



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
1600 EAST LAMAR BLVD
ARLINGTON, TEXAS 76011-4511

November 14, 2012

Christopher J. Schwarz, Site Vice President
Arkansas Nuclear One
Entergy Operations, Inc.
1448 SR 333
Russellville, AR 72802-0967

SUBJECT: ARKANSAS NUCLEAR ONE - NRC INTEGRATED INSPECTION
REPORT 05000313/2012004 AND 05000368/2012004

Dear Mr. Schwarz:

On September 30, 2012, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at the Arkansas Nuclear One, Units 1 and 2, facility. The enclosed inspection report documents the inspection results which were discussed on October 25, 2012, with you and other members of your staff.

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

Two NRC identified and one self-revealing finding of very low safety significance (Green) were identified during this inspection.

Two of these findings were determined to involve violations of NRC requirements. The NRC is treating these violations as non-cited violations (NCVs) consistent with Section 2.3.2 of the Enforcement Policy.

If you contest these non-cited violations, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington DC 20555-0001; with copies to the Regional Administrator, Region IV; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at Arkansas Nuclear One.

If you disagree with a cross-cutting aspect assignment 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, its enclosure, and your response (if any) will be available electronically for public inspection in the

C. Schwarz

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NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's Agency wide Document Access and Management 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/

Donald B. Allen, Chief
Project Branch E
Division of Reactor Projects

Docket Nos.: 50-313, 50-368
License Nos.: DRP-51, NPF-6

Enclosure: Inspection Report 05000313/2012004 and 05000368/2012004
w/ Attachments: 1. Supplemental Information
2. The following items are requested for the Occupational
Radiation Safety Inspection at Arkansas Nuclear One,
September 24-27, 2012 Integrated Report 2012004

cc w/ encl: Electronic Distribution

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U.S. NUCLEAR REGULATORY COMMISSION

REGION IV

Docket: 05000313; 05000368

License: DPR-51; NPF-6

Report: 05000313/2012004; 05000368/2012004

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: July 1 through September 30, 2012

Inspectors: A. Sanchez, Senior Resident Inspector
J. Rotton, Resident Inspector
W. Schaup, Resident Inspector
L. Carson II, Senior Health Physicist
G. Guerra, CHP, Emergency Preparedness Inspector
J. Laughlin, Emergency Preparedness Inspector, NSIR

Approved By: Don Allen, Chief, Project Branch E
Division of Reactor Projects

SUMMARY OF FINDINGS

IR 05000313/2012004; 05000368/2012004; 07/1/2012-09/30/2012, Arkansas Nuclear One, Units 1 and 2, Integrated Resident and Regional Report; Post-Maintenance Testing and Problem Identification and Resolution

The report covered a 3-month period of inspection by resident inspectors and an announced baseline inspections by region-based inspectors. Two Green non-cited 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." The cross-cutting aspect is determined using Inspection Manual Chapter 0310, "Components Within the Cross-Cutting Areas." 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: Mitigating Systems

- Green. The inspectors identified a non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, Corrective Action, for the licensee's failure to promptly identify and correct a condition adverse to quality associated with the Unit 2 vital inverters. Specifically, in 2010 the licensee failed to identify and correct the cause for a fuse failure and subsequent failure of vital inverters to start that allowed the condition to reoccur in 2011 and 2012. The licensee has placed the issue into their corrective action program as Condition Report CR-ANO-2-2012-0748.

The inspectors determined that the failure to promptly identify and correct a condition adverse to quality associated with the Unit 2 vital inverters is a performance deficiency. Specifically, the licensee failed to identify the cause of the fuse failures and take effective corrective actions in 2010, resulting in the failures in 2011 and 2012. The performance deficiency was more than minor because it was associated with the equipment performance attribute of the Mitigating Systems Cornerstone and adversely affected the cornerstone objective to ensure the availability, reliability and capability of systems that respond to initiating events to prevent undesirable consequences and is therefore a finding. Using Manual Chapter 0609, Attachment 4 "Initial Characterization of Findings," and Appendix A, "The Significance Determination Process for Findings at Power" the finding was determined to have very low safety significance, Green, because: (1) the finding was a deficiency affecting the design of a mitigating SSC and SSC operability was not maintained, (2) it did not represent a loss of system and/or function, (3) it did not represent an actual loss of function of a single train for greater than its technical specification allowed outage time, (4) it did not represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety-significant in accordance with the licensee's maintenance rule program for greater than 24 hours, and (5) it did not involve the loss or degradation of equipment or function specifically

designed to mitigate a seismic, flooding, or severe weather event. The finding was determined to have a cross-cutting aspect in the area of human performance, associated with decision making, in that the licensee failed to use conservative assumptions in decision making and failed to verify the validity of the underlying assumptions during effectiveness reviews. Specifically, the licensee assumption that the constant voltage transformer was the cause of the fuse failures was not valid and the condition report closure review accepted the assumption with contrary evidence that the transformer was satisfactory [H.1(b)](Section 1R19).

- Green. The inspectors identified a finding associated with a failure to implement a station procedure which resulted in not providing sufficient work instructions. Specifically, contrary to station procedure EN-WM-105, "Planning," Revision 10, the work instructions generated to replace the Unit 1 makeup tank level recorder did not provide sufficient detailed work instructions to prevent damage to adjacent equipment. This resulted in a technician causing a short across the makeup hand switch, blowing fuses, and losing power to several relays with the associated loss of relay functions. The licensee has placed the issue into their corrective action program as Condition Report CR-ANO-2-2012-0716.

The failure of station personnel to implement the requirements of station procedure EN-WM-105, "Planning," Revision 10, to generate a compliance work package with sufficient detail work instructions and/or documents was a performance deficiency. The performance deficiency was more than minor because it was associated with the procedure quality attribute of the Mitigating Systems Cornerstone and adversely affected the cornerstone objective to ensure the availability, reliability and capability of systems that respond to initiating events to prevent undesirable consequences and is therefore a finding. Using Manual Chapter 0609, Attachment 4 "Initial Characterization of Findings," and Appendix A "The Significance Determination Process for Findings at Power" the finding was screened against the mitigating systems cornerstone and determined to be of very low safety significance (Green) because the finding; 1) was not a deficiency affecting the design or qualification of a mitigating system that did maintain its operability or functionality, 2) did not represent a loss of system and/or function, 3) did not represent an actual loss of function of a single train for greater than its technical specification allowed outage time, 4) did not represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety-significant for greater than 24 hours, and 5) did not involve the loss or degradation of equipment or function specifically designed to mitigate a seismic, flooding, or severe weather event. The finding was determined to have a cross-cutting aspect in the area of human performance, associated with work control component, in that the licensee failed to plan and coordinate work activities consistent with nuclear safety. Specifically, the licensee failed to identify the hand switch during walk downs and adequately consider the job site conditions such that adjacent equipment would be protected from damage [H.3(a)] (Section 4OA2.4).

