



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

July 31, 2003

Rick A. Muench, President and  
Chief Executive Officer  
Wolf Creek Nuclear Operating Corporation  
P.O. Box 411  
Burlington, Kansas 66839

**SUBJECT: WOLF CREEK GENERATING STATION - NRC INTEGRATED INSPECTION  
REPORT 05000482/2003-004**

Dear Mr. Muench:

On July 5, 2003, the NRC completed an inspection at your Wolf Creek Generating Station. The enclosed report documents the inspection findings which were discussed on July 9, 2003, with you and members of your staff.

This 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. Within these areas, the inspection consisted of selected examination of procedures and representative records, observations of activities, and interviews with personnel.

Based on the results of this inspection, the NRC has identified three issues that were evaluated under the risk significance determination process as having very low safety significance (Green). The NRC has also determined that violations are associated with these issues. These violations are being treated as noncited violations (NCVs), consistent with Section VI.A of the Enforcement Policy. The NCVs are described in the subject inspection report. If you contest the violation or significance of the NCVs, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, 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; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at the Wolf Creek Generating Station facility.

Since the terrorist attacks on September 11, 2001, NRC has issued five Orders and several threat advisories to licensees of commercial power reactors to strengthen licensee capabilities, improve security force readiness, and enhance controls over access authorization. In addition to applicable baseline inspections, the NRC issued Temporary Instruction 2515/148, "Inspection of Nuclear Reactor Safeguards Interim Compensatory Measures," and its subsequent revision, to audit and inspect licensee implementation of the interim compensatory measures required by order. Phase 1 of TI 2515/148 was completed at all commercial power nuclear power plants during Calendar Year 2002 and the remaining inspection activities for Wolf Creek were completed in Calendar 2003. The NRC will continue to monitor overall safeguards and security controls at Wolf Creek.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter, its enclosures, and your response 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).

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

Sincerely,

*/RA/*

David N. Graves, Chief  
Project Branch B  
Division of Reactor Projects

Docket: 50-482  
License: NPF-42

Enclosure:  
NRC Inspection Report 50-482/03-04  
w/attachment: Supplement Information

cc w/enclosure:  
Site Vice President  
Wolf Creek Nuclear Operating Corp.  
P.O. Box 411  
Burlington, Kansas 66839

Jay Silberg, Esq.  
Shaw, Pittman, Potts & Trowbridge  
2300 N Street, NW  
Washington, DC 20037

Supervisor Licensing  
Wolf Creek Nuclear Operating Corp.  
P.O. Box 411  
Burlington, Kansas 66839

Chief Engineer  
Utilities Division  
Kansas Corporation Commission  
1500 SW Arrowhead Rd.  
Topeka, Kansas 66604-4027

Office of the Governor  
State of Kansas  
Topeka, Kansas 66612

Attorney General  
120 S.W. 10th Avenue, 2nd Floor  
Topeka, Kansas 66612-1597

County Clerk  
Coffey County Courthouse  
110 South 6th Street  
Burlington, Kansas 66839-1798

Vick L. Cooper, Chief  
Radiation Control Program, RCP  
Kansas Department of Health  
and Environment  
Bureau of Air and Radiation  
1000 SW Jackson, Suite 310  
Topeka, Kansas 66612-1366

Frank Moussa, Technological  
Hazards Administrator  
Department of the Adjutant General  
2800 SW Topeka Blvd.  
Topeka, Kansas 66611-1287

Chief Technological Services Branch  
National Preparedness Division  
Department of Homeland Security  
Emergency Preparedness & Response Directorate  
FEMA Region VII  
2323 Grand Boulevard, Suite 900  
Kansas City, Missouri 64108-2670

Electronic distribution by RIV:  
 Acting Regional Administrator (**TPG**)  
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**U.S. NUCLEAR REGULATORY COMMISSION**

REGION IV

Docket: 50-482

License: NPF-42

Report: 50-482/03-04

Licensee: Wolf Creek Nuclear Operating Corporation  
Wolf Creek Generating Station

Location: 1550 Oxen Lane NE  
Burlington, Kansas

Dates: April 6 through July 5, 2003

Inspectors: F. L. Brush, Senior Resident Inspector  
J. Cruz, Resident Inspector  
G. A. Pick, Senior Physical Security Inspector  
B. D. Baca, Radiation Specialist  
P. J. Elkmann, Emergency Preparedness Inspector  
M. Peck, Senior Resident Inspector, Callaway  
G. Miller, Reactor Engineer

Approved By: D. N. Graves, Chief, Project Branch B

Enclosure

## SUMMARY OF FINDINGS

### Wolf Creek Generating Station NRC Inspection Report 50-482/03-04

IR 05000482/2003-004; on 4/6 - 7/5/2003; Wolf Creek Generating Station. Operator Workarounds, Permanent Plant Modifications, Exercise Evaluations.

The report covers a 13-week period of resident inspection and announced inspections by five Region IV inspectors. The inspections identified three Green findings. The significance of issues is indicated by their color (Green, White, Yellow, or Red) and was determined by the Significance Determination Process in Inspection Manual Chapter 0609. Findings for which the significance determination process does not apply are indicated by the severity level of the applicable violation. 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: Mitigating Systems

- Green. The inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion V, for failure to ensure that instructions, procedures, or drawings shall include appropriate quantitative or qualitative criteria for determining that important activities have been satisfactorily accomplished. The licensee failed to ensure that the emergency operating Procedure EMG C-11, "Loss of Emergency Coolant Recirculation," Revision 14, could have been successfully performed with the loss of the postaccident dynamic reactor vessel level instrumentation.

This finding is greater than minor because it is associated with the Reactor Safety Strategic Performance Area Mitigating System Cornerstone. Specifically, the quality of emergency operating Procedure EMG C-11 was affected by the inoperable postaccident reactor vessel level instrument. The failure is of very low safety significance because it did not:

- Represent a design or qualification deficiency that resulted in a loss of function
- Represent an actual loss of a safety function of a system
- Represent an actual loss of a single function of a train for greater than the Technical Specification allowed outage time
- Represent an actual loss of safety function of one or more non-Technical Specification trains of equipment designated as risk significant

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- Screen as potentially risk significant due to seismic, fire, flooding, or severe weather

This finding is a noncited violation of 10 CFR Part 50, Appendix B, Criterion V. The licensee entered into the corrective action program as Performance Improvement Requests 2003-0805 and -1731 (Section 1R16).

