



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION IV  
612 EAST LAMAR BLVD, SUITE 400  
ARLINGTON, TEXAS 76011-4125

February 9, 2010

EA-09-209

Rafael Flores, Senior Vice President  
and Chief Nuclear Officer  
Luminant Generation Company, LLC  
Comanche Peak Steam Electric Station  
P.O. Box 1002  
Glen Rose, TX 76043

Subject: COMANCHE PEAK STEAM ELECTRIC STATION - NRC INTEGRATED  
INSPECTION REPORT 05000445/2009005 AND 05000446/2009005

Dear Mr. Flores:

On December 31, 2009, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Comanche Peak Steam Electric Station. The enclosed integrated inspection report documents the inspection findings, which were discussed on January 13, 2010, 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 one NRC-identified and three self-revealing findings of very low safety significance (Green). In addition, this report documents one NRC-identified Severity Level IV violation. These findings were determined to involve violations of NRC requirements. However, because of the very low safety significance and because they are entered into your corrective action program, the NRC is treating these findings and the Severity Level IV violation as noncited violations, consistent with Section VI.A.1 of the NRC Enforcement Policy. If you contest the noncited violations or the significance of the noncited violations, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, D.C. 20555-0001, with copies to the Regional Administrator, U.S. Nuclear Regulatory Commission, Region IV, 612 E. Lamar Blvd, Suite 400, Arlington, Texas, 76011-4125; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555-0001; and the NRC Resident Inspector at the Comanche Peak Steam Electric Station facility. In addition, if you disagree with the characterization of any finding in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the Regional Administrator, Region IV, and the NRC Resident Inspector at the

Comanche Peak Steam Electric Station. The information you provide will be considered in accordance with Inspection Manual Chapter 0305.

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

Sincerely,

/RA/

Wayne C. Walker, Chief  
Project Branch A  
Division of Reactor Projects

Docket: 50-445: 50-446  
License: NPF-87; NPF-89

Enclosure:  
NRC Inspection Report 05000445/2009005 and 005000446/2009005  
w/Attachment: Supplemental Information

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JGKramer	BWTindell	DProulx	SMGarchow	MPShannon	
<b>E-WCWalker for</b>	<b>E-WCWalker for</b>	<b>/RA/</b>	<b>/RA/</b>	<b>/RA/</b>	
2/8/10	2/8/10	1/28/10	1/26/10	2/9/10	
C:DRS/PSB2	C:DRS/EB1	C:DRS/EB2	C:ACES	C:DRP/A	
GEWerner	TRFarnholtz	NFO'Keefe	WBJones	WCWalker	
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U.S. NUCLEAR REGULATORY COMMISSION

REGION IV

Docket: 50-445, 50-446

License: NPF-87, NPF-89

Report: 05000445/2009005 and 05000446/2009005

Licensee: Luminant Generation Company LLC

Facility: Comanche Peak Steam Electric Station, Units 1 and 2

Location: FM-56, Glen Rose, Texas

Dates: September 20 through December 31, 2009

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B. Tindell, Resident Inspector  
J. Dixon, Senior Resident Inspector  
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Approved By: Wayne Walker, Chief, Project Branch A  
Division of Reactor Projects

## SUMMARY OF FINDINGS

IR 05000445/2009005, 05000446/2009005; 09/20/2009 - 12/31/2009; Comanche Peak Steam Electric Station, Units 1 and 2, Operability Evaluations, Refueling and Other Outage Activities, Access Control to Radiologically Significant Areas, Other Activities.

The report covered a 3-month period of inspection by resident inspectors and announced baseline inspections by region based inspectors. Four Green noncited violations and one Severity Level IV noncited violation were identified. The significance of most findings is indicated by their color (Green, White, Yellow, or Red) using Inspection Manual Chapter 0609, "Significance Determination Process." Findings for which the significance determination process does not apply may be Green or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 4, dated December 2006.

### **A. NRC-Identified Findings and Self-Revealing Findings**

Cornerstone: Initiating Events

- Green. The inspectors reviewed a self-revealing noncited violation of Technical Specification 5.4.1.a for the failure of operators to follow procedural requirements for maintaining reactor coolant system pressure. Specifically, a reactor operator adjusted charging flow during solid plant operations and failed to control the reactor coolant system pressure increase. As a result, a power operated relief valve lifted to provide low temperature overpressure protection of the reactor coolant system. The licensee entered the finding into the corrective action program as Condition Report CR-2009-005542.

