



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

November 6, 2006

William R. Brian, Acting Vice  
President, Operations  
Grand Gulf Nuclear Station  
Entergy Operations, Inc.  
P.O. Box 756  
Port Gibson, MS 39150

SUBJECT: GRAND GULF NUCLEAR STATION - NRC INTEGRATED INSPECTION  
REPORT 05000416/2006004

Dear Mr. Brian:

On September 30, 2006, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Grand Gulf Nuclear Station facility. The enclosed integrated report documents the inspection findings, which were discussed on October 3, 2006, with you and other members of your staff.

The inspection 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 four NRC identified and self-revealing findings of very low safety significance (Green). Three of these findings were determined to involve violations of NRC requirements; however, because of the very low safety significance and because they were entered into your corrective action program, the NRC is treating these findings as noncited violations (NCVs) consistent with Section VI.A of the NRC Enforcement Policy. If you contest these 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 DC 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 DC 20555-0001; and the NRC Resident Inspector at the Grand Gulf Nuclear Station facility.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) will be made available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) 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/

Kriss M. Kennedy, Chief  
Project Branch C  
Division of Reactor Projects

Docket: 50-416  
License: NPF-29

Enclosure:  
NRC Inspection Report 05000416/2006004  
w/Attachment: Supplemental Information

cc w/enclosure:  
Senior Vice President  
and Chief Operating Officer  
Entergy Operations, Inc.  
P.O. Box 31995  
Jackson, MS 39286-1995

Wise, Carter, Child & Caraway  
P.O. Box 651  
Jackson, MS 39205

Winston & Strawn LLP  
1700 K Street, N.W.  
Washington, DC 20006-3817

Jay Barkley, Chief  
Energy & Transportation Branch  
Environmental Compliance and  
Enforcement Division  
Mississippi Department of  
Environmental Quality  
P.O. Box 10385  
Jackson, MS 39289-0385

Entergy Operations, Inc.

- 3 -

President, District 1  
Claiborne County Board of Supervisors  
P.O. Box 339  
Port Gibson, MS 39150

General Manager  
Grand Gulf Nuclear Station  
Entergy Operations, Inc.  
P.O. Box 756  
Port Gibson, MS 39150

The Honorable Charles C. Foti, Jr.  
Attorney General  
Department of Justice  
State of Louisiana  
P.O. Box 94005  
Baton Rouge, LA 70804-9005

Governor Haley Barbour  
Office of the Governor  
State of Mississippi  
P.O. Box 139  
Jackson, MS 39205

Jim Hood, Attorney General  
State of Mississippi  
P.O. Box 220  
Jackson, MS 39225

Dr. Brian W. Amy  
State Health Officer  
State Board of Health  
P.O. Box 1700  
Jackson, MS 39215

Robert W. Goff, Program Director  
Division of Radiological Health  
Mississippi Dept. of Health  
P.O. Box 1700  
Jackson, MS 39215-1700

Director  
Nuclear Safety & Licensing  
Entergy Operations, Inc.  
1340 Echelon Parkway  
Jackson, MS 39213-8298

Entergy Operations, Inc.

- 4 -

Director, Nuclear Safety  
and Regulatory Affairs  
Entergy Operations, Inc.  
P.O. Box 756  
Port Gibson, MS 39150

Richard Penrod, Senior Environmental  
Scientist  
Office of Environmental Services  
Northwestern State University  
Russell Hall, Room 201  
Natchitoches, LA 71497

Chairperson  
Denton Field Office  
Chemical and Nuclear Preparedness  
and Protection Division  
Office of Infrastructure Protection  
Preparedness Directorate  
Dept. of Homeland Security  
800 North Loop 288  
Federal Regional Center  
Denton, TX 76201-3698

Radiological Assistance Committee Chair  
Chemical and Nuclear Preparedness  
and Protection Division  
Atlanta Field Office  
Dept. of Homeland Security  
3003 Chamblee-Tucker Road  
Atlanta, GA 30341

Electronic distribution by RIV:  
 Regional Administrator (**BSM1**)  
 DRP Director (**ATH**)  
 DRS Director (**DDC**)  
 DRS Deputy Director (**RJC1**)  
 Senior Resident Inspector (**GBM**)  
 Branch Chief, DRP/C (**KMK**)  
 Senior Project Engineer, DRP/C (**WCW**)  
 Team Leader, DRP/TSS (**RLN1**)  
 RITS Coordinator (**KEG**)  
 DRS STA (**DAP**)  
 J. Lamb, OEDO RIV Coordinator (**JGL1**)  
**ROPreports**  
 GG Site Secretary (**NAS2**)  
 W. A. Maier, RSLO (**WAM**)  
 R. E. Kahler, NSIR (**REK**)

SUNSI Review Completed:   WCW   ADAMS:  Yes  No Initials:   WCW    
 Publicly Available  Non-Publicly Available  Sensitive  Non-Sensitive

R:\ REACTORS\GG\2006\GG2006-04RP-GBM.wpd

RIV:RI:DRP/C	SRI:DRP/C	C:SPE:DRP/C	C:DRS/EB1	C:DRS/PSB
AJBarrett	GBMiller	WCWalker	JAClark	MPShannon
<b>E-MJSpivey</b>	<b>/RA/</b>	<b>/RA/</b>	<b>/RA/</b>	<b>/RA/</b>
11/3/06	10/26/06	10/26/06	10/27/06	10/27/06

C:DRS/OB	C:DRS/EB2	C:DRP/C		
RLNease	LJSmith	KMKennedy		
<b>/RA/</b>	<b>NFO'Keefe</b>	<b>/RA/</b>		
10/31/06	10/31/06	11/6/06		

U.S. NUCLEAR REGULATORY COMMISSION  
REGION IV

Docket: 50-416

Licenses: NPF-29

Report No.: 05000416/2006004

Licensee: Entergy Operations, Inc.

Facility: Grand Gulf Nuclear Station

Location: Waterloo Road  
Port Gibson, Mississippi 39150

Dates: July 1 through September 30, 2006

Inspectors: G. Miller, Senior Resident Inspector  
A. Barrett, Resident Inspector  
J. Groom, Reactor Inspector  
G. Guerra, CHP, Health Physicist  
G. Pick, Senior Reactor Inspector  
P. Gage, Senior Operations Inspector  
P. Elkmann, Emergency Preparedness Inspector  
D. Proulx, Senior Reactor Inspector

Approved By: Kriss M. Kennedy, Chief  
Project Branch C  
Division of Reactor Projects

## CONTENTS

SUMMARY OF FINDINGS .....	3
REACTOR SAFETY .....	6
1R01 <u>Adverse Weather Protection</u> .....	6
1R04 <u>Equipment Alignment</u> .....	7
1R05 <u>Fire Protection</u> .....	10
1R07 <u>Biennial Heat Sink Performance</u> .....	13
1R11 <u>Licensed Operator Requalification</u> .....	14
1R12 <u>Maintenance Implementation</u> .....	15
1R13 <u>Maintenance Risk Assessments and Emergent Work Evaluation</u> .....	16
1R15 <u>Operability Evaluations</u> .....	16
1R17 <u>Permanent Plant Modifications</u> .....	17
1R19 <u>Post-maintenance Testing</u> .....	18
1R22 <u>Surveillance Testing</u> .....	18
1R23 <u>Temporary Plant Modifications</u> .....	19
1EP6 <u>Drill Evaluation</u> .....	20
RADIATION SAFETY .....	21
2OS1 <u>Access Control to Radiologically Significant Areas</u> .....	21
2OS2 <u>ALARA Planning and Controls</u> .....	22
OTHER ACTIVITIES .....	23
4OA1 <u>Performance Indicator Verification</u> .....	23
4OA2 <u>Identification and Resolution of Problems</u> .....	24
4OA3 <u>Event Follow-up</u> .....	25
4OA5 <u>Other Activities</u> .....	25
4OA6 <u>Meetings, Including Exit</u> .....	27
4OA7 <u>Licensee-Identified Violations</u> .....	28
ATTACHMENT: SUPPLEMENTAL INFORMATION .....	A-1
KEY POINTS OF CONTACT .....	A-1
LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED .....	A-1
LIST OF DOCUMENTS REVIEWED .....	A-2

## SUMMARY OF FINDINGS

IR05000416/2006004; 7/1/2006 - 9/30/2006; Grand Gulf Nuclear Station -- Integrated Resident and Regional Report; Equipment Alignment, Fire Protection, Other Activities.

