



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

May 16, 2008

D. J. Bannister
Vice President
Omaha Public Power District
Fort Calhoun Station FC-2-4
P.O. Box 550
Fort Calhoun, NE 68023-0550

Subject: FORT CALHOUN STATION
NRC INTEGRATED INSPECTION REPORT 05000285/2008002

Dear Mr. Bannister:

On March 31, 2008, 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 April 17, 2008, with Mr. Tim Nellenbach, Plant Manager, 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 two self-revealing and three NRC-identified findings of very low safety significance (Green). Four of these findings involved violations of NRC requirements. However, because of the very low safety significance and because they are entered into your corrective action program, the NRC is treating these findings as noncited violations (NCVs), consistent with Section VI.A.1 of the NRC Enforcement Policy. If you contest the violations or the significance of the NCVs, 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 Inspectors at the Fort Calhoun Station facility.

In accordance with 10 CFR Part 2.390 of the NRC's "Rules of Practice," a copy of this letter, and its enclosure, will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

/RA/ GDReplogle for

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

Docket: 50-285
License: DPR-40

Enclosure:
NRC Inspection Report 05000285/200802
W/Attachment: Supplemental Information

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SUNSI Review Completed: GDR ADAMS: Yes No Initials: GDR
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RIV:RI:DRP/E	SRI:DRP/E	C:DRS/EB1	C:DRS/OB	C:DRS/PSB
JCKirkland	JDHanna	RLBywater	RELantz	MPShannon
/RA/ E-mail	/RA/ E-mail	/RA/	/RA/ TMcKernon for	/RA/ LCCarson for
5/15/08	5/15/08	5/14/08	5/14/08	5/15/08
C:DRS/EB2	SRA:DRS	C:DRP/E		
LJSmith	MFRunyon	JAClark		
/RA/	Not Available	/RA/ GDReplogle for		
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U.S. NUCLEAR REGULATORY COMMISSION

REGION IV

Docket: 50-285
License: DPR-40
Report: 05000285/2008002
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: January 1 through March 31, 2008
Inspectors: J. Hanna, Senior Resident Inspector
J. Kirkland, Resident Inspector
Approved By: Jeff A. Clark, Chief, Project Branch E
Division of Reactor Projects

SUMMARY OF FINDINGS

IR 05000285/200802; 01/01/2008 – 03/31/2008; Fort Calhoun Station, Integrated Resident and Regional Report; Flood Protection Measures, Operability Evaluations, Postmaintenance Testing, Identification and Resolution of Problems.

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

A. NRC-Identified Findings and Self-Revealing Findings

Cornerstone: Initiating Events

- Green. The inspectors identified a noncited violation of Technical Specification 5.8.1.a (Procedures) for an inadequate internal flooding procedure. Specifically, the licensee's abnormal operating procedures did not provide adequate instructions for operators to diagnose and mitigate the effects of an internal flood from a pipe break (e.g., fire main) on plant equipment. This violation was entered into the licensee's corrective action program as Condition Report 2007-0336.

This finding was greater than minor because it was associated with the procedure quality attribute of the initiating events cornerstone and affected the cornerstone objective to limit events that upset plant stability and challenge critical safety functions. The inspectors evaluated this finding using Manual Chapter 0609, Attachment 4, and determined that it was of very low safety significance because it did not increase the likelihood of a fire or internal/external flood. This finding did not have a crosscutting aspect because the performance deficiency was a long-standing issue and not necessarily indicative of current performance (Section 1R06.1).

Cornerstone: Mitigating Systems

- Green. The inspectors identified a finding for the licensee's failure to identify various deficiencies that would increase the severity of postulated internal flooding events in the auxiliary building. Specifically, the licensee did not recognize in-plant conditions that could result in the diversion of internal flood water to both emergency core cooling system pump rooms (e.g., fire main break). This finding has been entered into the licensee's corrective action program as Condition Report 2008-0197.

This finding was greater than minor because it was associated with the protection against external factors (floods) attribute and affected the mitigating systems cornerstone objective of ensuring the availability, reliability, and capability of systems (including flood barriers) that respond to initiating events to prevent undesirable consequences. Using the Manual Chapter 0609, "Significance Determination Process," Phase 1 Screening Worksheet, the issue screened as having very low safety significance because it: (1) was not a design or qualification deficiency that was

confirmed not to affect equipment operability; (2) did not represent a loss of safety function; (3) did not represent an actual loss of a single train of equipment for more than its Technical Specification allowed outage time; (4) did not represent a loss of risk significant non-Technical Specification equipment; and (5) did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. This finding had a crosscutting aspect in the area of problem identification and resolution, specifically, the operating experience attribute [P.2 (b)] in that the licensee failed to internalize relevant internal flooding information from other licensees, which contributed to this condition (Section 1R06.2).

- **Green.** The inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion XVI, Corrective Actions,” for the failure to implement adequate corrective actions to prevent recurrence of a significant condition adverse to quality. Specifically, in 2007 raw water Pump AC-10D packing leakage was excessive. Operators had to secure the pump because water accumulation in the area could have challenged the operability of all the raw water pumps. Corrective measures were inadequate to prevent recurrence, in that the same event occurred on March 1, 2008. This violation has been entered into the licensee’s corrective action program as Condition Report 2008-1196.

This finding was greater than minor because, if left uncorrected, the condition would become a more significant safety concern, in that raw water system operability could be adversely affected. The inspectors evaluated this finding using Manual Chapter 0609, Attachment 4. Using the Manual Chapter 0609, "Significance Determination Process," Phase 1 Screening Worksheet, the issue screened as having very low safety significance because it: (1) was not a design or qualification deficiency; (2) did not represent a loss of safety function; (3) did not represent an actual loss of a single train of equipment for more than its Technical Specification allowed outage time; (4) did not represent a loss of risk significant non-Technical Specification equipment; and (5) did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. This finding had a crosscutting aspect in the area of problem identification and resolution, corrective action program component, in that the licensee's evaluation of the first failure did not identify significant deficiencies that contributed to both failures [P.1(c)] (Section 1R15).

- **Green.** The inspectors documented a self-revealing noncited violation of 10 CFR Part 50, Appendix B, Criterion III, “Design Control,” in response to a leak of diesel fuel oil into an enclosure containing electrical equipment. Specifically, the licensee failed to supply equipment suitable for the required application under existing environmental conditions. This violation has been entered into the licensee’s corrective action program as Condition Report 2008-1082.

The finding was more than minor because it was associated with the availability/reliability of equipment performance attribute of the mitigating systems cornerstone, and it directly affected the cornerstone objective to ensure the availability, reliability and capability of systems that respond to initiating events to prevent undesirable consequences. Using the Manual Chapter 0609, "Significance Determination Process," Phase 1 Screening Worksheet, the issue screened as having very low safety significance because it was a design deficiency confirmed not to result in a loss of operability or safety function. This finding did not have a crosscutting aspect because the performance deficiency was a long-standing issue and not necessarily indicative of current performance (Section 1R19).

