Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheets, and determined that the finding was of very low safety significance because the finding did not contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions would not be available. The finding was determined to have a crosscutting aspect in the area of human performance, associated with work practices, H.4(c), in that the licensee failed to ensure supervisory and management oversight of work activities such that nuclear safety is supported. Specifically, the control room supervisor and the shift manager failed to provide adequate supervision for the nuclear instrumentation calibration activity which resulted in a reactor trip (Section 4OA3.2).

- Green. The inspectors documented a self-revealing finding for the failure of the licensee to perform a thorough design change evaluation which did not recognize and address all design failure modes. Specifically, the licensee failed to address the water intrusion into the electronic modules of the main feedwater pump control system from a possible failure of the condensate drain system of the control cabinet air conditioning units. On May 1, 2010, water emanating from the air conditioning units above the Lovejoy control cabinets, dripped into the electronic modules and caused oscillations in main feedwater pump A speed before tripping on an actual overspeed condition. Unit 1 automatically ran back from 100 percent power to 40 percent power as designed. The licensee entered this issue into the corrective action program as Condition Report CR-ANO-1-2010-2150.

  Failure to adequately consider the potential failure modes of the air conditioning cooling to the local Lovejoy control cabinets for the main feedwater pumps was a performance deficiency. Specifically, the licensee did not consider the condensate drain pan and piping failure that could, and in this case did, introduce water into the control cabinet electronics and did not implement actions to monitor or initiate preventative measures to preclude this from occurring. The performance deficiency was determined to be more than minor because it is associated with the design control attribute and directly affected the Initiating Events Cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during power operations, and is therefore a finding. The inspectors evaluated the significance of the finding using Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheets, and determined the finding to be of very low safety significance because the finding did not contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions would not be available. The inspectors determined that there was no crosscutting aspects associated with this finding because the performance deficiency is not indicative of current plant performance and is a latent issue as the modification was installed in 1996 (Section 4OA3.3).

Cornerstone: Mitigating Systems

- Green. The inspectors documented a self-revealing noncited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," associated with the licensee's failure to assure that the applicable design basis for applicable structures, systems, and components were correctly translated into specifications, procedures, and instructions. Specifically, during initial plant construction the licensee failed to correctly translate the design requirements for the Unit 1 core flood tank manway covers into the installed plant equipment. This resulted in excessive nitrogen leakage from the covers which required the licensee to implement actions to mitigate the leakage until permanent repairs could be performed. This issue was entered into the licensee's corrective action program as Condition Report CR-ANO-1-2010-1057.

  The performance deficiency was determined to be more than minor because it was associated with the equipment performance attribute of the Mitigating Systems Cornerstone, and affected the associated cornerstone objective to ensure availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences, and is therefore a finding. Specifically, the failure to correctly translate the manway design requirement into the installed plant configuration resulted in excessive nitrogen leakage which required the licensee to implement actions to mitigate the leakage until a permanent repair could be performed. Using NRC Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheets, the finding was determined to have very low safety significance because it did not represent an actual loss of safety function and did not screen as potentially risk significant due to a seismic initiating event. The inspectors determined that since the licensee had not recently re-evaluated the design of the core flood tank manway covers; this finding did not represent current plant performance, and therefore did not have a crosscutting aspect associated with it (Section 4OA2.3).

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 Procedure EN-MA-118, "Foreign Material Exclusion," Revision 5. Specifically, between February 4, 2010, and April 22, 2010, multiple occasions were identified where licensee personnel failed to implement appropriate foreign material exclusion controls in areas designated as Zone 1 foreign material exclusion areas. This issue was entered into the licensee's corrective action program as Condition Reports CR-ANO-2-2010-0262, CR-ANO-2-2010-269, CR-ANO-1-2010-0469, CR-ANO-1-2010-0564, CR-ANO-1-2010-0874, CR-ANO-1-2010-0903, CR-ANO-1-2010-0750, CR-ANO-1-2010-1338, CR-ANO-1-2010-1526, CR-ANO-1-2010-1958, and CR-ANO-C-2010-688.

The performance deficiency was more than minor because it affected the human performance attribute of the Barrier Integrity Cornerstone and directly affected the cornerstone objective of providing reasonable assurance that physical barriers protect the public from radionuclide releases caused by accidents or events, and is therefore a finding. Furthermore, 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 the Manual Chapter 0609, Appendix G, "Shutdown Operations Significance Determination Process," Phase 1 guidance, the finding is determined to have very low safety significance because the finding did not result in an increase in the likelihood of a loss of reactor coolant system inventory, degrade the ability to add reactor coolant system inventory, or degrade the ability to recover decay heat removal. This finding had a crosscutting aspect in the area of problem identification and resolution associated with the corrective action program, P.1(d), in that the licensee takes appropriate corrective actions to address safety issues and adverse trends in a timely manner, commensurate with their safety significance and complexity (Section 1R20(1)).

B. Licensee-Identified Violations

Two 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 corrective action tracking numbers (condition report numbers) are listed in Section 4OA7.

REPORT DETAILS

Summary of Plant Status

Unit 1 began the period in Refueling Outage 1R22. On April 17, 2010, Unit 1 reached criticality and later that day with the reactor at 12 percent power, the reactor was manually tripped due to a fire in the lagging near main turbine control valve CV-3, coincident with a failure of reactor coolant pump C 3rd stage seal. On April 25, 2010, Unit 1 was taken critical and the licensee closed the generator output breakers. With the reactor at 20 percent power, the reactor was automatically tripped due to high reactor power and high reactor pressure during a nuclear instrument calibration. On April 26, 2010, the Unit 1 reached criticality and increased power to 100 percent power. On May 1, 2010, Unit 1 received a power runback to 40 percent power due to a trip of main feedwater pump A. On May 4, 2010, Unit 1 returned to 100 percent power for the remainder of the period.

Unit 2 operated at 100 percent power for the entire period.

1. REACTOR SAFETY

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

1R01 Adverse Weather Protection (71111.01)

.1 Summer Readiness for Offsite and Alternate-ac Power

a. Inspection Scope

During May 2010, the inspectors performed a review of preparations for summer weather for selected systems, including conditions that could lead to loss-of-offsite power and conditions that could result from high temperatures. The inspectors reviewed the procedures affecting these areas and the communications protocols between the transmission system operator and the plant to verify that the appropriate information was being exchanged when issues arose that could affect the offsite power system. Examples of aspects considered in the inspectors' review included:

- The coordination between the transmission system operator and the plant's operations personnel during off-normal or emergency events
- The explanations for the events
- The estimates of when the offsite power system would be returned to a normal state
- The notifications from the transmission system operator to the plant when the offsite power system was returned to normal

During the inspection, the inspectors focused on plant-specific design features and the procedures used by plant personnel to mitigate or respond to adverse weather conditions. Additionally, the inspectors reviewed the Safety Analysis Report and performance requirements for systems selected for inspection, and verified that operator actions were appropriate as specified by plant-specific procedures. Specific documents reviewed during this inspection are listed in the attachment. The inspectors also reviewed corrective action program items to verify that the licensee was identifying adverse weather issues at an appropriate threshold and entering them into their corrective action program in accordance with station corrective action procedures

These activities constitute completion of one (1) readiness for summer weather affect on offsite and alternate-ac power sample as defined in Inspection Procedure 71111.01-05.

b. Findings

No findings were identified.

.2 Readiness for Seasonal Extreme Weather Conditions

a. Inspection Scope

The inspectors performed a review of the adverse weather procedures for seasonal extreme high temperatures. The inspectors verified that weather-related equipment deficiencies identified during the previous year were corrected prior to the onset of seasonal extremes, and evaluated the implementation of the adverse weather preparation procedures and compensatory measures for the affected conditions before the onset of, and during, the adverse weather conditions.

During the inspection, the inspectors focused on plant-specific design features and the procedures used by plant personnel to mitigate or respond to adverse weather conditions. Additionally, the inspectors reviewed the Safety Analysis Report and performance requirements for systems selected for inspection, and verified that operator actions were appropriate as specified by plant-specific procedures. Specific documents reviewed during this inspection are listed in the attachment. The inspectors also reviewed corrective action program items to verify that plant personnel were identifying adverse weather issues at an appropriate threshold and entering them into their corrective action program in accordance with station corrective action procedures. The inspectors' reviews focused specifically on the following plant systems:

- Unit 1 and 2 service water intake structure
- Emergency cooling pond

These activities constitute completion of one (1) readiness for seasonal adverse weather sample as defined in Inspection Procedure 71111.01-05.

b. Findings

No findings were identified.

.3 Readiness for Impending Adverse Weather Conditions

a. Inspection Scope

Since thunderstorms with potential tornados and high winds were forecast in the vicinity of the facility for April 23, 2010, the inspectors reviewed the plant personnel's overall preparations/protection for the expected weather conditions. On April 23, 2010, the inspectors walked down the site transformer yards because their safety-related functions could be affected, or required, as a result of high winds or tornado-generated missiles or the loss of offsite power. The inspectors evaluated the plant staff's preparations against the site's procedures and determined that the staff's actions were adequate. During the inspection, the inspectors focused on plant-specific design features and the licensee's procedures used to respond to specified adverse weather conditions. The inspectors also toured the plant grounds to look for any loose debris that could become missiles during a tornado. The inspectors evaluated operator staffing and accessibility of controls and indications for those systems required to control the plant. Additionally, the inspectors reviewed the Safety Analysis Report and performance requirements for the systems selected for inspection, and verified that operator actions were appropriate as specified by plant-specific procedures. The inspectors also reviewed a sample of corrective action program items to verify that the licensee identified adverse weather issues at an appropriate threshold and dispositioned them through the corrective action program in accordance with station corrective action procedures. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of one (1) readiness for impending adverse weather condition sample as defined in Inspection Procedure 71111.01-05.

b. Findings

Introduction. The inspectors identified a Green, noncited violation of Technical Specification of 5.4.1.a for failure to follow Procedure OP-1203.025, "Natural Emergencies," Revision 30. Specifically, on April 23, 2010, the licensee entered the before mentioned procedure due to a tornado watch/warning and failed to identify and control potential missile hazards in and around the Unit 1 transformer yard.

Description. On April 23, 2010, Units 1 and 2 were notified of a severe thunderstorm warning at 1:50 p.m. Procedure OP-1203.025, "Natural Emergencies," Revision 30 was entered. At 3:25 p.m. the licensee received a tornado warning, transitioned into a tornado watch at 4:12 p.m. and exited the watch at 8:00 p.m. The resident inspectors observed entry into the procedures and subsequently performed a site walkdown to ensure all potential missile hazards were identified and controlled as directed in the natural emergencies procedure.

The inspectors completed the walkdown at approximately 5:30 p.m. and identified twelve potential issues with loose material that could have represented missile hazards. Of particular concern were three metal stanchions used to hold barrier rope or signs at the base of startup transformer 2. Startup transformer 2 is designed to supply offsite power

to the safety related buses of either or both units. The inspectors brought these items and the concerns to the Unit 1 control room for resolution. The licensee performed a walkdown of the site and addressed all items as necessary. The licensee wrote Condition Report CR-ANO-C-2010-1003 to document the inspectors' concern. Subsequently the licensee wrote two other Condition Reports CR-ANO-C-2010-1012 and CR-ANO-C-2010-1047 to address an apparent human performance trap and the procedure inadequacy to anticipate and take action prior to the onset of severe weather, respectively.

The inspectors also reviewed a previous condition report, CR-ANO-C-2008-1789, written to address a similar issue raised by the resident inspectors during severe weather generated by Hurricane Ike in the fall of 2008. The licensee made improvements, such as adding a site map and checklist of items to be secured and how they were to be secured. These improvements were placed into corporate Entergy Procedure ENS-EP-302, "Severe Weather Response." The procedure is intended to be used during hurricanes, tornados, or severe thunderstorms. The procedure is supposed to be invoked by a site procedure or at the discretion of the plant manager, operations manager, or duty manager, but was not implemented for the weather on April 23, even though the severe weather was predicted days in advance. The lack of guidance in Procedure OP-1203.025 did not ensure that control room operators could properly assess and control potential missile hazards on site.