- Green. The inspectors documented a self-revealing non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," for the licensee's failure to

correct a condition adverse to quality associated with the Unit 1 emergency feedwater initiation and control system control cabinet C186. Specifically, the licensee failed to perform corrective actions related to a previously identified design deficiency resulting in a loss of power to the cabinet which caused a loss of redundancy in the main steam line isolation logic from the emergency feedwater initiation and control system. The licensee has taken immediate corrective by replacing the lamp and socket base and plans permanent corrective action to replace the lamp and socket with a more robust design in refueling outage 1R24. The licensee has entered this issue into the corrective action program as Condition Report CR-ANO-1-2012-1075.

The failure to perform previously identified corrective actions to address a condition adverse to quality associated with the emergency feedwater initiation and control system is a performance deficiency. Specifically, the licensee failed to complete corrective actions to correct the design deficiency associated with lamp and lamp socket design for emergency feedwater initiation and control system cabinet C186. The performance deficiency is determined to be more than minor because it is associated with the equipment performance attribute of the Mitigating Systems cornerstone and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences, and therefore is a finding. Using Manual Chapter 0609, Attachment 4, "Initial Characterization of Findings," and Appendix A, "The Significance Determination Process for Findings at Power," the finding was determined to have very low safety significance, Green, because: (1) the finding was a deficiency affecting the design of a mitigating SSC and SSC operability was not maintained, (2) it did not represent a loss of system and/or function, (3) it did not represent an actual loss of function of a single train for greater than its technical specification allowed outage time, (4) it did not represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety-significant in accordance with the licensee's maintenance rule program for greater than 24 hours, and (5) it did not involve the loss or degradation of equipment or function specifically designed to mitigate a seismic, flooding, or severe weather event. The finding was determined not to have a cross-cutting aspect because the performance deficiency occurred in 2007 and is not indicative of current plant performance (Section 4OA2.5).

B. Licensee-Identified Violations

None

REPORT DETAILS

Summary of Plant Status

Unit 1 operated at 100 percent reactor power for the entire period.

Unit 2 began the period operating at 100 percent reactor power. On August 8, the Unit 2 reactor tripped from an automatic reactor trip following a loss of main condenser vacuum. On August 10, Unit 2 returned to 100 percent power after the condenser vacuum pump issues were resolved. On September 13, Unit 2 entered Mode 3 to begin refueling outage 2R22 and remained shutdown for the remainder of the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection (71111.01)

.1 Summer Readiness for Offsite and Alternate-ac Power

a. Inspection Scope

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 SAR 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. The inspectors' reviews focused specifically on the following plant systems:

- Units 1 and 2 emergency diesel generators
- Units 1 and 2 instrument air systems

These activities constitute completion of one 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.

1R04 Equipment Alignment (71111.04)

.1 Partial Walkdown

a. Inspection Scope

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

- August 6, 2012, Unit 1, decay heat removal pump P-34B while pump P-34A was out of service to implement a modification on decay heat pump block valve CV-1401
- August 15, 2012, Unit 1, emergency diesel generator 1 and Unit 2, emergency diesel generator 2 while the alternate ac diesel generator was out of service for planned maintenance
- August 30, 2012, Unit 1, emergency diesel generator 1 starting air compressor C-4A2 with starting air compressor C-4A1 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, SAR, 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 partial system walkdown samples as defined in Inspection Procedure 71111.04-05.

b. Findings

No findings were identified.

.2 Complete Walkdown

a. Inspection Scope

On September 26, 2012, the inspectors performed a complete system alignment inspection of the Unit 2 instrument air system, and on September 28, 2012 the inspectors performed a complete system alignment inspection of the Unit 1 instrument air system to verify the functional capabilities of each system. The inspectors selected this system because it was considered both safety significant and risk significant in the licensee's probabilistic risk assessment. The inspectors inspected the system to review mechanical and electrical equipment line ups, electrical power availability, system pressure and temperature indications, as appropriate, component labeling, component lubrication, component and equipment cooling, hangers and supports, operability of support systems, and to ensure that ancillary equipment or debris did not interfere with equipment operation. The inspectors reviewed a sample of past and outstanding work orders to determine whether any deficiencies significantly affected the system function. In addition, the inspectors reviewed the corrective action program database to ensure that system equipment-alignment problems were being identified and appropriately resolved. Specific documents reviewed during this inspection are listed in the attachment.

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

b. Findings

No findings were identified.

1R05 Fire Protection (71111.05)

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:

- August 6, 2012, Unit 1, Fire Zone 10-EE, east decay heat removal pump room
- August 6, 2012, Unit 1, Fire Zone 79-U, upper north piping penetration room
- September 26, 2012, Unit 2, Fire Zone 2200-MM, 335 foot level turbine building
- September 26, 2012, Unit 1, Fire Zone 197-X, 335 foot level turbine building
- September 28, 2012, Unit 2, Fire Zone 2001, all elevations of the containment building

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 five quarterly fire-protection inspection samples as defined in Inspection Procedure 71111.05-05.

b. Findings

No findings were identified.

1R06 Flood Protection Measures (71111.06)

a. Inspection Scope

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

- May 7, 2012, Unit 2, manhole 10 near the condensate storage tanks
- July 7, 2012, Unit 1, manhole 5 at service water intake structure
- July 18, 2012, Unit 1, manhole 3 in transformer yard

These activities constitute completion of one annual manhole sample as defined in Inspection Procedure 71111.06-05.

b. Findings

No findings were identified.

1R11 Licensed Operator Requalification Program and Licensed Operator Performance (71111.11)

.1 Quarterly Review of Licensed Operator Requalification Program

a. Inspection Scope

On August 28, 2012, the inspectors observed a crew of licensed operators in the Unit 1 simulator during requalification testing. The inspectors assessed the following areas:

- Licensed operator performance
- The ability of the licensee to administer the evaluations
- The modeling and performance of the control room simulator
- The quality of post-scenario critiques

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

b. Findings

No findings were identified.

.2 Quarterly Observation of Licensed Operator Performance

a. Inspection Scope

The inspectors observed the performance of on-shift licensed operators in the plant's main control room. At the time of the observations, the plant was in a period of heightened activity and/or risk due to the activities listed below. The inspectors observed the operators' performance of the following activities:

- September 7, 2012, Unit 1, during rapid depressurization of decay heat line to re-seat check valve DH-17
- September 13, 2012, Unit 2, during reactor shutdown to begin refueling outage 2R22
- October 3, 2012, Unit 2, during reactor coolant inventory reduction to lowered inventory to begin work on safety injection tank check valves

In addition, the inspectors assessed the operators' adherence to plant procedures, including OP-1015, "Conduct of Operations," Revision 90, and other operations department policies.