- Green. The inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion XVI, for the failure to ensure that conditions adverse to quality are promptly identified and corrected. Specifically, multiple boric acid leaks were identified in the plant where corrective actions had been ineffective, duration of leakage had approached two years time, and/or the leaks had not been tracked by the licensee's boric acid corrosion program or with a condition report. This violation was entered into the licensee's corrective action program as Condition Report 2008-1891.

The finding was more than minor because if it were left uncorrected the finding would become a more significant safety concern (i.e., potential for damage to carbon steel components or inhibiting the safety-function of others). Using the Manual Chapter 0609, "Significance Determination Process," Phase 1 Screening Worksheet, the issue screened as having very low safety significance because it: (1) was not a design or qualification deficiency; (2) did not represent a loss of safety function; (3) did not represent an actual loss of a single train of equipment for more than its Technical Specification allowed outage time; (4) did not represent a loss of risk significant non-Technical Specification equipment; and (5) did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. This finding had a crosscutting aspect in the human performance area, work practices component [H.4(b)] in that the licensee failed to effectively communicate expectations on boric acid corrosion program procedures (Section 4OA2).

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 and operated at 100 percent until March 7, 2008, when power was decreased on the unit to 80 percent for main condenser cleaning. On March 10, 2008, reactor power was increased to 100 percent. On March 13, 2008, power was reduced to 97 percent in response to fluctuations in the turbine control valves. Power was subsequently raised to 100 percent on March 14, 2008, when the fluctuations appeared to stabilize. On March 15, 2008, a turbine control valve perturbation occurred and power was stabilized at 90 percent. Later that same day, a second control valve perturbation occurred, and power was stabilized at 85 percent. Subsequently, the reactor automatically tripped due to a turbine trip. The plant was held in Mode 3 until March 22, 2008, when Mode 2 was achieved. The generator output breakers were closed that same day. The reactor achieved 100 percent power on March 24, 2008, where it remained until the end of the inspection procedure.

1. REACTOR SAFETY

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

1R04 Equipment Alignments (71111.04)

.1 Partial Equipment Walk-downs

a. Inspection Scope

Partial Walkdown

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 walk down to the licensee's Updated Safety Analysis Report (USAR) and corrective action program (CAP) to ensure problems were being identified and corrected.

- January 9, 2008, Walked down motor-driven auxiliary feedwater train while the diesel-driven auxiliary feedwater Pump FW-54 was out for maintenance
- March 25, 2008, Walked down the in service portions of the main feed system following plant startup, with Feedwater Pump FW-4B removed from the system.
- March 26, 2008, Walked down portions of the 4160 Volt electrical system following plant startup

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed three samples.

b. Findings

No findings of significance were identified.

.2 Complete Walkdown (71111.04S)

a. Inspection Scope

The inspectors: (1) reviewed plant procedures, drawings, the USAR, Technical Specifications, 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 are listed in the attachment.

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 four 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.

- January 15, 2008, Room 6 (Charging Pump Area) Fire Area 10
- February 12, 2008, Room 5 (Heat Exchanger and Pump Area) Fire Area 6.8
- February 14, 2008, Room 25A (New Fuel Storage and Uncrating Area) Fire Area 20.7

- February 14, 2008, Rooms 34 to 49 (All of the Personnel Complex) Fire Area 19

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed four samples.

b. Findings

No findings of significance were identified.

1R06 Flood Protection Measures (71111.06)

.1 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 one area listed below to verify the adequacy of: (a) equipment seals located below the floodline, (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.

- January 2 to March 31, 2008, Auxiliary Building, Corridor 4 and Rooms 21, 22, and 23

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed one sample.

b. Findings

1. Lack of Procedural Guidance for Flooding Events

Introduction. The inspectors identified a Green noncited violation of Technical Specification 5.8.1.a (Procedures) for an inadequate internal flooding procedure. Specifically, the licensee's abnormal operating procedures did not provide adequate instructions for operators to diagnose and mitigate the effects of an internal flood from a pipe break (e.g., fire main) on plant equipment.

Description. On September 7, 2007, the inspectors commenced walkdowns of the auxiliary building to determine if vulnerabilities existed to internal flooding events. The inspectors noted that the station had watertight doors at the entrances to the safety injection pump areas (Rooms 21 and 22) and spent regenerant tank and pump area (Room 23). The inspectors questioned the operators whether there were instructions, procedures, etc. that would direct the closure of the watertight doors during a flooding

event. The inspectors found that the only applicable procedure was ARP-AI-100/A50, "Annunciator Response Procedure A50 Local Annunciator A50 Waste Disposal," Revision 10. The inspectors further questioned what procedures directed general actions during an internal flooding event. While some abnormal operating procedures had guidance for the event where a specific system might rupture, (e.g., raw water piping) there were no procedures for nonsafety related piping ruptures (e.g., fire water system). The inspectors concluded that if these systems, or other systems not already specifically addressed in the abnormal operating procedures, were to break there would not be sufficient direction for operators on how to respond (e.g., tripping the plant, securing water tight doors, protecting equipment, stopping the leak).

Based on a review of various documents, the inspectors also noted the following:

- USAR Section 6.2.5, "Design Evaluation" stated, "Ability to meet the core protection criteria is assured by the following design features: . . . Separated pump rooms and redundant pumping systems which will permit minimum safeguards equipment to operate should one pump room flood in the event of a pipe failure during long term operation."
- "Safety Evaluation Report by the Office of Nuclear Reactor Regulation Regarding the Potential for Flooding from Postulated Ruptures of non-Category-1 (Seismic) Systems," addressed to Omaha Public Power District, dated February 16, 1978, reviewed the potential of failure of eleven different systems, including but not limited to demineralized water, potable water, and the fire protection system. While the report concluded, "failure of a non-Category-1 (Seismic) component will not directly affect reactor safety. . ." it recognized that ". . . the loss of integrity of a non-Category-1 (Seismic) component could in some cases, result in flooding . . . which could adversely affect the performance of safety-related (Seismic Category-1) equipment."
- The licensee's probabilistic risk assessment summary notebook described flooding from internal sources as contributing three percent to the overall plant risk of core damage. The inspectors noted that this portion was as risk-significant a contributor as from other initiating events such as reactor trip and turbine trip events (three percent each). The inspectors also noted that internal flooding contribution to core damage frequency could potentially be even higher than three percent because the rupture of several systems had not been considered.
- The inspectors noted that there were numerous operation experience items, many communicated through NRC generic correspondence, describing internal flooding events. These included NRC Information Notice 2005-11, "Internal Flooding/Spray-Down of Safety-Related Equipment due to Unsealed Equipment Hatch Floor Plugs and/or Blocked Floor Drains," NRC Information Notice 2005-30, "Safe Shutdown Potentially Challenged by Unanalyzed Internal Flooding Events and Inadequate Design," and NRC Information Notice 1998-31, "Fire Protection System Design Deficiencies and Common-Mode Flooding of Emergency Core Cooling System Rooms at Washington Nuclear Project Unit 2."