- Green. The inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion XVI, for failure to identify and correct a procedure deficiency while performing corrective actions in response to an NRC identified finding documented in NRC Inspection Report 05000482/2002008. The licensee failed to ensure that the changes to off-normal Procedure OFN RP-017, "Control Room Evacuation", Revision 18, could be successfully performed.

This finding is greater than minor because it is associated with the Reactor Safety Strategic Performance Area Mitigating System Cornerstone. Specifically, off-normal Procedure OFN RP-017, "Control Room Evacuation," did not verify a volume control tank outlet valve was closed in a timely manner. The failure is of very low safety significance because it did not:

- Represent a design or qualification deficiency that resulted in a loss of function
- Represent an actual loss of a safety function of a system
- Represent an actual loss of a single function of a train for greater than the Technical Specification allowed outage time
- Represent an actual loss of safety function of one or more non-Technical Specification trains of equipment designated as risk significant
- Screen as potentially risk significant due to seismic, fire, flooding, or severe weather

This finding is a noncited violation of 10 CFR Part 50, Appendix B, Criterion XVI. The licensee entered into the corrective action program as Performance Improvement Requests 2003-0333 and -0338 (Section 1R17).

Cornerstone: Emergency Preparedness

- Green. The inspectors identified a noncited violation of 10 CFR 50.47(b)(14) for failure to critique an exercise performance deficiency associated with implementation of a planning standard. The licensee did not identify failures to completely implement [simulated] station assembly and site evacuation during an exercise as a performance deficiency.

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This finding is greater than minor because, had the performance deficiency occurred during an actual event, the health and safety of nonessential workers would not have been adequately protected. The finding is of very low safety significance because it occurred during an exercise simulation, did not involve the risk-significant aspects of planning standard 10 CFR 50.47(b)(10), and was not a failure of the planning standard function. This finding is a noncited violation of 10 CFR 50.47(b)(14). The licensee has entered this issue into their corrective action system as PIR 2003-1553 (Section 1EP1).

B. Licensee-Identified Violations

None



## REPORT DETAILS

### Summary of Plant Status

The plant operated at essentially 100 percent power for the report period.

#### 1. **REACTOR SAFETY**

##### **Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity**

#### 1R01 Adverse Weather (71111.01)

##### a. Inspection Scope

On June 11-13, the inspectors performed walkdowns of various power block buildings and reviewed Administrative Instruction AI 14-006, "Severe Weather," Revision 3, to verify that adverse weather would not affect mitigating systems. The inspectors also reviewed the following documents:

- AP 06-002, "Radiological Emergency Response Plan," Revision 5
- OFN SG-003, "Natural Events," Revision 9
- STN GP-001, "Plant Winterization," Revision 29
- Updated Safety Analysis Report
- Work Order 03-253088-001, removal and reinstallation of the essential service water pumphouse roof hatches

Additionally, the inspectors discussed adverse weather preparations with various licensee personnel.

##### b. Findings

No findings of significance were identified.

#### 1R04 Equipment Alignment (71111.04)

##### a. Inspection Scope

##### Partial walkdowns

The inspectors performed partial system walkdowns to verify equipment alignment and identify discrepancies that could impact redundant system operability. The inspectors used the Updated Safety Analysis Report, system, drawings, and system lineup checklists to perform the walkdowns. The inspectors also reviewed the outstanding work order list, corrective action program documents, operator workarounds, and plant

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temporary modifications. The inspectors also discussed the walkdowns with various licensee personnel. The inspectors performed partial walkdowns of the following:

- Auxiliary feedwater system Train A and turbine-driven auxiliary feedwater system for an auxiliary feedwater System B outage during a surveillance test, May 29
- Component cooling water Train A during a component cooling water Train B surveillance test, June 5
- Residual heat removal system Train A during a residual heat removal system Train B outage, May 1

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05)

.1 Quarterly Fire Area Walkdowns

a. Inspection Scope

The inspectors toured various plant areas to assess the licensee's control of transient combustible materials, the material condition and lineup of fire detection and suppression systems, and the material condition of manual fire equipment and passive fire barriers. The licensee's fire preplans and fire hazards analysis report were used to identify important plant equipment, fire loading, detection and suppression equipment locations, and planned actions to respond to a fire in each of the plant areas selected. Compensatory measures for degraded equipment were evaluated for effectiveness. The following plant areas were inspected:

- Emergency diesel Rooms A and B, April 16
- Emergency diesel generator building seismic space fire barrier, May 29
- Radwaste building general floor area and 2032 foot level, May 6
- Turbine-driven auxiliary feedwater pump room, June 19
- Upper and lower cable spreading rooms, June 4
- Auxiliary building 2047 foot level, July 2

b. Findings

No findings of significance were identified.

.2 Annual Fire Drill

a. Inspection Scope

On April 12, 2003, the inspector observed a fire drill that involved the following groups or organizations:

- Onsite fire brigade
- Coffey County fire districts
- Coffey County emergency medical technicians
- Coffey County emergency response organization
- Burlington police department

The fire drill was held in the Technical Support Center. The scenario included a fire that started in the Technical Support Center diesel room and spread to other parts of the building. Also included was an injury to a plant operator and illness by an offsite fire department person. The inspector also attended the postdrill critique.

b. Findings

No findings of significance were identified.

