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

November 13, 2007

R. T. Ridenoure
Vice President
Omaha Public Power District
Fort Calhoun Station FC-2-4 Adm.
P.O. Box 550
Fort Calhoun, NE 68023-0550

SUBJECT: FORT CALHOUN STATION - NRC INTEGRATED INSPECTION REPORT 05000285/2007004

Dear Mr. Ridenoure:

On September 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 October 12, 2007, with Mr. David Bannister, 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 that was evaluated under the risk significance determination process as having very low safety significance (Green).

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

Should you have any questions concerning this inspection, we will be pleased to discuss them with you.

Sincerely,

/RA/

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

Docket: 50-285
License: DPR-40

Enclosure:
NRC Inspection Report 05000285/2007004
w/attachment: Supplemental Information

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Only inspection reports to the following:
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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	RIV:RI:DRP/E	C:DRS/PSB	C:DRS/OB	C:DRS/EB1
LMWilloughby	JAKirkland	MPShannon	ATGody	WBJones
E-JAC	***E-JAC***	***/RA/***	***KClayton for***	***/RA/***
11/09/07	11/09/07	11/09/07	11/09/07	11/08/07

C:DRS/EB2	C:DRP/E	RIV:SRI:DRP/E		
LJSmith	JAClark	JDHanna		
/RA/	/RA/	/RA/		
11/08/07	11/13/07	11/08/07		

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U.S. NUCLEAR REGULATORY COMMISSION

REGION IV

Docket:	50-285
License:	DPR-40
Report:	05000285/2007004
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:	July 1 through September 30, 2007
Inspectors:	J. Hanna, Senior Resident Inspector L. Willoughby, Resident Inspector J. Kirkland, Resident Inspector Z. Dunham, Senior Resident Inspector, Columbia Generating Station P. Elkmann, Emergency Preparedness Inspector G. Pick, Senior Reactor Inspector, Engineering Branch 2
Approved By:	Jeff Clark, Chief, Project Branch E Division of Reactor Projects

SUMMARY OF FINDINGS

IR 05000285/2007004; 07/01/2007- 09/30/2007; Fort Calhoun Station, Integrated Resident and Regional Report, Identification and Resolution of Problems.

The report covered a 3-month period of inspection by resident inspectors and regional specialist inspectors. The inspection identified one Green finding. 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. A Green self-revealing finding was identified for inadequate corrective actions, which resulted in a hydrazine spill. Specifically, corrective actions taken previously were ineffective at preventing hydrazine spills, a condition that had the potential to injure personnel, prevent personnel response to events, or adversely affect mitigating systems equipment (e.g., diesel driven auxiliary feedwater Pump FW-54).

  The finding was greater than minor because hydrazine spills could be reasonably viewed as a precursor to a significant event. The inspectors noted that during a previous event, the licensee attempted to neutralize the spill which resulted in a violent exothermic reaction and a toxic gas release to the Turbine Building. The finding, which is under the Initiating Events cornerstone, was of very low safety significance because it did not (1) result in exceeding the Technical Specification limit for RCS leakage, (2) contribute to both the likelihood and a reactor trip and that mitigation equipment would be unavailable, or (3) increase the likelihood of a fire or flood. (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 for the duration of the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

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 walk down to the licensee's Updated Safety Analysis Report (USAR) and Corrective Action Program (CAP) to ensure problems were being identified and corrected.

- August 15, 2007, Diesel Generator 1 Fuel Oil System while Diesel Generator 2 was out-of-service for maintenance
- August 23, 2007, Motor Driven Auxiliary Feedwater train while the Diesel Driven Auxiliary Feedwater train was out-of-service for testing
- August 30, 2007, Raw Water System during Motor Driven Auxiliary Feedwater Pump FW-6 surveillance testing

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed three samples.

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 seven 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.