The aforementioned documents described internal flooding events, in some cases specific to Fort Calhoun Station. The inspectors concluded that an internal flooding

event was credible and that the licensee had failed to have a procedure that would provide direction to operators to diagnose and respond to an internal flooding event.

Analysis. The inspectors determined that the failure to have adequate flood protection guidance was a performance deficiency. This finding was greater than minor because it was associated with the procedure quality attribute of the initiating events cornerstone and affected the cornerstone objective to limit events that upset plant stability and challenge critical safety functions. The inspectors evaluated this finding using Manual Chapter 0609, Attachment 4, and determined that it was of very low safety significance (Green) because it did not increase the likelihood of a fire or internal/external flood. This finding did not have a crosscutting aspect because the performance deficiency was a long-standing issue and not necessarily indicative of current performance.

Enforcement. Technical Specification 5.8.1.a requires, in part, that written procedures shall be established, implemented, and maintained covering the applicable procedures recommended in Regulatory Guide 1.33, Revision 2, Appendix A, 1978. Regulatory Guide 1.33, Appendix A, requires, in part, written procedures for “Combating Emergencies and Other Significant Events.” Specifically, Item 6.r requires procedures for “...Expected Transients that may be applicable.” Contrary to the above, actions that would protect mitigating equipment from a postulated internal flooding event from the failure of nonsafety related systems were not required by licensee procedures. This violation of Technical Specification 5.8.1.a is being treated as a noncited violation, consistent with Section VI.A of the Enforcement Policy: NCV 05000285/2008002-01, “Inadequate Internal Flooding Procedure.” This violation was entered into the licensee’s CAP as CR 2007-0336. Unresolved Item 05000285/2007005-02: “Potential Inadequate Internal Flood Procedure,” is being closed to this violation.

2. Failure to Identify Internal Flooding Deficiencies

Introduction. The inspectors identified a Green finding for the licensee's failure to identify various deficiencies that would increase the severity of postulated internal flooding events in the auxiliary building. Specifically, the licensee did not recognize in-plant conditions that could result in the diversion of internal flood water to both emergency core cooling system pump rooms (e.g., fire main break).

Description. From September 7, 2007, until March 31, 2008, the inspectors performed walkdowns of the auxiliary building to determine if vulnerabilities existed to internal flooding events. The inspectors noted the USAR Section 6.2.5, “Design Evaluation” stated, “Ability to meet the core protection criteria is assured by the following design features: . . . Separated pump rooms and redundant pumping systems which will permit minimum safeguards equipment to operate should one pump room flood in the event of a pipe failure during long term operation.” The inspectors focused their observations on conditions that might challenge the separation of Rooms 21 and 22, which contain the minimum safeguards equipment and therefore lead to a single event affecting both trains of equipment. Based on the walkdowns conducted, the inspectors noted the following:

- The floor plugs in Corridor 4 of the auxiliary building (directly above Rooms 21 and 22) showed visual evidence of leakage. Water stains surrounded the underside periphery of the floor plugs indicating historical leakage. The inspectors requested copies of the postmaintenance tests (PMTs) that had been done on the floor plugs to verify that they were sealed properly. The licensee

could not provide such records, nor had CRs been previously written on this condition.

- The inspectors noted a number of cracks in the structure of the auxiliary building immediately above or between Rooms 21 and 22. The inspectors reviewed the completed tri-annual auxiliary building inspections, conducted via licensee procedure SE-PM-AE-1001, "Auxiliary Building Structural Inspections," Revision 5. The inspectors determined that several structural cracks adjacent to the pump rooms of concern were not documented on the completed inspection procedures and/or drawings.
- The inspectors noted there were watertight doors at the entry points to Rooms 21 and 22. The inspectors requested copies of the PMTs done that would provide some assurance that, when shut, the doors were watertight. The licensee could not provide such records, nor had CRs been previously written on this condition.
- The inspectors observed numerous fire barrier penetrations in Corridor 4 leading to Rooms 21 and 22 (e.g., electrical conduit running through the floor to the rooms below). The inspectors determined that these fire barriers were not credited to be watertight, and therefore could lead to water infiltration to both pump rooms in the case of a flooding event.
- The inspectors reviewed the licensee's "[Probabilistic Risk Assessment] PRA Summary Notebook," Revision 10, and determined that in a postulated internal flooding event in the auxiliary building, water was assumed to flow to the only stairwell in the structure. The water would then collect at the bottom elevation (971-foot elevation) and supposedly fail the normally closed fire protection door (971-1A). This failure would release the floodwaters into Room 23 where there was no safety-significant equipment. This failure was assumed to occur prior to water accumulating to a level (989-foot level) where it would overflow the top of the stairwell and affect other rooms (e.g., entrance way to Rooms 21 and 22). The inspectors reviewed licensee Calculation FC06759, "Spent Regenerate Tank and Pump Room Door (971-1A) Failure Mechanism," which supported this assumption and determined there were several errors. These included: (1) the assumed size of the door was incorrect, (2) the hinge/door frame were inverted, (3) the door frame would not appear to fail at the water heights calculated, and (4) if the door were to fail, it would likely not clear the lip of the door frame immediately behind it therefore keeping the door in place. At the close of the inspection, the licensee was contacting engineering companies in order to have the calculation re-performed.

The inspectors also observed that fire protection piping was present in the overhead of Corridor 4, immediately above the floor plugs, Rooms 21 and 22, etc. The inspectors requested copies of the licensee's responses to various operational experience items, including but not limited to: NRC Information Notice 2005-11, "Internal Flooding/Spray-Down of Safety-Related Equipment due to Unsealed Equipment Hatch Floor Plugs and/or Blocked Floor Drains," NRC Information Notice 2005-30, "Safe Shutdown Potentially Challenged by Unanalyzed Internal Flooding Events and Inadequate Design," and NRC Information Notice 1998-31, "Fire Protection System Design Deficiencies and Common-Mode Flooding of Emergency Core Cooling System Rooms at Washington

Nuclear Project Unit 2.” The inspectors determined that the licensee’s actions to the operational experience were limited and contributed to the performance deficiency.

The inspectors concluded that the aforementioned conditions could lead to a single flooding event potentially affecting both ECCS pump rooms simultaneously.

Analysis. The inspectors determined that the failure to identify conditions, which would adversely affect the ability of the plant to withstand a flooding event, was a performance deficiency. This finding was greater than minor because it was associated with the protection against external factors (floods) attribute and affected the mitigating systems cornerstone objective of ensuring the availability, reliability, and capability of systems (including flood barriers) that respond to initiating events to prevent undesirable consequences. Using the Manual Chapter 0609, "Significance Determination Process," Phase 1 Screening Worksheet, the issue screened as having very low safety significance because it: (1) was not a design or qualification deficiency that was confirmed not to affect equipment operability; (2) did not represent a loss of safety function; (3) did not represent an actual loss of a single train of equipment for more than its Technical Specification allowed outage time; (4) did not represent a loss of risk significant non-Technical Specification equipment; and (5) did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. This finding had a crosscutting aspect in the area of problem identification and resolution, specifically, the operating experience attribute [P.2 (b)] in that the licensee failed to internalize relevant internal flooding information from other licensees, which contributed to this condition.