These activities constitute completion of one quarterly licensed-operator performance 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:

- September 26, 2012, Unit 2, Instrument air system
- September 28, 2012, Unit 1, Instrument air system

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

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

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

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

b. Findings

No findings 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:

- July 18, 2012, Unit 1 for mobile crane operation in Unit 1 transformer yard to perform modifications to manhole MH-03
- September 9, 2012, Unit 1 during an evolution to rapidly depressurize check valve, DH-17, in order to better seat the valve
- September 13, 2012, Unit 2 2R22 refueling outage risk assessment

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 three 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 and Functionality Assessments (71111.15)

a. Inspection Scope

The inspectors reviewed the following assessments:

- July 16, 2012, Unit 1, emergency feedwater pump P-7A due to manual closure of steam supply valves CV-2667 and CV-2665
- July 27, 2012, Unit 2, control room habitability after removal/reinstallation on control room penetration
- August 7, 2012, Unit 1, train A low pressure injection piping due to leaking check valve, DH-17, resulting in pressure and void formation issues
- September 14, 2012, Unit 2, containment polar crane 2L-2 following initial inspections of the crane discovered missing and broken rail clip bolts

The inspectors selected these operability and functionality assessments based on the risk significance of the associated components and systems. The inspectors evaluated the technical adequacy of the evaluations to ensure technical specification operability was properly justified and to verify 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 SAR to the licensee's evaluations to determine whether the components or systems were operable. Where compensatory measures were required to maintain operability, the inspectors determined whether the measures in place would function as intended and were properly controlled. Additionally, the inspectors 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 four operability evaluations inspection samples as defined in Inspection Procedure 71111.15-05.

b. Findings

No findings were identified.

1R19 Post-Maintenance Testing (71111.19)

a. Inspection Scope

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

- July 17, 2012, Unit 1, high pressure injection pump P-36B testing following preventative maintenance performed on the pump, motor, and seal cooler
- August 3, 2012, Unit 1, reactor building spray block valve CV-2401 following planned maintenance and surveillance
- August 16, 2012, Unit 2, alternate ac emergency diesel generator following preventative and corrective maintenance
- August 30, 2012, Unit 1, emergency diesel generator 1 air start compressor C-4A1 following preventative maintenance
- September 18, 2012, Unit 2, emergency diesel generator 1 lube oil heater contactor replacement
- September 26, 2012, Unit 2, breaker 2A-310, 2A3 to 2A4 tie breaker following associated relay planned maintenance

- September 28, 2012, Unit 2, vital inverter 2Y24 following ten year preventative maintenance

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

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

The inspectors evaluated the activities against the technical specifications, the SAR, 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 post-maintenance 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 post-maintenance testing inspection samples as defined in Inspection Procedure 71111.19-05.

b. Findings

Introduction: The inspectors identified a Green non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, Corrective Action, for the licensee's failure to promptly identify and correct a condition adverse to quality associated with the Unit 2 vital inverters. Specifically, in 2010 the licensee failed to identify and correct the cause for a fuse failure and subsequent failure of vital inverters to start that allowed the condition to reoccur in 2011 and 2012.

Description: On October 17, 2010 while placing the Unit 2 2Y-1113 vital inverter in service to remove the 2Y-13 vital inverter for maintenance, 2Y-13 vital inverter failed and the 2Y-1113 vital inverter failed to start. This was documented in condition report CR-ANO-2-2010- 2363. Troubleshooting revealed that when both inverters failed to operate the DC input fuses had blown on each inverter.

The licensee performed a lower tier apparent cause and determined that the 2Y-1113 vital inverter failed and blew the DC input fuses due to a fault internal to the constant voltage transformer in the unit. This conclusion was reached even though the constant voltage transformer was tested and evaluated by an offsite vendor that determined the transformer was operating properly. Additionally, the licensee determined that the cause for the 2Y-13 vital inverter failure was a degraded capacitor which resulted in blowing the

associated DC input fuse preventing the unit from starting. This conclusion was reached based on the capacitor having a cracked ceramic insulator and slightly bulging can even though it was checked out satisfactorily with a capacitor tester. As part of the condition report closure review the licensee documented that even though the vendor failure analysis could not find any issue with the returned constant voltage transformer, the apparent cause was considered to be valid as the inverter had functioned without issue since replacement.

The constant voltage transformer was replaced in the 2Y-1113 inverter and the capacitor was replaced in the 2Y-13 inverter. Both inverters were declared operable after the maintenance was completed.

On November 29, 2011 while performing an 18 month preventative maintenance procedure the Unit 2 2Y-24 vital inverter would not start. This was documented in condition report CR-ANO-2-2011-3548. The condition report was closed to work order 298335 that would troubleshoot and repair the vital inverter. On April 19, 2012 when work commenced on work order 298335, the 2Y-24 vital inverter again failed to start. Troubleshooting revealed that when the inverter failed to start the DC input fuse had blown. This was documented on condition report CR-ANO-2-2012-0748.

The licensee again performed a lower tier apparent cause to determine the cause of the inverter failure. The licensee determined that the initial design was inadequate because the capacitor bank was undersized. It was determined that the inverters would fail to start some of the time because the installed capacitors did not have sufficient capacitance for the circuit to operate correctly. The licensee plans to install new capacitors with adequate capacitance to ensure reliable operations.

Analysis: The inspectors determined that the failure to promptly identify and correct a condition adverse to quality associated with the Unit 2 vital inverters is a performance deficiency. Specifically, the licensee failed to identify the cause of the fuse failures and take effective corrective actions in 2010, resulting in the failures in 2011 and 2012. The performance deficiency was more than minor because it was associated with the equipment performance attribute of the Mitigating Systems Cornerstone and adversely affected the cornerstone objective to ensure the availability, reliability and capability of systems that respond to initiating events to prevent undesirable consequences and is therefore a finding. Using Manual Chapter 0609, Attachment 4 "Initial Characterization of Findings," and Appendix A, "The Significance Determination Process for Findings at Power" the finding was determined to have very low safety significance, Green, because: (1) the finding was a deficiency affecting the design of a mitigating SSC and SSC operability was not maintained, (2) it did not represent a loss of system and/or function, (3) it did not represent an actual loss of function of a single train for greater than its technical specification allowed outage time, (4) it did not represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety-significant in accordance with the licensee's maintenance rule program for greater than 24 hours, and (5) it did not involve the loss or degradation of equipment or function specifically designed to mitigate a seismic, flooding, or severe weather event. The finding was determined to have a cross-cutting aspect in the area of human performance, associated with decision making, in that the licensee failed to use

conservative assumptions in decision making and failed to verify the validity of the underlying assumptions during effectiveness reviews. Specifically, the licensee assumption that the constant voltage transformer was the cause of the fuse failures was not valid and the condition report closure review accepted the assumption with contrary evidence that the transformer was satisfactory [H.1(b)].

Enforcement: Title 10 of CFR Part 50, Appendix B, Criterion XVI, Corrective Action, states in part, that measures shall be established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformance are promptly identified and corrected. Contrary to the above, from 2010 to 2012, the licensee failed to establish measures to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformance are promptly identified and corrected. Specifically, the licensee failed to identify an insufficient capacitance design deficiency causing inverter fuse failures and did not perform corrective actions to prevent the same failures in 2011 and 2012. This violation is being treated as a non-cited violation consistent with Section 2.3.2 of the Enforcement Policy because it was of very low safety significance and was entered into the corrective action program as Condition Report CR-ANO-C-2012-0748, to address recurrence. NCV 05000368/2012004-001, "Failure to Promptly Identify and Correct a Condition Adverse to Quality with the Unit 2 Vital Inverters."