- July 21, 2007, Tour of the Independent Spent Fuel Storage Area temperature monitoring shed
- August 22, 2007, Room 19, Tour of Instrument Air Compressor rooms (Fire Area 32)
- August 22, 2007, Rooms 54 and 55, Tours of the Safety-Related Battery Rooms (Fire Areas 37 & 38)
- August 30, 2007, Room 56W, Tour of the West Electrical Switchgear Room (Fire Area 36B)
- September 4, 2007, Rooms 26 and 58,Tour of East Personnel Corridor 26 and PAL areas (Fire Area 20.1)
- September 4, 2007, Room 69, Tour of HVAC Equipment, Fuel Handling and Primary Water Storage Tank Areas (Fire Area 20.7)
- September 4, 2007, Room 18, Tour of Component Cooling Water Heat Exchanger Area (Fire Area 33)

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed seven samples.

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, and to assess the evaluator's critique. The training scenario observed on September 17, 2007, involved a near loss of off-site power event in conjunction with a dropped rod.

Documents reviewed by the inspectors are listed in the attachment.

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 three 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.

- May 3, 2007, Initial field flash failure of Diesel Generator 1 on February 14, 2007
- September 14, 2007, review of maintenance rule determination on HCV-151 failure and moving condition monitoring activities from a(1) to a(2)
- September 19, 2007, review of maintenance rule determination on FW-4B main feedwater pump and moving condition monitoring from a(1) to a(2)

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed three samples.

b. Findings

A finding related to the Diesel Generator 1 field flash failure on February 14, 2007, is discussed in NRC Inspection Report 05000285/2007011. No additional findings of significance were identified.

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

.1 Risk Assessment and Management of Risk

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.

- August 15, 2007, Yellow risk condition while the following activities were being performed: Procedure OP-ST-DG-0002 "Diesel Generator 2 Monthly Run;" replacement of 3CR Auxiliary Contacts on Diesel Generator 2; Procedure IC-ST-RPS-0005, "Quarterly Functional Test of Power Range Channel 'D' Trip Unit;" Furmanite repair of heater drain ump discharge Valve FW-479; and refurbishment of spent regenerative tank Valve HCV-554

- August 22, 2007, Yellow risk condition and associated Risk Management Actions while Valve HCV-329 was being stroked

- September 13, 2007, Yellow risk condition while performing Procedure OP-ST-ESF-0009, "Channel A Safety Injection, Containment Spray and Recirculation Actuation Signal Test," Revision 51

- September 25, 2007, Yellow risk condition while performing Procedure OP-ST-DG-0001, "Diesel Generator 1 Check," Revision 53 with control room ventilation filter Fan VA-63A out-of-service for charcoal replacement and with potential severe weather in the area

Documents reviewed by the inspectors are 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 plant 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.

- August 23, 2007, Review of operability determination and Technical Specification compliance with offsite 161 KV and 345 KV lines out-of-service

- August 29, 2007, Review of operability of auxiliary feedwater system based on elevated summer temperatures and their effect on the Emergency Feedwater Storage Tank and the Condensate Storage Tank

- September 5, 2007, Review of operability of ventilation Fan VA-64B with an inoperable power supply on the flow measurement loop

- September 10, 2007, Review of operability of the component cooling water system with temporary patches applied on the service water supply lines

- September 11, 2007, Review of the numerous reactor coolant system loose parts alarms occurring on Channel 3 and compliance with Technical Specifications

- September 19, 2007, Review of degraded safety-related station battery posts/terminals and the ability of the batteries to perform their function, especially in a seismic event

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed six samples.

b. Findings

No findings of significance were identified.

1R19 Postmaintenance Testing (71111.19)

a. Inspection Scope

The inspectors selected the five post-maintenance test activities of risk significant systems or components, which are 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 post-maintenance testing.

- July 10, 2007, Troubleshoot emergency response facility computer system host console device not being able to send data and commands to CPU board (WO 00274785-01)

- August 15, 2007, replace the 3CR Auxiliary Contacts on Diesel Generator 2 (WO 00277447-01)

- August 15, 2007, Replace SA-194, Primary Starting Air Pressure Regulation Valve on Diesel Generator 2 (WO 00267452-01)

- September 13, 2007, Post-maintenance test of the main feedwater bypass valve FCV-1105 following Furminate repair (WO 280566-01)

- September 29, 2007, Post-maintenance testing on Diesel Generator 1 following troubleshooting of a failed relay board (WO 282709-01, WO 282615-01)

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

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 Technical Specifications 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 Technical Specifications 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.