Enforcement. The inspectors determined that some of the aforementioned conditions affected nonsafety-related components. Further, whether internal flooding was within the licensee’s licensing/design basis could not be determined by the close of the inspection period. Therefore, a violation of 10 CFR Part 50, Appendix B, Criterion XVI, “Corrective Action,” could not be cited for these conditions. This finding has been entered into the licensee’s CAP as CR 2008-0197: Finding (FIN) 05000285/2008002-02, "Failure to Identify Internal Flooding Deficiencies."

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 AC-1B heat exchanger. 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, (5) the heat exchanger was correctly categorized under the Maintenance Rule and (6) the licensee properly evaluated eddy current testing results.

Documents reviewed by the inspectors included: Procedure SE-ND-HX-0100, “Eddy Current Testing of Heat Exchanger Tubes,” Revision 2; Procedure PE-RR-CCW-0100, “Disassembly, Cleaning, and Repair of CCW Heat Exchanger – Raw Water Side,”

Revision 33; Procedure PED-SEI-16, "Evaluation of Heat Exchanger Performance," Revision 9; Procedure SE-PFT-CCW-0001, "Component Cooling Water Heat Exchangers Performance Test," Revision 13 and Work Order 00248454-01.

The inspectors completed one sample.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Regualification Program (71111.11)

a. Inspection Scope

On March 25, 2008, 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, and to assess the evaluator's critique. The training scenario involved plant cool down to shutdown cooling initiation, placing shutdown cooling in service, and a subsequent loss of shutdown cooling.

Documents reviewed by the inspectors included: OI-SC-1, "Shutdown Cooling Initiation," Revision 44 and AOP-19, "Loss of Shutdown Cooling," Revision 13.

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 activity 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.

- February 19, 2008, reviewed maintenance rule determination for Instrument Air Compressor CA-1C and the associated a(1)/a(2) status for compressed air system

Documents reviewed by the inspectors are listed in the attachment.

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

- January 10, 2008, Yellow risk condition while the diesel-driven auxiliary feedwater Pump FW-54, the raw water Pump AC-10A, and bearing water Pump C-9A were collectively out of service for maintenance
- March 3, 2008, Emergent work and yellow risk condition when the motor-driven auxiliary feedwater Pump FW-6 was declared inoperable, and the main feedwater Pump FW-4B, raw water Pump AC-10D, heatless air Dryer CA-12, and bearing water Cooler CW-6A were out of service
- March 7, 2008, Impact of OP-ST-SI-3022, "Room 22 Safety Injection Containment Spray Pumps and Valve Exercise In-Service Test," Revision 6
- March 12, 2008, Emergent work on raw water Pump AC-10D following discovery of high vibrations and resulting pump inoperability

These activities were selected based on their potential risk significance relative to the reactor safety cornerstones. As applicable for each activity, the inspectors verified that risk assessments were performed as required by 10 CFR 50.65(a)(4) and were accurate and complete. When emergent work was performed, the inspectors verified that the plant risk was promptly reassessed and managed. The inspectors reviewed the scope of maintenance work, discussed the results of the assessment with the licensee's probabilistic risk analyst or shift technical advisor, and verified plant conditions were consistent with the risk assessment. The inspectors also reviewed Technical Specification requirements and walked down portions of redundant safety systems, when applicable, to verify risk analysis assumptions were valid and applicable requirements were met.

Documents reviewed by the inspectors included: List of Risk Management Actions as documented in Plan-of-the-Day Schedule, dated January 7, March 3, and March 10, 2008; and Standing Order Procedure SO-M-100, "Conduct of Maintenance," Revision 47.

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.

- January 8, 2008, Unapproved wet lubricant found to have been used on replacement diesel generator (DG) auxiliary contacts, 2-CR, in February 2007
- January 12, 2008, Operability of the offsite power low signal Relays 27-74/T1A1 and 27-74/T1A2
- January 18, 2008, Operability of the chemical and volume control system following the failure of charging pump suction relief Valve CH-180
- March 1, 2008, Operability of raw water pumps A/B/C following discovery of failed tension bolt on raw water Pump AC-10D

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed four samples.

b. Findings

Introduction. The inspectors identified a Green noncited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "(Corrective Actions," for the failure to implement adequate corrective actions to prevent recurrence of a significant condition adverse to quality. Specifically, in 2007 raw water Pump AC-10D packing leakage was excessive. Operators had to secure the pump because water accumulation in the area could have challenged the operability of all the raw water pumps. Corrective measures were inadequate to prevent recurrence, in that the same event occurred on March 1, 2008.

Description. On March 1, 2008, during grid backwash, the water plant operator noticed a large amount of water in the raw water vault (approximately three to four inches). No raw water vault alarms were present, despite water level exceeding the alarm setpoints of greater than a two-inch water level in the raw water vault. Upon investigation, the source of the water was from the packing assembly of raw water Pump AC-10D, specifically the tension nut and O-ring. After the pump was rotated off, the leakage stopped.

The inspectors reviewed the history of severe packing leakage on the raw water pumps and discovered one previous event in which a raw water pump had to be manually

secured due to excess packing leakage. Specifically, in October 2007, the same raw water Pump AC-10D exhibited excess packing leakage of approximately 40 gpm. This event was addressed in CR 2007-4321. Station guidance detailed in Standing Order SO-R-2 "Condition Reporting and Corrective Action," Revision 37, defines a significant condition adverse to quality as the "Failure of a SSC or equipment with a Level of Consequence Functional Importance Determination (FID) of one or two, which endangers or has the potential to endanger the health and safety of the public." The raw water pumps are functional importance determination level two components that are relied upon during accident conditions. Further, the failure of one raw water pump that has the ability to flood the raw water vault can adversely affect the other three raw Water pumps. Thus, the packing leakage observed in October 2007, was a significant condition adverse to quality, and corrective actions shall be taken to prevent recurrence.

The "Apparent Cause Analysis Summary Report" for CR 2007-4321 determined the apparent cause to be "improper installation of the packing tension nut." The associated corrective action to address the improper installation included "procedure changes as needed to ensure packing tension nut is properly tightened." The apparent cause did not recognize that the pump shaft was incorrectly machined by the vendor. The incorrect machining led to improper installation of the packing tension nut. This deficiency was identified following the 2008 event. The failure to perform a thorough evaluation following the 2007 event was a significant contributor to this finding.

Analysis. The failure to preclude repetition for a significant condition adverse to quality was a performance deficiency. This finding was greater than minor because if left uncorrected the condition would become a more significant safety concern, in that raw water system operability could be adversely affected. The inspectors evaluated this finding using Manual Chapter 0609, Attachment 4. Using the Manual Chapter 0609, "Significance Determination Process," Phase 1 Screening Worksheet, the issue screened as having very low safety significance because it: (1) was not a design or qualification deficiency; (2) did not represent a loss of safety function; (3) did not represent an actual loss of a single train of equipment for more than its Technical Specification allowed outage time; (4) did not represent a loss of risk significant non-Technical Specification equipment; and (5) did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. This finding had a crosscutting aspect in the area of problem identification and resolution, corrective action program component, in that the licensee's evaluation of the first failure did not identify significant procedural deficiencies that contributed to both failures [P.1(c)].

