



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

August 14, 2007

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Omaha Public Power District
Fort Calhoun Station FC-2-4 Adm.
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SUBJECT: FORT CALHOUN STATION - NRC INTEGRATED INSPECTION
REPORT 05000285/2007003

Dear Mr. Ridenoure:

On June 30, 2007, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Fort Calhoun Station. The enclosed integrated inspection report documents the inspection findings, which were discussed on June 29, 2007, with Mr. Jeff Reinhart, Site Director, and other members of your staff.

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

This report documents one self-revealing finding of very low safety significance (Green). This finding was determined to involve a violation of NRC requirements. However, because of the very low safety significance and because this is entered into your corrective action program, the NRC is treating this finding as a noncited violation (NCV), consistent with Section VI.A.1 of the NRC Enforcement Policy. If you contest this 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, D.C. 20555-0001, with copies to the Regional Administrator, U.S. Nuclear Regulatory Commission, Region IV, 611 Ryan Plaza Drive, Suite 400, Arlington, Texas 76011-4005; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555-0001; and the NRC Resident Inspector at the Fort Calhoun Station facility.

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Sincerely,

/RA J.Hanna for/

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

Docket: 50-285
License: DPR-40

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NRC Inspection Report 05000285/2007003
w/Attachment: Supplemental Information

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SUNSI Review Completed: __JAC_ADAMS: Yes No Initials: JAC_
 Publicly Available Non-Publicly Available Sensitive Non-Sensitive

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RIV:RI:DRP/E	SPE:DRP/E	C:DRS/PSB	C:DRS/OB	C:DRS/EB1
LMWilloughby	JDHanna	MPShannon	ATGody	DAPowers
/RA electronically/	/RA/	/RA/	/RA/	/RA/
8/ /04	8/13/04	8/13/04	8/14/04	8/13/04
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U.S. NUCLEAR REGULATORY COMMISSION

REGION IV

Docket: 50-285
License: DPR-40
Report: 05000285/2007003
Licensee: Omaha Public Power District
Facility: Fort Calhoun Station
Location: Fort Calhoun Station FC-2-4 Adm.
P.O. Box 399, Highway 75 - North of Fort Calhoun
Fort Calhoun, Nebraska
Dates: April 1 through June 30, 2007
Inspectors: L. Willoughby, Senior Resident Inspector
J. Hanna, Acting Senior Project Engineer
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B. Baca, Health Physicist
Approved By: Jeff A. Clark, Chief, Project Branch E
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SUMMARY OF FINDINGS

IR 05000285/2007002; 04/01/2007- 06/30/2007; Fort Calhoun Station, Integrated Resident and Regional Report; Access Control to Radiologically Significant Areas.

The report covered a 3-month period of inspection by a senior resident inspector, senior project engineer, a reactor inspector, and a health physicist. One Green noncited violation of significance was identified. The significance of most findings is indicated by their color (Green, White, Yellow, or Red) using Inspection Manual Chapter 0609, "Significance Determination Process." Findings for which the significance determination process does not apply may be Green or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 3, dated July 2000.

A. NRC-Identified Findings and Self-Revealing Findings

Cornerstone: Occupational Radiation Safety

- Green. A self-revealing noncited violation of Technical Specification 5.8.1(a) was identified because a worker failed to stop work and notify radiation protection personnel upon receiving a dose rate alarm per procedural requirements. On March 24, 2007, a chemist received an electronic alarming dosimeter dose rate alarm while performing an instrument calibration. The individual received a peak dose rate of 186 millirem per hour and the dose alarm set point was 120 millirem per hour. The chemist did not self-check subsequent actions when problems arose with the calibration source and did not notify radiation personnel protection of the alarm until after exiting from the Radiologically Controlled Area. The worker was coached and received remedial radiation worker training. This finding was entered into the licensee's corrective action program.

The failure to follow a station procedure is a performance deficiency. This finding is greater than minor because it is associated with one of the cornerstone attributes (exposure control) and affected the Occupational Radiation Safety cornerstone objective, in that the failure to follow the station procedure resulted in additional personnel exposure. The inspectors used the Occupational Radiation Safety Significance Determination Process and determined that this finding was of very low safety significance because it did not involve: (1) an as low as is reasonably achievable finding, (2) an overexposure, (3) a substantial potential for overexposure, or (4) an impaired ability to assess dose. In addition, this finding had a human performance crosscutting aspect associated with work practices (H.4(a)) because the chemist did not use human error prevention techniques, such as self-checking (Section 2OS1).