- July 10, 2007, OP-ST-RW-3002B, “RAW Water System Category A and B Valve Exercise Test,” Revision 6

- August 3, 2007, OP-ST-RW-3011, “AC-10B RAW Water Pump Quarterly In-Service Test,” Revision 30

- August 23, 2007, OP-PM-AFW-0004, “Third Auxiliary Feedwater Pump Operability Verification,” Revision 29

- August 29, 2007, OP-ST-DG-0001, “Diesel Generator 1 Check,” Revision 53
- September 27, 2007, OP-ST-DG-0001, “Diesel Generator 1 Check,” Revision 54

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

The inspectors completed five samples.

b. Findings

No findings of significance were identified.

1R23 Temporary Plant Modifications (71111.23)

a. Inspection Scope

The inspectors reviewed the USAR, plant drawings, procedure requirements, and Technical Specifications to ensure that the temporary modification listed below was properly implemented. The inspectors: (1) verified that the modification did not have an affect on system operability/availability; (2) verified that the installation was consistent with modification documents; (3) ensured that the post-installation test results were satisfactory and that the impacts of the temporary modification on permanently installed SSCs were supported by the test; (4) verified that the modification was identified on control room drawings and that appropriate identification tags were placed on the affected drawings; and (5) verified that appropriate safety evaluations were completed. The inspectors verified that licensee identified and implemented any needed corrective actions associated with temporary modifications.

- September 6, 2007, Review of emergent/temporary modification to instrument panel AI-110. The modification installed a separate 120-volt power supply to allow sampling of the gas/ventilation system.

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed one sample.

b. Findings

No findings of significance were identified.

Cornerstone: Emergency Preparedness

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

.1 Emergency Plan Changes, Part 1

a. Inspection Scope

The inspector performed in-office reviews of Revision 17 to Section F, “Emergency Communications,” and Revision 13 to Section G, “Public Education and Information,” of the Fort Calhoun Station Radiological Emergency Response Plan, both submitted May 1, 2007. These revisions revised the description of voice recording equipment used in emergency response facilities, added an emergency response facility communication system to Dodge County, Nebraska, described a new Omaha Public Power District radio system, and updated the description of the interface between news organizations and the licensee.

These revisions were compared to their previous revisions, to the criteria of NUREG-0654, “Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants,” Revision 1, and to the standards in 10 CFR 50.47(b), to determine if the revisions were adequately conducted according to the requirements of 10 CFR 50.54(q). This review was not documented in a Safety Evaluation Report and did not constitute approval of the licensee’s changes, therefore these revisions are subject to future inspection.

The inspector completed one sample during the inspection.

b. Findings

No findings of significance were identified.

.2 Emergency Plan Changes, Part II

a. Inspection Scope

The inspector performed in-office reviews of,

- Revision 34 to Section H, "Emergency Facilities and Equipment," of the Fort Calhoun Station Radiological Emergency Response Plan, submitted July 11, 2007

- Revision 18 to the Fort Calhoun Station Radiological Emergency Response Plan, Appendix A, "Letters of Agreement," submitted July 11, 2007

- Revision 44 to emergency plan implementing procedure OSC-1, "Emergency Classification," submitted July 11, 2007

These revisions updated letters of agreement, revised how a railroad traversing licensee property is notified of an emergency condition, restored Emergency Action Levels 2.4, 2.7, and 2.9 (reactor coolant leakage to secondary cooling with a release in progress) to their versions last reviewed by the NRC, and made minor editorial text changes.

These revisions were compared to their previous revisions, to the criteria of NUREG-0654, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," Revision 1, and to the standards in 10 CFR 50.47(b) to determine if the revisions were adequately conducted following the requirements of 10 CFR 50.54(q). This review was not documented in a Safety Evaluation Report and did not constitute approval of licensee changes, therefore these revisions are subject to future inspection.

The inspector completed three samples during the inspection.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification (71151)

a. Inspection Scope

Cornerstone: Mitigating Systems

The inspectors sampled submittals for the performance indicators listed below. The definitions and guidance of Nuclear Engineering Institute 99-02, "Regulatory Assessment Indicator Guideline," Revisions 2 through 4, were 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.