Analysis. Failure of the licensee to assess and control potential missile hazards on site, in and around transformer yards, was a performance deficiency. Specifically, the licensee failed to follow Procedure OP-1203.025, "Natural Emergencies," Revision 30 and adequately secure missile hazards on site. The performance deficiency was determined to be more than minor because it was associated with the external hazards attribute and directly affected the initiating events cornerstone objective to limit the likelihood of those events that upset plant stability while in shutdown or at power conditions, and is therefore a finding. Specifically, the failure of the licensee to secure missile hazards on site, especially around the safety related transformers, increased the likelihood of a loss of power event that could result in upsetting plant stability. The inspectors evaluated the significance of the finding using Manual Chapter 0609, "Significance Determination Process," Appendix G, Checklist 3, and determined the finding to be of a very low safety significance, Green, because the finding did not cause the loss of mitigating capability of core heat removal, inventory control, power availability, containment control, or reactivity control. The finding was determined to have a crosscutting aspect in the area of problem identification and resolution, associated with the corrective action program, P.1(d), in that the licensee failed to take appropriate corrective actions to address safety issues and adverse trends in a timely manner, commensurate with their safety significance and complexity. Specifically, the licensee failed to take effective corrective action from a previous NRC-identified issue, in that the corrective actions did not ensure that the control room operators had adequate guidance to asses and control potential missile hazards on site prior to the onset of severe weather.

Enforcement. Technical Specification 5.4.1.a requires, in part, written procedures shall be established, implemented, and maintained covering the applicable procedures in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978. Regulatory Guide 1.33, Appendix A.6, requires procedures for acts of nature, including tornados. Contrary to the above, on April 23, 2010, the licensee failed to properly implement Procedure OP-1203.025, "Natural Emergencies." Revision 30, to assess and control site missile hazards during severe weather warnings and watches. Because this finding is of very low safety significance and has been entered into the corrective action program as Condition Report CR-ANO-C-2010-1003, this violation is being treated as a noncited violation, consistent with Section VI.A of the NRC Enforcement Policy: NCV 05000313/2010003-01, "Failure to Follow Natural Emergencies Procedure to Control Site Missile Hazards During Severe Weather Warnings and Watches."

1R04 Equipment Alignments (71111.04)

.1 Partial Walkdown

a. Inspection Scope

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

- June 22, 2010, Unit 1, motor-driven emergency feedwater pump P-7B while turbine-driven emergency feedwater pump P-7A was out of service for planned maintenance
- June 23, 2010, Unit 1 and 2, diesel-driven fire pump while motor-driven fire pump was out of service for planned maintenance
- June 29, 2010, Unit 2, low pressure safety injection pump 2P-60B while low pressure safety injection pump 2P-60A was out of service for planned maintenance

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, 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 inspected 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 three (3) partial system walkdown samples as defined in Inspection Procedure 71111.04-05.

b. Findings

No findings 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:

- April 22, 2010, Units 1 and 2, Fire zones 159-B and 2151-A, spent fuel area
- May 12, 2010, Unit 1, Fire zone 53-Y, lower north piping penetration room
- May 12, 2010, Unit 1, Fire zone 79-U, upper north piping penetration room
- June 29, 2010, Unit 2, Fire zone 2096-M, 2B63 motor control center room

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 (4) quarterly fire-protection inspection samples as defined in Inspection Procedure 71111.05-05.

b. Findings

No findings were identified.

1R08 Inservice Inspection Activities (71111.08)

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

a. Inspection Scope

The inspectors reviewed three types of nondestructive examination activities and activities associated with two welds on the reactor coolant system pressure boundary. The inspectors also reviewed one examination with relevant indications that had been accepted by licensee personnel for continued service.

The inspectors directly observed the following nondestructive examinations:

COMPONENT	WELD IDENTIFICATION	EXAMINATION TYPE
Reactor Coolant Pump P-32D	08-002	UT
Pressurizer Sample Nozzle, SS-37	N/A	UT
Pressurizer Sample Nozzle, SS-37	N/A	PT
Reactor Coolant Pump Casing	N/A	VT

The inspectors reviewed records for the following nondestructive examinations:

COMPONENT	WELD IDENTIFICATION	EXAMINATION TYPE
Reactor Coolant Pump P-32D	09-002	UT
Reactor Coolant Pump P-32A	10-002	UT
Reactor Coolant Pump P-32A	11-002	UT
Reactor Coolant Pump P-32B	12-002	UT

COMPONENT	WELD IDENTIFICATION	EXAMINATION TYPE
Reactor Coolant Pump P-32B	13-002	UT
Pressurizer Relief CV-1000 Weld Overlay	05-041	UT
Core Flood Nozzle DM	01-026	UT
Core Flood Nozzle DM	01-025	UT
High Pressure Injection MU-45C	20-045	UT

During the review and/or observation of each examination, the inspectors verified that activities were performed in accordance with the ASME Code requirements and applicable procedures. The inspectors also verified the qualifications of all nondestructive examination technicians performing the inspections were current.

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

SYSTEM	WELD IDENTIFICATION	WELD TYPE
Pressurizer Sample Nozzle	SS-37	Temper Bead Pad, Automatic Gas Tungsten Arc

The inspectors verified, by review, that the welding procedure specifications and the welders had been properly qualified in accordance with ASME Code, Section IX, requirements. The inspectors also verified, through observation and 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 actions constitute completion of the requirements as defined in Inspection Procedure 71111.08-02.01.

b. Findings

No findings were identified.

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

a. Inspection Scope

The inspectors reviewed the results of licensee personnel's visual inspection of pressure-retaining components above the reactor pressure vessel head to verify that no evidence of degradation was present due to leaks or boron deposits on the surface of the reactor pressure vessel head and related insulation. The inspectors verified that the personnel performing the visual inspection were certified as Level II and Level III VT-2 examiners. Specific documents reviewed during this inspection are listed in the attachment.

These actions constitute completion of the requirements as defined in Inspection Procedure 71111.08-02.02.

b. Findings

No findings were identified.

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

a. Inspection Scope

The inspection procedure required review of a sample of the boric acid corrosion control program visual examination activities through direct observation and record review. The inspectors reviewed the documentation associated with the licensee's boric acid corrosion control program as specified in Procedure OP 1032.037, "Inspection and Identification of Boric Acid Leaks for ANO-1 and ANO-2," Revision 5, and Procedure EN-DC-319, "Inspection and Evaluation of Boric Acid Leaks," Revision 4. The inspectors also reviewed visual records of the components and equipment. The inspection procedure required verification that visual inspections emphasized 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 significant components. Additionally, the inspectors independently performed walkdowns of piping and components in the containment and auxiliary buildings which contain boric acid. On those components where boric acid was identified, the engineering evaluations gave assurance that structural integrity of the components were properly maintained. The evaluations also confirmed that the corrective actions performed for evidence of boric acid leaks were consistent with the licensee's commitments and EPRI guidelines. Specific documents reviewed during this inspection are listed in the attachment.

These actions constitute completion of the requirements as defined in Inspection Procedure 71111.08-02.03.

b. Findings

No findings were identified.

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

a. Inspection Scope

The inspectors reviewed the licensee's steam generator tube inspection program to confirm that the licensee followed the examination scope, recommended schedule, and expansion criteria met the appropriate technical specification requirements, EPRI guidelines, and commitments made to the NRC. The steam generators were replaced during the fall of 2005, Refueling Outage 1R19, with enhanced once-thru steam generator models containing Alloy 690 thermally treated tubes. In Refueling Outages 1R20 and 1R21, the licensee identified a new potential tube degradation mechanism when 11 steam generator tie rods were found bowing in steam generator A. Based on the steam generator conditions, the inspection scope for Refueling Outage 1R22 included:

- (1) Bobbin testing in both generators from tube end to tube end around all 52 tie rods expanding on those tie rods with bowing to evaluate the full extent of bowing, (2) Plus Point/X-probe testing of all proximity signals identified from the lower tube section to the first tube section, (3) visual examination of the plugs – 20 plugs in steam generator A and 12 plugs in steam generator B, (4) and diagnostic testing of all bobbin I-codes with the Plus Point/X-probe.

The licensee's inspection of the bowed tie rods in Refueling Outage 1R22 identified that no significant degradation had occurred around the tie rods and bowing was within the bounds of the tie rod assessment. The licensee will continue to monitor the adverse trend on the steam generator tie rods throughout subsequent outages.

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 consistent with predictions from the vendor for the previous outage. No additional tubes were identified to have met the tube plugging limits during Refueling Outage 1R22. No new damage mechanisms were identified during this inspection.

The inspection procedure specified confirmation that the steam generator tube eddy current test scope and expansion criteria meet technical specification requirements, EPRI 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.

The inspectors assessed the in situ screening criteria to assure consistency between assumed nondestructive examination flaw sizing accuracy and data from the EPRI examination technique specification sheets. No conditions were identified that warranted in situ pressure testing.

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

These actions constitute completion of the requirements as defined in Inspection Procedure 71111.08-02.04.

b. Findings

No findings were identified.

.5 Identification and Resolution of Problems (71111.08-02.05)

a. Inspection scope

The inspectors reviewed 23 condition reports that dealt with inservice inspection activities and found the corrective actions were appropriate. The specific condition reports reviewed are listed in the documents reviewed section. From this review the inspectors concluded that the licensee has an appropriate threshold for entering issues into the corrective action program and has procedures that direct a root cause evaluation when necessary. The licensee also has an effective program for applying industry operating experience. Specific documents reviewed during this inspection are listed in the attachment.

These actions constitute completion of the requirements as defined in Inspection Procedure 71111.08-02.05.

b. Findings

No findings were identified.

1R11 Licensed Operator Requalification Program (71111.11)

a. Inspection Scope

On June 1, 2010, 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 (1) quarterly licensed-operator requalification program sample as defined in Inspection Procedure 71111.11.

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness (71111.12)

a. Inspection Scope

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

- June 25, 2010, Unit 1, instrument air
- Week of June 28, Unit 2, main, auxiliary, and startup transformers

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 (2) quarterly maintenance effectiveness samples as defined in Inspection Procedure 71111.12-05.

b. Findings

No findings 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:

- March 26, 2010, Unit 1, elevated risk for unexpected loss of startup transformer 1 while preparing for core unload
- March 30, 2010, Unit 2, elevated risk for 300 ton crane in the Unit 1 transformer yard for auxiliary transformer replacement
- April 9, 2010, Unit 1, crediting the use of the alternate ac diesel generator while an emergency diesel generator was out of service for maintenance
- April 14, 2010, Units 1 and 2, evaluation of risk associated with crane activities in the switchyard
- April 30, 2010, Unit 1, in reduced inventory concurrent with a tornado warning
- May 18, 2010, Unit 1, evaluation of risk associated with the restoration of the Russellville north 161 kV line
- June 14, 2010, Unit 2, evaluation of the risk associated with crane use for removing the temporary modification to Unit 2 containment building for tendon inspection

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 seven (7) maintenance risk assessments and emergent work control inspection samples as defined in Inspection Procedure 71111.13-05.

b. Findings

No findings were identified.

1R15 Operability Evaluations (71111.15)

a. Inspection Scope

The inspectors reviewed the following issues:

- March 22, 2010, Unit 1, reactor building sump debris
- April 6, 2010, Unit 1, startup transformer 1 during core alterations
- April 20, 2010, Unit 1, 1P-7B emergency feedwater pump in Mode 4
- May 18, 2010, Unit 2, containment spray header leakage.
- May 24, 2010, Unit 1, air in low pressure safety injection piping
- June 2, 2010, Unit 1, thru wall flaw in service water pump discharge piping
- June 25, 2010, Unit 1, thru wall flaw in reactor building cooler service water supply line

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 Safety Analysis Report to the licensee personnel'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 seven (7) operability evaluations inspection samples as defined in Inspection Procedure 71111.15-04

b. Findings

No findings were identified.

