



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**

REGION IV
1600 E LAMAR BLVD
ARLINGTON, TX 76011-4511

July 29, 2014

Louis P. Cortopassi, Site Vice President
Omaha Public Power District
Fort Calhoun Station FC-2-4
P.O. Box 550
Fort Calhoun, NE 68023-0550

**SUBJECT: FORT CALHOUN - NRC INTEGRATED INSPECTION REPORT
NUMBER 05000285/2014003**

Dear Mr. Cortopassi:

On June 30, 2014, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Fort Calhoun Station. On July 16, 2014, the NRC inspectors discussed the results of this inspection with Mr. E. Dean, Plant Manager, and other members of your staff. Inspectors documented the results of this inspection in the enclosed inspection report.

NRC inspectors documented one finding of very low safety significance (Green) in this report. This finding involved a violation of NRC requirements.

If you contest the violation or significance of the NCV, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region IV; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC resident inspector at the Fort Calhoun Station.

If you disagree with the 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 the Fort Calhoun Station.

In accordance with Title 10 of the *Code of Federal Regulations* (10 CFR) 2.390, "Public Inspections, Exemptions, Requests for Withholding," a copy of this letter, its enclosure, and your response (if any) will be available electronically for public inspection in the NRC's Public

L. Cortopassi

- 2 -

Document Room or from the Publicly Available Records (PARS) component of the NRC's Agencywide Documents 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/

Michael C. Hay
Chief, Project Branch F
Division of Reactor Projects

Docket: 50-285
License: DPR-40

Enclosure: NRC Inspection Report
05000285/2014003
w/Attachment: Supplemental
Information

L. Cortopassi

-2-

Document Room or from the Publicly Available Records (PARS) component of the NRC's Agencywide Documents 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/

Michael C. Hay
Chief, Project Branch F
Division of Reactor Projects

Docket: 50-285
License: DPR-40

Enclosure: NRC Inspection Report
05000285/2014003
w/Attachment: Supplemental
Information

DISTRIBUTION:
See next page

ADAMS ACCESSION NUMBER: ML14211A602

<input checked="" type="checkbox"/> SUNSI Review By: MHay		ADAMS <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		<input checked="" type="checkbox"/> Publicly Available <input type="checkbox"/> Non-Publicly Available		<input checked="" type="checkbox"/> Non-Sensitive <input type="checkbox"/> Sensitive	
OFFICE	DRP/FCS	DRP/FCS	RIV/DRS	RIV/DRP			
NAME	JKirkland/dll	JWingbach	HGepford	MHay			
SIGNATURE	/RA/E-Hay	/RA/	/RA/	/RA/			
DATE	7/24/14	7/28/14	7/25/14	7/29/14			

OFFICIAL RECORD COPY

E-Mail

Letter to Louis P. Cortopassi from from Michael C. Hay dated July 29, 2014

SUBJECT: FORT CALHOUN - NRC INTEGRATED INSPECTION REPORT
NUMBER 05000285/2014003

DISTRIBUTION:

Regional Administrator (Marc.Dapas@nrc.gov)
Deputy Regional Administrator (Kriss.Kennedy@nrc.gov)
Acting DRP Director (Troy.Pruett@nrc.gov)
Acting DRP Deputy Director (Michael.Hay@nrc.gov)
DRS Director (Anton.Vegel@nrc.gov)
DRS Deputy Director (Jeff.Clark@nrc.gov)
Senior Resident Inspector (Max.Schneider@nrc.gov)
Resident Inspector (Jacob.Wingebach@nrc.gov)
Acting Senior Project Engineer, DRP/F (Peter.Jayroe@nrc.gov)
Project Engineer, DRP/F (Chris.Smith@nrc.gov)
FCS Administrative Assistant (Janise.Schwee@nrc.gov)
RIV Public Affairs Officer (Victor.Dricks@nrc.gov)
RIV Public Affairs Officer (Lara.Uselding@nrc.gov)
NRR Project Manager (Joseph.Sebrosky@nrc.gov)
RIV Branch Chief, DRS/TSB (Geoffrey.Miller@nrc.gov)
RIV RITS Coordinator (Marisa.Herrera@nrc.gov)
RIV Regional Counsel (Karla.Fuller@nrc.gov)
Congressional Affairs Officer (Jenny.Weil@nrc.gov)
OEMail Resource
OEWEB Resource (Sue.Bogle@nrc.gov)
Technical Support Assistant (Loretta.Williams@nrc.gov)
RIV/ETA: OEDO (Anthony.Bowers@nrc.gov)
RIV RSLO (Bill.Maier@nrc.gov)
ACES (R4Enforcement.Resource@nrc.gov)
MC 0350 Panel Chairman (Anton.Vegel@nrc.gov)
MC 0350 Panel Vice Chairman (Louise.Lund@nrc.gov)
MC 0350 Panel Member (Michael.Balazik@nrc.gov)
MC 0350 Panel Member (Michael.Markley@nrc.gov)
ROPreports

Distribution via Listserv for Fort Calhoun Station

U.S. NUCLEAR REGULATORY COMMISSION

REGION IV

Docket: 05000285
License: DPR-40
Report: 05000285/2014003
Licensee: Omaha Public Power District
Facility: Fort Calhoun Station
Location: 9610 Power Lane
Blair, NE 68008
Dates: April 1 through June 30, 2014
Inspectors: J. Kirkland, Senior Resident Inspector
S. Schneider, Senior Resident Inspector
J. Wingeback, Resident Inspector
C. Alldredge, Health Physicist
N. Greene, Ph.D., Health Physicist
P. Hernandez, Health Physicist
J. Larsen, Senior Physical Security Inspector
R. Latta, Senior Reactor Inspector
C. Speer, Resident Inspector
L. Willoughby, Senior Reactor Inspector
Approved By: Michael C. Hay, Chief, Project Branch F
Division of Reactor Projects

SUMMARY

IR 05000285/2014003; 04/01/2014 – 06/30/2014; Fort Calhoun Station; Radiological Hazard Assessment and Exposure Control.

The inspection activities described in this report were performed between April 1 and June 30, 2014, by the resident inspectors at Fort Calhoun Station and inspectors from the NRC's Region IV office. One finding of very low safety significance (Green) is documented in this report. This finding involved a violation of NRC requirements. The significance of inspection findings are indicated by their color (i.e., greater than Green, or Green, White, Yellow, Red), and determined using Inspection Manual Chapter 0609, "Significance Determination Process" dated June 2, 2011. Their cross-cutting aspects are determined using Inspection Manual Chapter 0310, "Components Within the Cross-Cutting Areas" dated December 19, 2013. All violations of NRC requirements are dispositioned in accordance with the NRC's Enforcement Policy dated July 9, 2013. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process" revision 5."

Cornerstone: Occupational Radiation Safety

- Green. The inspectors reviewed a self-revealing, non-cited violation of Technical Specification 5.11.1.b, which resulted from an individual entering a high radiation area without being aware of the radiological conditions. Specifically, on July 19, 2013, an operator was performing valve lineup work in the reactor building. Although the operator was on a radiation work permit that allowed access to high radiation areas, access was only allowed with knowledge of the dose rates in the areas entered. As immediate corrective actions, the radiation protection supervisors coached the operator on properly informing Radiation Protection of his planned work areas and coached the radiation protection technician on having a more intrusive questioning attitude during briefings so that radworkers are properly informed of all hazards and radiological conditions. This issue was documented in the licensee's corrective action program as Condition Report CR 2014-14693.