This report covered a 3-month period of inspection by resident inspectors and Regional office inspectors. The inspection identified four Green findings, three of which were noncited violations. 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's 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 and Self-Revealing Findings

#### Cornerstone: Initiating Events

- Green. A finding was identified for failure to implement adequate controls to maintain the integrity of the 34.5 kV switchyard animal intrusion fence and for failure to initiate condition reports when the fence was found de-energized or the gate found open. The animal intrusion resulted in a reactor scram and an excessive reactor coolant system cooldown on February 11, 2005. The licensee entered this issue into their corrective action program as Condition Report CR-GGN-2006-3139.

The finding was greater than minor because it affected the initiating events cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions. The finding was determined to be of very low safety significance following completion of a modified Phase 2 significance determination process analysis. Although the NRC identified a performance deficiency related to maintaining the integrity of the animal intrusion fence and for failure to enter events into the corrective action program, the inspectors determined that no violation of regulatory requirements had occurred. In response to this event, the licensee revised operations procedures to require inspection of the switchyard fence conditions and required documenting deficiencies in their corrective action program. This item had cross cutting aspects related to human performance because procedures did not direct nonlicensed operators to monitor the condition of the fence. In addition, this item had crosscutting aspects related to problem identification and resolution because the licensee did not effectively implement corrective actions (Section 4OA5).

#### Cornerstone: Mitigating Systems

- Green. The inspectors identified a Green noncited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures and Drawings," for a failure to control loose items in safety-related structures. Between July 25 and September 13, 2006, the inspectors identified six examples of loose items in the auxiliary building and control

building that did not meet the requirements of plant loose item control procedures. The licensee entered this issue in their corrective action program as CR-GGN-2006-3836.

The failure to control loose items in the vicinity of safety-related equipment was a performance deficiency. This finding is more than minor because it is associated with the Mitigating Systems cornerstone attribute of protection against external factors (seismic) and affects the associated cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events. Using the Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheet, this finding was of very low safety significance since it did not result in a loss of operability. The cause of this finding is related to the crosscutting element of human performance in that licensee work practices did not effectively define and communicate expectations regarding compliance with plant procedures for the control of loose items in safety-related structures (Section 1R05).

#### Cornerstone: Barrier Integrity

- Green. The inspectors identified a Green noncited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," for the failure to maintain the original design configuration of an instrument sensing line for leakage detection in the fuel pool cooling and cleanup system. The licensee entered this in their corrective action program as CR-GGN-2006-3569.

This finding is more than minor since it affects the design control attribute of the spent fuel pool cooling aspect of the Barrier Integrity cornerstone and affects the cornerstone objective of providing assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. Using the Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheet, this finding is of very low safety significance since it only affected the radiological barrier function provided by the spent fuel pool (Section 1R04).

- Green. The inspectors identified a Green noncited violation of Technical Specification 5.4.1(a) involving the failure of the licensee to take actions required by operator rounds in response to containment pool liner leakage. The licensee entered this issue in their corrective action program as CR-GGN-2006-3500.

The finding was more than minor since the failure of operators to follow the procedures for the conduct of operator rounds could lead to a more significant safety concern if left uncorrected. Additionally, the identified liner leakage represented a degrading condition that, if left uncorrected, could continue to degrade and could potentially result in the migration of water to other portions of the containment structure. The inspectors determined this finding affected the Barrier Integrity cornerstone. Using the Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheet, this finding is of very low safety significance since it does not represent an actual open pathway in the physical integrity of the reactor containment or an actual reduction in defense-in-depth for the atmospheric pressure control or hydrogen control functions of the reactor containment. The cause of this finding is related to the crosscutting element of human

performance in that licensee work practices did not effectively define and communicate expectations regarding compliance with plant procedures for the conduct of operator rounds (Section 1R04).

B. Licensee-Identified Violations

Violations of very low safety significance which were identified by the licensee have been reviewed by the inspectors. Corrective actions taken or planned by the licensee have been entered into the licensee's corrective action program. This violation and corrective actions are listed in Section 4OA7 of this report.

## REPORT DETAILS

### Summary of Plant Status

Grand Gulf Nuclear Station (GGNS) remained at or near full rated thermal power throughout this inspection period, except for planned control rod pattern adjustments and control rod drive maintenance and testing.

#### 1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

#### 1R01 Adverse Weather Protection (71111.01)

##### .1 Readiness For Seasonal Susceptibilities

###### a. Inspection Scope

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

- August 29, 2006: Reactor protection system motor generator sets room cooling
- August 29, 2006: Plant service water radial wells
- August 30, 2006: Control room air conditioning

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed one sample.

###### b. Findings

No findings of significance were identified.

1R04 Equipment Alignment (71111.04)

.1 Partial System Walkdowns

a. Inspection Scope

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

- July 8, 2006, the inspectors walked down the reactor core isolation cooling system while the high pressure core spray system was out of service for planned maintenance.
- September 6, 2006, the inspectors walked down the Division III emergency diesel generator while the Division II emergency diesel generator was out of service for planned maintenance.
- September 12, 2006, the inspectors walked down portions of Train A of the fuel pool cooling and cleanup system during a planned fuel pool cooling system outage.

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed three samples.

b. Findings

Inadequate Design Control of Leakage Detection Sensing Lines

Introduction: The inspectors identified a Green noncited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," for the failure to maintain the original design configuration of a leakage detection instrument sensing line in the fuel pool cooling and cleanup system.

Description: During a partial system walkdown on September 13, 2006, the inspectors discovered a flex conduit tie-wrapped to the instrument sensing line for leakage detection Transmitter 1E31N176A for Train A of the fuel pool cooling and cleanup system. Transmitter 1E31N176A provides a trip signal to trip fuel pool cooling and cleanup system Pump A and to place the associated filter/demineralizers in hold upon detection of increased flow indicative of a possible system leak. The transmitter and its associated sensing lines are classified as safety-related, seismic Category I components.

The attachment point for the flex conduit was at an elbow in the sensing line approximately 6 feet from a tubing support clamp. The inspectors noted that the flex

conduit was bowed upward at the attachment point, indicating that some of the weight of the conduit was borne by the sensing line. Given the moment arm created by the significant distance to the support structure, the inspectors determined that the attachment of the flex conduit cast a reasonable doubt on the operability of the sensing line following a seismic event. As part of the corrective actions associated with Condition Report (CR)-GGN-2006-3569 initiated in response to the inspectors' concerns, the licensee detached the flex conduit and performed a calculation to determine the loading the conduit had applied to the sensing line. The licensee conservatively calculated that the conduit had more than doubled the static stress on the instrument sensing line and more than tripled the stresses that would have occurred during a seismic event; however, the stresses would have remained within ASME Code allowable values for all operating conditions.

Analysis: The performance deficiency associated with this finding is a failure to maintain design control of the leakage detection system. As a result, the assumptions for the seismic qualification of the equipment were invalidated. This finding is more than minor since it affects the design control attribute of the spent fuel pool cooling aspect of the Barrier Integrity cornerstone and affects the cornerstone objective of providing assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. Using the Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheet, this finding is of very low safety significance since it only affected the radiological barrier function provided by the spent fuel pool.

Enforcement: 10 CFR Part 50, Appendix B, Criterion III, "Design Control," states, in part, that design changes shall be subject to design control measures commensurate with those applied to the original design. Contrary to this requirement, there was no record to account for the attachment of the flex conduit to the instrument sensing lines for the fuel pool cooling and cleanup flow transmitter. Since this violation is of very low safety significance and has been entered in the licensee's CAP as CR-GGN-2006-3569, this violation is being treated as a noncited violation, consistent with Section VI.A of the Enforcement Policy: NCV 05000416/2006004-01, Inadequate Design Control of Leakage Detection Sensing Lines.

#### Failure to Monitor Containment Pool Liner Leakage per Operator Rounds

Introduction: The inspectors identified a Green noncited violation of TS 5.4.1(a) involving the failure of the licensee to take actions required by operator rounds in response to containment pool liner leakage.

Description: The upper containment and spent fuel pools at Grand Gulf are lined with welded stainless steel plates. Interconnected leak chases are provided behind the liner welds to prevent the uncontrolled loss of contaminated pool water to other locations in the containment and auxiliary building and to provide the capability for leak detection and measurement. Inside containment, leak detection for the upper containment pools is provided by three sight glasses installed in the drain lines from the leak chases to the containment equipment drain sump. Each sight glass provides indication of drainage flow from the leak chases of different areas of the upper containment pools.