The finding was more than minor because it was associated with the human performance attribute of the initiating events cornerstone and affects the cornerstone objective to limit those events that upset plant stability and challenge critical safety functions during shutdown operations. Specifically, the inadvertent lifts of the power operated relief valves could lead to a loss of reactor coolant system inventory and pressure control. Using NRC Manual Chapter 0609, Appendix G, Attachment 1, Checklist 2, the finding was determined to be of very low safety significance because the licensee maintained adequate mitigation capability for the current plant state and the event was not characterized as a loss of control condition. The finding has a human performance crosscutting aspect associated with decision making because the licensee did not formally define the role of the reactor operator maintaining reactor coolant system pressure [H.1a] (Section 1R20.b.ii).

Cornerstone: Barrier Integrity

- Green. The inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion III, for the failure of the licensee to translate environmental qualification requirements for motor operated valve and damper actuators into procedures. Specifically, actuator refurbishment procedures directed the removal of conduit plugs, drain plugs, and T-drains, but did not require them to be re-installed in the correct configuration. As a result, multiple actuators were not in their specified condition for environmental qualification. After evaluation,

the licensee determined that the actuators were still environmentally qualified in the as-found configuration. The licensee entered the finding into the corrective action program as Condition Report CR-2009-000848.

The finding was more than minor because it was associated with the containment configuration control attribute of the barrier integrity cornerstone and adversely affected the cornerstone objective, in that, the licensee's procedure for actuator refurbishment did not provide reasonable assurance that actuators would continue to be environmentally qualified in order to protect the public from radionuclide releases caused by accidents or events. Using NRC Manual Chapter 0609, Attachment 4, "Phase 1 - Initial Screening and Characterization of Findings," the finding was determined to be of very low safety significance because the finding did not represent an actual open pathway in the physical integrity of reactor containment. The finding has a human performance cross cutting aspect associated with resources because the licensee failed to maintain complete and accurate procedures [H.2c] (Section 1R15).

- Green. The inspectors reviewed a self-revealing noncited violation of Technical Specification 5.4.1.a for the failure of maintenance personnel to follow procedural requirements for closing the containment personnel airlock outer door. As a result, the containment personnel outer door was left open for over an hour and the containment integrity function of the door was compromised. The licensee entered the finding into the corrective action program as Condition Report CR-2009-005275.

The finding was more than minor because it was associated with the containment barrier performance attribute of the barrier integrity cornerstone and affects the cornerstone objective to provide reasonable assurance that physical barriers protect the public from radionuclide releases caused by events. Using NRC Manual Chapter 0609, Attachment 4, "Phase 1 - Initial Screening and Characterization of Findings," the finding was determined to be of very low safety significance because the performance deficiency did not result in an actual open pathway in the physical integrity of the containment. The finding has a human performance crosscutting aspect associated with decision making because the licensee did not communicate the basis of the importance of the containment door providing an integrity function to the personnel operating the door [H.1c] (Section 1R20.b.1).

#### Cornerstone: Occupational Radiation Safety

- Green. The inspectors reviewed a self-revealing noncited violation of Technical Specification 5.7.1.a for failure to maintain a high radiation area barricaded and conspicuously posted. The lower valve gallery on the 832-foot elevation of the auxiliary building had been de-posted from a locked high radiation area to radiation area after a resin transfer and flush operation. Radiation protection had mistakenly determined, by a partial radiation survey, that the entire lower valve gallery was a radiation area. Consequently, two workers received unexpected electronic dose rate alarms because the workers entered a high radiation area without knowledge that dose rates measured 900 millirem per hour. The licensee revised Procedure RPI-624, "Resin Transfer Job Coverage," to provide clear instructions requiring that radiation surveys of the whole system after resin

transfers and flushes are completed. The licensee entered the finding into the corrective action program as Condition Report CR-2009-002876.