The entry into a high radiation area without knowledge of the radiological conditions is a performance deficiency and is a violation of Technical Specification 5.11.1.b. The performance deficiency is more than minor because it is associated with the Occupational Radiation Safety cornerstone attribute of program and process (exposure control) and adversely affects the cornerstone objective of ensuring adequate protection of worker health and safety from exposure to radiation. Using Inspection Manual Chapter 0609, Appendix C, "Occupational Radiation Safety Significance Determination Process," dated August 19, 2008, the inspectors determined the violation has very low safety significance because: (1) it was not an as low as is reasonably achievable finding, (2) there was no overexposure, (3) there was no substantial potential for an overexposure, and (4) the ability to assess dose was not compromised. This violation has a cross-cutting aspect in the human performance area, associated with teamwork, because the operator did not properly communicate his work locations to the radiation protection technician for briefing and the technician did not display a questioning attitude to understand the work locations for the operator to properly brief him and ensure nuclear safety was maintained [H.4]. (Section 2RS1)

PLANT STATUS

The unit began the inspection period at 100% power. On April 15, 2014, the unit commenced a plant shutdown in accordance with Technical Specification 2.0.1 due to two inoperable control room air conditioners. One air conditioner was restored to operable status on April 15, 2014, with reactor power at approximately 36% power and the shutdown was halted. The unit returned to 100% power on April 18, 2014. On April 20, 2014, reactor power was decreased to approximately 85% to perform condenser cleaning. The unit returned to 100% power on April 26, 2014. On May 14, 2014, reactor power was decreased to 90% power to repair leaking gaskets on the heater drain pump suction piping. The unit returned to 100% power on May 16, 2014. On June 20, 2014, due to rising Missouri river levels the station commenced a downpower to 30%. On June 23, 2014, high Missouri river levels were determined to not be an operational restraint and reactor power was raised to 100% where it remained for the rest of the inspection period.

REPORT DETAILS

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection (71111.01)

.1 Readiness for Impending Adverse Weather Conditions

a. Inspection Scope

On May 12, 2014, the inspectors completed an inspection of the station's readiness for impending adverse weather conditions due to severe thunderstorms in the area. The inspectors reviewed plant design features, the licensee's procedures to respond to tornadoes and high winds, and the licensee's planned implementation of these procedures. The inspectors evaluated operator staffing and accessibility of controls and indications for those systems required to control the plant.

On June 16, 2014, the inspectors completed an inspection of the station's readiness for impending adverse weather conditions during a tornado watch. The inspectors reviewed plant design features, the licensee's procedures to respond to tornadoes and high winds, and the licensee's planned implementation of these procedures. The inspectors evaluated operator staffing and accessibility of controls and indications for those systems required to control the plant.

These activities constituted two samples of readiness for impending adverse weather conditions, as defined in Inspection Procedure 71111.01.

b. Findings

No findings were identified.

.2 Readiness to Cope with External Flooding

a. Inspection Scope

From June 17 through June 23, 2014, the inspectors completed an inspection of the station's readiness to cope with external flooding due to expected flooding on the Missouri River.

The inspectors reviewed plant design features and licensee procedures for coping with flooding. The inspectors walked down selected areas to inspect the design features, including the material condition of seals, drains, and flood barriers. The inspectors evaluated whether credited operator actions could be successfully accomplished.

These activities constituted one sample of readiness to cope with external flooding, as defined in Inspection Procedure 71111.01.

1R04 Equipment Alignment (71111.04)

.1 Partial Walkdown

a. Inspection Scope

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

- April 30, 2014, partial alignment of the diesel generator system while DG-1 was under a surveillance activity,
- May 28, 2014, partial system alignment of the spent fuel cooling system while spent fuel cooling pump AC-5A was out of service for maintenance, and
- June 18, 2014, partial system alignment of the intake cell level control system when the site anticipated river level would require their use.

The inspectors reviewed the licensee's procedures and system design information to determine the correct lineup for the systems. They visually verified that critical portions of the systems were correctly aligned for the existing plant configuration.

These activities constituted three partial system walk-down samples as defined in Inspection Procedure 71111.04.

b. Findings

No findings were identified.

1R05 Fire Protection (71111.05)

.1 Quarterly Inspection

a. Inspection Scope

The inspectors evaluated the licensee's fire protection program for operational status and material condition. The inspectors focused their inspection on four plant areas important to safety:

- May 21, 2014, Room 56E, East Switchgear Area, Fire Area 36A
- May 21, 2014, Room 56W, West Switchgear Area, Fire Area 36B
- May 28, 2014, Room 59, Pipe Penetration Area, Fire Area 23
- June 19, 2014, Intake Structure, Fire Area 31

For each area, the inspectors evaluated the fire plan against defined hazards and defense-in-depth features in the licensee's fire protection program. The inspectors evaluated control of transient combustibles and ignition sources, fire detection and suppression systems, manual firefighting equipment and capability, passive fire protection features, and compensatory measures for degraded conditions.

These activities constituted four quarterly inspection samples, as defined in Inspection Procedure 71111.05.

b. Findings

No findings were identified.

1R06 Flood Protection Measures (71111.06)

a. Inspection Scope

On April 29, 2014, the inspectors completed an inspection of the station's ability to mitigate flooding due to internal causes. After reviewing the licensee's flooding analysis, the inspectors chose two plant areas containing risk-significant structures, systems, and components that were susceptible to flooding:

- Corridor 4, Basement and Personnel Corridor Area
- Room 21, Safety Injection and Containment Spray Pump Area I

The inspectors reviewed plant design features and licensee procedures for coping with internal flooding. The inspectors walked down the selected areas to inspect the design features, including the material condition of seals, drains, and flood barriers. The inspectors evaluated whether operator actions credited for flood mitigation could be successfully accomplished.

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

b. Findings

No findings were identified.

1R07 Heat Sink Performance (71111.07)

a. Inspection Scope

The inspectors reviewed licensee programs to verify heat exchanger performance and operability for the following heat exchangers:

- Raw Water/Component Cooling Water Heat Exchanger - AC-1B
- Shutdown Cooling Heat Exchanger - AC-4A
- Spent Fuel Pool Heat Exchanger - AC-8

The inspectors verified whether testing, inspection, maintenance, and chemistry control programs were adequate to ensure proper heat transfer. The inspectors verified that the periodic testing and monitoring methods, as outlined in commitments to NRC Generic Letter 89-13, utilized appropriate industry heat exchanger guidance. Additionally, the inspectors verified that the licensee's chemistry program ensured that biological fouling was properly controlled between tests. The inspectors reviewed previous maintenance records of the heat exchangers to verify that the licensee's heat exchanger inspections adequately addressed structural integrity and cleanliness of their tubes. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of three triennial heat sink inspection samples as defined in Inspection Procedure 71111.07-05.

b. Findings

No findings were identified.

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

.1 Review of Licensed Operator Requalification

a. Inspection Scope

On April 17, 2014, the inspectors observed an evaluated simulator scenario performed by an operating crew. The inspectors assessed the performance of the operators and the evaluators' critique of their performance.

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 Review 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. The inspectors also assessed the operators' adherence to plant procedures, including conduct of operations procedure and other operations department policies. The inspectors observed the operators' performance of the following activities:

- April 15, 2014, Technical Specification required shutdown due to inoperable control room air conditioning units
- May 12, 2014, Plant downpower to 90% power due to leaking gaskets in heater drain pump suction piping
- Reactor Plant power maneuvers to support power ascension on June 22 and 23, 2014

These activities constitute completion of three quarterly licensed operator performance samples, as defined in Inspection Procedure 71111.11.

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness (71111.12)

a. Inspection Scope

The inspectors reviewed two instances of degraded performance or condition of safety-related structures, systems, and components (SSCs):

- April 15, 2014, failure of control room air conditioning Unit VA-46A
- May 2, 2014, charging Pump CH-1A packing failure

The inspectors reviewed the extent of condition of possible common cause SSC failures and evaluated the adequacy of the licensee's corrective actions. The inspectors reviewed the licensee's work practices to evaluate whether these may have played a role in the degradation of the SSCs. The inspectors assessed the licensee's characterization of the degradation in accordance with 10 CFR 50.65 (the Maintenance Rule), and verified that the licensee was appropriately tracking degraded performance and conditions in accordance with the Maintenance Rule.

These activities constituted completion of two maintenance effectiveness samples, as defined in Inspection Procedure 71111.12.

b. Findings

No findings were identified.