1R18 Plant Modifications (71111.18)

Temporary Modifications

a. Inspection Scope

To verify that the safety functions of important safety systems were not degraded. The inspectors reviewed the following temporary modifications:

- Unit 1, service water to emergency cooling pond for pipe cleaning
- Unit 1, spent fuel pool cooling pump temporary power

The inspectors reviewed the temporary modifications and the associated safety-evaluation screening against the system design bases documentation, including the 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 two (2) samples for temporary plant modifications as defined in Inspection Procedure 71111.18-05.

b. Findings

No findings 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:

- April 8, 2010, Unit 1, emergency diesel generator 1 following repair of an aftercooler leak

- May 11, 2010, Unit 1, C-8A isophase fan inlet damper following troubleshooting for previous damper failure

- May 13, 2010, Unit 2, 2P-35A containment spray pump following seal cooler maintenance

- May 13, 2010, Unit 1, postmaintenance testing of emergency feedwater pump P-7A following maintenance on steam admission valve CV-2663

- May 14, 2010, Unit 1, auxiliary transformer replacement
- May 14, 2010, Unit 1, main transformer X-01C refurbishment
- June 22, 2010, Unit 1, turbine-driven emergency feedwater pump following planned 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:

- 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 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 seven (7) postmaintenance testing inspection samples as defined in Inspection Procedure 71111.19-05.

b. Findings

No findings 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 1R22, conducted March 21- April 25, 2010, 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 cooldown 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.

- 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.

- Refueling activities, including fuel handling and sipping to detect fuel assembly leakage.

- Start up and ascension to full power operation, tracking of start up 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 (1) refueling outage inspection sample as defined in Inspection Procedure 71111.20-05.

b. Findings

(1) Introduction. The inspectors identified a Green noncited violation of 10 CFR Part 50, Appendix B, Criterion V, “Instructions, Procedures, and Drawings,” associated with the licensee’s failure to adequately implement Procedure EN-MA-118, “Foreign Material Exclusion,” Revision 5. Specifically, between February 4 and April 22, 2010, multiple occasions were identified where licensee personnel failed to implement appropriate foreign material exclusion controls in areas designated as Zone 1 foreign material exclusion areas.

Description. On February 4, 2010, while conducting a routine tour of the facility the inspectors noted work in progress in the area of main feed pump 2P-1A, which had been designated a Zone 1 foreign material exclusion area, was not in accordance with station procedures. Specifically, the inspectors noted that the individuals working in the area were not appropriately implementing the requirements of station Procedure EN-MA-118, "Foreign Material Exclusion," Revision 5, because neither their hard hats nor hearing protection were properly secured. The inspectors informed the licensee of this issue and it was entered into the corrective action program as Condition Report CR-ANO-2-2010-262.

Based on this observation, and the inspector's knowledge of past programmatic issues with the station implementation of their foreign material exclusion controls program, the inspectors performed increased monitoring during 1R22. As such, the inspectors noted 15 additional instances where station personnel failed to appropriately implement procedural requirements associated with Zone 1 foreign material exclusion controls. Six of these instances, as stated below, actually resulted in loss of control of items that were inadvertently introduced into the refueling canal or the spent fuel pool.

- March 25, 2010, station personnel failed to perform a proper walkdown of the reactor cavity prior to establishing it as a Zone 1 foreign material exclusion area. This resulted in a hammer being left in the area which was discovered after the area was posted

- March 27, 2010, station personnel failed to verify that all material on a personal flotation device that was carried into the area of the spent fuel pool was fail safe. Subsequently, a piece of the personnel flotation device came loose and resulted in the introduction of foreign material into the spent fuel pool

- March 29, 2010, during defueling activities, the fuel handling bridge operator discovered foreign material, a piece of wire, on the canal floor

- March 30, 2010, while monitoring refueling canal level during drain down operations, station personnel discovered foreign material, a tag, in the refueling canal

- April 6, 2010, station personnel discovered two pieces of paper floating in the refuel canal

- April 8, 2010, station personnel discovered a piece of black foam floating in the spent fuel pool

The inspectors concluded that not all of the identified examples of station personnel's failure to follow Procedure EN-M-118 directly resulted in the introduction of foreign material into a critical system. They were, however, indicative of a continued programmatic issue associated with the station personnel's proper implementation of the foreign material exclusion program.

Analysis. The failure of station personnel to follow Procedure EN-MA-118, "Foreign Material Exclusion," was a performance deficiency. The performance deficiency was determined to be more than minor because it was associated with the human performance attribute of the Barrier Integrity Cornerstone and directly affected the cornerstone objective of providing reasonable assurance that physical barriers protect the public from radionuclide releases caused by accidents or events, and is therefore a finding. Furthermore, 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 the Manual Chapter 0609, AppendixG, "Shutdown Operations Significance Determination Process," Phase 1 guidance, the finding is determined to have very low safety significance because the finding did not result in an increase in the likelihood of a loss of reactor coolant system inventory, degrade the ability to add reactor coolant system inventory, or degrade the ability to recover decay heat removal. This finding had a crosscutting aspect in the area of problem identification and resolution associated with the corrective action program, P.1(d), in that the licensee failed to take appropriate corrective actions to address safety issues and adverse trends in a timely manner, commensurate with their safety significance and complexity.

Enforcement. Title 10 of the Code of Federal Regulations 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 February 4 and April 22, 2010, multiple occasions were identified where licensee personnel failed to implement appropriate foreign material exclusion controls in areas designated as Zone 1 foreign material exclusion areas 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 Reports CR-ANO-2-2010-0262,CR- ANO-2-2010-269, CR- ANO-1-2010-0469, CR-ANO-1-2010-0564, CR-ANO-1-2010-0874, CR-ANO-1-2010-0903, CR-ANO-1-2010-0750, CR-ANO-1-2010-1338, CR-ANO-1-2010-1526, CR-ANO-1-2010-1958, and CR-ANO-C-2010-688, this violation is being treated as a noncited violation consistent with Section VI.A of the NRC Enforcement Policy: NCV 05000313/2010003-02, "Failure to Adequately Implement Foreign Material Exclusion Controls."

. (2) Introduction. The inspectors documented a Green self-revealing finding associated with the third stage seal failure of reactor coolant pump P-32C. Specifically, the licensee's failure to recognize the gap between the reactor coolant pump slinger ring and splash shield as a critical dimension and verify that this gap was maintained was a performance deficiency.

Description. During Refueling Outage 1R22, the licensee performed a scheduled replacement of reactor coolant pump P-32C. On April 16, 2010, during plant start up

activities, P-32C was started as the third pump in the planned pump start sequence. Following the pump start, the licensee noted abnormal shaft vibrations and a rise in seal controlled bleed off temperature, between 2 and 16 degrees. The licensee also noted the pump experienced two instances where the seal's third stage destaged, restaged and recovered. Following the second event, the licensee noted pump and seal parameters returned to steady state condition. Later in the evening on April 16, the licensee noted an increase in seal bleed off and initiated Condition Report CR-ANO-1-2010-1842 to capture this in the station's corrective action program. The licensee attributed the increased leakrate to the destaging event earlier in the day.

Subsequently, as plant power was increased the licensee continued to note increased vibrations in P-32C. On April 18, 2010, the third stage seal of reactor coolant pump P-32C failed, as indicated by the first and second stage seal's increase in differential pressure as they compensated for the loss of the third stage. The licensee noted that the first and second stage seals functioned as designed. The licensee initiated Condition Report CR-ANO-1-2010-1896 to capture this issue in the facilities corrective action program. Following a reactor shutdown for another issue with the main turbine generator, the seal was disassembled and replaced. Information was also gathered for the root cause evaluation.

The licensee performed a root cause evaluation of the issue, documented in Condition Report CR-ANO-1-2010-1896. During their evaluation the licensee determined that while preparing for the replacement of the reactor coolant pump, they had failed to recognize that the gap between the pump's slinger ring and splash shield was a critical dimension. Accordingly, work documents generated for the pump replacement work did not verify that the gap between the slinger ring and splash shield was maintained at a specified nominal value. As such, the licensee determined that the failure to recognize that the gap between the pump's slinger ring and splash shield was a critical dimension and ensure that this gap was maintained was the root cause of this event.

Analysis. The inspectors determined that the licensee's failure to recognize the gap between the reactor coolant pumps slinger ring and splash shield as critical dimension, and verify this gap was maintained, was a performance deficiency. The performance deficiency was determined to be more than minor because it was associated with the design control attribute of the Initiating Events Cornerstone, and affected the associated cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as at power operations, and is therefore a finding. Specifically, the failure to recognize and maintain the gap between the reactor coolant pumps slinger ring and splash shield as a critical dimension resulted in the failure of the pumps third stage seal. Using NRC Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheets, Initiating Events Cornerstone, the finding was determined to have very low safety significance because assuming worst case degradation, the finding would not result in exceeding the technical specification limit for any reactor coolant system leakage; nor could the finding have likely affected other mitigation systems resulting in a total loss of their safety function. The inspectors determined that since the licensee had not recently re-evaluated what dimensions were critical to the reactor coolant pump seal's operation, and vendor

documents were not specific to this dimension; this finding did not represent current plant performance and therefore did not have a crosscutting aspect associated with it.

Enforcement. This finding does not involve enforcement action because no regulatory requirement was identified, because the reactor coolant pump is not safety related. Because this finding does not involve a violation, has very low safety significance, and has been entered into the corrective action program as Condition Report CR-ANO-1-2010 1896, it is identified as FIN 05000313/2010003-03, "Failure to Recognize Critical Dimension Results in Reactor Coolant Pump Seal Failure."

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors reviewed the Safety Analysis Report, procedure requirements, and technical specifications to ensure that the 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
- 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.

- March 24, 2010, Unit 1, service water check valve SW-9 boundary valve leak test
- April 8, 2010, Unit 1, degraded voltage test
- May 13, 2010, Unit 2, 2P-35A containment spray inservice surveillance test
- May 25, 2010, Unit 1, P-7A turbine-driven emergency feedwater
- May 29, 2010, Unit 2, train B high pressure safety injection
- June 3, 2010, Unit 1, channel A nuclear instrumentation calibration and surveillance test

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

These activities constitute completion of six (6) surveillance testing inspection samples as defined in Inspection Procedure 71111.22-05.

b. Findings

No findings were identified.

2. RADIATION SAFETY

Cornerstone: Occupational and Public Radiation Safety

2RS01 Radiological Hazard Assessment and Exposure Controls (71124.01)

a. Inspection Scope

This area was inspected to: (1) review and assess licensee's performance in assessing the radiological hazards in the workplace associated with licensed activities and the implementation of appropriate radiation monitoring and exposure control measures for both individual and collective exposures, (2) verify the licensee is properly identifying and reporting Occupational Radiation Safety Cornerstone performance indicators, and (3) identify those performance deficiencies that were reportable as a performance indicator and which may have represented a substantial potential for overexposure of the worker.