Enforcement. Title 10 CFR Part 50, Appendix B, Criterion XVI, states, in part, "In the case of significant conditions adverse to quality, the measures shall assure that the cause of the condition is determined and corrective action is taken to preclude repetition." Contrary to this requirement, the licensee failed to implement adequate corrective action to prevent a sizeable packing leak on raw water Pump AC-10D, which partially flooded the raw water vault. Because this violation was of very low safety significance and it was entered in the CAP as CR 2008-1196, it is being treated as an NCV, consistent with Section VI.A of the NRC Enforcement Policy: NCV 05000285/2008002-03, "Failure to Prevent Raw Water Packing Leakage."

1R19 Postmaintenance Testing (71111.19)

a. Inspection Scope

The inspectors selected the five postmaintenance test activities listed below of risk significant systems or components. 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.

- January 10, 2008, PMT following minor overhaul of diesel-driven auxiliary feedwater Pump FW-54
- February 4, 2008, PMT following 18 month maintenance of DG-2
- February 20, 2008, PMT of raw water Pumps AC-10B and AC-10C sparging lines following replacement
- March 21, 2008, PMT of regenerative heat exchanger letdown relief valve to pressurizer quench Tank CH-223, following emergent repairs
- March 22, 2008, PMT of DG 2 Turbo Lube Oil Circulating Pump LO-40-2 following emergent repairs

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed five samples.

b. Findings

Introduction. The inspectors documented a Green self-revealing noncited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," in response to a leak of diesel fuel oil into an enclosure containing electrical equipment. Specifically, the licensee failed to supply equipment suitable for the required application under existing environmental conditions. The equipment consisted of two panel enclosures, one containing fluid lines and one containing electronic equipment that were not adequately separated. There were holes in each panel allowing a path for fuel oil to impact electronic equipment.

Description. On January 31, 2008, an electrical maintenance worker was performing a PMT in the lower half of the engine control panel (the contactor panel) on DG-2. The worker noted a vapor trail originating at the top of the panel (the gauge panel). The trail was followed back to a pressure switch fitting leaking fuel oil into the gauge panel. Fuel oil was spraying within the gauge panel, collecting on the bottom of the panel, and migrating into the contactor panel through four holes, approximately ¼-inch diameter, drilled into the bottom of the gauge panel and the top of the contactor panel. This

provided a direct path of fuel oil to the contactor panel, which contains control circuitry for the diesel's fuel oil and lube oil systems.

The licensee investigated this issue and determined that a human performance error was the cause of the fuel oil leak in the gauge panel (failure to tighten a pressure switch fitting following maintenance) and the holes in the two cabinets provided the leak path. Further investigation determined that holes existed in nearly the same location in the engine control panel of DG-1. Neither the inspectors nor the licensee could determine if a modification was made to the panels that resulted in the holes. Thus it is assumed that the condition existed for the life of the cabinets.

Analysis. The inspectors determined that the licensee's failure to supply equipment suitable for the required application under existing environmental conditions was a performance deficiency. The finding was more than minor because it was associated with the availability/reliability of equipment performance attribute of the mitigating systems cornerstone, and it directly affected the cornerstone objective to ensure the availability, reliability and capability of systems that respond to initiating events to prevent undesirable consequences. Using the Manual Chapter 0609, "Significance Determination Process," Phase 1 Screening Worksheet, the issue screened as having very low safety significance because it was a design deficiency confirmed not to result in a loss of operability or safety function. This finding did not have a crosscutting aspect because the performance deficiency was a long-standing issue and not necessarily indicative of current performance.

Enforcement. Title 10 CFR Part 50, Appendix B, Criterion III, "Design Control," requires, in part, "Measures shall also be established for the selection and review for suitability of application of materials, parts, equipment, and processes that are essential to the safety-related functions of the structures, systems and components." Contrary to the above, the licensee failed to supply suitable enclosures housing oil systems and electronic systems because holes were drilled between the two enclosures. Because this finding is of very low safety significance and has been entered into the CAP as CRs 2008-0468 and 2008-1082, this violation is being treated as an NCV consistent with Section VI.A of the NRC Enforcement Policy: NCV 05000385/2008002-04, "Failure to Supply Suitable Materials for Diesel Generator Control Cabinets."

1R20 Refueling and Other Outage Activities (71111.20)

a. Inspection Scope

On March 15, 2008, the reactor automatically tripped due to a turbine trip. The licensee entered a forced outage of 1 week in length and restarted the plant on March 22, 2008. The inspectors reviewed the following risk significant items or outage activities to verify defense in depth and compliance with the Technical Specifications: (1) the cause of complications experienced during the reactor trip; (2) reactor coolant system instrumentation; (3) electrical power; (4) decay heat removal; (5) heat-up and cool-down activities; (6) restart activities; and (7) licensee identification and implementation of appropriate corrective actions associated with outage activities.

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed one sample.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors reviewed the USAR, procedure requirements, and Technical Specifications to ensure that the five surveillance activities listed below demonstrated that the SSC's 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 Technical Specification 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 SSCs not meeting the test acceptance criteria were correct; (14) reference setting data; and (15) annunciators and alarms setpoints. The inspectors also verified that the licensee identified and implemented any needed corrective actions associated with the surveillance testing.

- February 15, 2008, ECCS pump surveillance testing
- March 6, 2008, in-office review of completed surveillance test per OP-PM-AFW-0004, "Third Auxiliary Feedwater Pump Operability Verification," Revision 29
- March 7, 2008, SI-1B LPSI Pump discharge isolation (HCV-2938) and recirculation check valve (SI-304) inservice test
- March 13, 2008, Monthly surveillance test for safety related battery chargers
- March 20, 2008, Diesel auto start initiating circuit check for DG-1

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed five samples.

b. Findings

No findings of significance were identified.

1EP6 Drill Evaluation (71114.06)

a. Inspection Scope

Below is listed one simulator-based training evolutions contributing to Drill/Exercise Performance (DEP) and Emergency Response Organization (ERO) Performance Indicators, 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 Nuclear Engineering Institute 99-02, "Voluntary Submission of Performance Indicator Data," acceptance criteria.

- January 16, 2008, observation from the simulator; scenario included a condensate pump failure, turbine bearing failure resulting in an automatic trip/anticipated transient without a scram, main steam safety valve sticks open, and a tube rupture on the same steam generator

Documents reviewed by the inspectors were the simulator training packages for March 26, 2008.

The inspectors completed one sample.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification (71151)

.1 Cornerstone: Initiating Events

a. Inspection Scope

The inspectors' sampled submittals for the performance indicators listed below for the period January 1, 2007, through December 31, 2007. The definitions and guidance found in Nuclear Engineering Institute 99-02, "Regulatory Assessment Indicator Guideline," Revision 5, was used to verify the licensee's basis for reporting each data element in order to verify the accuracy of performance indicator data reported during the assessment period.