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

a. Inspection Scope

The inspectors reviewed two risk assessments performed by the licensee prior to changes in plant configuration and the risk management actions taken by the licensee in response to elevated risk:

- April 3, 2014, risk management actions associated with the turbine driven auxiliary feedwater Pump FW-10 being out of service for maintenance
- April 29, 2014, risk management actions associated with the performance of OP-ST-ESF-009, Channel "A" Safety Injection, Containment Spray and Recirculation Actuation Signal Test

The inspectors verified that these risk assessments were performed timely and in accordance with the requirements of 10 CFR 50.65 (the Maintenance Rule) and plant procedures. The inspectors reviewed the accuracy and completeness of the licensee's risk assessments and verified that the licensee implemented appropriate risk management actions based on the result of the assessments.

In addition, on April 5, 2014, the inspectors also observed portions of one emergent work activities that had the potential to affect the functional capability of the Chemical and Volume Control System. Specifically, the inspectors observed portions of the emergent rebuild of the A Charging Pump, CH-1A.

The inspectors verified that the licensee appropriately developed and followed a work plan for these activities. The inspectors verified that the licensee took precautions to minimize the impact of the work activities on unaffected structures, systems, and components (SSCs).

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

b. Findings

No findings were identified.

1R15 Operability Determinations and Functionality Assessments (71111.15)

a. Inspection Scope

The inspectors reviewed four operability determinations that the licensee performed for degraded or nonconforming structures, systems, or components (SSCs):

- April 15, 2014, operability determination of control room air conditioning Unit VA-46A after installation of a modification to bypass the low lube oil pressure switch
- April 23, 2014, operability determination of charging Pump CH-1B

- May 2, 2014, operability determination of reactor coolant system Loop 1A charging line stop Valve HCV-238
- June 4, 2014, operability determination of the auxiliary building while allowing access down the main access gate while under a tornado warning

The inspectors reviewed the timeliness and technical adequacy of the licensee's evaluations. Where the licensee determined the degraded SSC to be operable, the inspectors verified that the licensee's compensatory measures were appropriate to provide reasonable assurance of operability. The inspectors verified that the licensee had considered the effect of other degraded conditions on the operability of the degraded SSC.

These activities constitute completion of four operability review samples, as defined in Inspection Procedure 71111.15.

b. Findings

No findings were identified.

1R19 Post-Maintenance Testing (71111.19)

a. Inspection Scope

The inspectors reviewed five post-maintenance testing activities that affected risk-significant structures, systems, or components (SSCs):

- May 23, 2014, post-maintenance testing following maintenance on Emergency Diesel Generator 1 (EDG-1)
- June 2, 2014, post-maintenance testing following maintenance on the diesel driven auxiliary feedwater Pump, FW-54
- April 17, 2014, post-maintenance testing following maintenance on control room Air Conditioner VA-46A
- May 1, 2014, post-maintenance testing following maintenance on raw water piping
- June 6, 2014, post-maintenance testing following maintenance on raw water Strainer AC-12B

The inspectors reviewed licensing and design-basis documents for the SSCs and the maintenance and post-maintenance test procedures. The inspectors observed the performance of the post-maintenance tests to verify that the licensee performed the tests in accordance with approved procedures, satisfied the established acceptance criteria, and restored the operability of the affected SSCs.

These activities constitute completion of five post-maintenance testing inspection samples, as defined in Inspection Procedure 71111.19.

b. Findings

No findings were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors observed four risk-significant surveillance tests and reviewed test results to verify that these tests adequately demonstrated that the structures, systems, and components (SSCs) were capable of performing their safety functions:

In-service tests:

- May 1, 2014, Safety Injection System Category A and B Valve Exercise Test, OP-ST-3001

Other surveillance tests:

- April 4, 2014, Component Cooling Water Pump Base Line Curve Procedure, SE-ST-CCW-3002
- April 22, 2014, Quarterly Functional Test of Steam Generator Low Water Level Trip Units, IC-ST-RPS-0014
- April 10, 2014, Channel Functional Test of Containment Pressure High Signal (CPHS) Switches

The inspectors verified that these tests met technical specification requirements, that the licensee performed the tests in accordance with their procedures, and that the results of the test satisfied appropriate acceptance criteria. The inspectors verified that the licensee restored the operability of the affected SSCs following testing.

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

b. Findings

No findings were identified.

Cornerstone: Emergency Preparedness

1EP6 Drill Evaluation (71114.06)

.1 Emergency Preparedness Drill Observation

a. Inspection Scope

The inspectors observed an emergency preparedness drill on May 13, 2014, to verify the adequacy and capability of the licensee's assessment of drill performance. The inspectors reviewed the drill scenario, observed the drill from the technical support center, operations support center, simulator, emergency operations facility, and attended the post-drill critique. The inspectors verified that the licensee's emergency

classifications, off-site notifications, and protective action recommendations were appropriate and timely. The inspectors verified that any emergency preparedness weaknesses were appropriately identified by the licensee in the post-drill critique and entered into the corrective action program for resolution.

These activities constitute completion of one emergency preparedness drill observation sample, as defined in Inspection Procedure 71114.06.

b. Findings

No findings were identified.

2. RADIATION SAFETY

Cornerstone: Occupational Radiation Safety

2RS1 Radiological Hazard Assessment and Exposure Controls (71124.01)

a. Inspection Scope

The inspectors assessed the licensee's performance in assessing the radiological hazards in the workplace associated with licensed activities. The inspectors assessed the licensee's implementation of appropriate radiation monitoring and exposure control measures for both individual and collective exposures. The inspectors walked down various portions of the plant and performed independent radiation dose rate measurements. The inspectors interviewed the Radiation Protection (RP) manager, RP supervisors, and radiation workers. The inspectors reviewed licensee performance in the following areas:

- 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, RP 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 RP technician performance with respect to RP work requirements

- Audits, self-assessments, and corrective action documents related to radiological hazard assessment and exposure controls since the last inspection

These activities constitute completion of one sample of radiological hazard assessment and exposure controls as defined in Inspection Procedure 71124.01.

b. Findings

Introduction. The inspectors reviewed a self-revealing, Green, non-cited violation of Technical Specification 5.11.1.b, which resulted from the licensee's failure to control entry into a high radiation area (HRA) when an operator entered a posted HRA without knowledge of the dose rates. As a result, the operator received a high dose rate alarm upon entry into an area with greater than anticipated dose rates.

Description. On July 19, 2013, an operator entered a posted HRA without adequate knowledge of the radiological conditions (dose rates) in the area. As a result, the electronic alarming dosimeter (EAD) worn by the operator alarmed due to a high dose rate. This unanticipated dose rate alarm was received while performing valve lineups on the 1013 foot elevation of the reactor building, 'B' steam generator (S/G) bay area. This work was performed while signed onto Radiation Work Permit (RWP) 11-0020, Task 2, "OPS support (STs, walkdowns etc.)," with alarm setpoints of 35 millirem for dose and 375 millirem per hour for dose rate. However, the inspectors determined that the operator should have been signed onto Task 1, "Valve Line-Up and Tag Outs," to perform the specific duties of valve lineup; the Task 1 alarm setpoints were 30 millirem for dose and 150 millirem per hour for dose rate. Both tasks of RWP 11-0020 allowed access to an HRA, but only after being made knowledgeable of the dose rates in the areas to be entered.

An RP technician briefed the operator on the general area radiological conditions of the walk path for the job, but failed to provide detailed information on the work areas surrounding the walk path. Per discussion with the licensee, the operator informed the RP technician that he was performing valve lineup work in the 'B' S/G bay area, but he did not specify that he would veer from the walk path for which he was briefed. The RP technician briefed the operator of the radiological conditions using Survey M-20130625-5, dated June 25, 2013. The survey showed a maximum general area dose rate of 20 millirem per hour on the walk path of the 'B' S/G bay area. The operator veered from this path to access a valve atop the reactor coolant pump volute area, which was located a few feet away from the walk path below the shroud level of the pump. Upon entry to this area, he received a high dose rate alarm of 476 millirem per hour. As required, the operator stopped work and immediately exited the radiation controlled area (RCA) to inform RP of the alarming dosimeter. A follow-up survey, M-20130719-2, dated July 19 2013, was completed and showed a maximum of 1,000 millirem per hour on contact and 450 millirem per hour at 30 cm in this specific location.