1R20 Refueling and Other Outage Activities (71111.20)

a. Inspection Scope

The inspectors reviewed the outage safety plan and contingency plans for the Unit 2 2R22 refueling outage, conducted September 13, 2012 through the end of this inspection period, 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
- Clearance activities, including confirmation that tags were properly hung and equipment appropriately configured to safely support the work or testing
- Installation and configuration of reactor coolant pressure, level, and temperature instruments to provide accurate indication, accounting for instrument error

- Status and configuration of electrical systems to ensure that technical specifications and outage safety-plan requirements were met, and controls over switchyard activities
- Monitoring of decay heat removal processes, systems, and components
- Verification that outage work was not impacting the ability of the operators to operate the spent fuel pool cooling system
- Reactor water inventory controls, including flow paths, configurations, and alternative means for inventory addition, and controls to prevent inventory loss.
- Controls over activities that could affect reactivity
- Refueling activities
- Licensee identification and resolution of problems related to refueling outage activities.

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

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

b. Findings

No findings were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors reviewed the SAR, 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.

- July 12, 2012, observed diesel fuel oil transport sampling
- July 25, 2012, Unit 1, observed reactor building cooling coils VCC-2C and VCC-2D inservice surveillance test
- July 26, 2012, Unit 2, observed portions and reviewed low pressure safety injection pump P-60A quarterly inservice surveillance test
- August 3, 2012, Unit 1, observed portions and reviewed reactor building spray pump P-34A two-year comprehensive inservice surveillance test
- August 5, 2012, Unit 2, reviewed electric emergency feedwater pump 2P-7B two year comprehensive inservice surveillance test
- August 31, 2012, Unit 2, reviewed containment spray pump 2P-35A quarterly inservice test
- September 17, 2012, Unit 2, observed performance of the Unit 2 escape hatch as-found local leak rate test
- September 24, 2012, Unit 2, observed portions and reviewed emergency diesel generator 2 18-month surveillance test

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

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

b. Findings

No findings were identified.

Cornerstone: Emergency Preparedness

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

a. Inspection Scope

The NSIR Headquarters staff performed an in-office review of the latest revisions of various Emergency Plan Implementing Procedures (EPIPs) and the Emergency Plan located under ADAMS accession number ML12180A530 as listed in the Attachment.

The licensee determined that in accordance with 10 CFR 50.54(q), the changes made in the revisions resulted in no reduction in the effectiveness of the Plan, and that the revised Plan continued to meet the requirements of 10 CFR 50.47(b) and Appendix E to 10 CFR Part 50. The NRC review was not documented in a safety evaluation report and did not constitute approval of licensee-generated changes; therefore, this revision is subject to future inspection. The specific documents reviewed during this inspection are listed in the Attachment.

These activities constitute completion of one sample as defined in Inspection Procedure 71114.04-05.

b. Findings

No findings were identified

2. RADIATION SAFETY

Cornerstone: Occupational 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 licensee'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 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 as low as is reasonably achievable (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/post job 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 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

40A1 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 Second Quarter 2012 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 Mitigating Systems Performance Index - Heat Removal System (MS08)

a. Inspection Scope

The inspectors sampled licensee submittals for the mitigating systems performance index - heat removal system performance indicator for Unit 1 for the period from the third quarter 2011 through the second quarter 2012. 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 narrative logs, issue reports, event reports, mitigating systems performance index derivation reports, and NRC integrated inspection reports for the period of July 2011 through June 2012 to validate the accuracy of the submittals. The inspectors reviewed the mitigating systems performance index component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable NEI guidance. 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 one mitigating systems performance index - heat removal system sample as defined in Inspection Procedure 71151-05.

b. Findings

No findings were identified.

.3 Mitigating Systems Performance Index - Residual Heat Removal System (MS09)

a. Inspection Scope

The inspectors sampled licensee submittals for the mitigating systems performance index - residual heat removal system performance indicator for Unit 1 for the period from the third quarter 2011 through the second quarter 2012. 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 narrative logs, issue reports, mitigating systems performance index derivation reports, event reports, and NRC integrated inspection reports for the period of July 2011 through June 2012 to validate the accuracy of the submittals. The inspectors reviewed the mitigating systems performance index component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable NEI guidance. 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 one mitigating systems performance index - residual heat removal system sample as defined in Inspection Procedure 71151-05.

b. Findings

No findings were identified.

.4 Mitigating Systems Performance Index - Cooling Water Systems (MS10)

a. Inspection Scope

The inspectors sampled licensee submittals for the mitigating systems performance index - cooling water systems performance indicator for Unit 1 for the period from the third quarter 2011 through the second quarter 2012. 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 narrative logs, issue reports, mitigating systems performance index derivation reports, event reports, and NRC integrated inspection reports for the period of July 2011 through June 2012 to validate the accuracy of the submittals. The inspectors reviewed the mitigating systems performance index component risk coefficient to determine if it had

changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable NEI guidance. 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 one mitigating systems performance index - cooling water system sample as defined in Inspection Procedure 71151-05.

b. Findings

No findings were identified.

.5 Occupational Exposure Control Effectiveness (OR01)

a. Inspection Scope

The inspectors reviewed performance indicator data for the first quarter 2011 through the second quarter 2012. 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 rem/hr) and very high radiation area non-conformances. The inspectors reviewed radiological, controlled area exit transactions greater than 100 mrem. The inspectors also conducted walkdowns of high radiation areas (greater than 1 rem/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.

.6 Radiological Effluent Technical Specifications/Offsite Dose Calculation Manual
Radiological Effluent Occurrences (PR01)

a. Inspection Scope

The inspectors reviewed performance indicator data for the first quarter 2011 through the second quarter 2012. 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.

40A2 Problem Identification and Resolution (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 excessive leakage of intermediate heat exchangers E-28A, B, and C service water return check valve SW-9. The licensee entered the issue into the corrective action program as Condition Reports CR-ANO-1-2011-1901, 2533, 3003 and CR-ANO-C-2011-2725. The inspectors reviewed the condition reports for impact upon the service water system's operability including the emergency cooling pond. In addition, the inspectors performed a review of licensee's calculations relating to the emergency cooling pond hydrographic survey, the emergency cooling pond heat loads and temperature analysis, and the emergency cooling pond volume.

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

b. Findings

No findings were identified.

.4 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 a control room alarm received during work inside of control room panel C04 to replace a makeup tank level recorder. The licensee entered the issue into the corrective action program as Condition Report CR-ANO-1-2012-0716. The inspectors reviewed the condition report for impact

upon the control room and due to the risk associated with working inside control room panels.

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

b. Findings

Introduction. The inspectors identified a Green finding associated with a failure to implement a station procedure which resulted in not providing sufficient work instructions. Specifically, contrary to station procedure EN-WM-105, "Planning," Revision 10, the work instructions generated to replace the Unit 1 makeup tank level recorder did not provide sufficient detailed work instructions and/or documents to prevent damage to adjacent equipment. This resulted in a technician causing a short across the makeup hand switch, blowing fuses, and losing power to several relays with the associated loss of relay functions.