- IE01 – Unplanned Scrams
- IE02 – Unplanned Scrams With Complications
- IE03 – Unplanned Power Changes

The inspectors reviewed various operator logs dated January 1, 2007, through December 31, 2007.

The inspectors completed one sample.

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems (71152)

.1 Routine Reviews of Identification and Resolution of Problems

a. Inspection Scope

The inspectors chose one issue for a more in-depth review to verify that the licensee personnel had taken corrective actions commensurate with the significance of the issue. On February 20, 2008, the inspectors observed boric acid accumulation on the B low-pressure safety injection pump Discharge Valve HCV-2938. The inspectors reviewed the corrective actions associated with this condition as well as other boric acid leaks in the auxiliary building. When evaluating the effectiveness of the licensee's corrective actions, the following attributes were considered:

- Timeliness of corrective actions and/or repairs to components
- Repetitive boric acid leaks, indicating possible ineffective corrective actions
- Functionality/operability of component potentially impacted by boric acid
- Identification of all active boric acid leaks in the plant
- Size of the boric acid leak(s)

Documents reviewed are listed in the attachment.

The inspectors completed one sample.

b. Findings

Introduction. The inspectors identified a Green noncited violation of 10 CFR Part 50, Appendix B, Criterion XVI, for the failure to ensure that conditions adverse to quality are promptly identified and corrected. Specifically, multiple boric acid leaks were identified in the plant where corrective actions had been ineffective, duration of leakage had approached two years time, and/or the leaks had not been tracked by the licensee's boric acid corrosion program or with a CR.

Description. On February 20, 2008, the inspectors observed a significant amount of boric acid accumulated on the operator of the 'B' low-pressure safety injection pump Discharge Valve HCV-2938. Based on this observation, the inspectors performed a review of other boric acid leaks in the plant and/or those being tracked in the licensee's Boric Acid Corrosion Program. The inspectors noted the following:

- Multiple (i.e., a minimum of five and as many as thirteen) boric acid leaks did not have an associated CR describing the condition. Licensee Procedure PBD-10, "Boric Acid Prevention," Revision 11 required that quality control personnel "shall perform inspections using criteria in SE-EQT-MX-0002." Licensee Procedure SE-EQT-MX-0002, "Carbon Steel and Low Alloy Steel Fasteners Inservice Testing Inspections," Revision 9, required that "Boric acid crystal deposits . . . shall be documented as a 'Minor' deposit and a CR shall be written and documented . . ."
- At least 13 active boric acid leaks had been in existence for greater than 20 months time. The oldest leaks in the plant approached 3 years
- At least 15 active boric acid leaks were repetitive, as evident by multiple work requests or CRs having been written on individual components
- During a single walkdown within the auxiliary building, the inspectors identified four active boric acid leaks that were not being tracked in the licensee's boric acid corrosion program

Analysis. The failure to promptly identify and correct boric acid leaks was a performance deficiency. The finding was more than minor because if it were left uncorrected the finding would become a more significant safety concern (i.e., potential for damage to carbon steel components or inhibiting the safety-function of others). Using the Manual Chapter 0609, "Significance Determination Process," Phase 1 Screening Worksheet, the issue screened as having very low safety significance because it: (1) was not a design or qualification deficiency; (2) did not represent a loss of safety function; (3) did not represent an actual loss of a single train of equipment for more than its Technical Specification allowed outage time; (4) did not represent a loss of risk significant non-Technical Specification equipment; and (5) did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. This finding had a crosscutting aspect in the human performance area, work practices component [H.4(b)] in that the licensee failed to effectively communicate expectations on boric acid corrosion program procedures.

Enforcement. Title 10 of CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," states in part that "measures shall be established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material, and equipment, and nonconformance's are promptly identified and corrected." Contrary to the above, between February 20 and March 31, 2008, multiple deficiencies involving boric acid leaks were identified by the inspectors. These deficiencies had neither been identified in the CAP in a timely manner, nor corrected. This violation of Appendix B, Criterion XVI, is being treated as a NRC identified noncited violation, consistent with Section VI.A of the Enforcement Policy: NCV 05000285/2008002-05, "Failure to Identify Multiple Conditions Adverse to Quality." This violation was entered into the licensee's CAP as CR 2008-1891.

.2 Crosscutting Issue Aspects

The inspectors identified two findings with problem identification and resolution crosscutting aspects. As described in Section 1R06.2 of this report, licensee personnel failed to properly use operational experience on internal flooding resulting in a

crosscutting aspect to the finding (P.2(b)). In addition, Section 1R15 discusses a poor evaluation that led to a second packing failure of a raw water pump.

4OA3 Event Follow-up (71153)

.1 Operator Response to Adverse River Conditions

a. Inspection Scope

At 03:16 a.m. on February 26, 2008, the inspectors were informed of the licensee's entry into Abnormal Operating Procedure AOP-1, "Acts of Nature," Revision 22. The inspectors responded to the plant and reviewed control room response to adverse river conditions (black ice and grass) due to increasing river levels. The inspectors verified that the licensee complied with the aforementioned abnormal operating procedure and other response procedures.

b. Findings

No findings of significance were identified.

.2 Operator Response to Automatic Turbine/Reactor Trip

a. Inspection Scope

On March 15, 2008, the reactor automatically tripped due to a turbine trip. The turbine trip was due to a failure in the electro-hydraulic control system. The inspectors responded to the plant and reviewed control room actions taken to address the event including the cause of complications.

b. Findings

No findings of significance were identified.

4OA6 Meetings

Exit Meeting Summary

On April 17, 2008, the resident inspectors presented the inspection results to Mr. T. Nellenbach, Plant Manager, and other members of licensee management, who acknowledged the inspection findings. The inspectors confirmed that no proprietary information had been provided.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

D. Bannister, Vice President
R. Clemens, Division Manager, Nuclear Engineering
P. Cronin, Manager, Operations
M. Frans, Manager System Engineering
J. Gasper, Acting Manager, Design Engineering
D. Guinn, Licensing Engineering
R. Haug, Manager, Radiation Protection
J. McManis, Manager, Licensing
T. Nellenbach, Division Manager, Nuclear Operations/Plant Manager
T. Pilmaier, Manager, Performance Improvement and Corrective Action
D. Spires, Manager, Integrated Work Management
T. Uehling, Manager, Chemistry

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed

05000285/2008002-01	NCV	Inadequate Internal Flooding Procedure (Section 1R06)
05000285/2008002-02	FIN	Failure to Identify Internal Flooding Deficiencies (Section 1R06)
05000285/2008002-03	NCV	Failure to Prevent Raw Water Packing Leakage (Section 1R15)
05000285/2008002-04	NCV	Failure to Supply Suitable Materials for Diesel Generator Control Cabinets (Section 1R19)
05000285/2008002-05	NCV	Failure to Identify Multiple Conditions Adverse to Quality (Section (4OA2))