The licensee determined in their investigation of the event that if better communication had occurred between the operator and RP technician performing the briefing, this issue could have been avoided. There are procedural requirements, developed and maintained for the purpose of radiological protection of personnel, which also could have also prevented this event. Section 7.12.3.A of Procedure RP-204, "Radiological Area Controls," Revision 66, states, in part, that a briefing shall be conducted PRIOR to initial

entry: (1) with the most recent survey data available, BRIEF workers on current radiological conditions in the work area and travel path; (2) INFORM the workers of areas to avoid; (3) BRIEF on EAD alarm settings and ENSURE they are adequate for the work area; and (4) ENSURE workers are aware of entry only to briefed HRAs. In addition, Section 4.5.3.B.1 of Procedure SO-G-101, "Radiation Worker Practices," Revision 39, states, in part, that entry into HRAs with an alarming dosimeter shall be made only after the dose rate level(s) in the area have been established and personnel have been made knowledgeable of the radiological conditions. These steps were not followed by either the RP technician or the operator. Records show that the radworker received a total of 9.9 millirem dose during the radiological controlled area (RCA) entry.

As immediate corrective actions, the RP supervisors coached the operator on properly informing RP of his planned work areas and coached the RP technician on having a more intrusive questioning attitude during briefings so that radworkers, in general, are properly informed of all hazards and radiological conditions. In addition to these immediate corrective actions, per discussion with the NRC inspectors, the licensee also planned to post more detailed surveys at the entrance to large areas posted as HRAs to better inform radworkers of the radiological conditions which they may encounter. This issue was documented in the licensee's corrective action program as Condition Report CR 2014-14693.

Analysis. The entry into a HRA without knowledge of the radiological conditions is a performance deficiency and is a violation of Technical Specification 5.11.1.b. The performance deficiency is more than minor because it is associated with the Occupational Radiation Safety cornerstone attribute of program and process (exposure control) and adversely affects the cornerstone objective of ensuring adequate protection of worker health and safety from exposure to radiation. Additionally, this issue resembles IMC 0612, Appendix E, Example 6(h). Using Inspection Manual Chapter 0609, Appendix C, "Occupational Radiation Safety Significance Determination Process," dated August 19, 2008, the inspectors determined the violation has very low safety significance because: (1) it was not as low as is reasonably achievable (ALARA) finding, (2) there was no overexposure, (3) there was no substantial potential for an overexposure, and (4) the ability to assess dose was not compromised. This violation has a cross-cutting aspect in the human performance area, associated with teamwork, because the operator did not properly communicate his work locations to the RP technician for briefing and the RP technician did not display a questioning attitude to understand the work locations for the operator to properly brief him and ensure nuclear safety was maintained [H.4].

Enforcement. Technical Specification (TS) 5.11.1.b states, in part, that any individual or group of individuals permitted to enter a HRA shall be provided with a radiation monitoring device which continuously integrates the radiation dose rates in the area and alarms when a preset integrated dose is received and that entry into such areas with this monitoring device may be made after the dose rate levels in the area have been established and personnel have been made knowledgeable of them. Contrary to the requirement of TS 5.11.1.b, on July 19, 2013, an operator entered a HRA with a radiation monitoring device (electronic alarming dosimeter), but was not knowledgeable of the dose rate levels in the area. Specifically, the operator veered from the walk path, on which he was briefed for a maximum dose rate level of 20 millirem per hour, and entered a HRA with dose rates of 450 millirem per hour at 30 cm. As a result, the operator received a high dose rate alarm of 476 millirem per hour on his EAD.

Because this violation is of very low safety significance and was entered into the licensee's corrective action program as Condition Report CR 2014-14693, this violation is being treated as a non-cited violation, consistent with Section 2.3.2.a of the Enforcement Policy: NCV 05000285/2014003-01: "Failure to Control an Entry to a High Radiation Area Resulting in a Dose Rate Alarm."

2RS2 Occupational ALARA Planning and Controls (71124.02)

a. Inspection Scope

The inspectors assessed licensee performance with respect to maintaining occupational individual and collective radiation exposures as low as is reasonably achievable (ALARA). During the inspection, the inspectors interviewed licensee personnel and reviewed licensee performance in the following areas:

- Site-specific ALARA procedures and collective exposure history, including the current 3-year rolling average, site-specific trends in collective exposures, and source-term measurements
- ALARA work activity evaluations/postjob reviews, exposure estimates, and exposure mitigation requirements
- The methodology for estimating work activity exposures, the intended dose outcome, the accuracy of dose rate and man-hour estimates, and intended versus actual work activity doses and the reasons for any inconsistencies
- Records detailing the historical trends and current status of tracked plant source terms and contingency plans for expected changes in the source term due to changes in plant fuel performance issues or changes in plant primary chemistry
- Radiation worker and RP 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

These activities constitute completion of one sample of occupational ALARA planning and controls as defined in Inspection Procedure 71124.02.

b. Findings

No findings were identified.

2RS4 Occupational Dose Assessment (71124.04)

a. Inspection Scope

The inspectors evaluated the accuracy and operability of the licensee's personnel monitoring equipment, verified the accuracy and effectiveness of the licensee's methods

for determining total effective dose equivalent, and verified that the licensee was appropriately monitoring occupational dose. The inspectors interviewed licensee personnel, walked down various portions of the plant, and reviewed licensee performance in the following areas:

- External dosimetry accreditation, storage, issue, use, and processing of active and passive dosimeters
- The technical competency and adequacy of the licensee's internal dosimetry program
- Adequacy of the dosimetry program for special dosimetry situations, such as declared pregnant workers, multiple dosimetry placement, and neutron dose assessment
- Audits, self-assessments, and corrective action documents related to dose assessment since the last inspection

These activities constitute completion of one sample of occupational dose assessment as defined in Inspection Procedure 71124.04.

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 Security

40A1 Performance Indicator Verification (71151)

.1 Reactor Coolant System Specific Activity (BI01)

a. Inspection Scope

The inspectors reviewed the licensee's reactor coolant system chemistry sample analyses for the period of December 1, 2013 through March 31, 2014 to verify the accuracy and completeness of the reported data. The inspectors used definitions and guidance contained in Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, to determine the accuracy of the reported data.

These activities constituted verification of the reactor coolant system specific activity performance indicator, as defined in Inspection Procedure 71151.

b. Findings

No findings were identified.

.2 Reactor Coolant System Total Leakage (BI02)

a. Inspection Scope

The inspectors reviewed the licensee's records of reactor coolant system total leakage for the period of December 1, 2013 through March 31, 2014 to verify the accuracy and completeness of the reported data. The inspectors observed the performance of OP-ST-RC-3001, Reactor Coolant System (RCS) Leak Rate Test on February 4, 2014. The inspectors used definitions and guidance contained in Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, to determine the accuracy of the reported data.

These activities constituted verification of the reactor coolant system leakage performance indicator, as defined in Inspection Procedure 71151.

b. Findings

No findings were identified.

.3 Occupational Exposure Control Effectiveness (OR01)

a. Inspection Scope

The inspectors verified there were no unplanned exposures or losses of radiological control over locked high radiation areas and very high radiation areas during the period of April 1, 2013, to March 31, 2014. The inspectors reviewed a sample of radiologically controlled area exit transactions showing exposures greater than 100 millirem. The inspectors used definitions and guidance contained in Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, to determine the accuracy of the reported data.

These activities constituted verification of the occupational exposure control effectiveness performance indicator as defined in Inspection Procedure 71151.

b. Findings

No findings were identified.