The failure to barricade and post a high radiation area is a performance deficiency. The finding was more than minor because it was associated with the occupational radiation safety cornerstone attribute (exposure control) of program and process and affected the cornerstone objective, in that, the failure to properly control a high radiation area had the potential to increase personnel dose. Using the occupational radiation safety significance determination process, the inspectors determined the finding to have very low safety significance because: (1) it was not associated with as low as reasonably achievable (ALARA) planning or work controls, (2) there was no overexposure, (3) there was no substantial potential for an overexposure, and (4) the ability to assess dose was not compromised. The finding has a human performance crosscutting aspect associated with resources because the licensee did not ensure that the procedure was complete and accurate [H.2c] (Section 2OS1).

Cornerstone: Security

- Severity Level IV. The inspectors identified a noncited violation of 10 CFR 26.27 for the failure of an individual to comply with the licensee's fitness-for-duty requirements. The licensee implemented immediate compensatory measures for this deficiency by briefing the event and providing personnel with the implications of such an activity and by reviewing implementing procedures, policies, and training. The licensee entered the noncited violation into the corrective action program as Condition Report CR-2009-000104.

The failure to comply with the licensee's requirements affecting fitness-for-duty is a performance deficiency. This issue was dispositioned using traditional enforcement. In accordance with Section IV.A.4 of the NRC Enforcement Policy, this issue is considered a Severity Level IV violation (Section 4OA5.4) (EA-09-209).

**B. Licensee-Identified Violations**

None



## REPORT DETAILS

### Summary of Plant Status

Comanche Peak Steam Electric Station Unit 1 operated at approximately 100 percent power for the entire reporting period.

Comanche Peak Steam Electric Station Unit 2 began the reporting period at approximately 100 percent power. On October 7, 2009, operators performed a unit shutdown to begin the scheduled refueling outage. On November 1, 2009, the outage ended when the main generator breakers were closed. On November 4, 2009, Unit 2 returned to 100 percent power and remained at approximately 100 percent power for the remainder of the reporting period.

### 1. REACTOR SAFETY

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

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

##### Readiness for Seasonal Extreme Weather Conditions

##### a. Inspection Scope

The inspectors performed a review of the licensee's adverse weather procedures for extreme low temperatures. The inspectors verified that weather-related equipment deficiencies identified during the previous year were corrected prior to the onset of seasonal extremes. The inspectors evaluated the implementation of the adverse weather preparation procedures and compensatory measures for the affected conditions before the onset of the adverse weather conditions.

The inspectors focused on plant-specific design features and the licensee's procedures used to mitigate or respond to adverse weather conditions. The inspectors placed additional emphasis on the diesel generators and the service water system. Additionally, the inspectors reviewed the Final Safety Analysis Report and performance requirements for systems selected for inspection, and verified that operator actions were appropriate as specified by plant-specific procedures. Specific documents reviewed during this inspection are listed in the attachment. The inspectors also reviewed corrective action program items to verify that the licensee was identifying adverse weather issues at an appropriate threshold and entering them into their corrective action program in accordance with station corrective action procedures.

These activities constitute completion of one readiness for seasonal extreme weather conditions sample as defined in Inspection Procedure 71111.01-05.

##### b. Findings

No findings of significance were identified.

## 1R04 Equipment Alignments (71111.04)

### .1 Partial Equipment Walkdowns

#### a. Inspection Scope

The inspectors performed partial system walkdowns of the following risk-significant systems:

- September 23, 2009, Unit 1 diesel generator 1-01 while diesel generator 1-02 was unavailable for maintenance
- September 24, 2009, Unit 2 motor driven auxiliary feedwater pump 2-01 while motor driven auxiliary feedwater pump 2-02 was unavailable for maintenance

The inspectors selected these systems based on their risk significance relative to the reactor safety cornerstones at the time they were inspected. The inspectors attempted to identify any discrepancies that could affect the function of the system and, therefore, potentially increase risk. The inspectors reviewed applicable operating procedures, system diagrams, Final Safety Analysis Report, technical specification requirements, outstanding work orders, condition reports, and the impact of ongoing work activities on redundant trains of equipment in order to identify conditions that could have rendered the systems incapable of performing their intended functions. The inspectors also walked down accessible portions of the systems to verify system components and support equipment were aligned correctly and operable. The inspectors examined the material condition of the components and observed operating parameters of equipment to verify that there were no obvious deficiencies. The inspectors also verified that the licensee had properly identified and resolved equipment alignment problems that could cause initiating events or impact the capability of mitigating systems or barriers and entered them into the corrective action program with the appropriate significance characterization.