B. Licensee-Identified Violations

None

REPORT DETAILS

Summary of Plant Status

The unit began this inspection period in Mode 1 at full rated thermal power. A power reduction commenced on May 11, 2007, to support main condenser cleaning. On May 12, 2007, power reduction was completed and power was stabilized at 70 percent. Plant conditions and the progress in main condenser cleaning allowed a slow power ascension to commence on May 13, 2007. One hundred percent power was achieved on May 15, 2007, where the plant remained until the end of the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection (71111.01)

.1 Readiness for Seasonal Susceptibilities

a. Inspection Scope

The inspectors completed a review of the licensee's readiness of seasonal susceptibilities involving extreme high winds. The inspectors: (1) reviewed plant procedures, the Updated Safety Analysis Report (USAR), and Technical Specifications (TS) to ensure that operator actions defined in adverse weather procedures maintained the readiness of essential systems; (2) walked down the portion of the system listed below to ensure that adverse weather protection features (heat tracing, space heaters, weatherized enclosures, temporary chillers, etc...) were sufficient to support operability, including the ability to perform safe shutdown functions; (3) evaluated operator staffing levels to ensure the licensee could maintain the readiness of essential systems required by plant procedures; and (4) reviewed the corrective action program to determine if the licensee identified and corrected problems related to adverse weather conditions.

- June 8, 2007, Walked down the protected area and owner controlled area for missile hazards and general protection of switchyard. Items of concern were captivated

Documents reviewed by the inspectors included: Procedure FCSG-1, "Duty Assignments," Revision 6.

The inspectors completed one sample.

b. Findings

No findings of significance were identified.

.2 Readiness For Impending Adverse Weather Conditions

On April 19, 2007, the inspectors completed a review of the licensee's readiness for impending adverse weather involving high winds. The inspectors: (1) reviewed plant procedures, the USAR, and TSs to ensure that operator actions defined in adverse weather procedures maintained the readiness of essential systems; (2) walked down portion of the systems to ensure that adverse weather protection features (heat tracing, space heaters, weatherized enclosures, temporary chillers) were sufficient to support operability, including the ability to perform safe shutdown functions; (3) reviewed maintenance records to determine that applicable surveillance requirements were current before the anticipated high winds developed; and (4) reviewed plant modifications, procedure revisions, and operator workarounds to determine if recent facility changes challenged plant operation.

- April 19, 2007, Performed walkdown of protected area to look for potential missile hazards, in particular reviewing for repeat occurrences from 2006 second quarter inspection

Documents reviewed by the inspectors included: Procedure FCSG-1, "Duty Assignments," Revision 6.

The inspectors completed one sample.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignments (71111.04)

.1 Partial Equipment Walkdowns

a. Inspection Scope

The inspectors: (1) walked down portions of the three risk important systems listed below and reviewed plant procedures and documents to verify that critical portions of the selected systems were correctly aligned; and (2) compared deficiencies identified during the walkdown to the licensee's USAR and Corrective Action Program (CAP) to ensure problems were being identified and corrected.

- May 9, 2007, Diesel Generator 2 Fuel Oil System while Diesel Generator 1 was out-of-service for maintenance
- May 14, 2007, Turbine Driven Auxiliary Feedwater Pump FW-10 steam traps while the other steam traps were out-of-service for maintenance
- June 28, 2007, Turbine Driven Auxiliary Feedwater Pump FW-10 Steam supply while Diesel Driven Auxiliary Feedwater Pump FW-54 was out-of-service for surveillance testing

Documents reviewed by the inspectors included:

- Drawing 11405-M-262 Sheet 1, "Fuel Oil Flow Diagram P&ID," Revision 60
- Procedure OI-DG-2, "Diesel Generator 2," Checklist OI-DG-2-CL-B, "Diesel Generator 2 Fuel Oil," Revision 47
- Condition Reports 2007-2092 and 2007-2106
- Drawing 11405-M-252 Sheet 1, "Flow Diagram Steam P&ID," Revision 98

The inspectors completed three samples.

b. Findings

No findings of significance were identified.

.2 Complete Walkdown

The inspectors: (1) reviewed plant procedures, drawings, the USAR, TSs, and vendor manuals to determine the correct alignment of the auxiliary feedwater system; (2) reviewed outstanding design issues, operator workarounds, and USAR documents to determine if open issues affected the functionality of the auxiliary feedwater system; and (3) verified that the licensee was identifying and resolving equipment alignment problems.

Documents reviewed by the inspectors included:

- Drawing 11405-M-253 Sheet 4, "Flow Diagram Steam Generator Feedwater and Blowdown P&ID," Revision 35
- Drawing 11405-M-253 Cover Sheet, "Composite Flow Diagram Steam Generator Feedwater and Blowdown P&ID," Revision 39
- Drawing 11405-M-253 Sheet 1, "Flow Diagram Steam Generator Feedwater and Blowdown P&ID," Revision 88

The inspectors completed one sample.

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05)

.1 Quarterly Fire Inspection Tours

a. Inspection Scope

The inspectors walked down the five plant areas listed below to assess the material condition of active and passive fire protection features and their operational lineup and readiness. The inspectors: (1) verified that transient combustibles and hot work activities were controlled in accordance with plant procedures; (2) observed the condition of fire detection devices to verify they remained functional; (3) observed fire suppression systems to verify they remained functional and that access to manual actuators was unobstructed; (4) verified that fire extinguishers and hose stations were provided at their designated locations and that they were in a satisfactory condition; (5) verified that passive fire protection features (electrical raceway barriers, fire doors, fire dampers, steel fire proofing, penetration seals, and oil collection systems) were in a satisfactory material condition; (6) verified that adequate compensatory measures were established for degraded or inoperable fire protection features and that the compensatory measures were commensurate with the significance of the deficiency; and (7) reviewed the USAR to determine if the licensee identified and corrected fire protection problems.