.4 Radiological Effluent Technical Specifications (RETS)/Offsite Dose Calculation Manual (ODCM) Radiological Effluent Occurrences (PR01)

a. Inspection Scope

The inspectors reviewed corrective action program records for liquid or gaseous effluent releases that occurred between April 1, 2013, and March 31, 2014, and were reported to the NRC to verify the performance indicator data. The inspectors used definitions and guidance contained in Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, to determine the accuracy of the reported data.

These activities constituted verification of the Radiological Effluent Technical Specifications (RETS)/Offsite Dose Calculation Manual (ODCM) radiological effluent occurrences performance indicator as defined in Inspection Procedure 71151.

b. Findings

No findings were identified.

4OA2 Problem Identification and Resolution (71152)

.1 Routine Review

a. Inspection Scope

Throughout the inspection period, the inspectors performed daily reviews of items entered into the licensee's corrective action program and periodically attended the licensee's condition report screening meetings. The inspectors verified that licensee personnel were identifying problems at an appropriate threshold and entering these problems into the corrective action program for resolution. The inspectors verified that the licensee developed and implemented corrective actions commensurate with the significance of the problems identified. The inspectors also reviewed the licensee's problem identification and resolution activities during the performance of the other inspection activities documented in this report.

b. Findings

No findings were identified.

.2 Annual Follow-up of Selected Issues

a. Inspection Scope

The inspectors selected one issue for an in-depth follow-up:

- On March 13, 2014, the inspectors assessed the licensee's operator work-arounds to determine if the mitigating system function is affected or the operator's ability to implement abnormal and emergency operating procedures were affected. The inspectors verified that the licensee appropriately prioritized the planned corrective actions and that these actions were adequate.

These activities constitute completion of one annual follow-up sample, which included one operator work-around sample, as defined in Inspection Procedure 71152.

b. Findings

No findings were identified.

40A3 Follow-up of Events and Notices of Enforcement Discretion (71153)

.1 (Opened) Licensee Event Report 05000285/2014-003-00: Reactor Trip Due to Stator Water Cooling Leak During Maintenance

“On March 17, 2014, at 12:02 Central Daylight Time (CDT), a turbine trip and subsequent reactor trip occurred while operating at nominal 100 percent power. Maintenance was in progress on the main generator stator cooling system when system inventory was lost resulting in an automatic turbine trip due to low system pressure. Immediate response by operations personnel included implementing procedure emergency operating procedure (EOP)-00, Standard Post Trip Actions, and subsequent entry into procedure EOP-01, Reactor Trip Recovery. Based on plant system response this is considered an uncomplicated trip.

“The station determined that the root cause of the plant trip was that operational risk was not effectively identified or mitigated by individuals throughout the organization.

“The leak was isolated shortly after the trip by fully removing the probe and closing the isolation valve. Fort Calhoun Station will be implementing the Exelon risk management procedure, WC-AA-104, Integrated Risk Management. This procedure provides direction consistent with industry best practices, and requires individual review of each category of risk identification and mitigation.”

.2 Operator Response During Unplanned Events

For the plant event listed below, the inspectors reviewed and observed plant parameters, reviewed personnel performance, and evaluated performance of mitigating systems. The inspectors communicated the plant event to appropriate regional personnel. The inspectors verified that Fort Calhoun made appropriate emergency classification assessments and properly reported the event in accordance with 10 CFR Parts 50.72 and 50.73. The inspectors reviewed Fort Calhoun’s follow-up actions related to the event to assure that Fort Calhoun implemented appropriate corrective actions commensurate with their safety significance.

- Operator conduct of a plant downpower to approximately 30 percent power to prepare for a potential plant shutdown due to rising Missouri river water level on June 20, 2014 and Fort Calhoun actions to ready the plant to mitigate the consequences of a significant flooding event from June 17 through June 22, 2014.

These activities constitute completion of two event follow-up samples, as defined in Inspection Procedure 71153.

40A4 IMC 0350 Inspection Activities (92702)

On December 17, 2013, the Nuclear Regulatory Commission issued a Confirmatory Action Letter to Fort Calhoun Stations (ML13351A395). The Confirmatory Action Letter confirms the commitments in the December 2, 2013, Omaha Public Power District (OPPD), “Integrated Report to Support Restart of Fort Calhoun Station and Post-Restart Commitments for Sustained Improvement.” In the report, OPPD committed to take actions following restart of the

Fort Calhoun Station to ensure the improvements realized during the extended outage remain in place and performance continues to improve at the facility. Included in the commitments are completing actions detailed in the Flooding Recovery Action Plan.

Flood Recovery Action Item Plan 1.2.3.21, Inspect tank and equipment on demineralized water tank for damage

a. Inspection scope

A water filled barrier was installed prior to the 2011 flood to protect the Deionized (DI) Water Storage Tank and its associated utility building. Due to excessive stress on the barrier in the tight installation configuration, the barrier failed and the tank was exposed to flood water for several months.

A structural assessment of the DI Water Tank was conducted. The inspectors reviewed the structural assessment, and performed visual inspection of the tank and concluded that there was no damage to the tank or associated utility building.

The inspectors previously performed a review of the Demineralized and Potable Water Systems. The scope of these reviews determined that the only equipment affected were to the Reverse Osmosis Unit Water Storage Tank Inlet and Outlet Pumps, DW-69 and DW-70. These pump motors were damaged after being submerged in flood waters. These pump motors were replaced in accordance with Flood Recovery Action Plan items 2.3.1.13, 2.3.1.14, 2.3.1.15, and 2.3.1.16, and documented in inspection report 05000285/2012004 (ML12276A456).

This activity constitutes completion of action item 1.2.3.21 as described in the Flood Recovery Action Plan and the December 17, 2013 Confirmatory Action Letter.

b. Findings

No findings were identified.

40A6 Meetings, Including Exit

Exit Meeting Summary

On April 24, 2014, the inspectors presented the radiation safety inspection results to Mr. M. Prospero, Plant Manager, and other members of the licensee staff. The licensee acknowledged the issues presented. The licensee confirmed that any proprietary information reviewed by the inspectors had been returned or destroyed. One document, which remained in the possession of an NRC inspector, was identified as proprietary after we left site. The NRC inspector informed the licensee that this document was later identified as proprietary and the licensee informed the NRC inspector to shred the document. Thus, the proprietary document was shredded in an official security waste bin at the NRC office.

On June 12, 2014, the inspectors presented the final inspection results Mr. E. Dean, Plant Manager and other members of the licensee's 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.

On July 16, 2014, the inspectors presented the inspection results for the Heat Sink Performance Inspection to Mr. E. Dean, Plant Manager, and other members of the licensee staff. The licensee acknowledged the issues presented. The licensee confirmed that any proprietary information reviewed by the inspectors had been returned or destroyed.

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

S. Anderson, Manager, Design Engineering
D. Bakalar, Manager, Security
J. Bousum, Manager, Emergency Planning and Administration
D. Brehm, Engineer, Radiation Protection
C. Cameron, Supervisor Regulatory Compliance
L. Cherko, Health Physicist
L. Cortopassi, Site Vice President
S. Coufal, Health Physicist
E. Dean, Plant Manager
E. Durboraw, Health Physicist, Radiation Protection
M. Ferm, Manager, System Engineering
H. Goodman, Site Engineering Director
P. Gunderson, Supervisor, Radiological Operations
R. Hugenroth, Supervisor Nuclear Oversight
K. Ihnen, Manager, Site Nuclear Oversight
P. Kellogg, Supervisor, ALARA
J. Lindsey, Director, Training
D. Little, Rad Health Specialist
K. Maassen, Program Engineer, GL 89-13
T. Maine, Manager, Radiation Protection
E. Matzke, Senior Licensing Engineer
W. McCall, Health Physicist, Radiation Protection
J. McManis, Manager Engineering Programs
B. Obermeyer, Manager, Corrective Action Program
T. Orth, Director, Site Work Management
M. Prospero, Plant Manager
S. Shea, Supervisor, Operations Training
T. Simpkin, Manager, Site Regulatory Assurance
M. Stewart, Sr. Radiation Protection Technician
S. Swanson, Director, Operations
D. Whisler, Supervisor, ALARA