Closed

05000285/2007005-02	URI	Potential Inadequate Internal Flooding Procedure (Section 1R06)
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LIST OF DOCUMENTS REVIEWED

Section 1R04: Equipment Alignment

Operating Instruction OI-AFW-4, "Auxiliary Feedwater Startup and System Operation,"
Revision 65

Operating Instruction OI-FW-2, "Feedwater (FW) System Normal Operation," Revision 31

Operating Instruction OI-EE-1, "Normal Operation of 4160 Volt System," Revision 25

Drawing 11405-M-99, Sheet COV, "Composite Flow Diagram, Steam Generator Feedwater and Blowdown P&ID," Revision 40

Drawing 11405-M-99, Sheets COV, and 1-4, "Flow Diagram, Steam Generator Feedwater and Blowdown P&ID," Revisions 88, 22, 13 and 35 respectively

Drawing Figure 8.1-1, "Simplified One Line Diagram Plant Electrical System P&ID," Revision 128

USAR, Section 8.3, "Station Distribution," Revision 7

USAR, Section 9.4, "Auxiliary Feedwater System," Revision 15

USAR, Section 10.1, "Steam and Power Conversion Systems," Revision 4

Section 1RO5: Fire Protection

Standing Order SO-G-28, "Station Fire Plan," Revision 71

Standing Order SO-G-91, "Control and Transportation of Combustible Materials," Revision 23

Standing Order SO-G-102, "Fire Protection Program," Revision 7

Abnormal Operating Procedure AOP-6, "Fire Emergency," Revision 20

EA-FC-97-001, "Fire Hazards Analysis (FHA) Manual," Revision 12

USAR, Section 9.11, "Fire Protection Systems," Revision 17

Section 1RO6: Flood Protection

Individual Plant Examination Submittal, dated December 1993

USAR Sections 1.3, 6.2, 8.1, and Appendix G

NRC Letter addressed to Omaha Public Power District, "Revision of Safety Evaluation Report Basis," dated March 3, 1994

NRC Letter addressed to Omaha Public Power District, with attached Safety Evaluation dated February 16, 1978

Fort Calhoun Station Probabilistic Risk Assessment Summary Notebook, Revision 10

Calculation FC06759, "Spent Regenerate Tank and Pump Room Door (971-1A) Failure Mechanism

Abnormal Operating Procedure AOP-06-01, "Auxiliary Building Radiation Controlled Areas and Containment," Revision 0

Abnormal Operating Procedure AOP-10, "Loss of Circulating Water," Revision 2

Abnormal Operating Procedure AOP-11, "Loss of Component Cooling Water," Revision 13

Abnormal Operating Procedure AOP-18, "Loss of Raw Water," Revision 6

Annunciator Response Procedure ARP-AI-100/A50, "Annunciator Response Procedure A50

Local Annunciator A50 Waste Disposal," Revision 9

Preventative Maintenance Procedure PE-PM-VX-0424, "Crane Bolted Cap Swing Check Valve Inspection," Revision 1

Drawing 11405-M-99, Sheets 1-2, "Waste Disposal System Auxiliary Building Floor Drain Flow Diagram," Revisions 20 and 7 respectively

Drawing 11405-M-7, Sheets 1A and 1B, "Waste Disposal System Flow Diagram," Revision 6

Maintenance Work Order 00253100-01, "Check of Potentially Contaminated Floor Drains/Hubs" dated May 25, 2007

Condition Reports

200302414 200700706 2007-2701 2007-3670

Section 1R12: Maintenance Effectiveness

PED-SEI-34, "Maintenance Rule Program," Revision 6

MRII-0, "General Instructions," Revision 6

MRII-1.1, "Scoping," Revision 2

MRII-1.2, "Risk Significance Determination," Revision 5

MRII-2, "Setting Performance Criteria," Revision 4

MRII-2.1, "Monitoring and Reporting of SSC Availability," Revision 4

MRII-6, "Placement of SSC's into Category (a)(1) or (a)(2)," Revision 8

MRII-7.1, "Periodic Assessment," Revision 3

Condition Reports

200700211 200700783 200700942 200701470 200701547
200701557 2007-2489 2007-2640 2007-2987 2007-3902

Section 1R15: Operability Evaluations

Work Order Packages

247215-01 296614-01 296614-02 297730-01 271219-01
261545-01

Condition Reports

2008-0095 2008-0190 2008-0239 2008-0242 2008-0263
2008-0525 2008-1196 2008-1460

PE-PM-VX-0429, "CQE Relief Valve Setpoint and Leakage Test," Revision 3
 NOD-QP-31.1, "Operability Evaluation Form for Condition Report 2008-0095", Revision 0
 NOD-QP-31.1, "Operability Evaluation Form for Condition Report 2008-0242", Revision 0
 MM-RR-RW-0001, "Removal and Installation of Raw Water Pumps," Revision 22

Section 1R19: Postmaintenance Testing

Work Order Packages

00230148-01	00265256-01	00291795-01	00293845-01	00294067-01
00241782-01	00268394-01	00293544-01	00293845-02	00294100-01
00247246-01	00271466-01	00293561-01	00293845-03	00294101-01
00250617-01	00273753-01	00293611-01	00293845-04	00294101-02
00254728-01	00273756-01	00293612-01	00293845-05	00294102-01
00265169-01	00273962-01	00293620-01	00293845-06	00294133-01
00265170-01	00275419-01	00293621-01	00293845-07	00294148-01
00265173-01	00277749-01	00293622-01	00293845-08	00294174-01
00265181-01	00281256-01	00293663-01	00293845-09	00294206-01
00265183-01	00281257-01	00293678-01	00293849-01	00294206-01
00265254-01	00285832-01	00293686-01	273122-01	287287-01
287288-01				

Condition Reports

2008-0413	2008-0414	2008-0415	2008-0416	2008-0449
2008-0459	2008-0468	2008-0508	2008-1082	

NOD-QP-31.1, "Operability Evaluation Form for Condition Reports 2008-0413; 0414; 0415; 0416", Revision 0

NOD-QP-31.1, "Operability Evaluation Form for Condition Report 2008-0449", Revision 0

NOD-QP-31.1, "Operability Evaluation Form for Condition Reports 2008-0468", Revision 0

Quality Control Inspection Report Number 20080025

Surveillance Test MM-ST-DG-0002, "Diesel Generator DG-2 Inspection," Revision 35

Surveillance Test OP-ST-ESF-0001, "Diesel Auto Start Initiating Circuit Check," Revision 30

Surveillance Test IC-ST-DG-0041, "Calibration of Diesel Generator No. 2 Lube Oil 'Idle' Pressure Low Alarm & Control," Revision 10

Surveillance Test IC-ST-DG-0042, "Calibration of Diesel Generator No. 2 Lube Oil 'Running' Pressure Low Alarm," Revision 6

Surveillance Test IC-ST-DG-0044, "Calibration of Diesel Generator No. 2 Lube Oil 'Standby' Pressure Low Alarm," Revision 6