The inspectors used the requirements in 10 CFR Part 20, the technical specifications, and the licensee's procedures required by technical specifications as criteria for

determining compliance. During the inspection, the inspectors interviewed the radiation protection manager, radiation protection supervisors, and radiation workers. The inspectors performed walkdowns of various portions of the plant, performed independent radiation dose rate measurements and reviewed the following items:

- Performance indicator events and associated documentation reported by the licensee in the Occupational Radiation Safety Cornerstone
- The hazard assessment program, including a review of the license's evaluations of changes in plant operations and radiological surveys to detect dose rates, airborne radioactivity, and surface contamination levels
- Instructions and notices to workers, including labeling or marking containers of radioactive material, radiation work permits, actions for electronic dosimeter alarms, and changes to radiological conditions
- Programs and processes for control of sealed sources and release of potentially contaminated material from the radiologically controlled area, including survey performance, instrument sensitivity, release criteria, procedural guidance, and sealed source accountability
- Radiological hazards control and work coverage, including the adequacy of surveys, radiation protection job coverage, and contamination controls; the use of electronic dosimeters in high noise areas; dosimetry placement; airborne radioactivity monitoring; controls for highly activated or contaminated materials (non-fuel) stored within spent fuel and other storage pools; and posting and physical controls for high radiation areas and very high radiation areas
- Radiation worker and radiation protection technician performance with respect to radiation protection work requirements
- Audits, self-assessments, and corrective action documents related to radiological hazard assessment and exposure controls since the last inspection

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

These activities constitute completion of the one (1) required sample as defined in Inspection Procedure 71124.01-05.

b. Findings

No findings were identified.

2RS02 Occupational ALARA Planning and Controls (71124.02)

a. Inspection Scope

This area was inspected to assess performance with respect to maintaining occupational individual and collective radiation exposures ALARA. The inspectors used the requirements in 10 CFR Part 20, the technical specifications, and the licensee's procedures required by technical specifications as criteria for determining compliance. During the inspection, the inspectors interviewed licensee personnel and reviewed the following items:

- Site-specific ALARA procedures and collective exposure history, including the current 3-year rolling average, site-specific trends in collective exposures, and source-term measurements
- ALARA work activity evaluations/postjob reviews, exposure estimates, and exposure mitigation requirements
- The methodology for estimating work activity exposures, the intended dose outcome, the accuracy of dose rate and man-hour estimates, and intended versus actual work activity doses and the reasons for any inconsistencies
- Records detailing the historical trends and current status of tracked plant source terms and contingency plans for expected changes in the source term due to changes in plant fuel performance issues or changes in plant primary chemistry
- Radiation worker and radiation protection technician performance during work activities in radiation areas, airborne radioactivity areas, or high radiation areas
- Audits, self-assessments, and corrective action documents related to ALARA planning and controls since the last inspection

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

These activities constitute completion of the one (1) required sample as defined in Inspection Procedure 71124.02-05.

b. Findings

No findings were identified

4. OTHER ACTIVITIES

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

4OA1 Performance Indicator Verification (71151)

.1 Data Submission Issue

a. Inspection Scope

The inspectors performed a review of the performance indicator data submitted by the licensee for the 1st Quarter 2010 performance indicators for any obvious inconsistencies prior to its public release in accordance with Inspection Manual Chapter 0608, "Performance Indicator Program."

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

b. Findings

No findings were identified.

.2 Reactor Coolant System Specific Activity (BI01)

a. Inspection Scope

The inspectors sampled licensee submittals for the reactor coolant system specific activity performance indicator for both Units 1 and 2 for the period from the second quarter 2009 through the first quarter 2010. To determine the accuracy of the performance indicator data reported during those periods, the inspectors used definitions and guidance contained in NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6. The inspectors reviewed the licensee's reactor coolant system chemistry samples, technical specification requirements, issue reports, event reports, and NRC integrated inspection reports for the period of April 2009 through March 2010 to validate the accuracy of the submittals. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the performance indicator data collected or transmitted for this indicator and none were identified. Specific documents reviewed are described in the attachment to this report.

These activities constitute completion of two (2) reactor coolant system specific activity samples as defined in Inspection Procedure 71151-05.

b. Findings

No findings were identified.

.3 Reactor Coolant System Leakage (BI02)

a. Inspection Scope

The inspectors sampled licensee submittals for the reactor coolant system leakage performance indicator for both Units 1 and 2 for the period from the second quarter 2009 through the first quarter 2010. To determine the accuracy of the performance indicator data reported during those periods, the inspectors used definitions and guidance contained in NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6. The inspectors reviewed the licensee's operator logs, reactor coolant system leakage tracking data, issue reports, event reports, and NRC integrated inspection reports for the period of April 2009 through March 2010 to validate the accuracy of the submittals. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the performance indicator data collected or transmitted for this indicator and none were identified. Specific documents reviewed are described in the attachment to this report.

These activities constitute completion of two (2) reactor coolant system leakage samples as defined in Inspection Procedure 71151-05.

b. Findings

No findings were identified.

.4 Occupational Exposure Control Effectiveness

a. Inspection Scope

The inspectors reviewed performance indicator data for the third quarter 2009 through the fourth quarter 2009. The objective of the inspection was to determine the accuracy and completeness of the performance indicator data reported during these periods. The inspectors used the definitions and clarifying notes contained in NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6, as criteria for determining whether the licensee was in compliance.

The inspectors reviewed corrective action program records associated with high radiation area (greater than 1 R/hr) and very high radiation area non-conformances. The inspectors reviewed radiological, controlled area exit transactions greater than 100 millirems. The inspectors also conducted walkdowns of high radiation areas (greater than 1 R/hr) and very high radiation area entrances to determine the adequacy of the controls of these areas.

These activities constitute completion of the occupational exposure control effectiveness sample as defined in Inspection Procedure 71151-05.

b. Findings

No findings were identified.

.5 Radiological Effluent Technical Specifications/Offsite Dose Calculation Manual Radiological Effluent Occurrences

a. Inspection Scope

The inspectors reviewed performance indicator data for the third quarter 2009 through the fourth quarter 2009. The objective of the inspection was to determine the accuracy and completeness of the performance indicator data reported during these periods. The inspectors used the definitions and clarifying notes contained in NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6, as criteria for determining whether the licensee was in compliance.

The inspectors reviewed the licensee's corrective action program records and selected individual annual or special reports to identify potential occurrences such as unmonitored, uncontrolled, or improperly calculated effluent releases that may have impacted offsite dose.

These activities constitute completion of the radiological effluent technical specifications/offsite dose calculation manual radiological effluent occurrences sample as defined in Inspection Procedure 71151-05.

b. Findings

No findings were identified.

4OA2 Identification and Resolution of Problems (71152)

.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 actions. 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 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 were identified.

.3 Selected Issue Follow-up Inspection

a. Inspection Scope

During a review of items entered in the licensee's corrective action program, the inspectors recognized a corrective action item documenting resolution of a previously identified issue associated with nitrogen leakage of the manway cover of the Unit 1 core flood tanks. The inspectors selected this issue for review because of the past history associated with leakage from the core flood tanks, and licensee's attempted corrective actions to resolve this issue. The inspectors selected this issue for review because the failure to properly identify and correct conditions adverse to quality in a timely manner could have a significant impact on station equipment and result in the system not being able to perform their design functions. The inspectors considered the following, as applicable, during the review of the licensee's actions: (1) complete and accurate identification of the problem in a timely manner; (2) evaluation and disposition of operability/reportability issues; (3) consideration of extent of condition, generic implications, common cause, and previous occurrences; (4) classification and prioritization of the resolution of the problem; (5) identification of root and contributing causes of the problem; (6) identification of corrective actions; and (7) completion of corrective actions in a timely manner.

These activities constitute completion of one (1) in-depth problem identification and resolution sample as defined in Inspection Procedure 71152-05.

b. Findings

Introduction. The inspectors documented a Green self-revealing noncited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," associated with the licensee's failure to assure that the applicable design basis for applicable structures, systems, and components were correctly translated into specifications, procedures, and instructions. Specifically, during initial plant construction the licensee failed to correctly translate the design requirements for the Unit 1 core flood tank manway covers into the installed plant equipment. This resulted in excessive nitrogen leakage from the manway covers which required the licensee to implement actions to mitigate the leakage until permanent repairs could be performed.

Description. During Refueling Outage 1R18, the manway gaskets for core flood tank T-2A and T-2B were replaced due to long standing leakage issues. During the following operating cycle the licensee noted excessive leakage on both core flood tanks, and the tanks were worked again during Refueling Outage 1R19. Specifically, the gasket was replaced on core flood tank T-2A and the manway cover on T-2B was retorqued. Subsequently, the licensee identified that both manway covers were again leaking. They then increased the allowed manway cover torque from 297 foot-pounds to 697 foot-pounds.

While the amount of leakage was reduced, both tank covers continued to leak and the licensee initiated Condition Report CR-ANO-1-2005-2986 to continue to investigate this issue, and resolve the leakage during the next refueling outage, 1R20. During their investigation, the licensee determined that at some point in the history of the plant maintenance personnel had installed the manway covers upside down and installed the wrong type of gasket on at least one of the manways. This had led to increased manway leakage since the original design torque of 297 foot-pounds was inadequate for this type of gasket. As such, during Refueling Outage 1R19 when the torque was increased to 680 foot-pounds this applied additional compression to the gaskets, and this additional torque mitigated the leakage somewhat, but the manway configuration remained out of compliance with the original design requirements.

Subsequently, the licensee determined that since the leakage from the tank covers had decreased since increasing the torque and was now acceptable, the corrective actions could be delayed for another operating cycle. As such, the repairs that were planned for Refueling Outage 1R20 to restore the manways to their original design configuration were deferred to Refueling Outage 1R21.

During Refueling Outage 1R21 the orientation of the manway covers was reversed, new diaphragms were installed, the correct gaskets were installed, and the torque was returned to the original torque value of 297 foot-pounds in an effort to restore both manways to their original design configuration. During plant start up following Refueling Outage 1R21, excessive leakage was again noted on both manway covers. The licensee determined the leakage from the cover of T-2B was unacceptable, and injected sealant in the T-2B manway to stop the leakage; however, these attempts were not fully successful in stopping the leakage. The licensee initiated Condition Report CR-ANO-1-2008-2584 to document the manway leakage on T-2B in

the stations corrective action program. The licensee performed an apparent cause evaluation and developed a corrective action plan for both T-2A and T-2B in this condition report.

During Refueling Outage 1R22, the licensee determined that important dimensions associated with the Unit 1 core flood tanks were not in accordance with design drawings, and that this issue may account for the persistent leakage associated with these manway covers. Specifically, the vertical distance from the bolting surface of the tank manway down to the sealing surface was greater than what was called for by the design drawings. As such, this resulted in incorrect crush being applied to the installed gaskets. The licensee determined that this condition had existed since the initial construction of the plant. The licensee initiated Condition Report CR-ANO-1-2010-1057 to document this in the stations corrective action program.

Analysis. The inspectors determined that the licensee's failure to ensure that design requirements correctly translated into installed plant equipment was a performance deficiency. The performance deficiency was determined to be more than minor because it was associated with the equipment performance attribute of the Mitigating Systems Cornerstone, and affected the associated cornerstone objective to ensure availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences, and is therefore a finding. Specifically, the failure to correctly translate the manway design requirement into the installed plant configuration resulted in excessive nitrogen leakage which required the licensee to implement actions to mitigate the leakage until a permanent repair could be performed. Using NRC Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheets, Mitigating Systems Cornerstone, the finding was determined to have very low safety significance because it did not represent an actual loss of safety function and did not screen as potentially risk significant due to a seismic initiating event. The inspectors determined that since the licensee had not recently re-evaluated the design of the core flood tank manway covers; this finding did not represent current plant performance, and therefore did not have a crosscutting aspect associate with it

Enforcement. Title 10 of the Code of Federal Regulations Part 50, Appendix B, Criterion III, "Design Control," requires, in part, measures 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 components to which this appendix applies are correctly translated into specifications, drawings, procedures, and instructions. Contrary to the above, from initial construction through April 2010, the licensee failed to ensure that that design requirements for the Unit 1 core flood tank manway covers were correctly translated into installed plant equipment. Because this finding is of very low safety significance and has been entered into the corrective action program as Condition Report CR-ANO-1-2010-1057, this violation is being treated as a noncited violation consistent with Section VI.A of the NRC Enforcement Policy: NCV 05000313/2010003-04, "Failure to Correctly Translate Design Requirements into Installed Plant Configuration."