During a walkdown in containment, the inspectors noted flow in Sight Glass 1E31D003D for the upper containment pool. The inspectors also noted that the orientation of the other two sight glasses (horizontal) made it difficult to determine that flow was not present in them. The licensee initiated condition report CR-GGN-2006-3369 to address the incorrect orientation of the sight glasses.

The licensee first identified water in Sight Glass 1E31D003D in 1986. Leakage rate at that time was measured to be approximately 0.01 gallons per minute. Efforts to identify the location of the liner leak were unsuccessful. In 1999, the licensee initiated CR-GGN-1999-1455 due to flow in Sight Glass 1E31D003D. Leakage was measured as approximately 0.25 gallons per minute during Refueling Outage 10 and approximately 0.17 gallons per minute during Refueling Outage 11 in April 2001. Although the flow rates were much higher, efforts to identify the exact source of the leakage were again unsuccessful. The licensee planned to monitor the degraded condition through leak measurements once every 18 months (each refueling outage). In May 2002, the licensee eliminated the task to measure liner leakage through Sight Glass E31D003D during each refueling outage. The justification for the deletion of the task was that operators monitor the sight glasses in containment as part of their daily rounds.

The inspectors reviewed Procedure 02-S-01-34, "Auxiliary Building Rounds," Revision 11. The inspectors noted that, although two of the leakage detection sight glasses in containment were specifically checked as a step in the rounds, Sight Glass E31D003D was not. However, Sight Glass E31D003D was included in the generic leak checks contained in Attachment II of the rounds, which directed operators to perform leak isolation and initiate a work request for identified flow in any of the sight glasses in containment or the auxiliary building. Although flow was present in Sight Glass E31D003D, operators routinely recorded the step directing performance of the generic leak checks as 'SAT' and did not initiate work requests per the procedure. The inspectors concluded that the operators were not following the instructions in Attachment II of Procedure 02-S-01-34, "Auxiliary Building Rounds," Revision 11. The inspectors further concluded that a change in flow, such as a significant decrease indicating the possible diversion of leakage to other portions of the containment structure, likely would not be promptly identified by the licensee.

In response to the inspectors' observation, the licensee observed flow through Sight Glass 1E3D00D and determined that there was no significant change in the leakage rate.

Analysis: The failure to follow station procedures was a performance deficiency. The finding was more than minor since the failure of operators to follow the procedures for the conduct of operator rounds could lead to a more significant safety concern if left uncorrected. Additionally, the identified liner leakage represented a degrading condition that, if left uncorrected, could continue to degrade and could potentially result in the migration of water to other portions of the containment structure. The inspectors determined this finding affected the Barrier Integrity cornerstone. Using the Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheet, this finding is of very low safety significance since it does not represent an actual open pathway in the

physical integrity of the reactor containment or an actual reduction in defense-in-depth for the atmospheric pressure control or hydrogen control functions of the reactor containment.

The cause of this finding is related to the crosscutting element of human performance in that licensee work practices did not effectively define and communicate expectations regarding compliance with plant procedures for the conduct of operator rounds.

Enforcement: TS 5.4.1(a) requires written procedures to be implemented as recommended by Regulatory Guide 1.33, Revision 2, Appendix A, February 1978. Appendix A recommends procedures governing log entries. Attachment II of Procedure 02-S-01-34, "Auxiliary Building Rounds," Revision 11, directs operators to make a note in the logs, perform a leak isolation check, and initiate a work request in the event that leakage is detected from the upper containment pools. Contrary to this requirement, no actions were taken by operators in response to ongoing leakage from the upper containment pools. Because this violation was of very low safety significance and was entered in the CAP as CR-GGN-2006-3369 and CR-GGN-2006-3500, this violation is being treated as a noncited violation (NCV) consistent with Section VI.A.1 of the NRC Enforcement Policy: NCV 05000416/2006004-02, Failure to Monitor Containment Pool Liner Leakage per Operator Rounds.

#### 1R05 Fire Protection (71111.05)

##### a. Inspection Scope

###### Quarterly Inspection

The inspectors walked down the six 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 UFSAR to determine if the licensee identified and corrected fire protection problems.

- Control rod drive hydraulic area, east bank (Room 1A311)
- Containment building refuel floor (Room 1A601)
- Standby liquid control system area (Room 1A512)
- Drywell purge compressor area (Room 1A511)
- Control rod drive hydraulic area, west bank (Room 1A313)

- Auxiliary building corridor (Room 1A101)

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed six samples.

### Annual Inspection

On September 27, 2006, the inspectors observed an unannounced fire brigade drill to evaluate the readiness of licensee personnel to prevent and fight fires, including the following aspects: (1) the number of personnel assigned to the fire brigade, (2) use of protective clothing, (3) use of breathing apparatuses, (4) use of fire procedures and declarations of emergency action levels, (5) command of the fire brigade, (6) implementation of prefire strategies and briefs, (7) access routes to the fire and the timeliness of the fire brigade response, (8) establishment of communications, (9) effectiveness of radio communications, (10) placement and use of fire hoses, (11) entry into the fire area, (12) use of firefighting equipment, (13) searches for fire victims and fire propagation, (14) smoke removal, (15) use of prefire plans, (16) adherence to the drill scenario, (17) performance of the postdrill critique, and (18) restoration from the fire drill. The licensee simulated a fire in a motor control center in the auxiliary building. Documents reviewed by the inspectors included:

- Procedure 10-S-03-7, "Fire Protection Training Program," Revision 10
- Procedure 04-1-01-R21-11, "BOP Bus 11HD," Revision 23
- Grand Gulf Nuclear Station Fire Preplans, Revision 15

The inspectors completed one sample.

### b. Findings

Introduction: The inspectors identified a Green noncited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures and Drawings," for a failure to control loose items in safety-related structures. Between July 25 and September 13, 2006, the inspectors identified six examples of loose items in the auxiliary building and control building that did not meet the requirements of plant loose item control procedures.

Description: During a walkdown on July 25, 2006, the inspectors identified that a mobile security barrier in the vicinity of the low pressure coolant injection Train B instrumentation rack in the auxiliary building was not properly secured per Procedure 01-S-07-43, "Control of Loose Items, Temporary Electrical Power, and Access to Equipment," Revision 4. The wheels of the barrier were not locked and strapping intended to restrain the barrier to the metal floor decking was not tied. The licensee secured the barrier and entered this issue in their CAP as CR-GGN-2006-2910.

In addition to this example, while conducting a walkdown on August 18, 2006, the inspectors discovered a section of 1-inch steel tubing resting unrestrained on top of safety-related condensate storage tank level transmitters for the high pressure core spray system. The tubing was part of a plant modification being installed on

containment isolation valves in the auxiliary building. Work on the modification was on hold pending receipt of additional parts, and maintenance workers had left the tubing suspended in place above the transmitters with duct tape, contrary to the requirements of Procedure 01-S-07-43. The duct tape failed to support the tubing. The licensee secured the tubing and initiated CR-GGN-2006-3211 to address this issue.

On August 22, 2006, the inspectors identified that a portable room cooler set up in the control building to provide temporary cooling for a reactor protection system motor generator set room did not have its wheels locked per Procedure 01-S-07-43. In response to this issue, the licensee locked the wheels of the cooler and initiated CR-GGN-2006-3237.

On September 13, 2006, the inspectors identified two additional examples of improperly stored loose items in the auxiliary building. On the 208 foot elevation, the inspectors noted a 55-gallon drum resting on its side on top of a small cart. The cart was attached to a structural element with a metal tie wire, but there was approximately 2 feet of slack in the wire restraint. Additionally, the 55-gallon drum was not secured to the cart in any way. The inspectors noted a 5-gallon can of lube oil nearby was also unrestrained and unattended. The inspectors concluded the cart was not tightly restrained as defined by Procedure 01-S-07-43, and the storage of the 55-gallon drum and the can of lube oil were contrary to the requirements for liquid filled containers per Section 6.5.1 of Procedure 01-S-07-43. The licensee secured the loose items and initiated CR-GGN-2006-3582.

Also on September 13, 2006, the inspectors identified four 55-gallon drums of heat exchanger flush water stored in the vicinity of the low pressure coolant injection Train C instrumentation rack. The drums were not restrained per the requirements for liquid filled containers per Procedure 01-S-07-43, nor were the lids of the drums securely attached. The licensee secured the drums and lids and also addressed this issue as part of CR-GGN-2006-3582.