- April 19, 2007, Room 13, Mechanical Piping Penetration Room (Fire Area 13)
- May 2, 2007, Tour of the control room, specifically the integrity of the fire barriers between adjacent fire areas
- May 3, 2007, Tour of Rooms 24 and 24A, Canal Drain Pump Area (Fire Area 20.7)
- June 13, 2007, Room 62, Ion Exchanger Area (Fire Area 20.5)
- June 28, 2007, Room 61, Valve Area III (Fire Area 20.4)

Documents reviewed by the inspectors included:

- Engineering Analysis EA-FC-97-001, "Fire Hazards Analysis (FHA) Manual," Revision 12
- Licensee Procedure SO-G-28, "Station Fire Plan," Revision 68
- "OPPD Fire Barrier Penetration Schedule," Revision 57

The inspectors completed five samples.

b. Findings

No findings of significance were identified.

1R06 Flood Protection Measures (71111.06)

.1 Annual External Flooding

a. Inspection Scope

The inspectors: (1) reviewed the USAR, the flooding analysis, and plant procedures to assess seasonal susceptibilities involving external flooding; (2) reviewed the USAR and CAP to determine if the licensee identified and corrected flooding problems; (3) inspected underground bunkers/manholes to verify the adequacy of (a) sump pumps, (b) level alarm circuits, (c) cable splices subject to submergence, and (d) drainage for bunkers/manholes; (4) verified that operator actions for coping with flooding can reasonably achieve the desired outcomes; and (5) walked down the area listed below to verify the adequacy of: (a) equipment seals located below the flood line, (b) floor and wall penetration seals, (c) watertight door seals, (d) common drain lines and sumps, (e) sump pumps, level alarms, and control circuits, and (f) temporary or removable flood barriers.

- May 7, 2007, Review of external flooding into Auxiliary Building via equipment hatch

Documents reviewed by the inspectors included: Enclosure to LIC-95-0130, "Individual Plant Examination of External Events for Fort Calhoun Station," dated June 30, 1995; and Drawing 11405-A-6, "Primary Plant Ground Floor Plan," Revision 80.

The inspectors completed one sample.

b. Findings

No findings of significance were identified.

.2 Semi-annual Internal Flooding

a. Inspection Scope

The inspectors: (1) reviewed the USAR, the flooding analysis, and plant procedures to assess seasonal susceptibilities involving internal flooding; (2) reviewed the USAR and CAP to determine if the licensee identified and corrected flooding problems; (3) inspected underground bunkers/manholes to verify the adequacy of (a) sump pumps, (b) level alarm circuits, (c) cable splices subject to submergence, and (d) drainage for bunkers/manholes; (4) verified that operator actions for coping with flooding can reasonably achieve the desired outcomes; and (5) walked down the area listed below to verify the adequacy of: (a) equipment seals located below the flood line, (b) floor and wall penetration seals, (c) watertight door seals, (d) common drain lines and sumps, (e) sump pumps, level alarms, and control circuits, and (f) temporary or removable flood barriers.

- June 19, 2007, Flooding in Ion Exchanger Room (Room 62)

Documents reviewed by the inspectors included: Work Order Package 0027773-01, "Check of Potentially Contaminated Floor Drains/Hubs," completed May 23, 2006; and

"Probabilistic Risk Assessment Summary Notebook," Revision 10.

The inspectors completed one sample.

b. Findings

No findings of significance were identified.

1R07 Heat Sink Performance (71111.07)

a. Inspection Scope

The inspectors reviewed licensee programs, verified performance against industry standards, and reviewed critical operating parameters and maintenance records for the Component Cooling Water Heat Exchanger AC-1B. The inspectors verified that: (1) performance tests were satisfactorily conducted for heat exchangers/heat sinks and reviewed for problems or errors; (2) the licensee utilized the periodic maintenance method outlined in EPRI NP-7552, "Heat Exchanger Performance Monitoring Guidelines;" (3) the licensee properly utilized biofouling controls; (4) the licensee's heat exchanger inspections adequately assessed the state of cleanliness of their tubes, and (5) the heat exchanger was correctly categorized under the Maintenance Rule.

- March 15, 2007, Observed equipment set up and reviewed completed procedure, AC-1B Component Cooling Water Heat Exchanger Post Cleaning Performance Test

Documents reviewed by the inspectors included: Procedure PED-SEI-16, "Evaluation of Heat Exchanger Performance," Revision 8; Procedure SE-PFT-CCW-0001, "Component Cooling Water Heat Exchangers Performance Test," Revision 12 and Work Order 00259265-01.