1R06 Flood Protection Measures (71111.06)

a. Inspection Scope

On May 14, 2003, the inspectors verified that the licensee's flooding mitigation plans and equipment were consistent with the licensee's design requirements and the risk assumptions in the Updated Safety Analysis Report. The inspectors conducted walkdowns of areas susceptible to external flooding to verify that risk-significant equipment was adequately protected. The inspectors also examined the plant cooling lake's normal and emergency overflow structures. The inspectors observed that the structures were clear of debris which would restrict overflow functions.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification (71111.11)

a. Inspection Scope

On April 17, 2003, the inspectors observed control room operator simulator training to verify that the licensed operator requalification program ensured safe operation of the plant. The inspectors observed crew performance during simulator sessions to evaluate the clarity and formality of communications, the correct use of procedures, high risk

operator actions, and the oversight and direction provided by the shift supervisor. The inspectors used Simulator Guide LR 50 010 04, "RCS Leak and Small Break LOCA," Revision 7.

The inspectors also reviewed the scenario sequences and objectives, observed the licensee's critique, and discussed crew performance with licensee monitors for the training.

b. Findings

No findings of significance were identified.

1R12 Maintenance Rule Implementation (71111.12)

Routine Maintenance Effectiveness Inspection

a. Inspection Scope

The inspectors reviewed the licensee's maintenance rule implementation for the following structures, systems, or components to assess the effectiveness of maintenance efforts in accordance with 10 CFR 50.65.

- Balance of plant computer system, May 6
- Feedwater system, May 16

The inspectors reviewed work practices, scoping in accordance with 10 CFR 50.65(b), performance, 10 CFR 50.65(a)(1) or (a)(2) classification and reclassification goals, and identification of common cause failures. The inspectors reviewed various documentation and discussed maintenance rule items with licensee personnel.

b. Findings

No findings of significance were identified.

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

a. Inspection Scope

The inspectors reviewed the licensee's risk assessment for equipment outages as a result of planned and emergent maintenance in accordance with the requirements of 10 CFR 50.65(a)(4) and licensee Procedure AP 22C-003, "Operational Risk Assessment Program," Revision 8. The inspectors also discussed the planned and emergent work activities with planning and maintenance personnel. The inspectors reviewed the following:

- Operational risk assessments for planned maintenance for the weeks of April 7, May 5 and 26, and June 9
- Actual, planned, and emergent work schedules for the same weeks

b. Findings

No findings of significance were identified.

1R14 Personnel Performance During Nonroutine Plant Evolutions (71111.14)

a. Inspection Scope

The inspector observed and reviewed the licensee's performance in response to the essential service water Pump B failure on May 30, 2003. The inspector attended licensee focus meetings and a conference call with NRC Headquarters and Region IV personnel. The inspector reviewed work packages, control room operator logs, design documents, and the transient ignition source permit. The licensee returned the pump to operability on June 1, 2003. The inspector completed the inspection on June 9.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15)

a. Inspection Scope

The inspectors selected operability evaluations conducted by the licensee during the report period involving risk-significant systems or components to review. The inspectors evaluated the technical adequacy of the licensee's operability determinations, verified that appropriate compensatory measures were implemented, and verified that the licensee considered all other pre-existing conditions, as applicable. Additionally, the inspectors evaluated the adequacy of the licensee's problem identification and resolution program as it applied to operability evaluations. Specific operability evaluations reviewed are listed below.

The components or systems were:

- Centrifugal charging Pump PBG05B outboard bearing horizontal axis high vibrations, May 16
- Centrifugal charging Pump PBG05B auxiliary lube oil Pump PBG03B, April 29
- Essential service water leak on a 3/4-inch pipe on the outlet of component cooling water heat Exchanger A, April 26

The inspectors also reviewed applicable portions of the Updated Safety Analysis Report, Technical Specifications, and system drawings and discussed the operability evaluations with licensee personnel.

b. Findings

No findings of significance were identified.

1R16 Operator Workarounds (71111.16)

a. Inspection Scope

On June 13, 2003, the inspectors completed the review of the effect of inoperable postaccident reactor vessel dynamic level instruments during emergency and off-normal plant conditions. In March 2003, the licensee determined that the postaccident reactor vessel dynamic level instruments were not indicating properly. The licensee declared the instruments inoperable.

b. Findings

Introduction. A Green noncited violation was identified for failure to ensure that important activities in an emergency procedure would have been satisfactorily completed.

Description. The inspectors reviewed various emergency and off-normal procedures and discussed the procedures with various licensee personnel concerning the effect of the inoperable level instruments. The licensee reviewed the procedures and stated that the procedures and the procedure usage rules compensated for the failed instruments. The licensee planned to calibrate the instruments during the Fall 2003 refueling outage.

However, when questioned by the inspectors, the licensee determined that Procedure EMG C-11, "Loss of Emergency Coolant Recirculation," Revision 14, would not have been satisfactorily completed. The licensee had not adequately evaluated the effect of the inoperable level instruments on the ability to perform the procedure. The procedure reviewer had used incorrect usage rules when making his determination. Following an additional review, the licensee determined that Procedure EMG C-11, steps 23 through 35, would not have been performed.

The licensee evaluated the effect of not performing the procedure steps. The licensee stated that operators would have been more challenged to prevent core damage for a small break loss of coolant accident outside containment. While complicating the performance of the procedure, other indications, such as core exit thermocouples, would have been available to the operators that would provide information on reactor vessel conditions and, subsequently, additional actions to perform. On June 13, the licensee implemented a change to Procedure EMG C-11 to compensate for the inoperable vessel level instruments.

Analysis. The inspector determined that the licensee's failure to adequately evaluate the effect of the inoperable level instruments was a performance deficiency. The licensee was expected to meet the requirements of 10 CFR Part 50, Appendix B, Criterion V. Traditional enforcement does not apply because the issue did not have any actual safety consequences or potential for impacting the NRC's regulatory function and was not the result of any willful violation of NRC requirements.

This finding is greater than minor because it is associated with the Reactor Safety Strategic Performance Area Mitigating System Cornerstone. Specifically, the quality of emergency operating Procedure EMG C-11 was affected by the inoperable postaccident reactor vessel level instrument.