The inspectors concluded that these transient loose items, individually and collectively, contributed insignificantly to the overall risk for seismic damage to safety-related equipment in the auxiliary and control buildings. However, multiple departments responsible for placing these items in the buildings failed to comply with loose item control procedures, and many of these items were in place for extended periods of time without being questioned by plant personnel. Therefore, these items were indicative of a site-wide issue with proper implementation of the control of loose items procedure.

Analysis: The failure to control loose items in the vicinity of safety-related equipment was a performance deficiency. This finding is more than minor because it is associated with the Mitigating Systems cornerstone attribute of protection against external factors (seismic) and affects the associated cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events. Using the Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheet, this finding was of very low safety significance since it did not result in a loss of operability.

This cause of this finding is related to the crosscutting element of human performance in that licensee work practices did not effectively define and communicate expectations regarding compliance with plant procedures for the control of loose items in safety-related structures.

Enforcement: Criterion V, "Instructions, Procedures and Drawings," of Appendix B to 10 CFR Part 50 states, in part, that activities affecting quality shall be prescribed by documented instructions and shall be accomplished in accordance with those instructions. Procedure 01-S-07-43, "Control of Loose Items, Temporary Electrical power, and Access to Equipment," Revision 4, contains requirements to assure the safety function of components, equipment, and systems will not be affected by the storage of loose items. Contrary to the above, between July 25 and September 13, 2006, the inspectors identified six examples of loose items stored in Category I structures not meeting the requirements of Procedure 01-S-07-43. Because this finding is of very low safety significance and has been entered in the licensee's CAP as CR-GGN-2006-3836, this violation is being treated as an NCV, consistent with Section VI.A of the Enforcement Policy: NCV 05000416/2006004-03, Failure to Control Loose Items in Safety Related Areas.

1R07 Biennial Heat Sink Performance (71111.07B)

.1 Performance of Testing, Maintenance, and Inspection Activities

a. Inspection Scope

The inspectors selected three samples of heat exchangers that were either directly or indirectly connected to the safety-related service water system. The inspectors reviewed the licensee's test and cleaning methodology for the following heat exchangers:

- Residual Heat Removal Heat Exchangers A and B
- Divisions 1 and 3 Emergency Diesel Generator Jacket Water Coolers
- Engineered Safety Features Room Coolers

In addition, the inspectors reviewed test data for the heat exchangers and design and vendor-supplied information to ensure that the heat exchangers were performing within their design bases. The inspectors also reviewed chemical controls to avoid fouling, heat exchanger inspection results, and test results. Specifically, the inspectors verified proper extrapolation of test conditions to design conditions, appropriate use of test instrumentation, and appropriate accounting for instrument inaccuracies. Additionally, the inspectors verified that the licensee appropriately trended these inspection and test results, assessed the causes of the trends, and took necessary actions for any step changes in these trends. The inspectors reviewed the methods and results of heat exchanger inspection and cleaning. In addition, the inspectors verified that the methods used to test, inspect, and clean were consistent with industry standards and as-found results were appropriately dispositioned such that the final conditions were acceptable.

The inspectors completed three samples.

b. Findings

No findings of significance were identified.

.2 Verification of Conditions and Operations Consistent with Design Bases

a. Inspection Scope

For the selected heat exchangers, the inspectors verified that the licensee established that heat sink and heat exchanger condition, operation, and test criteria were consistent with the design assumptions. Specifically, the inspectors reviewed the applicable calculations to ensure that the thermal performance test acceptance criteria for the heat exchangers were being applied consistently throughout the calculations. The inspectors also verified that the appropriate acceptance values for fouling and tube plugging for the component cooling water heat exchangers remained consistent with the values used in the design-basis calculations. Finally, the inspectors verified that the parameters measured during the thermal performance tests for the residual heat removal heat exchangers were consistent with those assumed in the design bases. The inspectors also reviewed the licensee's heat exchanger program recovery plan, that addressed findings from the 2006 NRC Component Design Basis inspection.

b. Findings

No findings of significance were identified.

.3 Identification and Resolution of Problems

a. Inspection Scope

The inspectors verified that the licensee had entered significant heat exchanger/heat sink performance problems into the CAP. The inspectors reviewed 30 condition reports and verified that the licensee was taking appropriate action to resolve them.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification Program (71111.11)

.1 Quarterly Inspection

a. Inspection Scope

The inspectors observed testing and training of senior reactor operators and reactor operators to assess training, operator performance, and the evaluator's critique. The training scenarios, GSMS-LOR.AEX-09.05, Revision 5, and GSMS-LOR.AEX-10.06,

Revision 6, involved a load reject and anticipated transient without scram leading to core damage and a loss of instrument air with a suppression pool leak and a failure to scram, respectively.

The inspectors completed one sample.

b. Findings

No findings of significance were identified.

.2 Biennial Inspection

a. Inspection Scope

Following the completion of the annual operating examination testing cycle, which ended the week of September 15, 2006, the inspectors reviewed the overall pass/fail results of the annual individual job performance measure operating tests and simulator operating tests administered by the licensee during the operator licensing requalification cycle. Nine separate crews participated in simulator operating tests, and job performance measure operating tests, totaling 54 licensed operators. All of the licensed operators passed the job performance measure portion of the examination. All of the crews, except one, passed the simulator portion of the annual operating test. The affected operating crew was removed from licensed duties. CR-GGN-2006-03605 was initiated by the licensee for tracking the successful completion of their remediation prior to returning the crew to duty. These results were compared to the thresholds established in Manual Chapter 609, Appendix I, "Operator Requalification Human Performance Significance Determination Process."

The inspector completed one sample.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness (71111.12)

a. Inspection Scope

The inspectors reviewed maintenance activities associated with the following systems in order 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 TSs.

- Emergency lighting system
- Control rod drive system

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed two samples.

b. Findings

No 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 listed assessment activities 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 recognized, and/or entered as applicable, the appropriate licensee-established risk category according to the risk assessment results and licensee procedures; and (4) that the licensee-identified and corrected problems related to maintenance risk assessments.

- Work Order (WO) 87435, Reactor protection system motor generator set maintenance
- WO 80365, Control rod drive pump seal repair
- WO 90355, Drywell purge compressor maintenance
- WO 85669, Component cooling water supply valve to fuel pool cooling and cleanup heat exchangers

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed four samples.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15)

a. Inspection Scope

For the condition reports listed below, 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 UFSAR 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 TS; (5) used the Significance Determination Process to evaluate the risk significance of degraded or inoperable equipment; and (6) verified that the licensee had identified and implemented appropriate corrective actions associated with degraded components.

- CR-GGN-2006-2810, Division 2 hydrogen igniter failure
- CR-GGN-2006-2959, Division 3 emergency diesel generator bearing oil level low
- CR-GGN-2006-3140, Drywell hydrogen analyzer leak
- CR-GGN-2006-3183, Oil issue facility transfer container contamination

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed four samples.

b. Findings

No findings of significance were identified.

1R17 Permanent Plant Modifications (71111.17)

a. Inspection Scope

The inspectors reviewed key affected parameters associated with energy needs, materials/replacement components, timing, heat removal, control signals, equipment protection from hazards, operations, flowpaths, pressure boundary, ventilation boundary, structural, process medium properties, licensing basis, and failure modes for the modification listed below. The inspectors verified that: (1) modification preparation, staging, and implementation did not impair emergency/abnormal operating procedure actions, key safety functions, or operator response to loss of key safety functions; (2) postmodification testing maintained the plant in a safe configuration during testing by verifying that unintended system interactions will not occur, SSC performance characteristics still meet the design basis, the appropriateness of modification design assumptions, and the modification test acceptance criteria has been met; and (3) the licensee has identified and implemented appropriate corrective actions associated with permanent plant modifications.

- ER-2003-027-1, Service/Instrument air compressor replacement

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed one sample.

b. Findings

No findings of significance were identified.

## 1R19 Postmaintenance Testing (71111.19)

### a. Inspection Scope

The inspectors selected the six listed postmaintenance test activities 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, test data results were complete and accurate, test equipment was removed, the system was properly realigned, and deficiencies during testing were documented. The inspectors also reviewed the UFSAR to determine if the licensee identified and corrected problems related to postmaintenance testing.

- WO 81526, Containment isolation Valve M41F034 actuator rebuild
- WO 74725, Standby service water Fan C maintenance
- WO 63839, Control room air conditioning Valve Z51F011 rebuild
- WO 80365, Control rod drive Pump B rebuild
- WO 51023797, Containment air lock door seal replacement
- WO 93200, Plant air compressor temperature element replacement

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed six samples.