The inspectors completed one sample.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification Program (71111.11)

a. Inspection Scope

The inspectors observed testing and training of senior reactor operators and reactor operators to identify deficiencies and discrepancies in the training, to assess operator performance, to assess the evaluator's critique, to correctly classify the event in emergency response, and to correctly identify protective action recommendations. The training scenario observed on June 4, 2007, involved operators reaction to the following: 1) Rupture of RAW water piping in the Auxiliary Building; 2) Operating Main Feedwater pump trips and associated discharge valve breaker trips prior to valve closure; 3) Steam

Generator Main Steam Isolation Valve HCV-1042A upstream steam leak that develops into Uncontrolled Heat Extraction; and 4) Pressurizer Pressure Low Signal (PPLS) fails to actuate and trip the reactor.

Documents reviewed by the inspectors included:

- Emergency Operating Procedure EOP-00, "Standard Post Trip Actions," Revision 20
- Emergency Operating Procedure EOP-05, "Uncontrolled Heat Extraction," Revision 22
- Abnormal Operating Procedure AOP-18, "Loss of RAW Water," Revision 6; Emergency Plan Implementing Procedure EPIP-OSC-1, "Emergency Classification," Revision 44
- Emergency Plan Implementing Procedure EPIP-EOF-7, "Protective Action Guidelines," Revision 18

The inspectors completed one sample.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness (71111.12)

a. Inspection Scope

The inspectors reviewed the one maintenance activities listed below to: (1) verify the appropriate handling of structure, system, and component (SSC) performance or condition problems; (2) verify the appropriate handling of degraded SSC functional performance; (3) evaluate the role of work practices and common cause problems; and (4) evaluate the handling of SSC issues reviewed under the requirements of the maintenance rule, 10 CFR Part 50 Appendix B, and the Technical Specifications.

- June 27, 2007, Reactor Coolant System In-Core Instrumentation flange leakage identified on November 26, 2006

Documents reviewed by the inspectors included: Condition Reports 200605800 and Cause Determination 16130701.

The inspectors completed one sample.

b. Findings

No findings of significance were identified.

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

a. Inspection Scope

The inspectors reviewed the four assessment activities listed below to verify: (1) performance of risk assessments when required by 10 CFR 50.65 (a)(4) and licensee procedures prior to changes in plant configuration for maintenance activities and plant operations; (2) the accuracy, adequacy, and completeness of the information considered in the risk assessment; (3) that the licensee recognizes, and/or enters as applicable, the appropriate licensee-established risk category according to the risk assessment results and licensee procedures; and (4) the licensee identified and corrected problems related to maintenance risk assessments.

- April 16, 2007, Yellow Risk Condition, Replace AC-10D, Raw Water Pump; Calibrate Atmospheric Dump Valve (HCV-1040) instrument loop; perform EM-ST-SI-0001, "Safety Injection (SI) Loop Valve Contactor Operating Voltage Test," R8 on HCV-329, LPSI to Loop 1A and HCV-333, LPSI to Loop 2B injection valves (major contributor to risk via interfacing system loss of cooling accident (LOCA))
- April 20, 2007, review of risk management actions taken for a Yellow Risk Condition; specifically the compensatory measures were assessed to ensure that work in unauthorized areas (switchgear and turbine plant cooling water) was not being conducted
- June 1, 2007, Green Risk Condition, Replace CW-300 and CW-301 Raw Water Pumps AC-10B and AC-10C Sparging Valves, which required a 'B' intake bay cell outage that affected AC-10B, AC-10C, and CW-1B. Reviewed and observed protected equipment measures
- June 28, 2007, Yellow Risk Condition, Replace FC-2820 HPSI pump SI-2B bearing cooler CCW outlet flow controller; Perform OP-PM-AFW-0004, FW-54 diesel AFW pump monthly full flow operability verification; Inspection and refurbishment of air compressor CA-1C; Test CA-366 air dryer CA-12 pressure relief valve

Documents reviewed by the inspectors included: Daily risk assessment profiles for the dates listed above.

The inspectors completed four samples.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15)

a. Inspection Scope

The inspectors: (1) reviewed plants status documents such as operator shift logs,

emergent work documentation, deferred modifications, and standing orders to determine if an operability evaluation was warranted for degraded components; (2) referred to the USAR and design basis documents to review the technical adequacy of licensee operability evaluations; (3) evaluated compensatory measures associated with operability evaluations; (4) determined degraded component impact on any Technical Specifications; (5) used the Significance Determination Process to evaluate the risk significance of degraded or inoperable equipment; and (6) verified that the licensee has identified and implemented appropriate corrective actions associated with degraded components.

- May 28, 2007, HCV-1749, Containment Service Air Header Outboard Isolation Valve, improper open indication during performance of surveillance test
- May 28, 2007, Turbine-driven Auxiliary Feedwater Pump FW-10 steam traps flow indicator FI-1138 inlet and outlet union leaks found during performance of surveillance test
- May 29, 2007, Diesel Generator 2, Diesel Tripped Annunciator failed to alarm when diesel was shutdown following monthly test
- June 27, 2007, Reactor Protective System Reactor Coolant System flow trip unit on all channels is exceeding trip set point with out actuating the trip units

Documents reviewed by the inspectors included: Condition Reports 2007-2188, 2007-2272, 2007-2326, and 2007-2655.