Description. On May 2, 2012, instrument and control personnel were in the Unit 1 control room replacing makeup tank recorder LR-1248 under compliance work order WO-278874. The control room operators received an annunciator alarm and took actions per station procedure OP 1203.012F, "Annunciator K07 Corrective Actions," Revision 29, and dispatched an operator to the integrated control systems relay room. Shortly after the annunciator alarm, the instrument and control technician informed the control room that he caused the alarm while he was working inside of the C04 portion of the control panel to remove the lower mounting bracket of the recorder. He had inadvertently made contact between the bracket and makeup tank input selector switch HS-1255 mounted directly below the recorder bracket.

The operator sent to the integrated control systems relay room reported a blown fuse on panel C47. The blown fuse caused a loss of power resulting in the loss of remote indication for the makeup tank at LI-1249, Daisy Panel, and at LI-1248, Rack 8 in the auxiliary building. Additionally, input to the makeup tank low level alarm LS- 1248 and the plant computer point were lost, leaving only one opposite channel indication in the control room. The event was documented in condition report CR-ANO-1-2012-0716.

The licensee performed a lower tier apparent cause evaluation as part of the corrective actions for the condition report. The licensee determined that the apparent cause of the event was a failure to effectively perform a thorough walk down and self check just prior to removing the recorder and perform a thorough job site review.

The inspectors reviewed the event and lower tiered apparent cause evaluation. The inspectors determined that the work order for replacing the recorder was classified as a level-1 package which required the procedure to provide detailed work instructions and/or documents to perform the work. The inspectors reviewed station procedure EN-WM-105, "Planning" Revision 10, to verify the station's requirements regarding the planning for level-1 packages. The planning procedure required a field walk down of the task. This evolution was deemed a critical evolution due to the nature of the work being

performed and was reviewed by management for adequacy of preparation and work documents. Although this task was walked down separately by the technicians, the supervisor and the instrument and control superintendent, they failed to identify the need to protect adjacent circuitry in the control panel.

The planning procedure further required consulting planning references including procedures, drawings, information from system experts and operating experience. This review failed to identify the need to protect adjacent circuitry in the control panel and additionally did not identify operating experience that ANO has on previous events within control panels.

The planning procedure also required a review of physical considerations. This specifically included determining risk-to-generation plant equipment that may be affected by implementation of the work instruction or that is within close proximity of the affected work area. This review failed to identify adjacent circuitry in the control panel.

Based upon these observations the inspectors determined that the licensee failed to implement the procedure and provide detailed work instructions and/or documents to protect adjacent circuitry in the control panel.

Analysis. The failure of station personnel to implement the requirements of station procedure EN-WM-105, "Planning," Revision 10, to generate a compliance work package with sufficient detail work instructions and/or documents was a performance deficiency. The performance deficiency was more than minor because it was associated with the procedure quality attribute of the Mitigating Systems Cornerstone and adversely affected the cornerstone objective to ensure the availability, reliability and capability of systems that respond to initiating events to prevent undesirable consequences and is therefore a finding. Using Manual Chapter 0609, Attachment 4 "Initial Characterization of Findings," and Appendix A "The Significance Determination Process for Findings at Power" the finding was determined to be of very low safety significance (Green) because the finding; 1) was not a deficiency affecting the design or qualification of a mitigating system that did maintain its operability or functionality, 2) did not represent a loss of system and/or function, 3) did not represent an actual loss of function of a single train for greater than its technical specification allowed outage time, 4) did not represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety-significant for greater than 24 hours, and 5) did not involve the loss or degradation of equipment or function specifically designed to mitigate a seismic, flooding, or severe weather event. The finding was determined to have a cross-cutting aspect in the area of human performance, associated with work control component, in that the licensee failed to plan and coordinate work activities consistent with nuclear safety. Specifically, the licensee failed to identify the hand switch during walk downs and adequately consider the job site conditions such that adjacent equipment would be protected from damage [H.3(a)].

Enforcement. This finding does not involve enforcement action because no regulatory requirement was violated. Because this finding does not involve a violation and is of very low safety significance, it is identified as a finding. FIN 05000313/2012004-002,

“Failure to Implement Planning Procedure Results in Short across Hand Switch in Control Room Control Panel.”

.5 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 a power failure in emergency feedwater control cabinet C186 and unplanned entry into a 72-hour technical specification action statement. The licensee entered the issue into the corrective action program as Condition Report CR-ANO-1-2012-1075.

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

b. Findings

Introduction. The inspectors documented a self-revealing, Green, non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, “Corrective Action,” for the licensee’s failure to correct a condition adverse to quality associated with the Unit 1 emergency feedwater initiation and control system control cabinet C186. Specifically, the licensee failed to perform corrective actions related to a previously identified design deficiency resulting in a loss of power to the cabinet which causes a loss of redundancy in the main steam line isolation logic from the emergency feedwater initiation and control system.

Description. On July 13, 2012, the Unit 1 control room operators received alarms indicating an emergency feedwater initiation and control system trouble coincident with a loss of position indication for main steam isolation valve CV-2691. An operator was dispatched to the cabinet and identified a loss of power to the cabinet. Control room operators declared the main steam isolation valve CV-2691 inoperable and entered the technical specifications for an inoperable main steam isolation valve with a 24-hour action statement to restore the valve to operable. Instrumentation and control technicians investigated and concluded that the condition prevented a main steam isolation through channel A of the emergency feedwater initiation and control system, but did not prevent closure of the valve. This information was used by operations to declare main steam isolation control valve CV-2691 operable and exit the 24-hour technical specification action statement and subsequently entered the applicable 72-hour technical specification for the initiation logic. Troubleshooting also identified soot and evidence of arcing at a lamp socket indicating a possible lamp and/or socket failure. The lamp could not be removed so the entire socket base was replaced. On July 14, 2012, following the replacement of the lamp, socket base, and control cabinet fuses, operations exited all technical specifications conditions. The licensee entered this issue into the corrective action program as Condition Report CR-ANO-1-2012-1075.

The licensee performed a higher tiered apparent cause evaluation for the event. The licensee determined that the power failure was due to the low quality lamp and an

inadequate socket base design that resulted in arcing and fuse failure. As part of the apparent cause evaluation, the licensee identified and reviewed similar failures from 2004, 2005, and 2007. In 2007, a similar power failure occurred on control panel C531 (CR-ANO-1-2007-1672). The licensee had performed higher tiered apparent cause evaluation for that event and an extent of condition review that identified emergency feedwater cabinets C186 and C187 as having a similar design deficiency. The licensee failed to take corrective actions to correct this design deficiency. Through discussions with licensee personnel, it was determined that if the corrective actions from the 2007 event had been implemented, the failure in July 2012 would have been prevented.

The licensee initiated corrective actions to change the lamp from an incandescent lamp to an LED and to replace the socket base with a more robust design. These changes are planned to be implemented in the next refueling outage, currently scheduled for March 2013.