- Residual Heat Removal
- High Pressure Safety Injection

The inspectors completed two samples in this cornerstone.

Cornerstone: Barrier Integrity

The inspectors sampled submittals for the performance indicators listed below for the period April 1, 2006, through September 30, 2007. The definitions and guidance of Nuclear Engineering Institute 99-02, "Regulatory Assessment Indicator Guideline," Revisions 2 through 4, were 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.

- Reactor Coolant System Specific Activity
- Reactor Coolant System Leakage

The inspectors completed two samples 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 chose three issues (three inspection samples) for more in-depth review to verify that the licensee personnel had taken corrective actions commensurate with the significance of the issue. The inspectors reviewed the corrective actions associated with these conditions. The following issues were evaluated:

- February 14, 2007: review of CR 200700725 (Emergency Diesel Generator DG-1 Field Flash Functional Failure) The licensee had failed to treat the problem as a significant condition adverse to quality despite the risk and safety impact of the failure. This issue has been documented in NRC Inspection Report 05000285/2007011.

- September 06, 2007: review of CR 200703618 (Smoke and Indications of a Fire in the Radwaste Building)

- September 21, 2007: completed reviews of a selection of Operator Work-Arounds in the Control Room

b. Findings

No findings of significance were identified.

.2 Semiannual Trend Review

a. Inspection Scope

The inspectors performed a semiannual assessment (one inspection sample) of the licensee's corrective action program. The assessment covered trends of condition reports written involving spills of hydrazine and the licensee's response to those events. The focus of the inspection was determining whether the licensee had taken effective corrective actions from prior hazardous chemical spills. The inspectors reviewed the licensee's condition reports and root cause assessments against the guidance in Inspection Procedure 71152 while using the corrective action categorization guidance found in Inspection Manual Chapter 0305.

b. Findings and Observations

Introduction. A Green self-revealing finding was identified for inadequate corrective actions, which resulted in a hydrazine spill. Specifically, corrective actions taken previously were ineffective at preventing hydrazine spills, a condition that had the potential to injure personnel, prevent personnel response to events, or adversely affect mitigating systems equipment (e.g., diesel driven auxiliary feedwater Pump FW-54.)

Description. On September 13, 2007, licensee personnel in the Service Building notified the Control Room of an unusual odor in the area around the elevator. Operators responding to the event found that approximately 75 gallons of hydrazine (used for chemical treatment of the secondary feedwater system) had spilled from the lower storage tank into the berm containment area. A small amount of the material had spread beyond the berm to the Turbine Building Truck Bay, Service Building elevator shaft and elevator equipment room. The licensee declared a Notice of Unusual Event (NOUE) based on EAL 11.4, "Plant Conditions Warrant Increased Awareness by Plant Staff or Governmental Authorities" at 05:01 AM CDT. The inspectors responded to the site and assessed the licensee's response to the casualty. The licensee stopped the chemical spill and exited the NOUE at 06:49 AM CDT. Section 4OA3.2 of this inspection report describes the event response conducted by the inspectors.

In follow-up to this event, the inspectors were informed by other inspectors and regional management that there had been a history of hydrazine spills at the site. Based on this information, the inspectors reviewed the licensee's corrective action program history for prior events and their associated corrective actions. The inspectors found a number of prior hydrazine spills (approximately a dozen) however, the following events were determined to have been the most similar and relevant:

- May 26, 1994, 1 gallon spill due to a leaking Swagelok fitting (IR 940209)
- January 24, 1996, 50 gallon spill due to improper valve position (CR 199600095)
- August 1, 2001, 14 gallon spill due to improper valve position (CR 200102569)

The inspectors concluded that these events were related because they involved the same location (CF-18, Chemical Storage Tank), the identical chemical (hydrazine), and similar causes. The licensee's investigation determined that one of the contributing causes to the most recent event was insufficient rigor in the root cause analysis to a previous hydrazine spill (January 24, 1996, event). The inspectors concluded that this chemical could pose a hazard to personnel (e.g., burns, coughing, choking, and death in severe over-exposure) and plant equipment (e.g., flammable, extremely explosive in the presence of oxidizing materials). The inspectors determined that the prior corrective actions taken by the licensee had been ineffective at preventing recurrence of this problem.