This finding was evaluated using the significant determination process and was determined to be a finding of very low safety significance during the Phase 1 screening. The finding did not:

- Represent a design or qualification deficiency that resulted in a loss of function
- Represent an actual loss of a safety function of a system
- Represent an actual loss of a single function of a train for greater than the Technical Specification allowed outage time
- Represent an actual loss of safety function of one or more non-Technical Specification trains of equipment designated as risk significant
- Screen as potentially risk significant due to seismic, fire, flooding, or severe weather

Enforcement. 10 CFR Part 50, Appendix B, Criterion V, states, in part that "Instructions, procedures, or drawings shall include appropriate quantitative or qualitative criteria for determining that important activities have been satisfactorily accomplished." Contrary to the above, the licensee failed to ensure that the emergency operating Procedure EMG C-11, "Loss of Emergency Coolant Recirculation," Revision 14, could have been successfully performed with the loss of the postaccident dynamic reactor vessel level instrumentation. The licensee stated that operators would have been more challenged to prevent core damage for a small break loss of coolant accident. This failure was determined to be of very low safety significance and has been entered into the corrective action program (Performance Improvement Requests (PIRs) 2003-0805 and -1731), this violation is being treated as a noncited violation, consistent with Section VI.A of the NRC Enforcement Policy: NCV 50-482/0304-01, "Failure to Ensure that Emergency Operating Procedures Could Have Been Successfully Performed."

1R17 Permanent Plant Modifications (71111.17)

Off-Normal Procedure Changes

a. Inspection Scope

On January 24, 2003, as a result of information gathered during a plant status inspection, the inspectors reviewed the changes to Procedure OFN RP-017, "Control Room Evacuation." The licensee had revised the procedure as a corrective action for a finding identified in NRC Inspection Report 05000482/2002008, Section 1R05.4. The inspectors reviewed the following:

- AIF 26A-003-01, "Evaluation of Proposed Change No. 59," Revision 1
- APF 15C-004-01, "Document Revision Request 02-1448," for OFN RP-017
- Calculation AN-02-021, Evaluation of the thermal-hydraulic consequences of the proposed changes to OFN RP-017, "Control Room Evacuation," Revision 17
- OFN RP-017, "Control Room Evacuation," Revisions 17, 18, and 19

b. Findings

Introduction. A Green noncited violation was identified for failure to identify and correct a procedure deficiency while performing corrective actions needed due to an NRC identified finding.

Description. The inspectors reviewed off-normal Procedure OFN RP-17 after the licensee revised the procedure in response to a finding identified in NRC Inspection Report 05000482/2002008. The inspectors identified that the procedure revision actually lengthened the allowed time to verify that a volume control tank outlet valve was closed, when it should have reduced the time allowed.

The inspectors questioned the licensee concerning the time change. The licensee determined that, during the analysis prior to the procedure revision, they did not include the effect of lengthening the allowed time. The licensee evaluated the effect of the volume control tank outlet valve not closing in the required time. If the valve was not closed in time, the centrifugal charging pumps could become gas bound and not pump water. On March 28, the licensee implemented a change to Procedure OFN RP-17 to ensure the valve was closed within the required time.

Analysis. The inspector determined that the licensee's failure to adequately evaluate the effect on the procedure change was a performance deficiency.

This finding is greater than minor because it is associated with the Reactor Safety Strategic Performance Area Mitigating System Cornerstone. Specifically, the change to

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off-normal Procedure OFN RP-017 lengthened the time allowed to verify that the volume control tank outlet valve was closed without ensuring that charging pumps would not become gas bound. This could have prevented the pumps from performing their required function.

This finding was evaluated using the significant determination process and was determined to be a finding of very low safety significance during the Phase 1 screening. The finding did not:

- Represent a design or qualification deficiency that resulted in a loss of function
- Represent an actual loss of a safety function of a system
- Represent an actual loss of a single function of a train for greater than the Technical Specification allowed outage time
- Represent an actual loss of safety function of one or more non-Technical Specification trains of equipment designated as risk significant
- Screen as potentially risk significant due to seismic, fire, flooding, or severe weather

Enforcement. 10 CFR Part 50, Appendix B, Criterion XVI, states in part that “Measures shall be established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformances are promptly identified and corrected.” Contrary to the above, the licensee failed to ensure that off-normal Procedure OFN RP-017, “Control Room Evacuation,” Revision 18, could have been successfully performed with the additional time to verify that the volume control tank outlet valve was closed. The licensee stated that the potential existed that the charging pumps could have become gas bound. This failure was determined to be of very low safety significance and has been entered into the corrective action program (PIRs 2003-0333 and -0338). This violation is being treated as a noncited violation, consistent with Section VI.A of the NRC Enforcement Policy: NCV 50-482/0304-02, “Failure to Ensure that Changes to an Off-Normal Procedure Were Appropriate.” Traditional enforcement does not apply because the issue did not have any actual safety consequences or potential for impacting the NRC’s regulatory function and was not the result of any willful violation of NRC requirements.

1R19 Postmaintenance Testing (71111.19)

a. Inspection Scope

The inspectors reviewed or observed the postmaintenance testing on the following equipment to verify that procedures and test activities are adequate to verify system operability:

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- Centrifugal charging Pump B Train, May 1
- Class 1E electrical equipment room air conditioning Unit SGK05A, May 16
- Class 1E electrical equipment room air Conditioning Unit SGK05B, May 29
- Essential service water Pump B, June 9
- Residual heat removal Pump A, April 15

In each case, the associated work orders and test procedures were reviewed to determine the scope of the maintenance activity and determine if the test adequately tested components affected by the maintenance. The Updated Final Safety Analysis Report, design basis documents, and selected calculations were also reviewed to determine the adequacy of the acceptance criteria listed in the test procedures.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors reviewed or observed all or part of the following surveillance activities in accordance with inspection Attachment 71111.22 to verify that risk significant structures, systems, and components are capable of performing their intended safety functions and assessing their operational readiness:

- STS AL-101, "MDAFW Pump A Inservice Test," Revision 30, April 17
- STS AL-103, "TDAFW Pump Inservice Pump Test," Revision 37, June 19
- STS AL-201A, "Auxiliary Feedwater System Train A Inservice Valve Test," Revision 7, May 27
- STS IC-615A, "Slave Relay Test K615 Train A Safety Injection," Revision 17, June 14
- STS KJ-005B, "Manual/Auto Start, Synchronization & Loading of Emergency D/G NE02," Revision 40, April 25
- STS KJ-015A, "Manual/Auto Fast Start, Synch & Loading of EDG NE01," Revision 16, June 14

b. Findings

No findings of significance were identified.