Analysis. The failure to perform previously identified corrective actions to address a condition adverse to quality associated with the emergency feedwater initiation and control system is a performance deficiency. Specifically, the licensee failed to complete corrective actions to correct the design deficiency associated with lamp and lamp socket design for emergency feedwater initiation and control system cabinet C186. The performance deficiency is determined to be more than minor because it is associated with the equipment performance attribute of the Mitigating Systems cornerstone and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences, and therefore is a finding. Using Manual Chapter 0609, Attachment 4, "Initial Characterization of Findings," and Appendix A, "The Significance Determination Process for Findings at Power," the finding was determined to have very low safety significance, Green, because: (1) the finding was a deficiency affecting the design of a mitigating SSC and SSC operability was not maintained, (2) it did not represent a loss of system and/or function, (3) it did not represent an actual loss of function of a single train for greater than its technical specification allowed outage time, (4) it did not represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety-significant in accordance with the licensee's maintenance rule program for greater than 24 hours, and (5) it did not involve the loss or degradation of equipment or function specifically designed to mitigate a seismic, flooding, or severe weather event. The finding was determined not to have a cross-cutting aspect because the performance deficiency occurred in 2007 and is not indicative of current plant performance.

Enforcement. Title 10 of CFR Part 50, Appendix B, Criterion XVI, "Corrective Action", states, in part, "Measures shall be established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformance are promptly identified and corrected." Contrary to the above, from 2007 to 2012, the licensee failed to establish measures to assure that conditions adverse to quality, such as deficiencies, are promptly corrected. Specifically, the licensee failed to complete corrective actions to correct the design deficiency associated with lamp and lamp socket design for emergency feedwater initiation and

control system cabinet C186, which subsequently failed in 2012. The licensee took immediate corrective action to replace the failed lamp and the associated lamp socket, and further plans to correct the design deficiency in refueling outage 1R24. This violation is being treated as a non-cited violation consistent with Section 2.3.2 of the NRC Enforcement Policy because it was of very low safety significance and was entered into the licensee's corrective action program as Condition Report CR-ANO-1-2012-1075. NCV 05000313/2012004-03, "Failure to Correct a Condition Adverse to Quality Associated with the Unit 1 Emergency Feedwater Initiation and Control System."

40A6 Meetings, Including Exit

Exit Meeting Summary

On September 27, 2012, the inspectors presented the results of the radiation safety inspections to Mr. M. Chisum, Vice President/General Manager, and other members of the licensee staff. The licensee staff acknowledged the issues presented. The inspectors asked the licensee staff whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

On October 25, 2012, the inspectors presented the inspection results to Mr. C. Schwarz, Site Vice President, and other members of the licensee staff. The licensee acknowledged the issues presented. The inspector asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

40A7 Licensee-Identified Violations

None.

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

B. Byford, Manager, Training
T. Chernivec, Manager, Outages
M. Chisum, General Manager, Plant Operations
R. Crowe, Acting Manager, Security
B. Daiber, Manager, Design Engineering
J. Eichenberger, Manager, Corrective Actions & Assessments
R. Fuller, Manager, Quality Assurance
W. Greeson, Manager, Engineering Programs and Component
R. Holeyfield, Manager, Emergency Preparedness
D. James, Director, Nuclear Safety
K. Jones, Manager, Operations
B. Lynch, Supervisor, Radiation Protection
D. Marvel, Manager, Radiation Protection
J. McCoy, Director, Engineering
N. Mosher, Licensing Specialist
B. Pace, Manager, Planning, Scheduling, and Outage
D. Perkins, Manager, Maintenance
S. Pyle, Manager, Licensing
C. Schwarz, Site Vice President
T. Sherrill, Manager, Chemistry
D. Stoltz, Coordinator, ALARA
P. Williams, Manager, Operations

NRC Personnel

A. Sanchez, Senior Resident Inspector
J. Rotton, Resident Inspector
W. Schaup, Resident Inspector

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed

05000368/2012004-001	NCV	Failure to Promptly Identify and Correct a Condition Adverse to Quality with the Unit 2 Vital Inverters (Section 1R19)
05000368/2012004-002	FIN	Failure to Implement Planning Procedure Results in Short across Hand Switch in Control Room Control Panel (Section 4OA2)
05000313/2012004-003	NCV	Failure to Correct a Condition Adverse to Quality Associated with the Unit 1 Emergency Feedwater Initiation and Control System (Section 4OA2)

LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather Protection

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
ENS-EP-302	Severe Weather Response	11
ENS-DC-199	Off Site Power Supply Design Requirements Nuclear Plant Interface Requirements	6
ENS-DC-201	ENS Transmission Grid Monitoring	5

MISCELLANEOUS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
	2012 Summer Reliability Plan	
PL-159	Summer Reliability Plan	0

Section 1R04: Equipment Alignment

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
OP-1104.024	Instrument Air System	41
OP-2104.024	Instrument Air System	43
OP-1104.036	Emergency Diesel Generator Operation	61/62
OP-2104.036	Emergency Diesel Generator Operations	82
OP-1107.001	Electrical Systems Operations	87
OP-2107.001	Electrical Systems Operations	92
OP-1104.004	Decay Heat Removal Operating Procedure	99

DRAWINGS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
M-217	Emergency Diesel Generators and Fuel Oil Systems, Sheet 4	9
M-218	Instrument Air, Sheet 1	47

DRAWINGS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
M-218	Instrument Air, Sheet 3	78
M-218	Instrument Air, Sheet 4	51
M-218	Instrument Air, Sheet 8	11
M-2218	Instrument Air, Sheet 2	66
M-2218	Instrument Air, Sheet 3	94
M-2218	Instrument Air, Sheet 6	4
M-232	Decay Heat Removal System	103

Section 1R05: Fire Protection

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
FHA	ANO Fire Hazard Analysis	13
PFP-U1	ANO Pre-Fire Plan Unit 1	13
PFP-U2	ANO Pre-Fire Plan Unit 2	10

DRAWINGS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
FZ-1036	Fire Zone Detail, Unit 1, Turbine Building & Pipe Area, Level 335 FT	2
FZ-2054	Fire Zone Detail, Unit 2, Turbine Building, Level 335 FT	2
FZ-2001	Fire Zone Detail, Unit 2, Containment Building North and South sides, Level 354 FT	3
FZ-2012	Fire Zone Detail, Unit 2, Containment Building North and South sides, Level 335 FT	4
FZ-2013	Fire Zone Detail, Unit 2, Containment Building North and South sides, Level 372 FT	3
FZ-2014	Fire Zone Detail, Unit 2, Containment Building North and South sides, Level 386 FT	3
FZ-2015	Fire Zone Detail, Unit 2, Containment Building North and South sides, Level 404 FT	3

DRAWINGS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
FZ-1068	Fire Zone Detail, Unit 1, East and West Decay Heat Removal Pump Room, and Tendon Gallery Access Area	2
FZ-1038	Fire Zone Detail, Unit 1, Stair No. 1, Lab & Demineralizer Access Area, Tank Room, Upper N. Piping Penetration Room	2

CONDITION REPORTS

CR-ANO-2-2012-1844

Section 1R06: Flood Protection Measures

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
EN-DC-346	Cable Reliability Program	2