4OA3 Event Follow-up (71153)

.1 Lockout of Station's Auto Transformer During Switchyard Breaker B1205 Troubleshooting

a. Inspection Scope

On March 26, 2010, Arkansas Nuclear One experienced a lock out of the station's auto-transformer, which resulted in a loss of startup transformers 1, and 3. Unit 1 had begun Refueling Outage 1R22 and had loads on startup transformer 1. Those loads, which included decay heat systems, were fast transferred to startup transformer 2 as designed without any plant perturbation. The plant had functioned as designed. Inspectors reviewed NUREG-1022, "Event Reporting Guidelines," Revision 2, to ensure licensee compliance. No event report was required.

b. Findings

Introduction. The inspectors documented a Green, self-revealing, finding for failure to implement Procedure OP-1015.033, "ANO Switchyard Controls," Revision 12. Specifically, on March 26, 2010, while performing 161 kV breaker B1205 postinstallation testing, several issues developed and testing activities transitioned into troubleshooting activities. Per the above mentioned procedure, a new component and plant impact statement should have been performed. The impact statement should have described the new work activities, objectives and potential for plant impacts so that a proper assessment could be made by operation's management to allow the work or not. These troubleshooting activities ultimately resulted in a lockout of the auto-transformer, which resulted in the lockout of startup transformers 1 and 3 for Units 1 and 2, respectively.

Description. On March 26, 2010, Entergy Transmission and Distribution personnel were working in the Arkansas Nuclear One switchyard to test 161 kV breaker B1205 and restore the electrical feed from the Russellville North power line to the 161 kV ring bus. This feed was also required to regain power supply redundancy to startup transformer 2 for the planned replacement of the Unit 1 auxiliary transformer. The testing ran into issues over a 12 to 15 hour evolution and morphed into troubleshooting. This troubleshooting resulted in an unexpected lockout of the auto transformer. The loss of the auto transformer caused the loss of power to startup transformers 1, and 3 for Units 1 and 2, respectively. Unit 1 was in a refueling outage, Mode 5 with greater than 23 feet in the refueling cavity, and Unit 2 was at 100 percent power. The end result was a fast transfer of loads from startup transformer 1 to startup transformer 2 for Unit 1, while Unit 2 entered an unplanned 72 hour technical specification action statement.

For approximately three months prior to the beginning of the outage, Entergy Transmission and Distribution had "re-conductored" the 161 kV Russellville North power line to increase the load it can carry, replaced the 161 kV ring bus breaker B1205, and calibrated several zone and fault relays. This particular time frame in the Unit 1 refueling outage was selected to test the breaker and restore the 161 kV Russellville power line. On March 26, 2010, testing began with attempting to close breaker B1205, but it immediately reopened. Unknown at the time, a design flaw in breaker B1205 logic

scheme worked to maintain the breaker in a tripped condition. Unit 1 and 2 control rooms and the outage control center were notified of the issue. The outage control center emphasized that this work was holding up the startup transformer 1 outage. Entergy Transmission and Distribution sent relay support to the site to further troubleshoot the problem. Zone 1 relay was suspected of being the problem, so it was removed and the Zone 2 relay was set up to perform the duties of the Zone 1 relay (remove the time delay function so it would immediately actuate). A subsequent attempt was made to close breaker B1205, but again the breaker tripped open. The Arkansas Nuclear One switchyard point of contact suggested that the switchyard be divorced from the Russellville North power line and that the 161 kV ring bus be restored and the outage control center agreed.

During restoration, breaker B1212 was opened and breaker B1205 was closed but again tripped open. At this time the manual disconnect switches were opened to isolate breakers B1212 and B1205 for conduct troubleshooting activities. It was at this time that the design error in the trip scheme on the new breaker B1205 was discovered and was disabled by opening test switches. The control room was notified and agreed with cycling the breakers inside the open air switches. The breakers were cycled using the Zone 1 and Zone 2 relays. This was not communicated with the control room. Breaker B1205 was successfully closed and tripped open using the Zone 1 relay. Breaker B1205 was closed again and tripped using the Zone 2 relay. Since this relay had a time delay, the technician held the trip push button for a period of time. This action resulted in a lockout of breaker B1212 which caused the auto transformer to lockout and open all breakers surrounding the auto transformer. This produced a lockout of startup transformers 1 and 3. It was determined that the lockout of breaker B1212 resulted from an improper calibration of the 50FD fault detector, coincident with a Zone 2 relay actuation (testing of breaker B1205). Arkansas Nuclear One system and design engineering became involve and worked with the Entergy Transmission and Distribution and developed a plan to recalibrate relays and restore the 161 kV ring bus. On March 27, 2010, the 161 kV ring bus was restored.

The inspectors reviewed and evaluated the licensee's root cause evaluation. The root cause evaluation determined that there were four root causes. Three of the four involved Arkansas Transmission and Distribution's training of relay technicians, vague procedural guidance for calibration of various types of relays, and lack of procedural guidance in the switching and tagging procedure to isolate breaker failure scheme. The licensee also determined that Procedure OP-1015.033, "ANO Switchyard Controls," Revision 12, was not properly implemented. Furthermore, the licensee also determined that the above mentioned procedure was very weak and probably would not have been effective at preventing the event. The inspectors also identified that the procedure was designated as a continuous use type of procedure, which would have required the procedure to be open and in use at the work area (switchyard), but was not in use as such. The inspectors have determined that due to the time pressure for the completion of the switchyard activities, the extended length of time involved and the number of issues encountered, the licensee was involved in solving the problem instead maintaining the appropriate oversight of the work activities. As such, the inspectors believe that the licensee overlooked and failed to implement the Procedure OP-1015.033 appropriately.

Analysis. The failure to properly implement Procedure OP-1015.033, ANO Switchyard Controls," Revision 12, was a performance deficiency. Specifically, the licensee did not stop and obtain a component and plant impact statement when test activities transitioned into troubleshooting activities in the Arkansas Nuclear One switchyard. The troubleshooting activities led an auto lockout of the auto transformer and resulted in the loss of offsite power to startup transformers 1 and 3. The performance deficiency was determined to be more than minor because it is associated with the human performance attribute and 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 conditions, and is therefore a finding. The significance of the finding was determined using Manual Chapter 0609, "Significance Determination Process," Appendix G, Checklist 4, and determined to be of very low safety significance, because it did not cause the loss of mitigating capability of core heat removal, inventory control, power availability, containment control, or reactivity control. The finding was determined to have a crosscutting aspect in the area of human performance associated with work practices, H.4(c), in that the licensee failed to ensure supervisory and management oversight of work activities in the switchyard such that nuclear safety is supported. Specifically, the licensee became too involved helping solve the issue discovered in the switchyard and failed to recognize that Procedure OP-1015.033 needed to be implemented.

Enforcement. This finding does not involve enforcement action because no regulatory requirement violation was identified. Because the finding does not involve a violation, has very low safety significance, and has been entered into the corrective action program as Condition Report CR-ANO-C-2010-0726, it is identified as a finding FIN 05000313/2010003-05, "Troubleshooting in Switchyard Causes Loss of Power to Unit 1 and 2 Startup Transformers."

2. Unit 1 Automatic Reactor Trip

a. Inspection Scope

On April 25, 2010, inspectors responded to the Unit 1 control room after being notified of an automatic reactor trip due to high power and overpressure shortly after closing the main generator breakers ending Refueling Outage 1R22. The inspectors arrived in the Unit 1 control room and observed plant operations and conducted several interviews with operations and management personnel. The inspectors also performed a thorough and complete control room walkdown and reviewed plant data records to verify appropriate plant response. 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 documented a Green, self-revealing, noncited violation of Technical Specification 5.4.1.a, for failure to follow Procedure OP-1304.032, "Unit 1 Power Range Linear Amp Calibration at Power (NI Cal)," Revision 32, which resulted in a Unit 1 automatic reactor trip. Specifically, while at 20 percent reactor power, the

licensee failed to place the reactor demand station, and the diamond rod control stations, of the Babcock and Wilcox integrated control system, in manual during nuclear instrumentation calibrations, which resulted in automatic control rod withdrawal and reactor trip on high power.

Description. On April 25, 2010, Unit 1 had just closed the main generator output breaker ending Refueling Outage 1R22 and was at approximately 20 percent reactor power and holding for nuclear instrumentation calibration prior to power ascension. A heat balance indicated reactor power was at 19.5 percent, while the excore nuclear instrumentation was indicating approximately 30 percent power. Operations requested the instrumentation and controls department to perform a calibration per Procedure OP-1304.032, "Unit 1 Power Range Linear Amp Calibration at Power (NI Cal)," Revision 32.

During the performance of the procedure, Step 8.7 required operations to place the Reactor Demand H/A and Diamond Rod Control stations into manual using Procedure OP-1105.004, "ICS Operating Procedure." The instrumentation and controls technician, who was implementing the procedure, simply stated to the control board operator turbine, "We are ready to place ICS [integrated control system] to manual." The control board operator turbine responded, "ICS is in manual." This exchange did not complete the task of placing the Reactor Demand H/A and Diamond Rod Control stations into manual and was not in accordance with the instrumentation and control procedure. As a result, the integrated control system remained in automatic. The instrumentation and controls technician then proceeded to bypass the A nuclear instrumentation channel and reduced the output from 30 percent to 19.5 percent power. The nuclear instrumentation channel A was then un-bypassed and the instrumentation and control technician proceeded to bypass the nuclear instrumentation channel B. The instrumentation and control technician lowered the channel output to 19.5 percent. The lower power level signal was compared with reactor demand station, which was at approximately 30 percent, and resulted in a neutron error signal being developed in the integrated control system. This neutron error signal produced a "withdrawal" signal to group 7 control rods. Group 7 control rods actually withdrew, as designed, because the diamond rod control station was in automatic and not in manual as initially directed by the nuclear instrumentation calibration procedure.

Control rods withdrew for approximately 38 seconds, most of this time without operator identification, and resulted in an automatic reactor trip due to high power (49.55 percent) and high pressure (2350 psig) trip setpoints being exceeded. The reactor functioned as designed with no complications. The entire crew, with the exception of the shift manager, was relieved and a new crew assumed the shift. A posttrip review was performed, and the licensee commenced a reactor start up on April 26, 2010.

The inspectors reviewed the licensee's root cause evaluation. The evaluation determined that the root causes for the event were the failure to follow the nuclear instrumentation calibration procedure and authority assumption by the control board operator turbine by giving the nuclear instrumentation technician permission to proceed with the calibration procedure. The evaluation further identified several contributing causes: failure to perform a pre-job briefing for this calibration; failure to maintain

command and control due to the control room supervisor and extra senior reactor operator being involved in other issues associated with the start up and power escalation; failure to properly review the work order for nuclear instrumentation calibration; and the failure of communication between the nuclear instrumentation technician and the control board operator turbine. The inspectors agree with the licensee's identification of the cause of the failure to follow procedure and independent actions of the control board operator turbine were attributed to the lack of oversight of the nuclear instrumentation calibration activity.

Analysis. The inspectors determined that the licensee's failure to follow the nuclear instrumentation calibration procedure as written was a performance deficiency. Specifically, the licensee failed to properly implement Procedure OP-1304.032, "Unit 1 Power Range Linear Amp Calibration at Power (NI Cal)," Revision 32, and failed to place the integrated control system into manual while calibrating nuclear instrumentation detectors. The performance deficiency was determined to be more than minor because it was associated with the human performance attribute and directly affected the Initiating Events Cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical plant safety function during power operations, and is therefore a finding. Specifically, the failure to follow the nuclear instrumentation calibration procedure resulted in an actual reactor trip. The inspectors evaluated the significance of the finding using Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheets, and determined that the finding was of very low safety significance because the finding did not contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions would not be available. The finding was determined to have a crosscutting aspect in the area of human performance, associated with work practices, H.4(c), in that the licensee failed to ensure supervisory and management oversight of work activities such that nuclear safety is supported. Specifically, the control room supervisor and the shift manager failed to provide adequate supervision for the nuclear instrumentation calibration activity which resulted in a reactor trip.