These activities constituted completion of two partial system walkdown samples as defined in Inspection Procedure 71111.04-05.

#### b. Findings

No findings of significance were identified.

### .2 Complete Walkdown

#### a. Inspection Scope

The inspectors performed complete system walkdowns of the Unit 2 turbine driven auxiliary feedwater pump and the Unit 1 component cooling water system to verify the functional capability of the systems. The inspectors selected these systems because they were considered both safety-significant and risk-significant in the licensee's probabilistic risk assessment. The inspectors walked down the systems to review mechanical and electrical equipment line ups, electrical power availability, system pressure and temperature indications, as appropriate, component labeling, component lubrication, component and equipment cooling, hangers and supports, operability of support systems, and to ensure that ancillary equipment or debris did not interfere with

equipment operation. The inspectors reviewed a sample of past and outstanding work orders to determine whether any deficiencies significantly affected the system function. In addition, the inspectors reviewed the corrective action program database to ensure that system equipment-alignment problems were being identified and appropriately resolved. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of two complete system walkdown samples as defined by Inspection Procedure 71111.04-05.

b. Findings

No findings of significance were identified.

**1R05 Fire Protection (71111.05)**

.1 Quarterly Fire Inspection Tours

a. Inspection Scope

The inspectors conducted fire protection walkdowns in the following risk-significant plant areas:

- September 29, 2009, fire area 1SF, Unit 1, emergency airlock
- October 26, 2009, fire area 2CA, Unit 2 containment
- November 17, 2009, fire area 2SC, fire zone 7, Unit 2 turbine driven auxiliary feedwater pump room
- November 17, 2009, fire zone 1SB2A, Unit 1 emergency core cooling systems train A rooms
- December 10, 2009, fire zone SK17a, Unit 2 high pressure chemical feed room

The inspectors reviewed areas to assess if licensee personnel had implemented a fire protection program that adequately controlled combustibles and ignition sources within the plant; effectively maintained fire detection and suppression capability; maintained passive fire protection features in good material condition; and had implemented adequate compensatory measures for out of service, degraded or inoperable fire protection equipment, systems, or features, in accordance with the licensee's fire plan. The inspectors selected fire areas based on their overall contribution to internal fire risk as documented in the plant's Individual Plant Examination of External Events with later additional insights, their potential to affect equipment that could initiate or mitigate a plant transient, or their impact on the plant's ability to respond to a security event. The inspectors verified that fire hoses and extinguishers were in their designated locations and available for immediate use, that fire detectors and sprinklers were unobstructed, that transient material loading was within the analyzed limits, and fire doors, dampers, and penetration seals appeared to be in satisfactory condition. Specific documents reviewed during this inspection are listed in the attachment.

These activities constituted completion of five quarterly fire-protection inspection samples as defined in Inspection Procedure 71111.05-05.

b. Findings

No findings of significance were identified.

.2 Annual Fire Protection Drill Observation (71111.05A)

a. Inspection Scope

On November 24, 2009, the inspectors observed fire brigade activation for a simulated fire in the alternate access point. The observation evaluated the readiness of the plant fire brigade to fight fires. The inspectors verified that the licensee staff identified deficiencies, openly discussed them in a self-critical manner at the drill debrief, and took appropriate corrective actions. Specific attributes evaluated were: (1) proper wearing of turnout gear and self-contained breathing apparatus; (2) proper use and layout of fire hoses; (3) employment of appropriate fire fighting techniques; (4) sufficient fire fighting equipment brought to the scene; (5) effectiveness of fire brigade leader communications, command, and control; (6) search for victims and propagation of the fire into other plant areas; (7) smoke removal operations; (8) utilization of preplanned strategies; (9) adherence to the preplanned drill scenario; and (10) communication with an offsite fire department.

These activities constitute completion of one annual fire protection inspection sample as defined by Inspection Procedure 71111.05-05.

b. Findings

No findings of significance were identified.