The inspectors completed four samples.

b. Findings

No findings of significance were identified.

1R19 Postmaintenance Testing (71111.19)

a. Inspection Scope

The inspectors selected the five postmaintenance test activities of risk significant systems or components listed below. For each item, the inspectors: (1) reviewed the applicable licensing basis and/or design-basis documents to determine the safety functions; (2) evaluated the safety functions that may have been affected by the maintenance activity; and (3) reviewed the test procedure to ensure it adequately tested the safety function that may have been affected. The inspectors either witnessed or reviewed test data to verify that acceptance criteria were met, plant impacts were evaluated, test equipment was calibrated, procedures were followed, jumpers were properly controlled, the test data results were complete and accurate, the test equipment was removed, the system was properly re-aligned, and deficiencies during testing were documented. The inspectors also reviewed the USAR to determine if the licensee identified and corrected problems related to postmaintenance testing.

- May 8, 2007, "Clean, Inspect, Lube & Adjust 480V BRKR for AC-3C;" (Work Order 264919-01) "Troubleshoot per FC-1212, Perform Minor Repair/Adjustments;" (Work Order 270526-01)
- May 11, 2007, "AC-3C: Lubricate Coupling;" Test: OP-ST-CCW-3022, "AC-3C Component Cooling Water Pump In-service Test," Revision 16 (Work Order 262972-01)
- May 11, 2007, "AC-10A Needs Lift Adjustment;" Test: SE-ST-RW-3002, "Raw Water Pump Post Maintenance Operability Test," Revision 18 (Work Order 00270566-01)
- June 25, 2007, AC-10D Raw Water Pump Removal and Installation of New Pump, Retests: MM-RR-RW-0001, "Removal and Installation of Raw Water Pumps," Revision 21; SE-ST-RW-3002, "Raw Water Pump Post Maintenance Operability Test," Revision 18 (Work Order 00253376-01)
- June 27, 2007, "Repair Fitting Air Leak on HCV-1749 Actuator,;" OP-ST-CA-3001, "Compressed Air Category A In Service Valve Exercising Test," Revision 10; (Work Order 00272011-01 and Condition Report 2007-2326)

Documents reviewed by the inspectors are listed above with the activities listed.

The inspectors completed five samples.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors reviewed the USAR, procedure requirements, and TSs to ensure that the five surveillance activities listed below demonstrated that the SSCs tested were capable of performing their intended safety functions. The inspectors either witnessed or reviewed test data to verify that the following significant surveillance test attributes were adequate: (1) preconditioning; (2) evaluation of testing impact on the plant; (3) acceptance criteria; (4) test equipment; (5) procedures; (6) jumper/lifted lead controls; (7) test data; (8) testing frequency and method demonstrated TS operability; (9) test equipment removal; (10) restoration of plant systems; (11) fulfillment of ASME Code requirements; (12) updating of performance indicator data; (13) engineering evaluations, root causes, and bases for returning tested SSC's not meeting the test acceptance criteria were correct; (14) reference setting data; and (15) annunciators and alarms set points. The inspectors also verified that the licensee identified and implemented any needed corrective actions associated with the surveillance testing.

- April 11, 2007, SE-ST-RC-0002, "Reactor Coolant System Flow Rate Determination by Heat Balance," Revision 3

- April 20, 2007, OP-ST-ESF-0010, "Channel B Safety Injection, Containment Spray and Recirculation Actuation Signal Test," Revision 48
- May 11, 2007, OP-ST-RW-3001, "AC-10A Raw Water Pump Quarterly In-service Test," Revision 33 (Condition Report 2007-2091)
- June 6, 2007, OP-ST-DG-0001 Attachment 1A, "Diesel Generator 1 Check, Attachment 1A - Channel 'A' Test (Full Speed)," Revision 53
- June 25, 2007, IC-ST-IA-3009, "Operability Test of IA-YCV-1045-C and Close Stroke Test of YCV-1045," Revision 15

Documents reviewed by the inspectors are listed above with the activities listed.

The inspectors completed five samples.

b. Findings

No findings of significance were identified.

1EP6 Drill Evaluation (71114.06)

a. Inspection Scope

For the two drills and simulator-based training evolutions contributing to Drill/Exercise Performance (DEP) and Emergency Response Organization (ERO) Performance Indicators listed below, the inspectors: (1) observed the training evolution to identify any weaknesses and deficiencies in classification, notification, and Protective Action Requirements (PAR) development activities; (2) compared the identified weaknesses and deficiencies against licensee identified findings to determine whether the licensee is properly identifying failures; and (3) determined whether licensee performance is in accordance with the guidance of the NEI 99-02, "Voluntary Submission of Performance Indicator Data," acceptance criteria.