Enforcement. Technical Specification 5.4.1.a requires, in part, written procedures shall be established, implemented, and maintained covering the applicable procedures in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978. Regulatory Guide 1.33, Appendix A.8 requires procedures for control of measuring and test equipment and surveillance tests, procedures, and calibrations. Contrary to the above, on April 25, 2010, the licensee failed to properly implement Procedure OP-1304.032, "Unit 1 Power Range Linear Amp Calibration at Power (NI Cal)," Revision 32, and resulted in a reactor trip. Because this finding is of very low safety significance and has been entered into the corrective action program as Condition Report CR-ANO-1-2010-2056, this violation is being treated as a noncited violation, consistent with Section VI.A of the NRC Enforcement Policy: NCV 05000313/2010003-06, "Failure to Follow Nuclear Instrumentation Procedure Results in an Automatic Reactor Trip."

3. Unit 1 Automatic Runback to 40 percent Power

a. Inspection Scope

On May 1, 2010, inspectors responded to the Unit 1 control room after being notified of a main feedwater pump A trip and subsequent power runback to 40 percent power, from 100 percent. The inspectors arrived in the Unit 1 control room and observed plant operations and conducted several interviews with operations and management personnel. The inspectors also performed a thorough and complete control room walkdown and reviewed plant data records to verify appropriate plant response. Unit 1 had experienced divergent turbine speed oscillations just prior to the main feedwater pump A overspeed trip. 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 documented a Green self-revealing finding for the failure of the licensee to perform a thorough design change evaluation which did not recognize and address all design failure modes. Specifically, the licensee failed to address the water intrusion into the electronic modules of the main feedwater pump control system from a possible failure of the condensate drain system of the control cabinet air conditioning units. On May 1, 2010, water emanating from the air conditioning units above the Lovejoy control cabinets, dripped into the electronic modules and caused oscillations in main feedwater pump A speed before tripping on an actual over speed condition. Unit 1 automatically ran back from 100 percent power to 40 percent power as designed.

Description. On May 1, 2010, at approximately 10:47 a.m., main feedwater pump A began experiencing pump speed oscillations. Control room operators placed the main feedwater pump A control station into manual in an attempt to stabilize the speed oscillations. Unit 1 reactor operators commenced reactor down power at 10:57 a.m. At 11:00 a.m., main feedwater pump A tripped and the reactor automatically ran back to 40 percent reactor power. The reactor stabilized at 40 percent with no complications or unplanned responses from plant equipment or licensee personnel involved in the event.

The local Lovejoy control cabinets for Unit 1 main feedwater pumps were outfitted with air conditioning units, VUC-42A/B, in 1996 as a modification to help increase the main feedwater pump control system reliability. In January of 2007, these air conditioning units were relocated to the top of cabinet C576, local electrical Lovejoy control cabinets. Over the years there have been several issues that have affect feedwater pump operation. The main issue has been the electromagnetic interference that has resulted in pump trips. To strengthen protection against this type of interference, the licensee had added shielding during the recent Refueling Outage 1R22. Following the modifications in 1R22, main feedwater pump A had demonstrated vibration and speed oscillation issues leading up to the May 1, 2010 over speed trip. The licensee had experienced several vibration issues The licensee discovered that the air conditioning unit VUC-42A's condensate drain pan connection to the copper drain pipe had broken

and allowed condensate to infiltrate the top rack of electronics and resulted in an over speed condition of main feedwater pump A.

Inspectors reviewed the licensee's root cause evaluation. The licensee determined that the initial modification failed to account for possible failure modes of the condensate drain and associated piping. Due to this, the licensee also failed to establish and perform monitoring activities or regularly inspection activities to prevent water intrusion into the cabinet. The condensate drain pan and the drain piping that was connected to the drain pan was not designed or supported properly. The licensee discovered that the connection between the condensate drain pan and the drain piping was fractured, due to normal system vibration, and allowed water intrusion into the cabinet electronics resulting in the pump overspeed trip.

The licensee determined that this condition was also applicable to main feedwater pump B. As such, the licensee secured the air conditioning unit VUC-42B, as the internals could not be inspected while in operation, to prevent a similar failure. The licensee has since provided cooling to the cabinets via temporary cooling ventilation ducts. This measure was taken to ensure the longevity of the equipment, but, per the vendor is not required for operation and is rated for operation in temperatures up to 140 degrees Fahrenheit. The licensee currently plans to permanently remove the air condition units from the current location to a location away from the local Lovejoy control cabinets.

Analysis. The failure to adequately consider the potential failure modes of the air conditioning cooling to the local Lovejoy control cabinets for the main feedwater pumps was a performance deficiency. Specifically, the licensee did not consider the condensate drain pan and piping failure that could, and in this case did, introduce water into the control cabinet electronics and did not implement actions to monitor or initiate preventative measures to preclude this from occurring. The performance deficiency was determined to be more than minor because it is associated with the design control attribute and directly affected the Initiating Events Cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during power operations, and is therefore a finding. The inspectors evaluated the significance of the finding using Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheets, and determined the finding to be of very low safety significance because the finding did not contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions would not be available. The inspectors determined that there were no crosscutting aspects associated with this finding because the performance deficiency is not indicative of current plant performance and is a latent issue.

Enforcement. This finding does not involve an enforcement action because no violation of regulatory requirements was identified. Since the finding does not involve a violation, is of very low safety significance, and has been entered into the corrective action program as Condition Report CR-ANO-1-2010-2150, it is identified as FIN 05000313/2010003-07, "Failure to Consider Failure Modes Results in Main Feedwater Pump Over Speed Trip."

.4 (Closed) LER 05000368/2010001, An Incorrect Core Protection Calculator Addressable Constant Induced by Personnel Error Resulted in a Condition Prohibited by Technical Specifications

On February 1, 2010, during the performance of the channel C core protection calculator triennial channel functional test, operations department personnel were required to reload the Type 1 addressable constants into core protection calculator channel C. During the reload of the Type 1 addressable constants, a numerical value of 1.0207 for computer point 063, Azimuthal Tilt Allowance, was obtained from the core protection calculator channel C addressable constant log book. Computer point 063 was manually set to a value of1.0207 and core protection calculator channel C was then observed to successfully pass the software check sum and cross channel checks. After all core protection calculator channel C addressable constants were reloaded, the functional test was completed and core protection calculator channel C was declared operable at 4:06 p.m. Central Standard Time on February 1, 2010. On February 2, 2010, at 4:30 p.m. Central Standard Time, following a power reduction to approximately 70 percent for planned maintenance, core protection calculator channel C was placed in bypass to perform a linear power calibration. During this calibration, operations identified that an incorrect value for computer point 063 had been previously entered into core protection calculator channel C. The value for computer point 063 in core protection calculator channel C was subsequently changed to the correct value, with no notable changes observed in the core protection calculator channel C calculations. Core protection calculator channel C was removed from bypass and restored to operable status on February 2, 2010 at 4:53 p.m. Central Standard Time. An operability evaluation later determined that the core protection calculator channel C was inoperable with the incorrect addressable constant installed. The licensee determined that the procedure and process for core protection calculator addressable constant changes lacked sufficient barriers to preclude the resultant human performance error. As such, the licensee determined that procedure changes to incorporate independent verification requirements when changing core protection calculator addressable constants would be appropriate to correct this issue. The licensee event report was reviewed by the inspectors and no findings of significance were identified. The licensee documented this issue in their corrective action program as Condition Report CR-ANO-2-2010-0327. This licensee event report is closed.

.5 (Closed) LER 05000313/2009003-01, Unanalyzed Condition That Significantly Degraded Plant Safety Existed Intermittently Due to an Unlatched Door Serving as a High Energy Line Break Barrier

On September 22, 2009, at approximately 1:29 p.m. Central Daylight Time, with the plant operating at 100 percent power, it was discovered during the review of an Arkansas Nuclear One Unit 1 past operability evaluation that an unanalyzed condition may have existed for a short period of time in which a door that serves as a high energy line break barrier may have been unlatched. With the door unlatched, an engineering evaluation concluded that a critical crack in the main feedwater pipe traversing the south penetration room would force the door open, creating a harsh environment in the

adjoining emergency feedwater pump room. Because the emergency feedwater pump room is not evaluated for harsh conditions, it must be conservatively assumed that both pumps may fail to operate following this high energy line break event. Investigation revealed that the most probable cause of the latch failure was due to wear of the latch bolt hole. The licensee event report was reviewed by the inspectors and no findings of significance were identified. The licensee documented this issue in their corrective action program as Condition Report CR-ANO-1-2009-1421. This licensee event report is closed.

4OA5 Other Activities

.1 (Closed for Units 1 and 2) Temporary Instruction 2515/172, Reactor Coolant System Dissimilar Butt Welds

Temporary Instruction 2515/172 was previously performed at Arkansas Nuclear One, Unit 1, in November 2008, and Unit 2, in March 2008 and September 2009. The results of the previous inspections for Unit 1 are documented in Inspection Reports 05000313/2008005 and 05000313/2009002. The results of the previous inspections for Unit 2 are documented in Inspection Reports 05000368/2008003 and 05000368/2009004.

Following guidance of Temporary Instruction 2515/172, the inspectors completed all activities associated with the temporary instruction for Arkansas Nuclear One Units 1 and 2.

The scope of the inspection was to follow-up on items that were previously reported in the above reports for Temporary Instruction 2515/172 at Arkansas Nuclear One. The inspectors reviewed examination records and associated information for the following welds and items:

Unit 1

- Two 14-inch core flood nozzles, both mitigated during a previous outage (1RF21) with a weld inlay process which is a repair within ASME guidelines and therefore required no relief request. Volumetric Category A welds, Visual Category is no longer applicable since both welds were mitigated.

- One 2.5 inch high pressure injection nozzle that is a dual function nozzle for makeup (unmitigated, volumetric inspection conducted during previous outage 1RF21). Volumetric Category E, Visual Category K.

- Three 2.5-inch high pressure injection nozzles (unmitigated and volumetric inspection during this outage, 1RF22). Volumetric Category E, Visual Category K.

- Four 28-inch reactor coolant pump inlet nozzles (unmitigated and volumetric inspection during this outage, 1RF22). Volumetric Category E, Visual Category K.

- Four 28-inch reactor coolant pump outlet nozzles (unmitigated and volumetric inspection during this outage, 1RF22). Volumetric Category E, Visual Category K.

- Four cold leg drain nozzles, 2.5-inch diameter for loop A and a 1.5-inch diameter for the remaining three loops B thru D (Visually inspected this outage, 1RF22). These are not included in the MRP-139 program for volumetric categories. These were previously reported as Visual Category K; however, these welds are now inspected by requirements of ASME Code Case N-722. MRP-139 for these welds is no longer applicable.

Unit 2

- The previous report documents the completion of TI-172. The report provides that the licensee is in the process of transferring the tracking of the dissimilar metal butt welds inspection requirements into their normal inservice inspection scheduling tool. The inspectors verified that this action has been completed.

03.01 Licensee's Implementation of the MRP-139 Baseline Inspection

a. All baseline inspections on the dissimilar metal butt welds in Unit 1 were completed during this Refueling Outage 1RF22 in April 2010. The inspectors verified that the baseline inspections for Unit 1 were completed in accordance of MRP-139. As previously reported, all baseline inspections for Unit 2 were completed in 2008 and 2009.

b. At the time of this inspection, the licensee has not deviated from the requirements of MRP-139 and all future examinations are scheduled in accordance with MRP-139 and ASME Section XI.