Section 1R11: Licensed Operator Requalification Program

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
COPD-032	Transient Conduct of Operations	1

Section 1R12: Maintenance Effectiveness

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
EN-DC-203	Maintenance Rule Program	1
EN-DC-204	Maintenance Rule Scope and Basis	2
EN-DC-205	Maintenance Rule Monitoring	3
EN-DC-206	Maintenance Rule (a)(1) Process	1

DRAWINGS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
M-218	Instrument Air, Sheet 1	47
M-218	Instrument Air, Sheet 3	78
M-218	Instrument Air, Sheet 4	51
M-218	Instrument Air, Sheet 8	11
M-2218	Instrument Air, Sheet 2	66
M-2218	Instrument Air, Sheet 3	94
M-2218	Instrument Air, Sheet 6	4

MISCELLANEOUS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
Maintenance Rule Data Base	Instrument Air System	Report Date 08/20/2012

Section 1R13: Maintenance Risk Assessment and Emergent Work Controls

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
COPD-024	Risk Assessment Guidelines	35/40

Section 1R15: Operability Evaluations

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
EN-OP-104	Operability Evaluations	5
OP-6030.101	Installation of Penetration Seals	8
OP-1000.120	ANO Fire Impairment Program	21
OP-1104.004	Decay Heat Removal Operating	101

WORK ORDERS

00294765-09

ENGINEERING CHANGES

38965

CONDITION REPORTS

CR-ANO-2-2012-1663 CR-ANO-1-2012-1184

CR-ANO-2-2012-2049 CR-ANO-1-2012-1065

Section 1R19: Post-Maintenance Testing

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
EN-MA-101	Fundamentals of Maintenance	9
EN-WM-102	Work Implementation and Closeout	6
EN-WM-105	Planning	9
EN-WM-107	Post Maintenance Testing	3
OP-1104.036	Emergency Diesel Generator Operation	62
OP-2305.049	Emergency Diesel Generator Periodic Tests	25
OP-1104.002	Makeup and Purification System	74
OP-2104.037	Alternate AC Diesel Generator Operations	23
OP-1104.005	Reactor Building Spray System Operation	65

DRAWINGS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
M-217	Emergency Diesel Generators and Fuel Oil Systems, Sheet 4	9

WORK ORDERS

52318888-01	52318891-01	52359248	327748	327750
52355932	298335	253877	164056	165444
326946				

CONDITION REPORTS

CR-ANO-2-2012-2317 CR-ANO-2-2012-2318 CR-ANO-2-2008-2076 CR-ANO-2-2012-1609
CR-ANO-1-2012-0723 CR-ANO-2-2010-2363 CR-ANO-2-2010-2410 CR-ANO-2-2011-3548
CR-ANO-2-2010-2524 CR-ANO-2-2012-0784 CR-ANO-2-2012-1253

Section 1R20: Refueling and Other Outage Activities

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
OP-1015.048	Shutdown Operations Protection Plan	9
OP-1015.008	Unit 2 SDC Control	42
OP-2103.011	Draining the Reactor Coolant System	48
OP-2203.029	Loss of Shutdown Cooling	15

CONDITION REPORTS

CR-ANO-2-2012-2645 CR-ANO-2-2012-2630 CR-ANO-2-2012-2632
CR-ANO-2-2012-2633 CR-ANO-2-2012-2650

Section 1R22: Surveillance Testing

PROCEDURE

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
OP-1104.033	Reactor Building Ventilation	71
OP-2106.006	Emergency Feedwater System Operations	82
OP-2104.005	Containment Spray	66
OP-2305.017	Local Leak Rate Testing	29
OP-2104.040	LPSI System Operations	59
OP-1104.005	Reactor Building Spray System Operations	65
OP-1305.004	RX Building Spray System Integrity Test and Leak Rate Determination	8-04
OP-1618.035	Sampling and Analyzing Diesel Fuel Oil From Diesel Fuel Oil Transport	11

CONDITION REPORT

CR-ANO-2-2012-1407 CR-ANO-2-2012-1669 CR-ANO-2-2012-1680 CR-ANO-2-2012-1949
CR-ANO-2-2012-1336

WORK ORDERS

52356605	52319561	52352344	52352373	52359838
322581	321447	52366560		

MISCELLANEOUS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
STM 1-09	Reactor Building Ventilation	12

Section 1EP4: Emergency Action Level and Emergency Plan Changes

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
OP-1903.010	Emergency Action Level Classification	45

Section 2RS01: Radiological Hazard Assessment and Exposure Controls

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
EN-RP-100	Radiation Worker Expectations	7
EN-RP-101	Access Control for Radiologically Controlled Areas	6
EN-RP-102	Radiological Control	3
EN-RP-108	Radiological Posting	11
EN-RP-143	Source Control	9
EN-RP-151	Radiological Diving	2
EN-RP-201	Dosimetry Administration	3

Section 2RS01: Radiological Hazard Assessment and Exposure Controls

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
EN-RP-202	Personnel Monitoring	8
EN-RP-204	Special Monitoring Requirements	6
EN-RP-503	Selection, Issue and Use of Respiratory Protection Equipment	5
EN-RP-5	Breathing Air	3
1052.033	Chemistry Source Accountability	3
1012.018	Administration of Radiological Surveys	12

CONDITION REPORTS

CR-ANO-C-2010-10	CR-ANO-1-2010-1444	CR-ANO-1-2010-2188
CR-ANO-1-2010-1063	CR-ANO-1-2010-1671	CR-ANO-1-2010-2377
CR-ANO-1-2010-1125	CR-ANO-1-2010-2135	CR-ANO-2-2010-2722
CR-ANO-1-2010-1304		

AUDITS, SELF-ASSESSMENTS, AND SURVEILLANCES

<u>NUMBER</u>	<u>TITLE</u>	<u>DATE</u>
LO 2011-00055	Pre-NRC Assessment Report	January 23, 2012
ALO-2012-049	ANO Mid-Cycle Assessment	June 20, 2012
ALO-2012-063	Outdoor Storage of Radioactive Material	July 26, 2012

RADIATION WORK PERMITS

<u>NUMBER</u>	<u>TITLE</u>
RWP 2012-2404	Routine RWP 2012 Maintenance Activities – Unit 2
RWP 2012-2412	Locked High Radiation Area D-Rings
RWP 2012-2420	Remove/Replace Scaffolding
RWP 2012-2450	In-Service Inspection Activities R22
RWP 2012-2470	Perform Alloy 600 Inspection
RWP 2012-2471	Perform Inspections of Reactor Head

NUMBER

TITLE

RWP 2012-2902 Diving Operations for Repairs to Upender

Section 2RS02: Occupational ALARA Planning and Controls

PROCEDURES

NUMBER

TITLE

REVISION

EN-RP-105	Radiological Work Permits	11
EN-RP-110	ALARA Program	9
EN-RP-110-05	ALARA Planning and Controls	0