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

05000285/2014-003-00 LER Reactor Trip Due to Stator Water Cooling Leak During Maintenance (Section 4OA3)

Opened and Closed

05000285/2014003-01 NCV Failure to Control an Entry to a High Radiation Area Resulting in a Dose Rate Alarm

LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather Protection

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
AOP-1	Acts of Nature	40
NOD-PP-M-4	Severe Weather Procedure	13
OP-AA-108-111-1001	Severe Weather and Natural Disaster Guidelines	12
EPIP-TSC-2	Catastrophic Flooding Preparations	17
SY-AA-101-146	Severe Weather Preparation and Response	0
SY-FC-101-146-AD-WEA	Severe Weather Preparation and Response (FCS Specific)	0
TBD-EPIP-OSC-1H	Recognition Category H – Hazards and Other Conditions Affecting Plant Safety	1
PE-RR-AE-1003	Preparation of Station Non-Vital Assets fro External Flooding	0
PE-RR-AE-1001	Flood Barrier and Sandbag Staging and Installation	20

Condition Reports

2014-07489

Section 1R04: Equipment Alignment

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
AOP-1	Acts of Nature	40
OI-DG-2	Diesel Generator No. 2	69

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
OI-SFP-1	Spent Fuel Pool Cooling Normal Operation	38
SDBD-AC-SFP-102	Spent Fuel Storage and Fuel Pool Cooling	24

Condition Reports

2011-10302

Drawings

<u>Number</u>	<u>Title</u>	<u>Revision</u>
11405-M-11	Auxiliary Coolant Spent Fuel Pool Cooling System Flow Diagram P&ID	57
11405-M-257	Composite Flow Diagram Circulating Water P&ID	96

Section 1RO5: Fire Protection

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
OP-MW-201-0007	Fire Protection System Impairment Control	7
SO-G-102	Fire Protection Program Plan	18
SO-G-103	Fire Protection Operability Criteria and Surveillance Requirements	27
SO-G-28	Station Fire Plan	87
SO-G-91	Control and Transportation of Combustible Materials	30

Miscellaneous Documents

<u>Number</u>	<u>Title</u>	<u>Revision</u>
EA-FC-97-001	Fire Hazards Analysis Manual	17
FC05814	UFHA Combustible Loading Calculation	11
USAR 9.11	Updated Safety Analysis Report, Fire Protection Systems	24

Section 1RO6: Flood Protection Measures

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
EA08-010	Internal Flooding	0

Condition Reports

2007-2715 2007-3670 2008-3492

Section 1R07: Heat Sink Performance

Calculations

<u>Number</u>	<u>Title</u>	<u>Revision</u>
FC 05660	Check of CCW Flow Model Against Measured Data	0
FC 05664	Determination of Raw Water Flows to CCW Heat Exchanger Performance	0
FC 05693	Component Cooling Water System Design Heat Loads and Flows	1
FC 05742	Acceptance Criteria for CCW Heat Exchanger Performance	0
FC 05789	CCW System Design Basis Performance Criteria	0
FC 05888	Raw Water Flows to CCW Heat Exchangers	1

Miscellaneous

<u>Number</u>	<u>Title</u>	<u>Date</u>
RA 2014-1214	Fort Calhoun Pre-NRC Triennial Heat Sink Inspection	June 6, 2014
	Certificate of Calibration Flow Meter No. MT-22700	May 19, 2011
	Certificate of Calibration Flow Meter No. MT-22701	November 30, 2011
	Certificate of Calibration Flow Meter No. MT-22706	April 15, 2013
	Component Cooling Water System Health Report	March 14, 2014
	Raw Water System Health Report	March 14, 2014
	Service Water System Health Report	March 14, 2014

Vendor Documents

<u>Title</u>	<u>Revision</u>
Instruction Manual for Component Cooling Heat Exchangers	1
Instruction Manual for Shutdown Heat Exchangers	1
Instruction Manual for Storage Pool Heat Exchangers	1

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision/Date</u>
CH-AD-0035	Microbiologically Induced/Influenced Corrosion Monitoring Program	3
CH-AD-0048	Environmental Inspection for Biofouling Organisms	3
IC-CP-01-AI-96	Calibration of Component Cooling Water and Raw Water Outlet From Heat Exchanger AC-1A/B/C/D	1
NOD-OP-N-3	Strategic Water Plan	10
OP-ST-RW-3001	AC-10A Raw Water Pump Quarterly Inservice Test	43
OP-ST-RW-3011	AC-10B Raw Water Pump Quarterly Inservice Test	38
OP-ST-RW-3021	AC-10C Raw Water Pump Quarterly Inservice Test	39
OP-ST-RW-3031	AC-10D Raw Water Pump Quarterly Inservice Test	40
PBD-17	Service Water Reliability	8
PED-SEI-16	Evaluation of Heat Exchanger Performance	12
PE-RR-CCW-0100	Disassembly, Cleaning, and Repair of Component Cooling Water Heat Exchanger – Raw Water Side	April 8, 2014
PE-RR-CCW-0101	Removal and Reinstallation of Shutdown Cooling Heat Exchanger Heads	8
SDBD-AC-CCW-100	Component Cooling Water	51
SDBD-AC-RW-101	Raw Water	39
SDBD-AC-SFP-102	Spent Fuel Storage and Fuel Pool Cooling	24
SDBD-SI-130	Shutdown Cooling	22
SE-PFT-CCW-0001	Component Cooling Water Heat Exchangers Performance Testing	December 29, 2012
USAR-9.3	Auxiliary Systems – Shutdown Cooling System	14
USAR-9.6	Auxiliary Systems – Spent Fuel Pool Cooling System	10
USAR-9.7	Auxiliary Systems – Component Cooling Water System	16
USAR-9.8	Auxiliary Systems – Raw Water System	31

Condition Reports

2011-05215	2011-07340	2011-09401	2011-09401	2011-09477
2012-00735	2012-03097	2012-05663	2012-06497	2012-08288
2012-08289	2012-09565	2012-09570	2012-11617	2012-12984
2012-13312	2012-18305	2013-04538	2013-04540	2013-04542

Work Orders

175833	175833	188897	188897	201320
201320	248454	248454	386035	396226
408766	449032	462250	470243	477978
495067	496412	496609	497665	498870

Section 1R11: Licensed Operator Requalification Program and Licensed Operator Performance

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
	EOP/AOP Floating Steps	5a
AOP-05	Emergency Shutdown	12
AOP-22	Reactor Coolant Leak	34
AOP-33	CVCS Leak	9
EOP-00	Standard Post Trip Actions	31
EOP-04	Steam Generator Tube Rupture	28
EOP-05	Uncontrolled Heat Extraction	28
EPIP-OSC-1	Emergency Classifications	48a
EPIP-OSC-2	Command and Control Position Actions/Notifications	57
OI-EE-1	Normal Operation of 4160 Volt System	30a
OI-FW-2	Feedwater (FW) System Normal Operation	42
OP-3A	Plant Shutdown	86
SO-G-105	Steam Generator Tube Leakage	22a
SO-O-1	Conduct of Operations	104
SO-R-1	Reportability Determinations	33

Miscellaneous Documents

<u>Number</u>	<u>Title</u>	<u>Revision</u>
	Cycle 2014-02 As Left Evaluation	5
	Simulator Fidelity 2014 Cycle 2	

Section 1R12: Maintenance Effectiveness

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
FCSG-69	Maintenance Rule Implementing Instructions (MRII)	0

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
FCSG-69-5	Failure Identification and Reporting	0
FCSG-69-6	Placement of SSCs into Category (a)(1), Goal Setting, and Return of SSCs to Category (a)(2)	0
FCSG-69-7	Periodic Assessment	0
PBD-16	Maintenance Rule Program Basis Document	9a
PED-SED-34	Maintenance Rule Program	9
SDBD-VA-CR-140	Control Room Habitability	25a
USAR-9.10	Heating, Ventilating and Air Conditioning System	33