- April 17, 2007, Observed from simulator the drill that involved the following:
1) Fire in DG-2, 2) Station Blackout, and 3) LOCA in containment
- June 19, 2007, Observed in the simulator the drill that involved the following:
(1) Earthquake that caused Independent Spent Fuel Storage Horizontal Storage Module damage, (2) Fire in containment due to Reactor Coolant Pump lube oil leak, (3) Reactor Coolant System Dose Equivalent Iodine > 180 μ Ci/gm, (4) Steam Generator tube rupture and (5) Wind changes causing Protective Action Recommendation changes

Documents reviewed by the inspectors included:

- Emergency Plan Implementing Procedure EPIP-OSC-1, "Emergency Classification," Revision 44

- Emergency Plan Implementing Procedure EPIP-EOF-7, "Protective Action Guidelines," Revision 18
- Condition Reports 2007-2198

The inspectors completed two samples.

b. Findings

No findings of significance were identified.

2. RADIATION SAFETY

2OS1 Access Control to Radiologically Significant Areas (71121.01)

a. Inspection Scope

This area was inspected to assess the licensee's performance in implementing physical and administrative controls for airborne radioactivity areas, radiation areas, high radiation areas, and worker adherence to these controls. The inspectors used the requirements in 10 CFR Part 20, the TSs, and the licensee's procedures required by TSs as criteria for determining compliance. During the inspection, the inspectors interviewed the radiation protection manager, radiation protection supervisors, and radiation workers. The inspectors performed independent radiation dose rate measurements and reviewed the following items:

- Performance indicator events and associated documentation packages reported by the licensee in the Occupational Radiation Safety Cornerstone
- Controls (surveys, posting, and barricades) of radiation, high radiation, and potential airborne radioactivity areas in the Auxiliary and the Spent Fuel Buildings
- Radiation work permits, procedures, engineering controls, and air sampler locations
- Conformity of electronic personal dosimeter alarm set points with survey indications and plant policy; workers' knowledge of required actions when their electronic personnel dosimeter noticeably malfunctions or alarms
- Self-assessments, audits, licensee event reports, and special reports related to the access control program since the last inspection
- Corrective action documents related to access controls
- Radiation work permit briefings and worker instructions
- Adequacy of radiological controls, such as required surveys, radiation protection job coverage, and contamination control during job performance

- Posting and locking of entrances to all accessible high dose rate - high radiation areas and very high radiation areas
- Radiation worker and radiation protection technician performance with respect to radiation protection work requirements

The inspectors completed 14 of the required 21 samples.

Documents reviewed by the inspectors are listed in the attachment.

b. Findings

Introduction. A Green, self-revealing noncited violation of TS 5.8.1(a) was identified because a worker failed to stop work and notify radiation protection personnel per procedural requirements upon receiving a dose rate alarm.

Description: On March 24, 2007, a chemist received an electronic alarming dosimeter dose rate alarm while performing an instrument calibration. Upon exiting the Radiologically Controlled Area, the chemist was unable to log out. A shift radiation protection technician logged the individual out manually and began investigating the dose rate alarm.

The licensee's causal analysis determined the chemist received a dose rate alarm when the chemist encountered a problem with the calibration source. The source was inverted in a shielded container, preventing a calibration volume from being drawn. The chemist, without notifying radiation protection or self-checking, decided to remove and invert the source from the shielded container. The source had a contact dose rate reading of 1,200 millirem per hour and 450 millirem per hour at 30 centimeters reading. The individual received a dose rate alarm because the dose rate alarm set point was 120 millirem per hour and the peak dose rate was 186 millirem per hour. The chemist did not notify radiation protection personnel of the alarm until after exiting from the Radiologically Controlled Area.

Analysis. The failure to follow a station procedure is a performance deficiency. This finding is greater than minor because it is associated with one of the cornerstone attributes (exposure control) and affected the Occupational Radiation Safety cornerstone objective, in that the failure to follow the station procedure resulted in additional personnel exposure. Because this finding involved a worker's unplanned, unintended dose that resulted from actions contrary to licensee procedures, the "Occupational Radiation Safety Significance Determination Process," was used to assess the finding. The inspectors determined that this finding was of very low safety significance because it did not involve: (1) an ALARA finding, (2) an overexposure, (3) a substantial potential for overexposure, or (4) an impaired ability to assess dose. In addition, this finding had a human performance crosscutting aspect associated with work practices (H.4(a)) because the chemist did not use human error prevention techniques, such as self-checking.

Enforcement. Technical Specification 5.8.1(a) requires that procedures listed in Regulatory Guide 1.33, Appendix A, be established, implemented and maintained.