### b. Findings

No findings of significance were identified.

## 1R22 Surveillance Testing (71111.22)

### a. Inspection Scope

The inspectors reviewed the UFSAR, procedure requirements, and TSs to ensure that the six listed surveillance activities demonstrated that the SSCs tested were capable of performing their intended safety functions. The inspectors either witnessed or reviewed test data to verify that the following significant surveillance test attributes were adequate: (1) preconditioning; (2) evaluation of testing impact on the plant; (3) acceptance criteria; (4) test equipment; (5) procedures; (6) jumper/lifted lead controls; (7) test data; (8) testing frequency and method demonstrated TS operability; (9) test equipment removal; (10) restoration of plant systems; (11) fulfillment of ASME Code requirements; (12) updating of performance indicator (PI) 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) annunciator and

alarm setpoints. The inspectors also verified that the licensee identified and implemented any needed corrective actions associated with the surveillance testing.

- July 24, 2006, Division 3 diesel generator 24-hour endurance run per Procedure 06-OP-1P81-R-0001, "HPCS Diesel Generator 18 Month Functional Test," Revision 112.
- July 27, 2006, Standby liquid control system boron concentration verification per Procedure 06-CH-1C41-M-0001, "Standby Liquid Control Sample and Analyses," Revision 108
- August 23, 2006, Reactor coolant system unidentified leakage measurement per Procedure 06-OP-1000-D-0001, "Daily Operating Logs," Revision 121
- August 28, 2006, Reactor core isolation cooling quarterly pump inservice testing per Procedure 06-OP-1E51-Q-0003, "RCIC Quarterly Pump Operability Verification," Revision 119
- September 14, 2006, Low pressure core spray quarterly surveillance test per Procedure 06-OP-1E21-Q-0006, "LPCS Quarterly Functional Test," Revision 106
- September 24, 2006, Control rod scram time testing per Procedure 06-RE-S-C11-V-0402, "Scram Testing," Revision 115

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed six samples.

b. Findings

No findings of significance were identified.

1R23 Temporary Plant Modifications (71111.23)

a. Inspection Scope

The inspectors reviewed the UFSAR, plant drawings, procedure requirements, and TSs to ensure that the two below listed temporary modifications were properly implemented. The inspectors: (1) verified that the modifications did not have an affect on system operability/availability; (2) verified that the installation was consistent with modification documents; (3) ensured that the postinstallation test results were satisfactory and that the impact of the temporary modifications on permanently installed SSCs were supported by the test; (4) verified that the modifications were 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 the licensee identified and implemented any needed corrective actions associated with temporary modifications.

- July 27, 2006, Computer point circuit removed for combustible gas control system drywell purge inlet Valve E61F003A per Temporary Alteration 2006-010
- September 21, 2006, Removal of control rod drive system relief Valve C11F025B per Temporary Alteration 2006-017

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed two samples.

b. Findings

No findings of significance was identified.

Cornerstone: Emergency Preparedness

1EP6 Drill Evaluation (71114.06)

a. Inspection Scope

For the one listed simulator-based training evolution contributing to drill/exercise performance and emergency response organization PIs, the inspectors: (1) observed the training evolution to assess classification, notification, and Protective Action Requirement development activities; (2) compared 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 Energy Institute (NEI) 99-02, "Voluntary Submission of Performance Indicator Data," acceptance criteria.

- July 19, 2006, the inspectors observed the licensee's emergency response organization respond to a simulated anticipated transient without scram event leading to core damage and a containment breach

Documents reviewed by the inspectors included:

- GGNS 2006 3<sup>rd</sup> Quarter Emergency Preparedness Drill Evaluator's Notebook
- Procedure 10-S-01-1, "Activation of the Emergency Plan," Revision 112
- Drill Emergency Notification forms
- Condition Report CR-GGN-2006-2906

The inspectors completed one sample.

b. Findings

No findings of significance were identified.

## 2. RADIATION SAFETY

Cornerstone: Occupational Radiation Safety

### 2OS1 Access Control to Radiologically Significant Areas (71121.01)

#### a. Inspection Scope

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

- Performance indicator events and associated documentation packages reported by the licensee in the Occupational Radiation Safety Cornerstone
- Controls (surveys, posting, and barricades) of radiation, high radiation, or airborne radioactivity areas
- Radiation work permits, procedures, engineering controls, and air sampler locations
- Conformity of electronic personal dosimeter alarm setpoints with survey indications and plant policy; workers' knowledge of required actions when their electronic personnel dosimeter noticeably malfunctions or alarms
- Self-assessments, audits, licensee event reports, and special reports related to the access control program since the last inspection
- Corrective action documents related to access controls
- Licensee actions in cases of repetitive deficiencies or significant individual deficiencies
- Radiation work permit briefings and worker instructions
- Adequacy of radiological controls such as, required surveys, radiation protection job coverage, and contamination controls during job performance
- Changes in licensee procedural controls of high dose rate - high radiation areas and very high radiation areas
- Controls for special areas that have the potential to become very high radiation areas during certain plant operations
- Posting and locking of entrances to all accessible high dose rate - high radiation areas and very high radiation areas

- Radiation worker and radiation protection technician performance with respect to radiation protection work requirements

Either because the conditions did not exist or an event had not occurred, no opportunities were available to review the following items:

- Barrier integrity and performance of engineering controls in airborne radioactivity areas
- Adequacy of the licensee's internal dose assessment for any actual internal exposure greater than 50 millirem Committed Effective Dose Equivalent
- Dosimetry placement in high radiation work areas with significant dose rate gradients

The inspectors completed 20 of the required 21 samples.

b. Findings

No findings of significance were identified.

2OS2 ALARA Planning and Controls (71121.02)

a. Inspection Scope

The inspectors assessed licensee performance with respect to maintaining individual and collective radiation exposures as low as is reasonably achievable (ALARA). The inspectors used the requirements in 10 CFR Part 20 and the licensee's procedures required by TSs as criteria for determining compliance. The inspectors interviewed licensee personnel and reviewed:

- Site-specific ALARA procedures
- Five work activities of highest exposure significance completed during the last outage
- ALARA work activity evaluations, exposure estimates, and exposure mitigation requirements
- Intended versus actual work activity doses and the reasons for any inconsistencies
- Use of engineering controls to achieve dose reductions and dose reduction benefits afforded by shielding
- Workers use of the low dose waiting areas
- Radiation worker and radiation protection technician performance during work activities in radiation areas, airborne radioactivity areas, or high radiation areas

- Declared pregnant workers during the current assessment period, monitoring controls, and the exposure results
- Self-assessments, audits, and special reports related to the ALARA program since the last inspection
- Resolution through the corrective action process of problems identified through postjob reviews and postoutage ALARA report critiques
- Corrective action documents related to the ALARA program and follow-up activities such as initial problem identification, characterization, and tracking
- Effectiveness of self-assessment activities with respect to identifying and addressing repetitive deficiencies or significant individual deficiencies

The inspectors completed 9 of the required 15 samples and 3 of the optional samples.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification (71151)

a. Inspection Scope

Occupational Radiation Safety Cornerstone

- Occupational Exposure Control Effectiveness

The inspectors reviewed licensee documents from January 1 through July 13, 2006. The review included corrective action documentation to identify occurrences in locked high radiation areas (as defined in the licensee's TSs), very high radiation areas (as defined in 10 CFR 20.1003), and unplanned personnel exposures (as defined in NEI 99-02). Additional records reviewed included ALARA records. The inspectors interviewed licensee personnel that were accountable for collecting and evaluating the PI data. In addition, the inspectors toured plant areas to verify that high radiation, locked high radiation, and very high radiation areas were properly controlled. PI definitions and guidance contained in NEI 99-02, "Regulatory Assessment Indicator Guideline," Revision 3, were used to verify the basis in reporting for each data element.

The inspectors completed the one required sample in this cornerstone.

Public Radiation Safety Cornerstone

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

The inspectors reviewed licensee documents from January 1 through July 13, 2006. Licensee records reviewed included corrective action documentation to identify occurrences for liquid or gaseous effluent releases that exceeded PI thresholds and those reported to the NRC. The inspectors interviewed licensee personnel that were accountable for collecting and evaluating the PI data. PI definitions and guidance contained in NEI 99-02, "Regulatory Assessment Indicator Guideline," Revision 3, were used to verify the basis in reporting for each data element.