1R23 Temporary Plant Modifications (71111.23)

a. Inspection Scope

On June 14, the inspector reviewed Temporary Modification 03-004-SR. The temporary modification allowed the licensee to perform required flux mapping. The flux Drive C motor and the flux Drive D controller were defective. The licensee wired the Drive C controller to the Drive D motor. The inspectors reviewed the following documents:

- Temporary Modification Order 03-004-SR
- Work Order 03-253648-001
- Updated Safety Analysis Report

b. Findings

No findings of significance were identified.

**Cornerstone: Emergency Preparedness**

1EP1 Exercise Evaluation (71114.01)

a. Inspection Scope

The inspectors reviewed the objectives and scenario for the 2003 biennial emergency plan exercise to determine if the exercise would acceptably test major elements of the emergency plan. The scenario simulated a spill of radioactive material in plant buildings, transformer and diesel generator failures, a loss of coolant accident, containment failure, and a release of radioactive material to the environment.

The inspectors evaluated exercise performance by focusing on the risk-significant activities of classification, notification, protective action recommendations, and offsite dose consequences in the simulator control room, Technical Support Center (which included the operations support function), and emergency operations facility. The inspectors also assessed personnel recognition of abnormal plant conditions, the transfer of emergency responsibilities between facilities, communications, protection of emergency workers, emergency repair capabilities, and the overall implementation of the emergency plan.

The inspectors attended the May 21, 2003, postexercise critiques in each of the above facilities to evaluate the initial licensee self-assessment of exercise performance. The inspectors also attended the May 23 presentation of the exercise evaluation results to licensee management.

b. Findings

Introduction. A Green noncited violation was identified for failure of the licensee's exercise evaluation team to critique performance deficiencies associated with emergency preparedness planning standards during the May 21 biennial exercise, as required by 10 CFR 50.47.b(14).

Description. The NRC identified the following performance deficiencies related to the protection of nonemergency personnel during the May 21 biennial emergency preparedness exercise which were not identified by the licensee evaluation team:

- The shift manager did not perform Procedure EPP 06-011, "Control Room Operations," Revision 3, step 7.2.4.3, which required selection of a route for personnel to exit the protected area and designation of an onsite assembly area. The shift manager also did not order ceasing eating, drinking, smoking and chewing per step 7.2.4.4, although a radiological release was determined to be in progress.
- For the approximately 3.5 hours after nonessential personnel were simulated to be evacuated from the protected area to an onsite assembly area, with a radiological release in progress, the emergency manager(s) did not ensure that evacuees were radiologically monitored. Additionally, during this period the emergency manager(s) did not address the status of the simulated assembled nonessential personnel.
- The radiological coordinator did not perform [or simulate performing] Procedure EPP 06-002, Technical Support Center Operations," Revision 6, step 7.6.14, which required dispatching health physics technicians to support personnel evacuation and providing radiological information to the security shift lieutenant for use in routing evacuees to the offsite evacuation center.
- The emergency manager(s) did not order evacuation of the nonessential personnel following the General Emergency classification in accordance with the requirements of Procedure AP 06-002, "Radiological Emergency Response Plan," Section 6.2.6.4. Additionally, the inspectors determined that Procedures EPP 06-001, "Control Room Operations;" 06-002, "Technical Support Center Operations;" and 06-003, "Emergency Operations Facility Operations," did not implement Emergency Plan Section 6.2.6.4 in that they did not instruct emergency manager(s) to order an exclusion area evacuation (including nonessential personnel in the onsite assembly area) following a General Emergency classification.

The scenario Rules of Conduct III.A stated that "Site evacuation will not be performed for accountability." Inspectors determined from interviews with exercise controllers that the expectation was that workers would not actually leave the protected area or go to

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the assembly area, but that procedurally directed activities associated with implementing accountability and evacuation would be performed when required by the scenario. Player Guideline 3 stated in part that, "Personnel will be notified of emergency conditions through methods normally employed in making notifications . . . . The site evacuation alarm will be activated . . . at ALERT, or higher classifications." Player Guideline 8 stated that "Participation by onsite personnel involved with emergency response shall be carried out to the fullest extent possible without affecting plant operations or plant safety." Inspectors determined that those activities associated with the protection of nonessential personnel which were not performed (or simulated) would not have affected plant operations or safety; furthermore, the rules of conduct specified that some activities associated with evacuation, such as security officer sweeps in the owner controlled area, would be performed during the exercise.

Analysis. The inspectors determined that the licensee's failure to critique exercise performance deficiencies associated with the protection of nonessential licensee personnel is a performance deficiency because licensees are required to exercise the emergency plan in part to identify and correct deficiencies. The finding had a credible impact on the emergency preparedness cornerstone objective because it involved the ability of the emergency response organization to demonstrate their capability to protect the health and safety of nonessential employees. This finding is more than minor because it would have impacted safety had the performance deficiency occurred during an actual event. The finding was associated with a violation of NRC requirements. This finding was evaluated using the Emergency Preparedness Significance Determination Process and was determined to be of very low safety significance because, although it was a failure to comply with NRC requirements and concerned the ability to implement planning standard 10 CFR 50.47(b)(10), it did not involve the risk-significant aspects of the planning standard and was not a failure of the planning standard function.

Enforcement. 10 CFR 50.47(b)(14) states in part, "Periodic exercises are conducted to evaluate major portions of emergency response capabilities...and deficiencies identified as a result of exercises are corrected." Following the May 21 exercise, the licensee failed to identify a weak or deficient area requiring correction; specifically, the health and safety of nonessential workers was not adequately protected. This failure was determined to be of very low safety significance and has been entered into the licensee's corrective action system (PIR 2003-1553), this violation is being treated as a noncited violation, consistent with Section VI.A of the NRC Enforcement Policy: NCV 50-482/0304-03, "Failure to Critique an Exercise Performance Deficiency relating to Protecting Nonessential Workers."