Surveillance Test IC-ST-DG-0045, "Calibration of Emergency Diesel No. 2 Lube Oil Temperature Switch TA-3342," Revision 6

Surveillance Test IC-ST-DG-0046, "Calibration of DG-2 Lube Oil Level Switch LA-3344," Revision 8

Surveillance Test IC-ST-DG-0047, "Calibration of Emergency Diesel No. 2 Jacket Water High Temperature Switch TCA-3346," Revision 7

Surveillance Test IC-ST-DG-0048, "Calibration of DG-2 Jacket Water Pressure Low Alarm," Revision 9

Surveillance Test IC-ST-DG-0049, "Calibration of Emergency Diesel No. 2 Crankcase High Pressure Trip," Revision 8

Surveillance Test IC-ST-DG-0050, "Calibration of Emergency Diesel No. 2 Fuel Oil Filter No. 1 High Inlet Pressure," Revision 5

Surveillance Test IC-ST-DG-0051, "Calibration of Emergency Diesel No. 2 Fuel Oil Filter No. 2 High Inlet Pressure," Revision 5

Surveillance Test IC-ST-DG-0052, "Calibration of Diesel Generator No. 2 Primary Starting Air Low Pressure," Revision 9

Surveillance Test IC-ST-DG-0053, "Calibration of Diesel Generator No. 2 Secondary Starting Air Low Pressure," Revision 8

Surveillance Test IC-ST-DG-0054, "Calibration of Diesel Generator No. 2 Fuel Oil Transfer Pump No. 1 Low Pressure Alarm," Revision 7

Surveillance Test IC-ST-DG-0055, "Calibration of Diesel Generator No. 2 Fuel Oil Transfer Pump No. 2 High Pressure Alarm," Revision 7

Surveillance Test IC-ST-DG-0056, "Calibration of Diesel Generator No. 2 Turbo Lube Oil Pressure Switch," Revision 4

Surveillance Test IC-ST-DG-0057, "Calibration of Emergency Diesel No. 2 Auxiliary Fuel Oil Day Tank Level Control and Alarm," Revision 11

Surveillance Test IC-ST-DG-0058, "Calibration of Emergency Diesel No. 2 550 Gallon Fuel Oil Base Tank Low Level Alarm," Revision 7

Surveillance Test IC-ST-DG-0059, "Calibration of Diesel Generator No. 2 Fuel Oil Transfer Pump No. 2 Low Pressure Alarm," Revision 6

Surveillance Test IC-ST-DG-0060, "Calibration of Diesel Generator No. 2 Fuel Oil Transfer Pump No. 1 High Pressure Alarm," Revision 6

Surveillance Test IC-ST-DG-0061, "Calibration of Emergency Diesel No. 2 Lube Oil High Temperature Switch TA-6122," Revision 7

Surveillance Test IC-ST-DG-0062, "Calibration of Emergency Diesel No. 2 Engine Jacket Water Pressure Starting Air Cutout Control," Revision 4

Surveillance Test IC-ST-DG-0063, "Calibration of Emergency Diesel No. 2 Jacket Water High Temperature Switch TA-6127," Revision 5

Surveillance Test IC-ST-DG-0064, "Calibration of Emergency Diesel No. 2 Jacket Water Low Temperature Switch TA-6131-2," Revision 6

Surveillance Test IC-ST-DG-0065, "Calibration of Emergency Diesel No. 2 Jacket Water High Temperature Switch TA-6131-1," Revision 6

Surveillance Test IC-ST-DG-0066, "Calibration of Emergency Diesel No. 2 Immersion Heater Temperature Switch TC-6132," Revision 8

Surveillance Test IC-ST-DG-0067, "Calibration of Emergency Diesel No. 2 Primary Starting Air Pressure Switch PC-6138," Revision 3

Surveillance Test IC-ST-DG-0068, "Calibration of Emergency Diesel No. 2 Secondary Starting Air Pressure Switch PC-6139," Revision 3

Surveillance Test IC-ST-DG-0069, "Calibration of Diesel Generator No. 2 Booster Compressors Start-Stop Pressure Controls PC-6140 and PS-1758," Revision 6

Surveillance Test IC-ST-DG-0071, "Calibration of Diesel Generator No. 2 Primary Booster Compressor SA-2-2 Start-Stop Pressure Control PC-6142," Revision 4

PE-PM-VX-0429, "CQE Relief Valve Setpoint and Leakage Test," Revision 3

Section 1R20: Refueling and Other Outage Activities

Plots of Reactor Coolant Pump Seal Performance, dated March 18, 2008

Post Trip Review Package for the March 15, 2008 Reactor Trip

Event Notification 44066, dated March 15, 2008

Technical Data Book TDB-VIII, Attachment 4, "DG Component Operability Guidance," Revision 32

Control Room Operating Logs, dated March 15 through March 22, 2008

Condition Reports

2008-1584

2008-1666

2008-1683

Section 1R22: Surveillance Testing

OP-ST-SI-3022, "Room 22 Safety Injection/Containment Spray Pumps and Valve Exercise Inservice Test," Revision 6

OP-ST-ESF-0001, "Diesel Auto Start Initiating Circuit Check," Revision 30

EM-ST-EE-0009, "Monthly Surveillance Test for Station Battery Chargers," Revision 20

Standing Order SO-G-23, "Surveillance Test Program," Revision 23

USAR, Section 4.5.6.5, "In-service Inspection of ASME Code Class 1, Class 2, and Class 3 Components," Revision 13

USAR, Section 7.3.2.1, "Auto-Start of Diesel Generators," Revision 10

Drawings E-23866-210-130, "Safety Injection and Containment Spray System P&ID," Sheets 1 to 3, Revisions 89, 64, 18, 12 and 16, respectively

Drawing Figure 8.1-1, "Simplified One Line Diagram Plant Electrical System P&ID," Revision 128

Section 4OA2: Identification and Resolution of Problems

Boric Acid Tracking Spreadsheet, dated February 28, 2008

Boric Acid Tracking Spreadsheet, dated March 7, 2008

Boric Acid Leakage Evaluation Form for Component HCV-2938

SE-EQT-MX-0002, "Carbon Steel and Low Alloy Steel Fasteners Inservice Testing Inspections," Revision 9

PBD-10, "Boric Acid Prevention," Revision 11

Condition Reports

2007-2694	200600508	2007-5075	2007-4889	2007-3767
200700525	200700123	2007-4413	2007-3802	2007-3801
2007-3635	2007-2000	200603555	200605458	200605436
200701349	200602736	200601328	2007-5023	2007-4921
2007-3795	2008-0389	2007-4199	200602767	2007-2923
200700087	200701336	2007-2766		

LIST OF ACRONYMS

CFR	<i>Code of Federal Regulations</i>
CR	condition report
DG	diesel generator
ECCS	emergency core cooling systems
FID	functional importance determination
NCV	noncited violation
PMT	postmaintenance test
SSC	structure, system or component
USAR	Updated Safety Analysis Report