The inspectors completed the one required sample 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 performed a daily screening of items entered into the licensee's CAP. This assessment was accomplished by reviewing WOs and CRs and attending corrective action review and work control meetings. The inspectors: (1) verified that equipment, human performance, and program issues were being identified by the licensee at an appropriate threshold and that the issues were entered into the CAP; (2) verified that corrective actions were commensurate with the significance of the issue; and (3) identified conditions that might warrant additional follow-up through other baseline inspection procedures.

b. Findings

No findings of significance were identified.

.2 Selected Issue Follow-up Inspection

a. Inspection Scope

In addition to the routine review, the inspectors selected the one issue listed below for a more in-depth review. The inspectors considered the following during the review of the licensee's actions: (1) complete and accurate identification of the problem in a timely manner; (2) evaluation and disposition of operability/reportability issues; (3) consideration of extent of condition, generic implications, common cause, and previous occurrences; (4) classification and prioritization of the resolution of the problem; (5) identification of root and contributing causes of the problem; (6) identification of corrective actions; and (7) completion of corrective actions in a timely manner.

- CR-GGN-2006-1577, Trip of Division 2 emergency diesel generator

Documents reviewed by the inspectors are listed in the attachment.

b. Findings and Observations

No findings of significance were identified.

.3 Occupational Radiation Safety

a. Inspection Scope

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

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

b. Findings and Observations

No findings of significance were identified.

4OA3 Event Follow-up (71153)

(Closed) Licensee Event Report 05000416/2005-001-00: Reactor Scram Because of Loss of Station Transformer 11 Caused by Animal Intrusion

NRC review of this issue is documented in Section 4OA5.1. This licensee event report is closed.

4OA5 Other Activities

.1 (Closed) Unresolved Item (URI) 05000416/2005009-01: Corrective Actions for Repetitive Reactor Scrams Caused by Animal Intrusion to the Switchyard

a. Inspection Scope

The inspectors completed a follow-up inspection of an unresolved item regarding inadequate corrective actions to address wild-animal-induced switchyard faults and reactor scrams. This issue had remained unresolved to determine the risk significance of the performance deficiency and to complete an enforcement review.

b. Findings

Introduction: A Green finding was identified for failure to implement adequate controls to maintain the integrity of the 34.5 kV switchyard animal intrusion fence and for failure to initiate CRs when the fence was found de-energized or the gate found open. Although the NRC identified a performance deficiency related to maintaining the integrity of the animal intrusion fence and for failure to enter events into the CAP, the inspectors determined that no violation of regulatory requirements had occurred.

Description: On February 11, 2005, an automatic reactor scram occurred, caused by a loss of Service Transformer 11 in the 34.5 kV switchyard. As documented in Licensee Event Report 05000416/2005-001-00, the licensee determined that the loss of Service Transformer 11 occurred when a racoon bridged the 34.5 kV bus work. The licensee

discovered that the animal intrusion electric fence, installed following a similar event in 2002, was not in service. The licensee could not determine the length of time the fence had been de-energized.

The NRC inspectors had determined that the licensee had not implemented adequate controls to maintain the integrity of the fence in response to a previous animal intrusion event. Further, on some occasions after this second scram had occurred licensee personnel found the fence de-energized and failed to initiate CRs for these conditions adverse to quality. In addition, at the time of the event the licensee had no requirements for equipment operators to routinely verify the integrity of this nonsafety-related fence or to ensure it was energized.

Analysis: The failure to: (1) implement adequate controls to maintain the integrity of the animal intrusion fence to prevent initiating events and (2) initiate condition reports for adverse conditions, as defined in plant procedures, when the animal intrusion fence was found open or not energized was a performance deficiency. Specifically, on numerous occasions, operators did not ensure the switchyard fence remained energized and/or the access gate remained closed. Further, operators failed to enter these adverse conditions into the CAP. The finding was greater than minor because it affected the initiating events cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions. Specifically, this event resulted in an excessive cooldown of the reactor coolant system. NRC performed a Phase 2 significance determination process analysis because the finding contributed to both the likelihood of an initiating event and the likelihood that mitigation equipment or functions would not be available.

A Region IV Senior Reactor Analyst visited the site in January 2006 and performed a modified Phase 2 analysis using the assumptions listed in Attachment 2. Using the assumptions, the analyst determined that the dominant core damage sequence for the modified transient initiator worksheet involved failure of the high-pressure core spray system, failure of reactor core isolation cooling, and failure to depressurize the reactor. The result for this sequence was a 7. No other core damage sequences on the worksheet contributed significantly. No external initiating events contributed to the significance of this finding. Therefore, because the risk significance estimation was less than 6, the total increase in core damage frequency of this finding was estimated to be very low.

Risk contribution due to large early release frequency (LERF) was also considered. Only one sequence was potentially significant from a LERF perspective; it was the sequence discussed above, and the LERF factor identified in the worksheet for this sequence was 0.2. Application of the LERF factor to this sequence resulted in an increase in LERF less than the significance determination process threshold of 7. Therefore, the LERF contribution did not change the overall significance of the finding.

The analyst also performed a confirmatory analysis with the NRC's Standardized Plant Analysis Risk (SPAR) model for Grand Gulf, Revision 3 Plus. The analyst modeled the deficiency as an increase in likelihood of a loss of main feedwater transient with loss of offsite power to Division I. Using the above described assumptions for initiating event frequency and recovery of offsite power, the analyst estimated the increase in core damage frequency of the performance deficiency was less than  $1 \times 10^{-7}$  per year.

Therefore, the analyst considered the modified Phase 2 estimation a validated result. The results of these analyses were also similar to the licensee's risk assessment results.

In response to this event, the licensee revised operations procedures to require inspection of the switchyard fence conditions and required documenting deficiencies in their CAP. This item had crosscutting aspects related to human performance because procedures did not direct nonlicensed operators to monitor the condition of the fence. In addition, this item had crosscutting aspects related to problem identification and resolution because the licensee did not effectively implement corrective actions.

In conclusion, the finding was determined to be of very low safety significance (Green).

Enforcement: Procedure EN-LI-102, "Corrective Action Process," Revision 1, required that CRs be written to address the adverse conditions. Contrary to plant procedures, licensee personnel had not documented adverse conditions in CRs after determining the animal intrusion fence was de-energized (i.e., failure to maintain integrity of the fence), contributing to a reactor scram and excessive plant cooldown. Upon further review, although the inspectors identified this failure to maintain the integrity of the fence and initiate CRs as a performance deficiency, no violation of regulatory requirements occurred since the fence was not safety-related equipment. In addition, the inspectors confirmed that the licensee had included this deficiency in their CAP as CR-GGN-2005-0544 and CR-GGN-2006-3139. Because this finding does not involve a violation of regulatory requirements and has very low safety significance, it is identified as a finding: FIN 05000416/2006004-04, Failure to Document Deficiencies in the Corrective Action Program.

.2 (Closed) URI 05000416/2006002-01: Inadequate Design Control for Freeze Protection in the Diesel Generator Building Breezeway

NRC Inspection Report 05000416/2006002 documented a URI regarding the adequacy of the design of area heaters installed in the diesel generator breezeway to protect safety-related piping from freezing conditions. This item was left unresolved pending review of the licensee's evaluation of freeze protection provided by the heat trace installed on the piping in conjunction with the heaters. The licensee was able to demonstrate that the existing heat trace and maintenance practices were sufficient to ensure the freeze protection of the safety-related piping in the breezeway. Based on these results, the inspectors identified no performance deficiencies or violation of NRC requirements. This URI is closed.

b. Findings

No findings of significance were identified.

4OA6 Meetings, Including Exit

On July 13, 2006, the health physics inspector presented the occupational radiation safety inspection results to Mr. G. Williams and other members of his staff who acknowledged the findings. On July 26, 2006, a telephonic conference was held with Mr. C. Bottemiller and other members of your staff to finalize items discussed on July 13. The inspectors confirmed that proprietary information was not provided or examined during the inspection.

On August 10, 2006, the senior reactor inspector discussed the results of the in-office evaluation of the animal intrusion event with Mr. C. Bottemiller, Licensing Manager, and other licensee personnel. The licensee acknowledged the inspection results. No proprietary information was reviewed by the inspector.

On September 20, 2006, the senior operations engineer discussed the results of the licensed operator requalification program inspection with Mr. M. Chase, Classroom Operations Training Supervisor, and Mr. M. Ellis, Simulator Operations Training Supervisor, of the licensee's management. The licensee acknowledged the findings presented. The inspector confirmed that proprietary information was not provided or examined during the inspection.