1EP6 Drill Evaluation (71114.06)

a. Inspection Scope

On April 30, 2003, the inspectors observed and reviewed emergency drill activities in the simulator control room, the Technical Support Center, and the emergency offsite facility

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in accordance with inspection Attachment 71114.06. The inspectors reviewed the drill critique sheets, other associated documents and information, and discussed the drill activities with various licensee personnel.

b. Findings

No findings of significance were identified.

2. **RADIATION SAFETY**

**Cornerstone: Occupational Radiation Safety**

2OS2 As Low As Reasonably Achievable Planning and Controls (71121.02)

a. Inspection Scope

The inspector interviewed radiation protection personnel and radiation workers involved in high dose rate, high exposure, and airborne area work activities to assess the licensee's performance against regulatory requirements in implementing physical and administrative controls for airborne radioactivity areas, radiation areas, and high radiation areas; radiation worker practices; and work activity results. The inspector attended and observed two high dose prejob briefings (Radiation Work Permits 03-0070, "Seal Table/Flux Map Work Activities," and 03-0019, "Spent Resin Transfer Activities") to determine if personnel ALARA (as low as reasonably achievable) practices complied with regulatory and procedural requirements. No high exposure jobs or work activities in high radiation or airborne areas were performed during the inspection. Therefore, this aspect of the above procedure could not be evaluated.

The inspector interviewed radiation protection staff and other radiation workers to determine the level of planning, communication, integration, and supervision of ALARA practices into work activities and/or packages. The inspector reviewed the projected work scope, completion time, and dose saving suggestions provided by various work groups to radiation protection for accuracy.

The following items were reviewed and compared with regulatory requirements to assess the licensee's program to maintain occupational exposures ALARA:

- Plant collective exposure history for the past 3 years, current exposure trends, source-term measurements, and 3-year rolling average dose information
- Refueling Outage (RF) 12 ALARA report
- ALARA program procedures

- Processes, methodology, and bases used to estimate, justify, adjust, track, and evaluate exposures
- Two RF12 ALARA packages containing prejob, in progress, and postjob reviews, five RF13 prejob ALARA packages, and the associated radiation work permit packages from online and RF12 and -13 activities which resulted in the highest personnel collective exposures
- The use and result of administrative and engineering controls to achieve dose reductions
- Total effective dose equivalent ALARA reviews for RWPs 03-0036, "Containment Entry at Power;" 03-3220, "Eddy Current Testing;" and 03-4051, "Reactor Head Modification"
- Individual exposures of selected work groups (operations, health physics, and maintenance support)
- Permanent and temporary shielding programs and implementation
- Plant source-term evaluation and control strategy/program (2002-2006 ALARA long-range exposure/source-term reduction plan)
- Hot spot tracking and reduction program
- Quality Assurance Audits (K-581, "Radiation Protection"), quality evaluation (OB 03-1011, "ALARA Committee," and OB 03-1030, "Containment Entry"), and self-assessment (SEL 02-035, "ALARA") reviewing ALARA performance
- ALARA Committee meeting minutes
- Declared pregnant worker and embryo/fetus dose evaluation, monitoring, and controls

b. Findings

No findings of significance were identified.

### 3. SAFEGUARDS

#### Cornerstone: Physical Protection

##### 3PP4 Security Plan Changes (71130.04)

###### a. Inspection Scope

The inspector performed an inoffice review of Revision 34 to the physical security plan, safeguards contingency plan, and security training and qualification plan to determine if the changes decreased the effectiveness of the plans and to determine if the requirements of 10 CFR 50.54 (p) were met. The changes reflected revised drawings based on rearrangement and installation of new equipment, revised management titles, and modified military service verification requirements.

###### b. Findings

No findings of significance were identified.

### 4. OTHER ACTIVITIES

##### 4OA1 Performance Indicator Verification (71151)

###### a. Inspection Scope

###### Reactor Safety Cornerstone

The inspectors performed a review of performance indicator data. The inspectors reviewed the licensee's data submittal using Nuclear Energy Institute (NEI) 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 2. The inspectors reviewed various licensee indicator input information to determine the accuracy and completeness of the performance indicator:

- Safety system unavailability, heat removal system (auxiliary feedwater), January 2002 through March 2003, completed May 15, 2003
- Safety system functional failures, January 2002 through March 2003, completed June 4, 2003
- Safety system unavailability, residual heat removal, January 2002 through March 2003, completed July 2, 2003



The inspectors discussed system status with various licensee personnel. The inspectors also reviewed licensee information, including control room logs, and the applicable Technical Specifications.

#### Emergency Preparedness Cornerstone

The inspectors sampled licensee submittals for the performance indicators listed below for the period October 2002 through March 2003. The definitions and guidance of NEI 99-02, "Regulatory Assessment Indicator Guideline," Revision 2, 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.

- Drill and exercise performance
- Emergency response organization participation
- Alert and notification system reliability

The inspectors reviewed a sample of drill and exercise scenarios and licensed operator simulator training sessions, notification forms, and attendance and critique records associated with training sessions, drills, and exercises conducted during the verification period. The inspectors reviewed selected emergency responder qualification, training, and drill participation records. The inspectors reviewed alert and notification system testing procedures, maintenance records, and a 100 percent sample of siren test records. The inspectors also interviewed licensee personnel responsible for collecting and evaluating performance indicator data.