Condition Reports

2011-1316	2011-1452	2011-2259	2011-2261	2011-5466
2011-7616	2012-04590	2014-04797	2014-05004	2014-05577
2014-06387				

Miscellaneous Documents

<u>Title</u>	<u>Revision/Date</u>
Functional Scoping Data Sheet for Control Room Air Conditioning	5
Status of Equipment in MR Category (a)(1) or (a)(1) review	April 2, 2014

Section 1R13: Maintenance Risk Assessments and Emergent Work Control

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
FCSG-19	Performing Risk Assessments	17
MM-RR-CH-0001	Inspection and Repair of Charging Pump Hydraulic Section	10
OP-ST-ESF-009	Channel A Safety Injection, Containment Spray and Recirculation Actuation Signal Test	59a
SO-M-100	Conduct of Maintenance	57b
SO-M-101	Maintenance Work Control	103
NUMARC-93-01	Industry Guidance for Monitoring the Effectiveness of Maintenance At Nuclear Power Plants	4a
Regulatory Guide 1.160	Monitoring the Effectiveness of Maintenance at Nuclear Power Plants	3

Section 1R15: Operability Determinations and Functionality Assessments

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
OP-FC-108-115	Operability Determinations	0a
SDBD-CH-108	Chemical and Volume Control Systems	29
UAS-9.2	Chemical and Volume Control System	27

Condition Reports

2014-05026	2014-05501	2014-05577	2014-06093	2014-06785
------------	------------	------------	------------	------------

Section 1R19: Post-Maintenance Testing

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
MM-PM-DG-0001	Diesel Generator DG-1 Inspection	13
OP-PM-AFW-0004	Third Auxiliary Feedwater Pump Operability Verification	39

Work Orders

345936	504052	509872	510831	517327
522553				

Section 1R22: Surveillance Testing

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
IC-ST-ESF-0004	Channel Functional Test of Containment Pressure High Signal (CPHS) Switches	9a
IC-ST-RPS-0014	Quarterly Functional Test of Steam Generator Low Water Level Trip Units	5
OP-ST-SI-3001	Safety Injection System Category A and B Valve Exercise Test	37a
SE-ST-CCW-3002	CCW Pump Base Line Curve Procedure	17

Work Orders

498231	510757
--------	--------

Section 1EP6: Drill Evaluation

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
AOP-6	Fire Emergency	28a
EPIP-EOF-7	Protective Action Guidelines	25
EPIP-OSC-1	Emergency Classifications	48a
EPIP-OSC-2	Command and Control Position Actions/Notifications	58
EPIP-OSC-9	Emergency Team Briefings	15

Miscellaneous Documents

<u>Title</u>	<u>Date</u>
Scenario Manual Volume 1 Training Drill	May 13, 2014

Condition Reports

2014-5960	2014-5961	2014-5972	2014-5993	2014-5994
2014-6051	2014-6054			

Section 2RS1: Radiological Hazard Assessment and Exposure Controls

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
RP-202	Radiological Surveys	044
RP-204	Radiological Area Controls	066
RP-206	Radioactive Material Handling	022
RP-229	Changes in Radiological Conditions Due to Plant Evolutions	001
RP-306	Hot Spot Identification and Tracking	021
RP-307	Use and Control of Temporary Shielding	021
RP-405	Radioactive Source Inventory Control	016
RP-AD-200	Radiation Protection Surveillance Program	036
RPP	Radiation Protection Plan	029
RP-ST-RM-0002	Radioactive Material Sources Surveillance	008

Section 2RS1: Radiological Hazard Assessment and Exposure Controls

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
SO-G-01	Radiation Worker Practices	039
SO-O-47	Spent Fuel Pool Inventory Control	009

Audits, Self-Assessments, and Surveillances

<u>Number</u>	<u>Title</u>	<u>Date</u>
RA-2013-2241	Radiation Protection Audit Report: Audit NOSA-FCS-13-58	July 27, 2013

Radiological Surveys

<u>Number</u>	<u>Title</u>	<u>Date</u>
M-20130625-5	'B' S/G Walkway, Elevation 1013'	June 25, 2013
M-20130719-2	'B' S/G Walkway, Elevation 1013' Post Survey	July 19, 2013
M-20131119-5	Containment, Elevation 994'	November 19, 2013
M-20140307-2	AUX 1007/Room 31, Source Storage	March 7, 2014
M-20140310-3	RW Building Room, Room 509	March 10, 2014
M-20140416-6	AUX 1025/Room 3, Spent Fuel Pool	April 16, 2014

Condition Reports

2012-00734	2013-02595	2013-12045	2013-13938	2013-13531
2013-14124	2013-14258	2013-14472	2013-14652	2013-14693
2013-15026	2013-15029	2013-16119	2013-16705	2013-17201
2013-17323	2013-20766	2013-21217	2014-01875	2014-05225

Radiation Work Permits

<u>Number</u>	<u>Title</u>	<u>Revision</u>
11-0020	Operations Support for the 2011 RFO	00
14-0100	Minor Maintenance in Radiation Areas (no System Breaches)	02
14-2201	Waste Disposal Maintenance in Radiation Areas and High Radiation Areas	02
14-2203	SI/AC Maintenance in Radiation Areas and in High Radiation Areas	01
14-2204	VA, CCW, RW and FP Maintenance in Radiation Areas and High Radiation Areas	01
14-2208	DTS Maintenance and Waste Processing	00

Radiation Work Permits

<u>Number</u>	<u>Title</u>	<u>Revision</u>
14-2209	Post Outage Recovery	00
14-3304	Minor Maintenance in RHRAs of the Auxiliary/Radwaste Buildings	01
14-3307	Regulatory Inspections	00

Miscellaneous Documents

<u>Number</u>	<u>Title</u>	<u>Date</u>
6080	2014 National Source Tracking System – Annual Inventory Reconciliation	January 14, 2014
FC-1217	Non-Fuel Material Spent Fuel Pool Inventory Ledger	October 2013
FC-RP-ST-RM-2	Radioactive Source Inventory and Leak Test	November 12, 2013

Section 2RS2: Occupational ALARA Planning and Controls

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
RP-212	Diving Operations within Radiologically Controlled Areas	12
RP-301	ALARA Planning/ RWP Development and Control	51
RP-AA-400-2000	Department Dose Zealot	0
RP-AD-300	ALARA Program	28a
SO-G-116	Station ALARA Program	1

Condition Reports

2013-12805	2013-12891	2013-13277	2013-13394	2013-13401
2013-13531	2013-13544	2013-14124	2013-14125	2013-14666
2013-15805	2013-15854	2013-15961	2013-16020	2013-16354
2013-16378	2013-17135	2013-17150	2013-17489	2013-18601
2013-19791	2013-20016	2013-20121	2013-20419	2013-20592
2013-20858	2013-21334	2013-22928	2014-00486	2014-00872
2014-00918	2014-01528	2014-01692	2014-01875	2014-02366
2014-02525	2014-02526	2014-02527	2014-02891	2014-03355
2014-04982	2014-05055	2014-05056	2014-05057	2014-05058
2014-05062	2014-05208			

Radiation Work Permits

<u>Number</u>	<u>Title</u>	<u>Revision</u>
12-2201	SI/AC System Maintenance in High Radiation Area	0
13-2552	Replace Union Attached to bottom of CH208 and Associated Tasks	0

Radiation Work Permits

<u>Number</u>	<u>Title</u>	<u>Revision</u>
13-2565	RC-3C Seal Piping Supports and Associated Tasks	0
13-3554	Upper Guide Structure Underwater Modifications and Associated Tasks	0
14-2201	Waste Disposal Maintenance in Radiation Areas and High Radiation Areas	0
14-2201	Waste Disposal Maintenance in Radiation Areas and High Radiation Areas	1
14-2201	Waste Disposal Maintenance in Radiation Areas and High Radiation Areas	2
14-2202	CVCS Maintenance in Radiation Areas and High Radiation Areas	0
14-2202	CVCS Maintenance in Radiation Areas and High Radiation Areas	1
14-2202	CVCS Maintenance in Radiation Areas and High Radiation Areas	2
14-2203	SI/AC Maintenance in Radiation Areas and High Radiation Areas	0
14-2203	SI/AC Maintenance in Radiation Areas and High Radiation Areas	1
14-2208	DTS Maintenance and Waste Processing	0