03.02 Volumetric Examinations

Completion of this section for Unit 2 was previously reported in Inspection Report 2009004.

a. During the current Unit 1 refueling outage, the licensee performed volumetric examinations of the unmitigated Volumetric Category E nozzles in accordance with MRP-139. This effort is documented in Section 1R08 of this report. These examinations were completed with ASME Code, Section XI. No relevant conditions or indication were identified during the ultrasonic examinations.

b. Inspectors reviewed records of volumetric examination performed on weld inlays performed on the 14" core flood nozzles. This effort is documented in

Section 1R08 of this inspection report. Inspection coverage met requirements of MRP-139 and ASME Code. No relevant conditions were identified.

c. The certification records of ultrasonic examination personnel used in the examination of the dissimilar metal butt welds were reviewed. All personnel records showed that they were qualified under the EPRI Performance Demonstration Initiative.

d. No deficiencies were identified during the nondestructive examinations.

03.03 Weld Overlays

No weld overlays were completed during the current Unit 1 Refueling Outage 1RF22. Weld overlays were completed in the previous Unit 1 Refueling Outages 1RF20 and 1RF21, in 2007 and 2008, respectively. Weld overlays were completed in Unit 2 Refueling Outage 2RF19 in 2008. These items were previously inspected and documented in Inspection Reports 05000313/2008005, 05000313/2009002, 05000368/2008003, and 05000368/2009004. No relevant conditions were identified and welding was performed in accordance with submitted relief requests.

03.04 Mechanical Stress Improvement

This item is not applicable because mechanical stress improvement was not employed at Arkansas Nuclear One.

03.05 Inservice Inspection Program

The inspectors reviewed the licensee's MRP-139 program at Arkansas Nuclear One for Units 1 and 2. The inspectors verified that the licensee has placed the dissimilar metal butt welds into their appropriate MRP-139 categories. The licensee did not take any deviations from the guidance of MRP-139, Tables 6-1 and 6-2 and has scheduled future inspections appropriately. For Units 1 and 2, the licensee has supplemented their respective ASME Code Section XI inspection schedules and frequencies with the inspections that are required by MRP-139 and applicable ASME Code Cases.

.2 (Closed) Temporary Instruction (TI) 2515/179, "Verification of Licensee Responses to NRC Requirement for Inventories of Materials Tracked in the National Source Tracking System Pursuant to title 10, Code of Federal Regulations, Part 20.2207 (10 CFR 20.2207)"

a. Inspection Scope

An NRC inspection was performed to confirm that the licensee has reported their initial inventories of sealed sources pursuant to 10 CFR 20.2207 and to verify that the National Source Tracking System database correctly reflects the category 1 and 2 sealed sources in custody of the licensee. Inspectors interviewed personnel and performed the following:

- Reviewed the licensee's source inventory
- Verified the presence of any category 1 or 2 sources
- Reviewed procedures for and evaluated the effectiveness of storage and handling of sources
- Reviewed documents involving transactions of sources
- Reviewed adequacy of licensee maintenance, posting, and labeling of nationally tracked sources

b. Findings

No findings of significance were identified.

4OA6 Meetings

Exit Meeting Summary

On April 2, 2010, the inspectors presented the results of the radiation safety inspection to Mr. K. Walsh, Vice President, and other members of the licensee staff. The licensee acknowledged the issues presented. The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

On April 6, 2010, the inspectors presented the inspection results of the review of inservice inspection activities to Mr. K. Walsh, Vice President, and other members of the licensee staff. The licensee acknowledged the issues presented. The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

On July 8, 2010, the inspectors presented the inspection results to Mr. K. Walsh, Site Vice President, and other members of the licensee staff. The licensee acknowledged the issues presented. The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

4OA7 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 noncited violations.

- Technical Specification 6.4.1(a) requires written procedures be established, implemented, and maintained covering the applicable procedures recommended in

Appendix A of Regulatory Guide 1.33, "Quality Assurance Program Requirements (Operation)," Revision 2, February 1978. Section 9(a), "Procedures for Performing Maintenance," of Appendix A to Regulatory Guide 1.33 lists procedures for maintenance that can affect the performance of safety-related equipment and such activity should be properly preplanned and performed in accordance with written procedures. Procedure EN-WM-105, "Planning," provides instructions to ensure that work is planned in a manner consistent with its importance to plant safety and potential to impact unit availability and applies to all work planned in the work management system. Section 5.2[1] of this procedure states that the planner and supervisor should consider a field walkdown of the task and determine interferences requiring removal before performing the work. Section 5.2[1](f)(6) of this procedure states that planning shall include scaffolding, insulation, paint removal and/or application. Contrary to the above, there are two examples in which radiation work permit packages (RWP 2009-2420, "Scaffolding Activities" and RWP 2009-2460, "EC-7041 Regenerative Heat Exchanger Permanent Shield Rack") were not properly planned during Refueling Outage 20 for Arkansas Nuclear One Unit 2, resulting in additional dose. The failure to properly plan these maintenance activities is a performance deficiency. After reviewing all activities associated with the dose contributors to these tasks, it was determined that the actual dose exceeded the more than minor threshold resulting in greater than 5 person-rem and greater than 50 percent above the original dose estimate. Using the Occupational Radiation Safety Significance Determination Process from Manual Chapter 0609, Appendix C, the inspectors determined this finding to be of very low safety significance because it involved ALARA planning and controls and the licensee's latest rolling three-year average does not exceed 135 person rem per unit. Since the failure to properly plan these activities was addressed in the licensee's Unit 2 Refueling Outage 20 lessons learned review in detail, this violation is being treated as a licensee-identified noncited violation. This issue was entered into the licensee's corrective action program as Condition Report CR-ANO-2-2009-3454.

- Title 10 of the Code of Federal Regulation 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." Contrary to the above, licensee personnel failed to promptly identify and correct a condition adverse to quality, associated with service water boundary valve SW-9 from 2004 through 2010, which resulted in multiple failures of the valve. Specifically, when performing as-found service water boundary valve leak testing, valve SW-9 would leak above the allowable value and the licensee would perform multiple cycles of the valve retesting it until leakage was within the allowable limit. Following the failure of the as-found testing prior to Refueling Outage 1R22, the licensee performed an internal inspection of the valve and discovered that corrosion product accumulation in the valve interfered with the valve's operation. This was licensee-identified because the cause of the valve failure was determined as part of a licensee generated trouble shooting plan developed in response to previous failures of SW-9. Using Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheet, the 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 SW-9; (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 non-technical specification equipment; (4) it did not represent an actual loss of safety function of one or more non-technical 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 Report CR-ANO-1-2010-0693.

SUPPLEMENTAL INFORMATION
KEY POINTS OF CONTACT

Licensee Personnel

J. Bacquet, ALARA Supervisor, Radiation Protection
R. Beard, EP&C
B. Berryman, Acting Vice President
D. Bice, Acting Manager, Licensing
M. Chisum, Manager, PS&O
R. Crowe, Superintendent, Security
R. Dodds, Manager, Maintenance
R. Henry, EP&C
D. James, Director, Nuclear Safety Assurance
K. Jones, Manager, Operations
R. Jones, EP&C
J. McCoy, Acting Director, Engineering
D. Meatheany, EP&C
D. Moore, Manager, Radiation Protection
D. Marvel, Supervisor, Radiation Protection Operations
T. Nickels, ALARA Coordinator, Radiation Protection
K. Panthen, EP&C
M. Paterak, EP&C
T. Rolniak, Specialist, Radiation Protection
B. Short, Licensing Specialist
D. Stringer, EP&C
F. VanBuskirk, EP&C
K. Walsh, Vice President

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed

05000313/2010003-01	NCV	Failure to Follow Natural Emergencies Procedure to Control Site Missile Hazards During Severe Weather Warnings and Watches (Section 1R01.3)
05000313/2010003-02	NCV	Failure to Adequately Implement Foreign Material Exclusion Controls (Section 1R20.1)
05000313/2010003-03	FIN	Failure to Recognize Critical Dimension Results in Reactor Coolant Pump Seal Failure (Section 1R20.2)
05000313/2010003-04	NCV	Failure to Correctly Translate Design Requirements into Installed

		Plant Configuration (Section 4OA2.3)
05000313/2010003-05	FIN	Troubleshooting in Switchyard Causes Loss of Power to Unit 1 and Unit 2 Startup Transformers (Section 4OA3.1)
05000313/2010003-06	NCV	Failure to Follow Nuclear Instrumentation Procedure Results in an Automatic Reactor Trip (Section 4OA3.2)
05000313/2010003-07	FIN	Failure to Consider Failure Modes Results in Main Feedwater Pump Over Speed Trip (Section 4OA3.3)

Closed

05000368/2010001	LER	An Incorrect Core Protection Calculator Addressable Constant Induced By Personnel Error Resulted In A Condition Prohibited By Technical Specifications (Section 4OA3.4)
0500313/2009003-01	LER	Unanalyzed Condition That Significantly Degraded Plant Safety Existed Intermittently Due to an Unlatched Door Serving as a High Energy Line Break Barrier (Section 4OA3.5)

LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather Protection

PROCEDURES

NUMBER	TITLE	REVISION
OP-1015.044	Summer Reliability Operations	6
OP-1203.037	Abnormal ES Bus Voltage and Degraded Offsite Power	6
OP-1203.025	Natural Emergencies	30
OP-2203.008	Natural Emergencies	19
ENS-DC-201	ENS Transmission Grid Monitoring	5

ENS-DC-199	Offsite Power Supply Design Requirements Nuclear Interface Requirements	
PL-159	Sumer Reliability Plan	0

CONDITION REPORTS

LO-WTANO-2009-0238

Section 1R04: Equipment Alignment

PROCEDURES

NUMBER	TITLE	REVISION
OP-2104.040	Unit 2 Low Pressure Safety Injection Operation	53
OP-1106.006	Emergency Feedwater Pump Operation	79

DRAWINGS

NUMBER	TITLE	REVISION
M-2232 sheet 1	Unit 2 Safety Injection System	117
M-2236 sheet 1	Unit 2 Containment Spray System	94

MISCELLANEOUS

NUMBER	TITLE	REVISION
STM 1-60	ANO Unit 2 Technical Requirements Manual Fire Protection System	8

DRAWINGS

NUMBER	TITLE	REVISION
M-2232 sheet 1	Unit 2 Safety Injection System	117
M-2236 sheet 1	Unit 2 Containment Spray System	94

Section 1R05: Fire Protection

PROCEDURES

NUMBER	TITLE	REVISION

FHA	Arkansas Nuclear One Fire Hazard Analysis	13
PFP-U1	ANO Prefire Plan (Unit 1)	12
PFP-U2	ANO Prefire Plan (Unit 2)	10

DRAWINGS

FZ-1054	Unit 1 fire zone detail - fuel handling area	2
FZ-1038	Unit 1 fire zone detail - upper north piping penetration room	2
FZ-1049	Unit 1 fire zone detail - lower north piping penetration room	2
FZ-2034	Unit 2 fire zone detail - 2B63 motor control center room	2
FZ-2003	Unit 2 fire zone detail - fuel handling area	2

Section 1R08: Inservice Inspection Activities

PROCEDURES

NUMBER	TITLE	REVISION
CEP-NDE-0955	Visual Examination of Bare-Metal Surfaces	302
EN-DC-127	Control of Hot Work and Ignition Sources	7
EN-IS-117	Welding and Cutting	5
EN-DC-319	Inspection and Evaluation of Boric Acid Leaks	4
1032.037	Inspection and Identification of Boric Acid Leaks for ANO-1 and ANO-2	5
SI-UT-146	Procedure for the Manual Phased Array Ultrasonic Examination of Temper Bead Weld Pad Repairs	1
WSI QAP 9.6	Liquid Penetrant Inspection	12
WSI QAP 9.16	High-Temperature Liquid Penetrant Inspection Procedure, Using Color Visible/Solvent Removable Penetrant Technique	4

PROCEDURES

NUMBER	TITLE	REVISION
SI-UT-130	Procedure for the Phased Array Ultrasonic Examination of Dissimilar Metal Welds	3
EC#20260	Develop and Document The 1R22 SG Training Manual	000
EC#20476	Develop and Document The SG Site Equivalency and ETSS	000
5120-524	ANO-1 Steam Generator Analysis Procedure	000