#### b. Findings

No findings of significance were identified. However, the inspectors determined that:

- Fourteen opportunities associated with notifications performed during operator simulator training conducted in December 2002 and January 2003 were inappropriately included in the drill and exercise performance indicator because the accuracy of the notification form could not be verified; specifically, because the expected meteorological conditions were not recorded, the inspectors could not verify the accuracy of the communicated wind direction as required by NEI 99-02, "Regulatory Assessment Indicator Guideline," Revision 2. This issue had previously been identified to the licensee in December 2002 during the emergency preparedness inspection reported in NRC Inspection Report 05000482/2002005 regarding operator simulator training conducted in the second and third quarters of 2002. Although the issue was not entered into the licensee's corrective action program, the licensee stated that corrective actions were taken to prevent recurrence in any operator simulator training conducted after January 2003.
- Three siren tests conducted as part of the October 2002 annual full-cycle siren test were inappropriately included in the siren reliability performance indicator

because accuracy of the evaluation of siren performance could not be verified; specifically, inspectors could not verify successful siren performance as recorded in performance indicator statistics because the licensee's evaluator did not properly complete the test record form. The licensee entered this issue into their corrective action program as PIR 03-1682.

#### 4OA2 Identification and Resolution of Problems (71152)

##### Reactor Safety Cornerstone

###### a. Inspection Scope

On June 18, 2003, the inspectors completed the review of the licensee's response to an unanticipated reactivity change that occurred on January 9, 2003. During the calibration of temperature Element BGTE381, which is utilized by the boron thermal regeneration system, a reactor coolant system dilution flow path was unexpectedly encountered. The licensee initiated PIR 2003-0344 to document the evaluation and corrective actions.

The transient resulting from the unexpected dilution of the reactor coolant system was below the design limit for reactivity changes and power limits. Additionally, there were no challenges to plant equipment. The operators implemented normal operating procedures to respond to the transient and restored normal reactor coolant system temperature and reactor power.

##### Emergency Preparedness Cornerstone

#### 1. Annual Sample Review

###### a. Inspection Scope

The inspectors reviewed a summary of corrective action documents assigned to the emergency planning department from November 11, 2001, through May 1, 2003. The inspectors also reviewed site drill and exercise reports from December 2001 through April 2003 to identify areas where significant drill performance weaknesses were previously identified. The results of this review were used to identify previous drill performance deficiencies that were required by 10 CFR 50.54(b)(14) and 10 CFR Part 50, Appendix E IV.F.2(g) to be corrected.

#### 2. Cross-References to Problem Identification and Resolution Findings Documented Elsewhere

Section 1EP1 describes a finding for failure to identify a performance deficiency during an exercise simulation. This finding is related to the ability of the licensee's exercise evaluation team to thoroughly understand and critique performance. The inspectors determined that evaluators did not identify the referenced performance problems

because past exercise practices led them to believe that most activities associated with nonessential personnel would not be performed, although this was not in accordance with the exercise rules of conduct.

Section 4OA1 describes an observation that the inspector could not verify some licensee drill and exercise performance indicator data associated with operator simulator training. Although this was a recurrence of an issue previously identified to the licensee, and was not entered into the corrective action program, the issue was identified during December 2002 and January 2003 operator simulator training. The licensee took corrective actions to address the issue in January 2003, following conclusion of this training; therefore, the inability of the inspector to verify some drill and exercise data does not constitute a failure of the licensee's ability to identify and correct problems.

#### Occupational Radiation Safety Cornerstone

##### a. Inspection Scope

The inspector reviewed the licensee's audit program scope and frequency to determine if 10 CFR 20.1101(c) requirements were met. The inspector interviewed staff and reviewed selected corrective action documentation involving exposure tracking, higher than planned exposure levels, radiation worker practice, and the associated followup activities to determine if identified problems were properly characterized, prioritized, and expeditiously and effectively resolved. In addition, the inspector reviewed corrective action documentation related to ALARA activities for repetitive deficiencies and significant individual deficiencies for identification and resolution.

##### b. Findings

No findings of significance were identified.

#### 4OA6 Meetings

##### .1 Exit Meeting Summaries

The inspector presented the security plan change inspection results to Mr. Dave Erbe, Security Manager, during a telephonic exit conference call on April 28, 2003. The licensee acknowledged the information presented.

The inspectors presented the resident inspection results to Mr. R. A. Muench and other members of licensee management after the conclusion of the inspection on July 9, 2003.

On May 23, 2003, the inspectors presented the preliminary emergency preparedness inspection results to Mr. B. McKinney, Site Vice President, and other members of his

staff, who acknowledged the findings. The inspection results were also discussed with Ms. J. Yunk, Acting Manager, Regulatory Affairs, in a telephonic re-exit conducted on May 29, 2003.

The inspector presented the ALARA inspection results to Ms. D. Jacobs, Plant Manager, and other members of licensee management at the conclusion of the inspection on June 27, 2003.

The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

ATTACHMENT: SUPPLEMENTAL INFORMATION

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## SUPPLEMENTAL INFORMATION

### KEY POINTS OF CONTACT

#### Licensee

K. A. Harris, Director, Performance Improvement and Learning  
R. Muench, President and Chief Executive Officer  
B. T. McKinney, Site Vice President  
D. Jacobs, Plant Manager  
K. L. Scherick, Director Engineering

### ITEMS OPENED, CLOSED, AND DISCUSSED

#### Opened and Closed

50-482/0304-01	NCV	Failure to ensure that emergency operating procedures could have been successfully performed (Section 1R16)
50-482/0304-02	NCV	Failure to ensure that changes to an off-normal procedure were appropriate (Section 1R17)
50-482/0304-03	NCV	Failure to critique an exercise performance deficiency relating to protecting nonessential workers (Section 1EP1)

### LIST OF DOCUMENTS REVIEWED

#### Drill Evaluation

- TIN GE-11-356-65, "Pre-Exercise 2" Revision 0, scenario

#### Equipment Alignment

- CKL AL-102, "Auxiliary Feedwater Normal Lineup," Revision 32
- CKL EJ-120, "RHR Normal System Lineup," Revision 30

#### Fire Protection

- AP 10-100, "Fire Protection Program," Revision 6
- AP 10-106, "Fire Preplans," Revision 2
- Bechtel Drawing C-1C5902, Revision 0
- FPP RW-6, "Radwaste Building General Floor Area 2026' & 2032'," Revision 4
- M-663-00150, "Three Hour Fire Qualification Test Flexible Seismic Seal," Revision W01