Section 7.e of the Appendix lists procedures for access control to radiation areas including a radiation work permit system. Standing Order SO-G-101, Radiation Worker Practices,” Revision 30, implements this requirement. Primarily, Section 5.6.2.F states, in part, that if an electronic alarming dosimeter dose rate alarm is experienced, consult radiation protection technicians at the work site or exit the radiological controlled area and notify the shift technician. In addition, Section 5.4.4.B. states, in part, that personnel signed in on a Radiation Work Permit shall adhere to the requirements and instructions listed on the Radiation Work Permit. Radiation Work Permit Worker Instruction No. 15 states, in part, the stop work dose rate shall be the dose rate alarm set point for the task. Contrary to the procedure, the chemist violated the procedure requirements by not notifying radiation protection and stopping work as soon as the electronic alarming dosimeter dose rate alarm was realized.

Because the finding was determined to be of very low safety significance and has been entered into the licensee’s corrective action program as Condition Report 2007-1310, this violation is being treated as a NCV consistent with Section VI.A of the NRC Enforcement Policy: NCV 05000285/2007003-01; Failure to stop work and notify radiation protection personnel per procedural requirements.

2OS2 ALARA Planning and Controls (71121.02)

a. Inspection Scope

The inspectors assessed licensee performance with respect to maintaining individual and collective radiation exposures ALARA. The inspectors used the requirements in 10 CFR Part 20 and the licensee’s procedures required by technical specifications as criteria for determining compliance. The inspectors interviewed licensee personnel and reviewed:

- Current 3-year rolling average collective exposure
- One on-line maintenance work activity scheduled during the inspection period and associated work activity exposure estimates which were likely to result in the highest personnel collective exposures and eight work activities from previous work history data
- Site-specific trends in collective exposures, plant historical data, and source-term measurements
- Site-specific ALARA procedures
- ALARA work activity evaluations, exposure estimates, and exposure mitigation requirements
- Intended versus actual work activity doses and the reasons for any inconsistencies
- Integration of ALARA requirements into work procedure and radiation work permit (or radiation exposure permit) documents

- Person-hour estimates provided by maintenance planning and other groups to the radiation protection group with the actual work activity time requirements
- Shielding requests and dose/benefit analyses
- Dose rate reduction activities in work planning
- Postjob (work activity) reviews
- Assumptions and basis for the current annual collective exposure estimate, the methodology for estimating work activity exposures, the intended dose outcome, and the accuracy of dose rate and man-hour estimates
- Method for adjusting exposure estimates, or replanning work, when unexpected changes in scope or emergent work were encountered
- Exposure tracking system
- Use of engineering controls to achieve dose reductions and dose reduction benefits afforded by shielding
- Workers' use of the low dose waiting areas
- First-line job supervisors' contribution to ensuring work activities are conducted in a dose efficient manner
- Exposures of individuals from selected work groups
- 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
- Source-term control strategy or justifications for not pursuing such exposure reduction initiatives
- Specific sources identified by the licensee for exposure reduction actions, priorities established for these actions, and results achieved since the last refueling cycle
- Radiation worker and radiation protection technician performance during work activities in radiation areas, airborne radioactivity areas, or high radiation areas
- Declared pregnant workers during the current assessment period, monitoring controls, and the exposure results
- Self-assessments, audits, and special reports related to the ALARA program since the last inspection
- Resolution through the corrective action process of problems identified through postjob reviews and postoutage ALARA report critiques

- Corrective action documents related to the ALARA program and follow-up activities, such as initial problem identification, characterization, and tracking
- Effectiveness of self-assessment activities with respect to identifying and addressing repetitive deficiencies or significant individual deficiencies

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed 27 of the required 29 samples.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification (71151)

a. Inspection Scope

Cornerstone: Occupational Radiation Safety

Occupational Exposure Control Effectiveness

The inspectors reviewed licensee documents from January 1 through March 31, 2007. The review included corrective action documentation that identified occurrences in locked high radiation areas (as defined in the licensee's technical specifications), very high radiation areas (as defined in 10 CFR 20.1003), and unplanned personnel exposures (as defined in Nuclear Energy Institute (NEI) 99-02, "Regulatory Assessment Indicator Guideline," Revision 4). Additional records reviewed included ALARA records and whole body counts of selected individual exposures. The inspectors interviewed licensee personnel that were accountable for collecting and evaluating the performance indicator data. In addition, the inspectors toured plant areas to verify that high radiation, locked high radiation, and very high radiation areas were properly controlled. Performance indicator definitions and guidance contained in NEI 99-02, Revision 4, were used to verify the basis in reporting for each data element.

The inspectors completed the required sample (one) in this cornerstone.

Cornerstone: Public Radiation Safety

Radiological Effluent Technical Specification/Offsite Dose Calculation Manual
Radiological Effluent Occurrences

The inspectors reviewed licensee documents from January 1 through March 31, 2007. Licensee records reviewed included corrective action documentation that identified occurrences for liquid or gaseous effluent releases that exceeded performance indicator thresholds and those reported to the NRC. The inspectors interviewed licensee personnel that were accountable for collecting and evaluating the performance indicator

data. Performance indicator definitions and guidance contained in NEI 99-02, Revision 4, were used to verify the basis in reporting for each data element.

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed the required sample (one) in this cornerstone.