DRAWINGS

NUMBER	TITLE	REVISION
5017444 E	Specification Drawing for Replacement Reactor Vessel Closure Head ANO-1	5
02-5042026E-02	Arkansas Nuclear One Unit 1 Replacement Reactor Vessel Closure Head	C

EXAM REPORTS

NUMBER	TITLE	REVISION / DATE
51-5044578-00	RPVH Penentration Unit 1 Replacement Head Ultrasonic Examination Report	May 13, 2004
ANO-10-WOL-01	4” Pressurizer Spray Weld Overlay	March 24, 2010
ANO-10-WOL-02	2.5” Pressurizer Relief CV-1000 WOL DM Weld	March 25, 2010
ANO-10-DM-10	RCP P-32D Suction	March 30, 2010
ANO-10-DM-11	RCP P-32D Discharge	March 31, 2010
ANO-10-DM-01	RCP P-32A Suction	March 27, 2010
ANO-10-DM-02	RCP P-32A Discharge	March 27, 2010
ANO-10-DM-07	RCP P-32B Suction	March 29, 2010
ANO-10-DM-08	RCP P-32B Discharge	March 29, 2010
ANO-10-DM-06	HPI MU-45C	March 28, 2010

WORK ORDER

NUMBER	TITLE	REVISION / DATE
51793732	BMV Reactor Vessel Upper Head Nozzle Exam	1
00201032	Boric Acid Leak from Packing Leakoff Line Connection	August 21, 2009

WELDING DOCUMENTS

NUMBER	DESCRIPTION	REVISION
WPS-01-43-T-803-102836	Machine GTAW for P1 to P43	4
WPS-43-43-T-001	Manual, Machine GTAW for P43 to P43	4

WELDING DOCUMENTS

NUMBER	DESCRIPTION	REVISION
PQR-01-01-T-802	Machine GTAW for P1 to P43	1
PQR-1001	Machine GTAW for P43 to P43	1

MISCELLANEOUS

NUMBER	DESCRIPTION	REVISION
51-9105170-001	ANO-1 Condition Monitoring and Final Operational Assessment at EOC-21 (Fall-2008)	1
EC#20259	Develop and Document The 1R22 SG Degradation Assessment	
Eval 08-1-0858	Boric Acid Evaluation PDX-1029	
Eval 09-1-0891	Boric Acid Evaluation PDX-1029	
Eval 09-1-0918	Boric Acid Evaluation MU-9	

CONDITION REPORTS

CR-ANO-C-2010-0662	CR-ANO-1-2010-1045	CR-ANO-1-2010-00994
CR-ANO-1-2010-1202	CR-ANO-1-2010-1118	CR-ANO-1-2009-0270
CR-ANO-2-2009-2410	CR-ANO-1-2010-0994	CR-ANO-1-2009-1349
CR-ANO-1-2010-0990	CR-ANO-1-2010-1038	CR-ANO-1-2010-01045
CR-ANO-1-2010-1202	CR-ANO-1-2010-0662	CR-ANO-1-2010-0842
CR-ANO-1-2007-0959	CR-ANO-1-2009-0172	CR-ANO-1-2010-1042
LO-NOE-2009-0138	CR-ANO-2-2009-2189	CR-ANO-1-2010-1202
CR-ANO-1-2009-1810	CR-ANO-1-2010-0448	CR-ANO-1-2010-1202
CR-ANO-1-2010-0842	CR-ANO-2-2009-2720	LO-ALO-2009-0010
LO-ALO-2009-0004	CR-ANO-1-2009-0946	

Section 1R12: Maintenance Effectiveness

PROCEDURES

NUMBER	TITLE	REVISION
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	2

MISCELLANEOUS

NUMBER	TITLE	REVISION
	Instrument Air Maintenance Rule Database and Scoping Document	
	Unit 2Transformer maintenance Rule Database and Scoping Document	

Section 1R13: Maintenance Risk Assessment and Emergent Work Controls

PROCEDURES

NUMBER	TITLE	REVISION
COPD-024	Risk Assessment Guidelines	31

MISCELLANEOUS

NUMBER	TITLE	DATE
	Alternate AC diesel generator plant risk assessment	April 9, 2010
	Unit 1/2 switchyard risk assessment for crane activities	April 14, 2010
	Russellville North 161kV power line restoration risk assessment	May 18, 2010
EC-22577	Unit 2 Containment Building Tendon Inspection crane removal	

WORK ORDER

00206853

Section 1R15: Operability Evaluations

PROCEDURES

NUMBER	TITLE	REVISION
EN-OP-104	Operability Determinations	4

CONDITION REPORTS

ANO-1-2010-2622	ANO-1-2010-2391	ANO-1-2010-2592	ANO-2-2010-0934
ANO-1-2010-1316	ANO-1-2010-1149	ANO-1-2010-2315	ANO-1-2010-1810
ANO-1-2010-1966	ANO-1-2010-0605	ANO-1-2010-1147	ANO-1-2010-1581
ANO-1-2010-1638	ANO-1-2010-1953		

Section 1R18: Plant Modifications

NUMBER	TITLE	REVISION
EC-17670	Inservice Portion of SW Return Line Code Qualified	
EC-15259	Temporary Cover for Hatch 492	
EC-19640	Spent Fuel Pool Cooling Pump Power	
EN-DC-136	Temporary Modifications	5

CONDITION REPORT

ANO-1-2010-1291

Section 1R19: Postmaintenance Testing

PROCEDURES

NUMBER	TITLE	REVISION
OP-1106.006	Unit 1 Emergency Feedwater Pump Operation	79
OP-2104.005	Unit 2 Containment Spray Operation	59
OP-1104.036	Emergency Diesel Generator Operation	50
ECT-12881	Post Modification Testing for Unit 1 Aux Transformer X-02	
ECT-12923-01	Post Refurbishment Testing for Transformer X-01C	

WORK ORDER

52193681	551551082	52185881	182908
182908	235005	51679093	

CONDITION REPORTS

ANO-1-2010-2260 ANO-1-2010-2105 ANO-1-2010-1347

Section 1R20: Refueling and Other Outage Activities

PROCEDURES

NUMBER	TITLE	REVISION
OP-1015.048	Shutdown Operations Protection Plan	0

CONDITION REPORTS

ANO-C-2010-0688	ANO-1-2010-0469	ANO-1-2010-0564	ANO-1-2010-0874
ANO-1-2010-0903	ANO-1-2010-0750	ANO-1-2010-1338	ANO-1-2010-1526
ANO-1-2010-1958	ANO-2-2010-0262	ANO-2-2010-269	

Section 1R22: Surveillance Testing

PROCEDURES

NUMBER	TITLE	REVISION
OP-1104.029	Unit 1 Service Water and Auxiliary Cooling Water Operation	63
OP-2104.005	Unit 2 Containment Spray Surveillance Test	59
OP-3105.036	Unit 1 Power Range Linear Amp Calibration At Power	1
OP-1305.017	Degraded Voltage Monitoring Integrated Test	14
OP-2104.039	HPSI System Operation	59
OP-1106.006	Emergency Feedwater Pump Operation	79

Section 2RS01 Radiological Hazard Assessment and Exposure Controls

PROCEDURES

NUMBER	TITLE	REVISION
EN-RP-101	Access Control for Radiologically Controlled Areas	4
EN-RP-102	Radiological Control	2
EN-RP-104	Personnel Contamination Events	4
EN-RP-106	Radiological Survey Documentation	2

EN-RP-108	Radiation Protection Posting	7
EN-RP-121	Radioactive Material Control	4
EN-RP-122	Alpha Monitoring	3
EN-RP-123	Radiological Controls for Highly Radioactive Objects	0
EN-RP-203	Dose Assessment	3
1000.031	Radiation Protection Manual	20
1022.014	Control of Miscellaneous Material in the Spent Fuel Pools	7

AUDITS, SELF-ASSESSMENTS, AND SURVEILLANCES

NUMBER	TITLE	DATE
QA-14/15-2009-ANO-1	Quality Assurance Audit Report, Radiation Protection/Radwaste	December 7, 2009

CONDITION REPORTS

ANO-1-2010-00991	ANO-2-2009-02073	ANO-2-2009-02055	ANO-2-2009-02964
ANO-2-2009-02936	ANO-2-2009-02833	ANO-2-2009-02826	ANO-2-2009-02731
ANO-2-2009-02683	ANO-2-2009-02580	ANO-2-2009-02472	ANO-2-2009-02306
ANO-2-2009-02214			

RADIOLOGICAL SURVEYS

NUMBER	TITLE	DATE
ANO-1002-0051	Unit 2 Auxiliary Building, 317 Elevation, General Area	February 5, 2010
ANO-1002-0132	Unit 2 Auxiliary Building, 335 Elevation, General Area	February 11, 2010
ANO-1002-0156	Unit 2 Auxiliary Building, 335 Elevation, Room 2043	February 13, 2010
ANO-1002-0186	Unit 2 Auxiliary Building, 335 Elevation, Room 20	February 16, 2010
ANO-1002-0143	Unit 2 Auxiliary Building, 335 Elevation, Room 2053	February 12, 2010
ANO-1002-0216	Unit 2 Auxiliary Building, 326 Elevation, Room 2016	February 19, 2010
AS-2010-00169	Air Sample, Unit 1 Refuel Canal	March, 24, 2010
AS-2010-00295	Air Sample, Unit 1 North Cavity	March 29, 2010
AS-2010-00151	Air Sample, Unit 1 “B” Steam Generator Bowl	March 24, 2010

RADIATION WORK PACKAGES

NUMBER	TITLE
20101414	ALARA (shielding activities)
20101442	Steam Generator Primary Side Inspection
20101501	P-32C RCP Refurbishment

MISCELLANEOUS DOCUMENTS

NUMBER	TITLE	DATE

Unit 1 Spent Fuel Pool Miscellaneous Material Location Log	April 1, 2009
Unit 2 Spent Fuel Pool Miscellaneous Material Location Log	April 1, 2009
LHRA/VHRA Key Inventory	February 26, 2010

2RS02 Occupational ALARA Planning and Controls

PROCEDURES

NUMBER	TITLE	REVISION
EN-RP-105	Radiation Work Permits	6 and 7
EN-RP-110	ALARA Program	7
EN-WM-105	Planning	6

CONDITION REPORTS

ANO-2-2009-02471	ANO-2-2009-02602	ANO-2-2009-02625	ANO-2-2009-02658
ANO-2-2009-02765	ANO-2-2009-02900	ANO-2-2009-03013	ANO-2-2009-03091
ANO-2-2009-03294	ANO-2-2009-03430	ANO-2-2009-03454	ANO-C-2009-02250

RADIATION WORK PACKAGES

RWP #	RWP DESCRIPTION
20092402	Operations Activities Unit 2
20092420	Scaffolding Activities
20092442	Steam Generator Eddy current/Inspection and repair Activities
20092450	ISI Inspection Activities - 2R20
20092460	EC-7041 Regenerative Heat Exchanger Permanent Shield Rack
20101404	Routine Maintenance Activities
20101420	Remove/Replace Scaffold
20101421	Remove/Replace Insulation
20101430	Support Activities for Refueling Path
20101501	P-32C RCP Refurbishment

MISCELLANEOUS DOCUMENTS

TITLE
5 Year CRE Plan for 2009 – 2013 for ANO Unit 1
5 Year CRE Plan for 2009 – 2013 for ANO Unit 2
ANO 2R20 ALARA Report

Section 4OA5: Other Activities

PROCEDURE

NUMBER	TITLE	REVISION
EN-RP-143	Source Control	4

MISCELLANEOUS

TITLE	DATE
NRC Form 748 National Source Tracking Transaction Report	January 26, 2010
National Source Tracking System Annual Inventory 2010	January 4, 2010