### Identification and Resolution of Problems

- GEN 00-004, "Power Operation," Revision 45
- INC L-1000, "Calibration of Miscellaneous Loops," Revision 9
- PIR 2003-0034
- SYS BG-215, "Backflush of Seal Injection Lines," Revision 4
- Work Order 02-236024-000

### Licensee Event Report Closure

- Design Change Package 09206, Revisions 0 and 1
- OFN RP-017, "Control Room Evacuation," Revision 18
- PIR 98-3012, 99-1100

### Maintenance Rule Documents

- Functional failure evaluations for AE, feedwater system
- Functional failure evaluations for RJ-01, balance of plant computer system
- Functional failure evaluations for AE, feedwater system
- Maintenance rule bases information for RJ-01, balance of plant computer system
- Maintenance rule expert panel meeting minutes for RJ-01, balance of plant computer system
- Maintenance rule expert panel meeting minutes for AE, feedwater system
- Maintenance rule performance evaluation for AE, feedwater system
- Maintenance rule performance evaluation for RJ-01, balance of plant computer system
- PIRs 2002-1180, -1182, -1478, -2297, -2950, -3046, -1987 and -2986; 2003-0289, -0469, -0497, -0717, -0760, -0672, -0839, -0854, and -0909,
- Work Orders 02-234324-000, 02-234920-000, 02-243163-003, 02-246250-000, 02-246338-000, 03-248670-000, 03-251408-000, and 03-251513-000

### Operability Evaluations

- AP 05-002, "Dispositions and Change Packages," Revision 5
- Applicability determination, "Continued Use for EGHBC-3/4" CCW HX Outlet Pressure"
- Configuration Change Package 09712, "Centrifugal Charging Pumps PBG05A and PGB05B Flexible Hoses," Revision 0
- M-721-00093, Instruction manual for charging/safety injection pump

- Operability Evaluation BG-03-002 for PBG03B
- Operability Evaluation BG-03-003 for PBG03B
- Work Order 03-252036-000, "Continued Use for EGHBC-3/4" CCW HX Outlet Pressure," Revision 0

#### Personnel Performance During Nonroutine Plant Evolutions

- Configuration change Packages 011093, Revision 0; 011094, Revision 0; and 011095, Revision 0
- SYS KJ-200, "Inoperable Emergency Diesel," Revision 9
- Transient ignition source Permit 03-134
- Work Orders 03-253088-005, -007, -010, and 03-253098-001

#### Performance Indicator Verification

- Licensee performance indicator worksheets
- Performance indicator summary reports
- Selected NRC Inspection Reports
- Selected control room operator logs

#### Postmaintenance Testing

- STS BG-100B, "Centrifugal Charging System "B" Train Inservice Pump Test," Revision 28
- STS BN-207, "Borated Refueling Water Storage System Valve Test," Revision 0
- STS EF-100B, "ESW Inservice Pump B & ESW B Discharge Check Valve Test," Revision 23
- STS EJ-100A, "RHR System Inservice Pump A Test," Revision 25
- Work Orders 02-238723-000, 02-243063-001, 02-243611-000, 02-245576-000, 02-245592-000, 02-246150-000, 02-246161-000, 03-250175-000, 03-250176-000, 03-252803-000, 03-253064-000, 03-253088-03, 03-253088-008, and 03-253088-013

### **Section 1EP1:**

#### Procedures

- EPP 06-001, "Control Room Operations," Revision 3
- EPP 06-002, "Technical Support Center Operations," Revision 8
- EPP 06-003, "Emergency Operations Facility Operations," Revision 4
- EPP 06-005, "Emergency Classification," Revision 1
- EPP 06-006, "Protective Action Recommendations," Revision 0

EPP 06-007, "Emergency Notifications," Revision 5  
EPP 06-010, "Personnel Accountability and Evacuation," Revision 5  
EPP 06-011, "Emergency Team Formation and Control," Revision 2  
EPP 06-012, "Dose Assessment," Revision 6  
EPP 06-013, "Exposure Control and Personnel Protection," Revision 2  
EPP 06-015, "Emergency Response Organization Callout," Revision 3  
EPF 06-002-01, "Emergency Action Levels," Revision 3

#### Miscellaneous

Technical Support Center, emergency operations facility, and simulator control room exercise logs from May 21, 2003, emergency preparedness drill

#### Section 4OA1:

##### Procedures

Desktop Instruction, "Emergency Planning Performance Indicators," Revisions 2, 4, and 5

EPF 06-002-01, "Emergency Action Levels," Revision 3  
EPP 02-1.8, "Testing and Maintenance of Alert and Notification System Sirens," Revision 10  
EPP 06-005, "Emergency Classification," Revision 1  
EPP 06-006, "Protective Action Recommendations," Revision 0  
EPP 06-007, "Emergency Notifications," Revision 5  
EPP 06-012, "Dose Assessment," Revision 6  
EPP 06-019, "Alert and Notification System Sirens," Revision 3  
EPP 06-022, "Tone Alert Radio Maintenance/Compensating Measures," Revision 1

##### Miscellaneous

Emergency response organization drill schedule for calendar years 2002 and 2003

Emergency response organization personnel training performance indicator data, 4<sup>th</sup> Quarter 2002 - 1<sup>st</sup> Quarter 2003.

Alert and notification system sirens performance indicator data, 2<sup>nd</sup> Quarter 2001 - 1<sup>st</sup> Quarter 2003

Summary of emergency preparedness related condition reports for December 1, 2001, through May 1, 2003

#### ALARA

Radiation Work Permits:

RWP 02-4420, Scaffolding  
RWP 02-8016, Steam Generator Work  
RWP 03-0036, Containment Entry at Power  
RWP 03-0068, Plant Modification DCP 9337 of Zero Skid  
RWP 03-3220, Eddy Current Testing



RWP 03-4051, Reactor Head Modification  
RWP 03-4200, Secondary Steam Generator Work  
RWP 03-4220, Scaffolding

Performance Improvement Requests:

2002-1734, -1744, -2519, -2709, -3067, 2003-0390, -1126, -1411, and -1427