Analysis. The failure to take effective corrective actions from prior events was a performance deficiency. The finding was greater than minor because hydrazine spills could be reasonably viewed as a precursor to a significant event. The inspectors noted that during a previous event, the licensee attempted to neutralize the spill which resulted in a violent exothermic reaction and a toxic gas release to the Turbine Building. The finding, which is under the Initiating Events cornerstone, was of very low safety significance because it did not (1) result in exceeding the Technical Specification limit for RCS leakage, (2) contribute to both the likelihood and a reactor trip and that mitigation equipment would be unavailable, or (3) increase the likelihood of a fire or flood.

Enforcement. The inspectors determined that the procedures and equipment involved with this performance deficiency were not safety-related, therefore no violation of regulatory requirements was identified. However, a finding was identified in that

Standing Order SO-R-2, "Condition Reporting and Corrective Action," Revision 37, paragraph 4.9.10 states, in part, "Condition Report Owner … reviews completed Condition Reports to verify that actions performed fulfill the intent of correcting the condition or ensuring it will not recur." Contrary to the above, the licensee has documented several hydrazine spills in the corrective action system which indicates that previously performed actions were ineffective and have not corrected the problems. Since this performance deficiency was of very low safety significance and was documented in the licensee's corrective action program as condition report 2007-3745 the performance deficiency is being treated as a finding (FIN 0500285/2007004-01).

4OA3 Event Follow-up (71153)

.1 High Winds Resulting in a Near Loss-of-Offsite-Power

a. Inspection Scope

The inspectors reviewed control room response to high winds and a tornado warning in the area on August 20, 2007. Material that was unsecured within the Protected Area became airborne, impacted a transformer that supplies the 4160 Volt emergency electrical buses, and caused a loss of one of the 161 KV offsite sources. Due to a line drop elsewhere in the greater Omaha area, there was a loss of the 345 KV off-site lines. These two conditions resulted in the plant being tied to the electrical grid through one breaker. As part of the follow-up to the event, the inspectors observed chart recorders, reviewed control room logs, and discussed the event with Plant Management.

b. Findings

The inspectors, in consultation with Regional Management delegated the follow-up of this issue to the Problem Identification and Resolution Inspection team, which had started their inspection at the time of this event. This assessment will be documented in NRC Inspection Report 05000285/2007010.

.2 Hydrazine Spill in the Turbine Building

a. Inspection Scope

The inspectors reviewed control room response to a chemical spill of hydrazine in the Turbine Building that occurred on September 13, 2007. In response to the event, the licensee declared a NOUE, and the Resident Inspectors responded to the site. The licensee stopped the leak within one hour and exited the NOUE and completed cleanup of the hazardous chemical within three to four hours. As part of the follow-up to the event, the inspectors reviewed material safety data sheets, plant procedures, and control room logs, and discussed the event with Plant Management.

b. Findings

No findings of significance were identified associated with the licensee's response to this event. However, the inspectors did identify an issue involving the effectiveness of corrective actions taken in response to prior hydrazine spills. The regulatory aspects of this issue are discussed in Section 4OA2 of this report.

4OA5 Other Activities

(Closed) Unresolved Item 05000285/2003011-01: Containment Coolers Ability to Remove Heat From Containment During Accident Conditions

This unresolved item documented the concerns of an engineering inspection team. The team could not verify that the component cooling water system had the capability to provide the required flow to safety-related components or that the containment air coolers were capable of removing their design heat loads because flow rates had never been measured with the system in an accident alignment. The licensee performed an operability evaluation in Condition Report 200305471. The team determined that the licensee had concluded that the system remained operable because the system design had a large amount of excess capacity. However, the team had insufficient time to validate the flow modeling. Although the licensee concluded that the system remained operable, the team had the following additional concerns:

- The licensee had never validated the flow model by direct comparison to actual system performance with the system aligned as it would be during the limiting accident.

- The impact of a reduction in component cooling water flow to vital loads caused by flow diversions to nonsafety-related loads during a loss of instrument air. The isolation valves for some nonsafety-related loads would fail to open on a loss of instrument air and had no backup accumulators. Since the instrument air system is neither safety-related nor seismically qualified, it cannot be considered to be available under accident conditions.