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems (71152)

.1 Routine Review of Identification and Resolution of Problems

a. Inspection Scope

The inspectors evaluated the effectiveness of the licensee's problem identification and resolution process with respect to the following inspection areas:

1. Access Control to Radiologically Significant Areas (Section 2OS1)
2. ALARA Planning and Controls (Section 2OS2)

b. Findings

No findings of significance were identified.

4OA6 Meetings

Exit Meeting Summary

On June 22, 2007, the inspectors presented the occupational radiation safety inspection results with respect to ALARA to Mr. T. Nellenbach, Acting Plant Manager, and other members of his staff who acknowledged the findings. The inspectors confirmed that proprietary information was not provided or examined during the inspection.

On June 29, 2007, the inspectors presented the inspection results to Mr. J. Reinhart, Site Director, and other members of the licensee's management staff during an exit meeting. The inspectors confirmed that proprietary information examined during the inspection period was destroyed or returned to the licensee. The licensee acknowledged the information presented.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

G. Cavanaugh, Supervisor, Regulatory compliance
A. Clark, Manager Security
R. Clemens, Division Manager, Nuclear Engineering
P. Cronin, Operations Training
H. Faulhaber, Division Manager, Nuclear Asset Management
M. Frans. Manager, System Engineering
D. Guinn, Regulatory Compliance
R. Haug, manager, Radiation Protection
D. Lakin, Manager Corrective Action Program
T. Maine, Radiation Protection Manager, Acting
J. McManis, Manager Licensing
S. Miller, Supervisor, System Engineering
T. Nellenbach, Manager Operations
J. Reinhart, Site Director
M. Sandhoefner, Shift Manager
D. Trausch, Assistant Plant Manager/Acting Plant Manager
C. Williams, Radiation Operations Supervisor, Radiation Protection

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed

05000285/2007003-01	NCV	Failure to Stop Work and Notify Radiation Protection Personnel upon Receiving a Dose Rate Alarm per Procedural Requirements. (Section 2OS1)
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LIST OF DOCUMENTS REVIEWED

Section 2OS1: Access Controls to Radiologically Significant Areas (71121.01)

Audits and Surveillance

QA Surveillance 58(1)-0407

Condition Reports

2007-1310, 2007-1311, 2007-1706, 2007-2032, 2007-2332, 2007-2612

Radiation Work Permits

07-0003, 07-2202, 07-3304

Procedures

RP-202	Radiological Surveys, Revision 29
RP-204	Radiological Area Controls, Revision 46
RP-206	Radioactive Material Handling, Revision 16
RP-402	Calibration and Test Requirements for Radiation Protection Equipment, Revision 10
RP-405	Radioactive Source Inventory Control, Revision 12
RPI-13	Radiological Posting Standards, Revision 2
RPP	Radiation Protection Plan, Revision 22
RP-ST-RM-0002	Radioactive Material Sources Surveillance, Revision 8
SO-G-101	Radiation Worker Practices, Revision 30

Section 2OS2: ALARA Planning and Controls (71121.02)

ALARA Packages and Post Job Reviews

06-07, 06-08, 06-11, 06-16, 06-24, 06-25, 06-40, 06-43, 07-02

Audits and Self-Assessments

2007 First Quarter Department Review - Radiation Protection

Condition Reports

2007-0606, 2007-0688, 2007-0764, 2007-1123, 2007-1162, 2007-1210, 2007-1833

Radiation Work Permits

06-2520, 07-0002, 07-2201, 07-2202, 07-3304

Procedures

RP-301	ALARA Planning/RWP Development and Control, Revision 28
RP-307	Use and Control of Temporary Shielding, Revision 14
RP-602	Personnel Dosimetry Issuance and Change Out, Revision 20
RP-606	Special Dosimetry Issue - Control and Use, Revision 11
RP-AD-300	ALARA Program, Revision 13
RPP	Radiation Protection Plan, Revision 22
SO-G-101	Radiation Worker Practices, Revision 30

Temporary Shielding Requests

05-47, 06-91, 06-92, 07-01, 07-16

Miscellaneous

2006 ALARA Package Dose Report
2006 Outage ALARA Report
2006-2011 Dose Reduction Plan
2007 ALARA Meeting Minutes - January 25, March 22, April 27, and June 1
Thirty Individual Worker's Accumulated Dose and Department Dose for 2006

Section 4OA1: Performance Indicator Verification (71151)

Procedures

NOD-QP-37 Performance Indicators Program, Revision 10
NOD-QP-40 NRC Performance Indicator Program, Revision 3

LIST OF ACRONYMS

ALARA	as low as reasonable achievable
CAP	corrective action program
CCW	component cooling water
CFR	Code of Federal Regulations
CR	Condition Report
LOCA	loss of coolant accident
NCV	noncited violation
NRC	Nuclear Regulatory Commission
PPLS	pressurizer pressure low signal
SSC	structure system component
TS	Technical Specification
USAR	Updated Safety Analysis Report
WO	work order