**1R06 Flood Protection Measures (71111.06)**

a. Inspection Scope

The inspectors reviewed the Final Safety Analysis Report, the flooding analysis, and plant procedures to assess susceptibilities involving internal flooding. The inspectors reviewed the corrective action program to determine if licensee personnel identified and corrected flooding problems. The inspectors checked the Unit 1, train B service water cable vaults to verify the adequacy of cable splices subject to submergence, drainage for bunkers/manholes, and verified that operator actions for coping with flooding can reasonably achieve the desired outcomes. The inspectors also checked the waste water holdup tank area to verify the adequacy of equipment seals located below the flood line, floor and wall penetration seals, watertight door seals, common drain lines and sumps, sump pumps, level alarms, and control circuits, and temporary or removable flood barriers. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of two flood protection measures inspection samples (one internal flooding sample and one underground cable sample) as defined in Inspection Procedure 71111.06-05.

b. Findings

No findings of significance were identified.

**1R08 Inservice Inspection Activities (71111.08)**

.1 Inspection Activities Other Than Steam Generator Tube Inspection, Pressurized Water Reactor Vessel Upper Head Penetration Inspections, Boric Acid Corrosion Control (71111.08-02.01)

a. Inspection Scope

The inspectors reviewed four types of nondestructive examination activities. No welds were performed on the reactor coolant system pressure boundary and no welds with relevant indications had been accepted by licensee personnel for continued service.

The inspectors directly observed the following nondestructive examinations:

<u>SYSTEM</u>	<u>WELD IDENTIFICATION</u>	<u>EXAMINATION TYPE</u>
Safety Injection	TCX-1-4303-H1	VT-3
Safety Injection	TCX-1-4303-H1WA	PT
Component Cooling Water	CC-2-AB-050;H1 & H3	VT-1 / VT-3
Main Steam	MS-098 Valve Body	MT
Feedwater	TCX-2-2204:24-26	UT

The inspectors reviewed records for the following nondestructive examinations:

<u>SYSTEM</u>	<u>WELD IDENTIFICATION</u>	<u>EXAMINATION TYPE</u>
Reactor Coolant System	TCX-1-4503, 6-INCH PZR SAFETY 'C'	UT
Reactor Coolant System	TCX-1-4506-22, 4-INCH PZR SPRAY LINE	UT
Reactor Coolant System	TCX-1-4500-6, 14-INCH PZR SURGE LINE	UT

During the review and observation of each examination, the inspectors verified that activities were performed in accordance with ASME Boiler and Pressure Vessel Code requirements and applicable procedures. The qualifications of all nondestructive examination technicians performing the inspections were verified to be current.

The inspectors verified, by review, that the welding procedure specifications and the welders had been properly qualified in accordance with ASME Code, Section IX, requirements. The inspectors also verified, through observation and record review, that essential variables for the welding process were identified, recorded in the procedure qualification record, and formed the bases for qualification of the welding procedure specifications. No code class welding was performed during this outage. Specific documents reviewed during this inspection are listed in the attachment.

These actions constitute completion of the requirements for Section 02.01 as defined in Inspection Procedure 71111.08.

b. Findings

No findings of significance were identified.

.2 Vessel Upper Head Penetration Inspection Activities (71111.08-02.02)

a. Inspection Scope

The inspectors reviewed the results of licensee personnel's visual inspection of pressure-retaining components above the reactor pressure vessel head to verify that there was no evidence of leaks or boron deposits on the surface of the reactor pressure vessel head or related insulation. The inspectors verified that the personnel performing the visual inspection were certified as Level II and Level III VT-2 examiners. The licensee has no plans to replace the vessel head for unit 2 or mitigate any dissimilar metal welds on the head. Specific documents reviewed during this inspection are listed in the attachment.

These actions constitute completion of the requirements for Section 02.02 as defined in Inspection Procedure 71111.08.

b. Findings

No findings of significance were identified.