During this inspection, the inspector reviewed information provided to the inspection team, component cooling water system flow test data from May 2004, and Calculation FC07066, "CCW Proto-Flo Model Compared to Measured Field Data," Revision 0. In addition, the inspector interviewed engineers about the flow test and the calculations to ensure the flow model accurately reflected the component cooling water system. The inspector determined that: (1) the licensee validated the flow model during the May 2004 flow test final, and (2) the component cooling water system had sufficient excess capacity to ensure containment cooling during a design basis accident coincident with a loss of instrument air and single pump operation. This unresolved item is closed.

4OA6 Meetings

Exit Meeting Summary

On July 3, 2007, the inspector presented the results for the unresolved item review to Ms. D. Guinn, Regulatory Compliance Engineer, who acknowledged the results. The inspector confirmed that proprietary information was not provided or examined during the inspection.

On July 19, 2007, the emergency preparedness inspector conducted a telephonic exit meeting to present the inspection results to Mr. C. Simmons, Emergency Planning Supervisor, who acknowledged the findings. The inspector confirmed that proprietary information was not provided or examined during the inspection.

On September 12, 2007, the emergency preparedness inspector presented the inspection results to Mr. C. Simmons, Supervisor, Emergency Preparedness, and other members of his staff who acknowledged the findings. The inspector confirmed that proprietary information was not provided or examined during the inspection.

On October 12, 2007, the resident inspectors presented the inspection results to Mr. D. Bannister, Site Director, 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, Site Director
J. Cate, Acting Manager, System Engineering
G. Cavanaugh, Supervisor, Regulatory Compliance
A. Clark, Manager, Nuclear Security
R. Clemens, Division manager, Nuclear Engineering Department
M. Ferm, Manager, Shift Operations
R. Haug, Manager, Radiation Protection
J. Jerman, Manager, Engineering Programs
A. Hackerott, Licensing, Probablistic Risk Assessment
J. Kellams, Acting Manager, Corrective Action Group
E. Matzke, Compliance Engineer
R. Mueller, Acting Manager, Design Engineering
T. Pilmaire, Manager Chemistry
C. Simmons, Supervisor, Emergency Preparedness
D. Spires, Work Management
D. Trausch, Acting Plant Manager

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed

05000285/2007004-01	FIN	Ineffective Corrective Actions for Hydrazine Spills

Closed

05000285/2003011-01	URI	Containment Coolers Ability to Remove Heat From Containment Curing Accident Conditions

LIST OF DOCUMENTS REVIEWED

Section 1RO4: Equipment Alignment

Drawing 11405-M-262 Sh.1, "Fuel Oil Flow Diagram P&ID," Revision 60

Drawing 11405-M100, “Raw Water Flow Diagram P&ID,” Revision 91

Operating Instruction OI-DG-2, "Diesel Generator No. 2"

Checklist OI-DG-2-CL-B, "DG-2 Fuel Oil," Revision 48

Section 1RO5: Fire Protection

SO-G-28, “Standing Order - Station Fire Plan,” Revision 69

Fort Calhoun Station Fire Hazards Analysis

Standing Order SO-G-28, “Station Fire Plan,” Revision 69

Abnormal Operating Procedure AOP-06-02, “Fire Emergency, Uncontrolled Area of Auxiliary Room,” Revision 0

EA-FC-89-005, “Safe Shutdown Analysis,” Revision 12

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

Section 1R11: Licensed Operator Requalification Program

Emergency Operating Procedure EOP-00, "Standard Post Trip Actions," Revision 20

Emergency Operating Procedure EOP-02, "Loss of Off-Site Power Loss of Forced Circulation," Revision 16

Abnormal Operating Procedure AOP-02, “CEA and Control System Malfunctions,” Revision 6