On September 29, 2006, the senior reactor inspector presented the biennial heat sink inspection results to Mr. W. Brian, Vice President, and other members of licensee management who acknowledged the findings. The inspector confirmed that proprietary information was not reviewed.

On October 3, 2006, the resident inspectors presented the inspection results to Mr. W. Brian and other members of the licensee staff who acknowledged the findings. The inspectors confirmed that proprietary information was not provided or examined during the inspection.

#### 4OA7 Licensee-Identified Violations

The following violation of very low significance (Green) was identified by the licensee and is a violation of NRC requirements which meets the criteria of Section VI of the NRC Enforcement Policy, NUREG-1600, for being dispositioned as an NCV.

- Criterion V of Appendix B to 10 CFR Part 50 requires, in part, that activities affecting quality shall be prescribed by documented instructions of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions. Attachment 9.9 of Procedure EN-OP-104, "Operability Determinations," Revision 1, directs operators to perform operability determinations for degraded or nonconforming conditions on installed safety significant SSCs. On August 16, 2006, a GGNS engineer initiated CR-GGN-2006-3183 documenting incorrect viscosities and particulate contamination of oil transport containers in the turbine building lube oil issue facility. Although these containers had been used to supply oil to safety-related pump motors, the Operations shift supervisor inappropriately classified this CR as administrative and did not perform an operability determination. This event and corrective actions were documented in the CAP as CR-GGN-2006-3201. This finding is of very low safety significance since it did not result in an actual loss of operability for any of the affected equipment.

ATTACHMENT: SUPPLEMENTAL INFORMATION

## SUPPLEMENTAL INFORMATION

### KEY POINTS OF CONTACT

#### Licensee Personnel

C. Abbott, Supervisor, Quality Assurance  
C. Bottemiller, Manager, Plant Licensing  
R. Brian, Acting Vice President, Operations  
M. Causey, Senior Lead Technical Specialist  
R. Collins, Manager, Operations  
D. Coulter, Licensing Specialist  
T. Curtis, Supervisor, Radiation Protection  
L. Eaton, Senior Lead Engineer  
N. Edney, Supervisor, Radiation Protection  
C. Ellsaesser, Manager, Planning and Scheduling  
M. Guynn, Manager, Emergency Preparedness  
E. Harris, Manager, Corrective Action and Audits  
M. Krupa, Director, Nuclear Safety Assurance  
J. Lassetter, Supervisor, Chemistry  
M. Larson, Senior Licensing Engineer  
J. Robertson, Manager, Quality Assurance  
M. Rohrer, Manager, System Engineering  
F. Rosser, Supervisor, Radiation Protection  
T. Tankersley, Manager, Training  
D. Wiles, Director, Engineering  
D. Wilson, Supervisor, Design Engineering  
R. Wilson, Superintendent, Radiation Protection  
P. Worthington, Supervisor, Engineering  
E. Wright, Health Physics Specialist

#### NRC personnel

W. Walker, Senior Project Engineer, Reactor Project Branch C  
R. Bywater, Senior Reactor Analyst, Region IV

### LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

#### Opened

None

#### Opened and Closed

05000416/2006004-01	NCV	Inadequate Design Control of Leakage Detection Sensing Lines (Section 1R04)
05000416/2006004-02	NCV	Failure to Monitor Containment Pool Liner Leakage per Operator Rounds (Section 1R04)

05000416/2006004-03	NCV	Failure to Control Loose Items in Safety-Related Areas (Section 1R05)
05000416/2006004-04	FIN	Failure to Document Deficiencies in the Corrective Action Program (Section 4OA5.1)

Closed

05000416/2005-001-00	LER	Reactor Scram Because of Loss of Station Transformer 11 Caused by Animal Intrusion (Section 4OA3)
05000416/2005009-01	URI	Corrective Actions for Repetitive Reactor Scrams Caused by Animal Intrusion to the Switchyard (Section 4OA5.1)
05000416/2006002-01	URI	Inadequate Design Control for Freeze Protection in the Diesel generator Building Breezeway (Section 4OA5.2)

Discussed

None

**LIST OF DOCUMENTS REVIEWED**

In addition to the documents referred to in the inspection report, the following documents were selected and reviewed by the inspectors to accomplish the objectives and scope of the inspection and to support any findings:

Section 1R01: Adverse Weather Protection

Procedures:

PL-159, "Summer Reliability Plan," Revision 0  
 04-1-01-P44-1, "Plant Service Water/Radial Well System," Revision 80  
 04-S-01-Z51-1, "Control Room HVAC System," Revision 42

Condition Reports:

CR-GGN-2005-0693  
 CR-GGN-2006-3258  
 CR-GGN-2006-3274  
 CR-GGN-2006-3276

Other:

GGNS 2006 Summer Reliability Plan  
 Qualification Report QR-077003-1, "Electrical Power Assemblies," Revision 0  
 Work Request 83022

Section 1R04: Equipment Alignments

Procedures:

04-1-01-P81-1, "High Pressure Core Spray Diesel Generator," Revision 59  
04-1-01-E51-1, "Reactor Core Isolation Cooling," Revision 123  
04-1-01-G41-1, "Fuel Pool Cooling and Cleanup System," Revision 52  
04-1-02-1H13-P680-4A2-A7, "Alarm Response Instruction: P680 Panel," Revision 130  
07-S-53-E31-4, "Fuel Pool Filter/Demineralizer Differential Flow," Revision 8  
02-S-01-34, "Auxiliary Building rounds," Revision 11

Drawings:

M-1070, "Standby Diesel Generator System," Revision 39  
M-1083, "Reactor Core Isolation Cooling," Revision 36  
M-1088E, "Fuel Pool Cooling and Cleanup System," Revision 16  
J-1350-010, "E31 Fuel Pool Filter/Demineralizer Differential Flow," Revision 6  
E-1207-814, "Fuel Pool Cooling and Cleanup System Pumps," Revision 9

Condition Reports:

CR-GGN-1999-1455  
CR-GGN-2006-3369  
CR-GGN-2006-3569

Other:

MAI 266721  
ER-GG-2001-0155

Section 1R05: Fire Protection

Procedure 10-S-03-4, "Fire Protection: Control of Combustible Material," Revision 13  
Procedure 10-S-03-7, "Fire Protection Training Program," Revision 10  
Procedure 07-S-14-12, "Fire Extinguisher Maintenance Check," Revision 30  
Grand Gulf Nuclear Station Fire Pre-Plans, Revision 15  
Calculation MC-QSP64-86058, "Combustible Heat Load Calculation," Revision 44

Section 1R07: Biennial Heat Sink Performance

Condition Reports:

2003-0056	2003-0518	2003-1315	2003-3437	2004-0060	2004-0440
2004-0443	2004-1374	2004-3906	2004-4042	2004-4072	2005-0554
2005-0812	2005-1330	2006-0442	2006-0776	2006-0952	2006-0960
2006-0961	2006-1022	2006-1259	2006-1260	2006-1461	2006-1477
2006-1477	2006-1809	2006-1827	2006-1828	2006-1829	2006-1830

Procedures:

17-S-03-29, "GL-89-13 Thermal Performance Data Collection and Analysis," Revision 3  
04-1-03-T46-1, "'A' ESF Switchgear Room Coolers Flow Test," Revision 19  
04-1-03-T46-2, "'B' ESF Switchgear Room Coolers Flow Test," Revision 17

Work Orders:

00029569-01 "Perform Thermal Performance Testing of Residual Heat Removal Heat Exchanger A"

00032504-01 "Perform Thermal Performance Testing of High Pressure Core Spray Pump Room Cooler"

00067468-01 "Perform Thermal Performance Testing of Division 3 Emergency Diesel Generator Jacket Water Cooler"

00069347-01 "Perform Thermal Performance Testing of Residual Heat Removal Heat Exchanger B"

50308429-01 "Perform Thermal Performance Testing of Division 1 Emergency Diesel Generator Jacket Water Cooler"

Miscellaneous:

Heat Exchanger Program Recovery Plan

SERI Letter, Dated January 29, 1990, "Response to Generic Letter 89-13, 'Service Water System Problems Affecting Safety-Related Equipment'"

Engineering Standard GGNS-MS-39.0, "Mechanical Standard for Thermal Performance Testing of Safety Related Standby Service Water Heat Exchangers," Revision 5

Commitment Change Evaluation, CCE 2006-002

Section 1R12: Maintenance Rule

Procedures:

07-S-12-143, "Emergency Light Inspection and Functional Test," Revision 0  
NS-DC-121, "Maintenance Rule," Revision 2  
Maintenance Rule Failure Database for System Z92 and System C11

Work Orders:

51021807  
82836  
51029250

Condition Reports:

CR-GGN-2004-3955  
CR-GGN-2004-3956  
CR-GGN-2005-2600  
CR-GGN-2005-4052  
CR-GGN-2005-4768  
CR-GGN-2006-0765  
CR-GGN-2006-1087  
CR-GGN-2006-3048

Section 1R13: Maintenance Risk Assessments and Emergent Work Control

Procedure 01-S-18-6, "Risk Assessment of Maintenance Activities," Revision 3  
Procedure 18-S-01-1, "Special Test Instructions," Revision 2

Work Orders:

51028028  
80353  
80638

Section 1R15: Operability Determinations

Procedures:

EN-OP-104, "Operability Determinations," Revision 1  
EN-OP-109, "Drywell Leakage," Revision 0  
07-S-23-C41-1, SLC Storage Tank Level Bubbler Maintenance," Revision 3

E-1186-46, "Combustible Gas Control System," Revision 3  
Work Order 55741  
Work Order 50982923

Section 1R17: Permanent Plant Modifications

Procedure EN-LI-113, "Licensing Basis Document Change Process," Revision 3

Drawings

M-1062D, "Turbine Building Cooling Water," Revision 8  
M-1067G, "Instrument Air System," Revision 29  
M-KD1068D, "Service Air System," Revision A

Work Orders

46591  
46592

Section 1R19: Postmaintenance Testing

Procedures:

04-1-01-P41-1, "Standby Service Water System," Revision 123  
06-OP-1M41-Q-0001, "Containment Cooling System Quarterly Valve Test," Revision 103  
04-1-01-M41-1, "Containment Cooling System," Revision 108  
07-S-14-319, "Maintenance of Air Actuators," Revision 6  
07-S-13-14, "Calibration of Non-Modulating Pneumatic Valves," Revision 10  
06-OP-1M23-M-0004, "Containment Airlock Inflatable Seal System," Revision 101  
06-OP-1M23-O-0001, "Containment Air Lock Interlock Functional Test," Revision 101

Drawing M-1100A, "Containment Cooling System," Revision 24

Work Orders

64717  
89154

## Section 1R22: Surveillance Testing

### Procedures:

04-1-E21-1, "Low Pressure Core Spray System," Revision 35  
04-1-C11-1, "Control Rod Drive Hydraulic System," Revision 123  
06-CH-1C41-M-0001, "SLC Boron Concentration," Revision 108  
04-1-P81-1, "High Pressure Core Spray Diesel Generator," Revision 59  
04-1-C41-1, "Standby Liquid Control System," Revision 116  
04-1-E51-1, "Reactor Core Isolation Cooling System," Revision 124

### Work Orders

91139  
51043416

## Section 1R23: Temporary Alterations

### Procedures:

01-S-06-3, "Control of Temporary Alterations," Revision 32  
01-S-06-58, "Infrequently Performed Tests or Evolutions," Revision 0  
04-1-02-1H13-P680-3A-A8, "Alarm Response Instruction for Panel P680," Revision 153

Drawing E-1186-012, "CGCS Inlet Valve F003A," Revision 12  
Engineering Request ER-GG-2006-0234

### Condition Reports

CR-GGN-2006-2290  
CR-GGN-2006-3696

### Work Orders

77922  
94629

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

### Corrective Action Documents

GGN-2006-00966  
GGN-2006-01107  
GGN-2006-01189  
GGN-2006-01390  
GGN-2006-01394  
GGN-2006-02110  
GGN-2006-02157  
GGN-2006-02172  
GGN-2006-02247  
GGN-2006-02265  
GGN-2006-02306  
GGN-2006-02376

### Audits and Self-Assessments

GLO 2004-0020 Focused Self Assessment on Locked High Radiation Area Barricades

#### Procedures

01-S-08-1, "Administration of the GGNS Radiation Protection Program," Revision 104  
01-S-08-2, "Exposure and Contamination Control," Revision 116  
RP-103, "Access Control," Revision 2  
RP-108, "Radiation Protection Posting," Revision 2  
EN-RP-101, "Access Control for Radiologically Controlled Areas," Revision 0  
EN-RP-102, "Radiological Control," Revision 0  
EN-RP-106, "Radiological Survey Documentation," Revision 0  
Non-Controlled Standard, "Radiation Protection Standards and Expectations," Revision 31

#### Section 2OS2: ALARA Planning and Controls (71121.02)

#### Corrective Action Documents

GGN-2006-00896  
GGN-2006-02203  
GGN-2006-02234  
GGN-2006-02237  
GGN-2006-02238  
GGN-2006-02240

#### Audits and Self-Assessments

GLO-2006-0059 ALARA Planning & Control Assessment

#### Radiation Work Permits

2006-1057 RCIC System Outage  
2006-1059 P60F009 Actuator Rebuild and Support Activities  
2006-1310 Refuel Floor Activities for RP/Decon  
2006-1312 Rx Disassembly and Reassembly  
2006-1316 Pre-shutdown and Start-up Walk Downs Except DW

#### Procedures

08-S-01-28, "Use and Control of Temporary Shielding," Revision 11  
RP-110, "ALARA Program," Revision 2  
ENS-RP-105, "Radiation Work Permits," Revision 7

#### Section 4OA1: Performance Indicator Verification

NRC Performance Indicator Technique Sheet, 7/12/2006  
Performance Indicator Review Summary for Second Quarter 2006

#### Section 4OA2: Identification and Resolution of Problems

Vendor Manual 4600050, "Transamerica Delaval Diesel Generators"  
Humphrey Air Control Components Product Specifications, April 10, 2006

#### Condition Reports:

CR-GGN-2005-5084  
CR-GGN-2005-5142  
CR-GGN-2006-1577

#### 4OA5: Other Activities

##### Procedures:

EN-LI-102, "Corrective Action Process," Revision 1

01-S-06-2, "Conduct of Operations," Revision 118

Engineering Request ER-GG-2003-0121

Drawing E-0118-014, "Diesel Generator Building Sprinklers," Revision 4

##### Condition Reports

CR-GGN-2002-2250

CR-GGN-2006-1301

CR-GGN-2006-1518

### **Attachment 2 - Key Assumptions for Switchyard Significance Analysis**

Key assumptions used in this analysis included:

- The Risk-Informed Inspection Notebook for Grand Gulf Nuclear Station, Unit 1, was an acceptable tool to estimate the significance of the finding.
- The significance could be estimated by assuming the finding resulted in an increase in the likelihood of a transient involving a loss of feedwater, condensate booster, and condensate pumps. Therefore, the analyst used the transient initiator worksheet and set the power conversion system safety function to zero mitigation credit. This assumption was conservative because power remained available to some of the feedwater and condensate system components.
- The analyst assumed that the loss of offsite power to the Division I engineered safety features bus did not reduce the mitigation capability credit for safety functions in the transients worksheet using Division I systems. This was because the Division I emergency diesel generator remained an available support system for the front-line systems. This assumption introduced a nonconservatism because it did not address the higher likelihood of failure of the front-line systems upon a failure of the Division I emergency diesel generator.
- The change in initiating event frequency caused by the finding was determined by noting that there had been two animal intrusion-induced scrams during 20 years of plant operation. Therefore, the initiating event frequency resulting from the performance deficiency equaled 2 events in 20 years or 0.1 event/year.
- The analyst defaulted to the 1-year maximum exposure time used in the significance determination process since there existed no information related to the out-of-service time since the fence had been installed 2.5 years earlier. A 1-year exposure time with an initiating event frequency of 0.1 event/year resulted in an initiating event likelihood rating of one (1).

- The licensee restored offsite power to the affected busses in 3 hours. The NRC Office of Research performed an Accident Sequence Precursor screening of this event and estimated the human error probability for this action as  $4 \times 10^{-3}$  using the SPAR-H method for estimating human error probabilities. While onsite, the analyst confirmed this was a reasonable estimate.

#### LIST OF ACRONYMS

ALARA	as low as is reasonably achievable
CAP	corrective action program
CR	condition report
LERF	large early release frequency
NCV	noncited violation
NEI	Nuclear Energy Institute
PI	performance indicator
SPAR	standardized plant analysis risk
SSC	structures, systems, and components
TS	Technical Specification
UFSAR	Updated Final Safety Analysis Report
URI	unresolved item
WO	work order