.3 Boric Acid Corrosion Control Inspection Activities (71111.08-02.03)

a. Inspection Scope

The inspectors evaluated the implementation of the licensee's boric acid corrosion control program for monitoring degradation of those systems that could be adversely affected by boric acid corrosion. The inspectors reviewed the documentation associated with the licensee's boric acid corrosion control walkdown as specified in Procedure STA-737, "Boric Acid Corrosion and Evaluation," Revision 4. The inspectors also reviewed the visual records of the components and equipment. The inspectors verified that the visual inspections emphasized locations where boric acid leaks could cause degradation of safety-significant components. The inspectors also verified that the engineering evaluations for those components where boric acid was identified gave assurance that the ASME Code wall thickness limits were properly maintained. The inspectors confirmed that the corrective actions performed for evidence of boric acid leaks were consistent with requirements of the ASME Code. Specific documents reviewed during this inspection are listed in the attachment.

These actions constitute completion of the requirements for Section 02.03 as defined in Inspection Procedure 71111.08.

b. Findings

No findings of significance were identified.

.4 Steam Generator Tube Inspection Activities (71111.08-02.04)

a. Inspection Scope

The licensee did not perform steam generator inspection activities this refueling outage. The NRC granted approval to the licensee to not inspect the steam generators during this outage by approving Amendment Number 149, dated October 9, 2009.

These actions constitute completion of the requirements of Section 02.04 as defined in Inspection Procedure 71111.08.

b. Findings

No findings of significance were identified.

.5 Identification and Resolution of Problems (71111.08-02.05)

a. Inspection scope

The inspectors reviewed 16 condition reports which dealt with inservice inspection activities and found the corrective actions were appropriate. The specific condition reports reviewed are listed in the documents reviewed section. From this review the inspectors concluded that the licensee has an appropriate threshold for entering issues into the corrective action program and has procedures that direct a root cause evaluation when necessary. The licensee also has an effective program for applying industry operating experience. Specific documents reviewed during this inspection are listed in the attachment.

These actions constitute completion of the requirements of Section 02.05 as defined in Inspection Procedure 71111.08.

b. Findings

No findings of significance were identified.

**1R11 Licensed Operator Requalification Program (71111.11)**

.1 Quarterly Licensed Operator Requalification Program Inspection

a. Inspection Scope

On December 8, 2009, the inspectors observed a crew of licensed operators in the plant's simulator to verify that operator performance was adequate, evaluators were identifying and documenting crew performance problems, and training was being conducted in accordance with licensee procedures. The inspectors evaluated the following areas:

- Licensed operator performance
- Crew's clarity and formality of communications

- Crew's ability to take timely actions in the conservative direction
- Crew's prioritization, interpretation, and verification of annunciator alarms
- Crew's correct use and implementation of abnormal and emergency procedures
- Control board manipulations
- Oversight and direction from supervisors
- Crew's ability to implement appropriate emergency plan actions and notifications

The inspectors compared the crew's performance in these areas to pre-established operator action expectations and successful critical task completion requirements.

These activities constituted completion of one quarterly licensed operator requalification program sample as defined in Inspection Procedure 71111.11.

b. Findings

No findings of significance were identified.

**1R12 Maintenance Effectiveness (71111.12)**

a. Inspection Scope

The inspectors evaluated the following risk significant systems, components, and degraded performance issues:

- Control room air conditioners
- Unit 1 rod control system urgent failure, CR-2009-006850
- Unit 2 feedwater hydrazine injection failure, CR-2009-008523
- Heat tracing

The inspectors reviewed events where ineffective equipment maintenance has resulted in valid or invalid automatic actuations of engineered safeguards systems and independently verified the licensee's actions to address system performance or condition problems in terms of the following:

- Implementing appropriate work practices
- Identifying and addressing common cause failures
- Scoping of systems in accordance with 10 CFR 50.65(b)
- Characterizing system reliability issues for performance
- Charging unavailability for performance
- Trending key parameters for condition monitoring
- Ensuring proper classification in accordance with 10 CFR 50.65(a)(1) or (a)(2)

The inspectors verified appropriate performance criteria for structures, systems, and components classified as having an adequate demonstration of performance through preventive maintenance, as described in 10 CFR 50.65(a)(2), or as requiring the establishment of appropriate and adequate goals and corrective actions for systems classified as not having adequate performance, as described in 10 CFR 50.65(a)(1).

The inspectors assessed performance issues with respect to the reliability, availability, and condition monitoring of the system. In addition, the inspectors verified that maintenance effectiveness issues were entered into the corrective action program with



the appropriate significance characterization. Specific documents reviewed during this inspection are listed in the attachment.