ALARA Work Control Plans

<u>Number</u>	<u>Title</u>	<u>Date</u>
RWP 12-2201	SI/AC System Maintenance in High Radiation Areas	November 10, 2011
RWP 13-2552	Replace Union Attached to bottom of CH208 and Associated Tasks	March 20, 2013
RWP 13-2565	RC-3C Seal Piping Supports and Associated Tasks	October 18, 2013
RWP 13-3554	Upper Guide Structure Underwater Modifications and Associated Tasks	August 2, 2013
RWP 14-2201	Waste Disposal Maintenance in Radiation Areas and High Radiation Areas	December 4, 2013
RWP 14-2201	Waste Disposal Maintenance in Radiation Areas and High Radiation Areas	January 6, 2014
RWP 14-2201	Waste Disposal Maintenance in Radiation Areas and High Radiation Areas	February 24, 2014
RWP 14-2201	Waste Disposal Maintenance in Radiation Areas and High Radiation Areas	March 4, 2014

ALARA Work Control Plans

<u>Number</u>	<u>Title</u>	<u>Date</u>
RWP 14-2202	CVCS Maintenance in Radiation Areas and High Radiation Areas	December 4, 2013
RWP 14-2202	CVCS Maintenance in Radiation Areas and High Radiation Areas	February 27, 2014
RWP 14-2203	SI/AC Maintenance in Radiation Areas and High Radiation Areas	December 4, 2013
RWP 14-2203	SI/AC Maintenance in Radiation Areas and High Radiation Areas	January 6, 2014
RWP 14-2208	DTS Maintenance and Waste Processing	January 17, 2014

Work in Progress Reviews

<u>Number</u>	<u>Title</u>	<u>Date</u>
1	RWP 13-2552 Replace Ch 208 Union	October 26, 2013
2	RWP 13-2552 Replace Ch 208 Union	November 9, 2013
1	RWP 14-2202 CVCS Maintenance in Radiation Areas and High Radiation Areas	April 9, 2014
1	RWP 14-2201 Waste Disposal Maintenance	February 20, 2014
2	RWP 14-2201 Waste Disposal Maintenance	April 9, 2014
1	RWP 13-3554 Upper Guide Structure Underwater Modifications and Associated Tasks	August 14, 2013

Radiological Surveys

<u>Number</u>	<u>Title</u>	<u>Date</u>
M-20130729-3	Lower cavity	July 29, 2013
M-20130730-2	Lower cavity	July 30, 2013
M-20130801-1	Lower cavity	August 1, 2013
M-20130801-2	Lower cavity	August 1, 2013
M-20130808-1	Upper cavity	August 8, 2013
M-20130808-2	Upper cavity	August 8, 2013

Miscellaneous Documents

<u>Number</u>	<u>Title</u>	<u>Date</u>
	Fort Calhoun Nuclear Station 2014-2018 Dose Excellence Plan	
13-NOS-087	Radiation Protection Audit Report Audit NOSA-FCS-13-58	July 27, 2013

Section 2RS4: Occupational Dose Assessment

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision/Date</u>
CH-ST-RV-0010	Environmental Monthly Progress Report Receipt	9
FC-RP-605-1	Exposure Evaluation Report	1
FCSG-24-1	Condition Report Initiating	6
FCSG-24-3	Condition Report Screening	12a
IC-CP-02-0229	Calibration of MGP Telepole	7
IC-CP-07-008	Calibration of Eberline PM-7 Portal Monitor	8a
OP-ST-SI-3003	LP Safety Injection and Containment Spray System Pump and Check Valve Test	June 14, 2013
RP-203	Air Sample Collection and Analysis	20
RP-204	Radiological Area Controls	66
RP-205	DAC-Hour Tracking	7
RP-602	Personnel Dosimetry Issuance and Changeout	24
RP-605	TLD and Exposure Evaluation Reports	14
RP-606	Special Dosimetry Issue, Control and Use	17
RP-650	Internal Dosimetry Program	12
RP-670	Declared Pregnancy/Anticipated Pregnancy Procedure	0
RP-910	Radiological Risk Assessment	0
RP-AD-200	Radiation Protection Surveillance Program	36
RP-AD-600	Dosimetry Program	22

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision/Date</u>
RPG-037	Radiation Protection Outage Guideline	17
RPG-071	Human Performance Tool for Investigating Dosimeter Alarms	1
RPI-6	Alternate Access Control of Radiologically Controlled Area	February 16, 2006
RPP	Radiation Protection Plan	29
RW-218	10CFR61 Classification	15
SO-G-101	Radiation Worker Practices	39
TQG 19-27-17	Task Qualification Guide – Radiation Contamination Guide	18

Condition Reports

2012-19508	2013-15026	2014-04927	2011-9947	2012-01086
2012-02171	2012-02483	2012-02950	2012-10913	2012-13074
2012-19142	2013-02498	2013-03542	2013-04833	2013-13416
2013-14121	2013-14651	2013-14661	2013-17225	2013-18776
2013-20292	2014-01126			

Miscellaneous Documents

<u>Number</u>	<u>Title</u>	<u>Revision/Date</u>
	National Voluntary Laboratory Accreditation Program	2014
	TLD Exposure Record Read Results	
13-008	Personnel Contamination Report	
EA-FC-92-071	Engineering Analysis 10CFR20 Revision Bioassay Program Recommendations	October 13, 1992
RA-12-002	Evaluation of Instrument Response to Measured Plant Radionuclide Mix	2

Section 40A1: Performance Indicator Verification

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
CH-ANL-RA-0018	Determination of Gamma Isotopic Activity Using Canberra APEX System	1
CH-ST-RC-0003	Reactor Coolant DEI Activity	5

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
NOD-QP-37	Performance Indicator Program	27
NOD-QP-40	NRC Performance Indicator Program	8
OP-ST-RC-3001	Reactor Coolant System (RCS) Leak Rate Test	36

Miscellaneous Documents

<u>Number</u>	<u>Title</u>	<u>Revision</u>
	Control Room Logs from 12/1/13 through 3/31/14	
NEI 99-02	Regulatory Assessment Performance Indicator Guideline	7

Condition Reports (CRs)

2014-05066

Section 40A2: Problem Identification and Resolution

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
FCSG-24-1	Condition Report Initiation	6
FCSG-24-10	Corrective Action Program Trending	5
FCSG-24-3	Condition Report Screening	12a
FCSG-24-4	Condition Report and Cause Evaluation	8a
FCSG-24-5	Cause Evaluation Manual	7a
FCSG-24-6	Corrective Action Implementation and Condition Report Closure	12a
SO-R-2	Condition Reporting and Corrective Action	53b

Section 40A3: Follow-up of Events and Notices of Enforcement Discretion

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
FCSG-23	10 CFR 50.59 Resource Manual	8
EPIP-TSC-2	Catastrophic Flooding Preparations	17
AOP-1	Acts of Nature	40
IC-CP-01-5043	Calibration of Stator Cooling Water System Conductivity Elements and Recorder	5

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
NOD-QP-3	10 CFR 50.59 and 10 CFR 72.48 Reviews	37
SO-R-1	Reportability Determinations	33
TDB-EPIP-OSC-11T	Hazards and Other Conditions Affecting Plant Safety Emergency Levels	2

Condition Reports (CRs)

2014-03381

Miscellaneous Documents

<u>Number</u>	<u>Title</u>	<u>Revision</u>
50214	Reactor Plant Event Notification	
AOP-1	Technical Specification 2.16 River Level	