Section 1R12: Maintenance Effectiveness

Condition Report 200502802

Condition Report 200505420

Condition Report 200700875

Maintenance Cause Determination 09020703

Maintenance Rule Expert Technical Panel Meeting Minutes for June 18, 2007

Section 1R15: Operability Evaluations

NRC Information Notice 86-37, Degradation of Station Batteries

Quality Control Inspection Report 20070149 dated August 13, 2007

Quality Control Inspection Report 20070150 dated August 13, 2007

Quality Control Inspection Report 20070148 dated August 13, 2007

Quality Control Inspection Report 20070147 dated August 13, 2007

Quality Control Inspection Report 20070144 dated July 25, 2007

Quality Control Inspection Report 20070142 dated July 25, 2007

Procedure QCP-330, “Ultrasonic Thickness Measurement,” Revision 5

Procedure QCP-331, “Ultrasonic Thickness Measurement for Flow-Accelerated Corrosion Program,” Revision 13

Procedure EM-ST-EE-0001, “Monthly Surveillance Test for Station Battery Number 1 (EE-8A),” Revision 13

Inspection Records of the Station Safety-Related Batteries, dated February 2000

Condition Reports

200000196	200703002	200703014	200703245
200703268	200703273	200703326	200703268
200703245	200703002	200703014	

Sectopm 1R23: Temporary Plant Modifications

Temporary Modification Numbers EC 41328 and EC 41342

Drawing D-4348, “Schematic, Solenoid Valves and Sample Pump for AI-110 Waste Gas Analyzer Panel”, Revision 3

Condition Report 2007-3473.

Section 4OA1: Performance indicator Verification

MSPIBD, “Mitigating Systems Performance Index Basis Document for Fort Calhoun Station”, Rev. 1

Condition Reports

2006-2840	2006-3205	2006-3242	2006-3470	2006-3537
2006-3555	2006-3622	2006-4359	2006-4627	2006-4689
2006-4695	2006-4748	2006-4756	2006-4805	2006-4806
2006-4821	2006-4838	2006-4918	2006-4994	2006-5062
2006-5112	2006-5194	2006-5218	2006-5267	2006-5316
2006-5675	2006-5690	2006-5706	2006-5783	2006-6094
2006-6111	2007-0026	2007-0158	2007-0284	2007-0795
2007-1129	2007-1279	2007-1530	2007-1548	2007-1647
2007-1649	2007-1916	2007-2441	2007-2463	2007-2471
2007-2716	2007-2875			

Section 4OA3: Event Follow-up

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

Procedure CH-HM-0007, "Determination of Reportable Quantity From Hazardous Material Releases," Revision 10

Control Room Logs and Emergency Response Organization Logs dated September 13, 2007

Notice of Violation and Associated Licensee Response for EA 94-193

Material Safety Data Sheet for Hydrazine

Root Cause Analysis, "Overflow of Lower Hydrazine Tote," dated October 4, 2007

Root Cause Analysis, "CF-18 Hydrazine Spill," dated February 15, 1996

Root Cause Analysis, "Hydrazine Spill and Cleanup Efforts," dated July 7, 1994

Event Notification Worksheet, dated January 24, 1996

Event Notifications:

21868	23264	25982	23912
27301	29887	30151	35594

Condition Reports and Incident Reports:

920488	930196	950051	199600797
200100240	200103012	200203768	

Section 4OA5: Other Activities

Calculations

EA-FC-95-012, "Effect of Post-DBA CCW Temperature Transient on Components," Revision 0

FC05669, "Component Cooling Water Flowrates," Revision 3

FC06209, "Containment Air Cooling Coils Post-Accident Heat Removal Performance," Revision 0

FC06614, "Component Cooling Water System Model Development Using Proto-FLo Software," Revision 0

FC06723, "Component cooling water and RW Input Data for ABB-CE Containment Analysis," Revision 0

FC07066, "CCW Proto-Flo Model Compared to Measured Field Data," Revision 0

Tests

POTP.22, "Fort Calhoun Unit No. 1 Pre-operational Test Procedure Component Cooling Water System," dated April 10, 1972

OT-PP-22, "Fort Calhoun Station Unit No. 1 Post-Core Hot Functional Test Procedure," dated July 6, 1973

LIST OF ACRONYMS

CAP	Corrective Action program
CFR	Code of Federal Regulations
CR	Condition Report
NCV	noncited violation
NOUE	notice of unusual event
NRC	Nuclear Regulatory Commission
SSC	structure, system and component
USAR	updated safety analysis report
WO	work order