CONDITION REPORTS

CR-ANO-C-2012-01295	CR-ANO-C-2012-00585	CR-ANO-C-2011-03141	CR-ANO-C-2011-02519
CR-ANO-2-2011-1415	CR-ANO-2-2011-01372	CR-ANO-2-2011-01050	CR-ANO-2-2011-01049
CR-ANO-2-2011-01048	CR-ANO-2-2011-01024	CR-ANO-2-2011-00965	CR-ANO-1-2011-03195
CR-ANO-1-2011-02858	CR-ANO-1-2011-02825	CR-ANO-1-2011-02766	CR-ANO-1-2011-02377
CR-ANO-1-2011-02314	CR-ANO-1-2011-02825	CR-ANO-1-2011-01194	

RADIATION WORK PERMITS

NUMBER

TITLE

RWP 2011-1420	Remove/Replace Scaffolding
RWP 2011-1430	Refueling Path Activities
RWP 2011-1432	Fuel Movement
RWP 2011-1433	Incore
RWP 2011-1442	Steam Generator Primary Side Inspection/Eddie Current
RWP 2011-1456	Reactor Building Ventilation Maintenance
RWP 2012-2471	Reactor Vessel Head Alloy 600 Inspections

MISCELLANEOUS DOCUMENTS

1R22 ALARA Report
1R23 ALARA Report
2R21 ALARA Report

MISCELLANEOUS DOCUMENTS

Source Term Reduction Strategy

2011-2012 5-Year ALARA Plan ANO-1

2011-2012 5-Year ALARA Plan ANO-2

Section 40A1: Performance Indicator Verification

PROCEDURE

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
EN-LI-114	Performance Indicator Process	4/6

Section 40A2: Identification and Resolution of Problems

PROCEDURE

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
EN-MA-101	Fundamentals of Maintenance	11
EN-FAP-WM-002	Critical Evolutions	1
EN-WM-102	Work Implementation and Closeout	7
EN-WM-105	Planning	10

MISCELLANEOUS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
CALC-91-E-0099-13	ECP Hydrographic Survey	0
CALC-91-E-0099-10	ECP Peak Temperature and Inventory Loss Analysis Summary	4
CALC-91-E-0099-14	ECP Peak Temperature and Inventory Loss Analysis	0

CONDITION REPORTS

CR-ANO-1-2012-0716

WORK ORDERS

278874

PAPERWORK REDUCTION ACT STATEMENT

This letter does not contain new or amended information collection requirements subject to the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.). Existing information collection requirements were approved by the Office of Management and Budget, control number 3150-0011.

LIST OF DOCUMENTS REVIEWED

**The following items are requested for the
Occupational Radiation Safety Inspection
at Arkansas Nuclear One
September 24-27, 2012
Integrated Report 2012004**

Inspection areas are listed in the attachments below.

Inspection areas are Radiological Hazard Assessment and Exposure Controls (71124.01), Occupational ALARA Planning and Controls (71124.02), and Performance Indicator Verification (71151) for the Occupational and Public Radiation Safety Cornerstones.

Please provide the requested information on or before **September 17, 2012**.

Please submit this information using the same lettering system as below. For example, all contacts and phone numbers for Inspection Procedure 71124.01 should be in a file/folder titled "1- A," applicable organization charts in file/folder "1- B," etc.

If information is placed on *ims.certrec.com*, please ensure the inspection exit date entered is at least 30 days later than the onsite inspection dates, so the inspectors will have access to the information while writing the report.

In addition to the corrective action document lists provided for each inspection procedure listed below, please provide updated lists of corrective action documents at the entrance meeting. The dates for these lists should range from the end dates of the original lists to the day of the entrance meeting.

If more than one inspection procedures is to be conducted and the information requests appear to be redundant, there is no need to provide duplicate copies. Enter a note explaining in which file the information can be found.

If you have any questions or comments, please contact **Louis C. Carson II** at (817)200.1221 or Louis.Carson@nrc.gov. **Also, Gilbert Guerra will be assisting on this inspection.**

1. Radiological Hazard Assessment and Exposure Controls (71124.01)

Date of Last Inspection: **March 2011**

- A. List of contacts and telephone numbers for the Radiation Protection Organization Staff and Technicians
- B. Applicable organization charts
- C. Audits, self assessments, and LERs written since date of last inspection, related to this inspection area
- D. Procedure indexes for the radiation protection procedures
- E. Please provide specific procedures related to the following areas noted below. Additional Specific Procedures may be requested by number after the inspector reviews the procedure indexes.
 - 1. Radiation Protection Program Description
 - 2. Radiation Protection Conduct of Operations
 - 3. Personnel Dosimetry Program
 - 4. Posting of Radiological Areas
 - 5. High Radiation Area Controls
 - 6. RCA Access Controls and Radworker Instructions
 - 7. Conduct of Radiological Surveys
 - 8. Radioactive Source Inventory and Control
 - 9. Declared Pregnant Worker Program
- F. List of corrective action documents (including corporate and subtiered systems) since date of last inspection, **March 2011**
 - a. Initiated by the radiation protection organization
 - b. Assigned to the radiation protection organization

NOTE: The lists should indicate the significance level of each issue and the search criteria used. Please provide documents which are "searchable" so that the inspector can perform word searches.

If not covered above, a summary of corrective action documents since date of last inspection involving unmonitored releases, unplanned releases, or releases in which any dose limit or administrative dose limit was exceeded (for Public Radiation Safety Performance Indicator verification in accordance with IP 71151)

- G. List of radiologically significant work activities scheduled to be conducted during the inspection period (If the inspection is scheduled during an outage, please also include a list of work activities greater than 1 rem, scheduled during the outage with the dose estimate for the work activity.)
- H. List of active radiation work permits
- I. Radioactive source inventory list

2. Occupational ALARA Planning and Controls (71124.02)

Date of Last Inspection: **March 2011**

- A. List of contacts and telephone numbers for ALARA program personnel
 - B. Applicable organization charts
 - C. Copies of audits, self-assessments, and LERs, written since date of last inspection, focusing on ALARA
 - D. Procedure index for ALARA Program
 - E. Please provide specific procedures related to the following areas noted below. Additional Specific Procedures may be requested by number after the inspector reviews the procedure indexes.
 - 1. ALARA Program
 - 2. ALARA Committee
 - 3. Radiation Work Permit Preparation
 - F. A summary list of corrective action documents (including corporate and subtiered systems) written since date of last inspection, related to the ALARA program. In addition to ALARA, the summary should also address Radiation Work Permit violations, Electronic Dosimeter Alarms, and RWP Dose Estimates
- NOTE: The lists should indicate the significance level of each issue and the search criteria used. Please provide documents which are “searchable.”
- G. List of work activities greater than 1 rem, since date of last inspection. Include original dose estimate and actual dose.
 - H. Site dose totals and 3-year rolling averages for the past 3 years (based on dose of record)
 - I. Outline of source term reduction strategy
 - J. Please provide the Annual ANO ALARA Report for 2011 and the last post Refueling Outage Report (**Unit-2**)

PAPERWORK REDUCTION ACT STATEMENT

This letter does not contain new or amended information collection requirements subject to the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.). Existing information collection requirements were approved by the Office of Management and Budget, control number 3150-0011.