These activities constituted completion of four maintenance effectiveness samples as defined in Inspection Procedure 71111.12-05.

b. Findings

No findings of significance were identified.

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

a. Inspection Scope

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

- September 21, 2009, severe weather during switchyard breaker 7970 maintenance
- September 22, 2009, Unit 2, outage risk assessment and risk management actions for refueling outage 2RF11
- September 30, 2009, diesel generator 2-02 unavailable during heavy lift over the service water intake structure

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

These activities constituted completion of three maintenance risk assessments and emergent work control inspection samples as defined in Inspection Procedure 71111.13-05.

b. Findings

No findings of significance were identified.

## 1R15 Operability Evaluations (71111.15)

### a. Inspection Scope

The inspectors reviewed the following issues:

- CR-2006-002283-00, Unit 2 residual heat removal system pipe vibrations
- CR-2009-005542-00, Unit 2 reactor vessel following actuation of the low temperature overpressure system
- CR-2009-005887-00, Unit 2 fuel assembly operability with identification of an unknown material between two fuel rods
- CR-2009-006556-00, Unit 2 reactor coolant system leak into train A residual heat removal system
- CR-2009-006500-00, Unit 2 pressurizer power operated relief valve block valve 0455A missing fasteners
- CR-2009-000476-01, Unit 1 diesel generator B overspeed alarm during shutdown
- CR-2009-000848-00, Unit 2, conduit plug missing from electrical enclosure of motor operated valve 2-8835, "safety injection pumps 2-01/2-02 to cold leg injection isolation valve"

The inspectors selected these potential operability issues based on the risk-significance of the associated components and systems. The inspectors evaluated the technical adequacy of the evaluations to ensure that technical specification operability was properly justified and the subject component or system remained available such that no unrecognized increase in risk occurred. The inspectors compared the operability and design criteria in the appropriate sections of the technical specifications and Final Safety Analysis Report to the licensee's evaluations, to determine whether the components or systems were operable. Where compensatory measures were required to maintain operability, the inspectors determined whether the measures in place would function as intended and were properly controlled. The inspectors determined, where appropriate, compliance with bounding limitations associated with the evaluations. Additionally, the inspectors reviewed a sampling of corrective action documents to verify that the licensee was identifying and correcting any deficiencies associated with operability evaluations. Specific documents reviewed during this inspection are listed in the attachment.

These activities constituted completion of seven operability evaluation inspection samples as defined in Inspection Procedure 71111.15-05.

### b. Findings

Introduction. The inspectors identified a Green noncited violation of 10 CFR Part 50, Appendix B, Criterion III, for the failure of the licensee to translate environmental qualification requirements for motor operated valve and damper actuators into procedures. Specifically, actuator refurbishment procedures directed the removal of conduit plugs, drain plugs, and T-drains, but did not require them to be re-installed in the

correct configuration. As a result, multiple actuators were not in their specified condition for environmental qualification. After evaluation, the licensee determined that the actuators were still environmentally qualified in the as-found configuration.

Description. On March 9, 2009, the inspectors identified a missing conduit plug from the electrical enclosure for an environmentally qualified motor operated valve. The conduit plug was required to be installed to be in the specified configuration for environmental qualification. As a result, the licensee performed a walkdown of accessible valve and damper actuators and discovered a total of 15 actuators with missing or incorrectly installed equipment that affects their environmental qualifications.

Multiple actuators were not in their specified condition for environmental qualification. Some actuators had plugs installed instead of T-drains, which drain excess moisture from the electrical enclosure. Some actuators were missing conduit plugs, allowing a larger hole in the electrical enclosure than had been tested or analyzed. Some actuators had T-drains installed instead of plugs, allowing extra moist air to enter the electrical enclosure in a harsh environment. The licensee identified environmental qualification information in the industry that supported qualification of all of the actuators in the as-found configuration except for two valves. The licensee reviewed the accident scenarios in which the two valves are required operate and determined that they would not be in a harsh environment when mitigating their specific design basis accidents. The inspectors determined that all of the actuators were in compliance with environmental qualification regulatory standards after the licensee had completed extensive re-analysis.

The inspectors determined, through a review of the licensee's basic cause evaluation, that the incorrectly installed equipment was likely a human performance error during actuator refurbishment. Specifically, the procedure for refurbishment of motor operated actuators did not have a step that required re-installation of plugs and T-drains in the correct configuration once removed.

Analysis. The licensee's failure to translate environmental qualification requirements for motor operated actuators into procedures was a performance deficiency. As a result, multiple actuators were not in their specified condition for environmental qualification. The finding was more than minor because it was associated with the containment configuration control attribute of the barrier integrity cornerstone and adversely affected the cornerstone objective, in that, the licensee's procedure for actuator refurbishment did not provide reasonable assurance that actuators would continue to be environmentally qualified in order to protect the public from radionuclide releases caused by accidents or events. The inspectors determined that since the majority of the actuators performed a containment isolation function, the containment barrier significance determination process screening would be used. Using NRC Manual Chapter 0609, Attachment 4, "Phase 1 - Initial Screening and Characterization of Findings," this finding was determined to be of very low safety significance because the finding did not represent an actual open pathway in the physical integrity of reactor containment. This finding has a crosscutting aspect of human performance associated with resources, in that the licensee failed to maintain complete and accurate procedures [H.2c].

Enforcement. Title 10 CFR Part 50, Appendix B, Criterion III, requires, in part, that measures shall be established to assure that applicable regulatory requirements are correctly translated into procedures and instructions. Contrary to the above, on March 9, 2009, the regulatory requirements of 10 CFR 50.49 had not been correctly translated into procedures for the refurbishment of motor operated actuators in that, the specified environmentally qualified configurations were not maintained. Since the violation was of very low safety significance and was documented in the licensee's corrective action program as Condition Report CR-2009-000848-00, it is being treated as a noncited violation, consistent with Section VI.A.1 of the NRC Enforcement Policy: NCV 05000445/2009005-01; 05000446/2009005-01, "Inadequate Procedures for Environmentally Qualified Actuator Refurbishment."

#### **1R18 Plant Modifications (71111.18)**

##### a. Inspection Scope

To verify that the safety functions of important safety systems were not degraded, the inspectors reviewed the temporary modifications that involved the Unit 1 remote shutdown panel wide range hot-leg temperature indication and the installation of a stop-log during a service water traveling screen replacement.

The inspectors reviewed the temporary modifications and the associated safety evaluation screenings against the system design bases documentation, including the Final Safety Analysis Report and the technical specifications, and verified that the modifications did not adversely affect the system operability/availability. The inspectors also verified that the installation and restoration were consistent with the modification documents and that configuration control was adequate. Additionally, the inspectors verified that the temporary modifications were identified on control room drawings, appropriate tags were placed on the affected equipment, and licensee personnel evaluated the combined effects on mitigating systems and the integrity of radiological barriers.

These activities constitute completion of two temporary plant modification inspection samples as defined in Inspection Procedure 71111.18-05.

##### b. Findings

No findings of significance were identified.

#### **1R19 Postmaintenance Testing (71111.19)**

##### a. Inspection Scope

The inspectors reviewed the following postmaintenance activities to verify that procedures and test activities were adequate to ensure system operability and functional capability:

- September 24, 2009, functional stroke of valve 2-HV-2493A, motor driven auxiliary feedwater pump 2-02 discharge to steam generator 3 isolation valve, following actuator lug replacement

- September 27, 2009, service water pump 2-01 bearing water flow following cleaning of the bearing water strainer
- September 30, 2009, diesel generator 2-02 overspeed testing following replacement of overspeed trip relay
- October 21, 2009, diesel generator 2-02 testing following replacement of the jacket water temperature control valve
- October 22, 2009, diesel generator 1-02 testing following maintenance of the output breaker light indication failure
- November 12, 2009, 50 megawatt load rejection test following the Unit 2 power uprate
- November 27, 2009, stroke time testing of 1-PV-2454a, motor driven auxiliary feedwater pump 1-02 to steam generator 3 flow control valve, following actuator regulator speed orifice needle valve adjustments

The inspectors selected these activities based upon the structure, system, or component's ability to affect risk. The inspectors evaluated the activities to ensure the testing was adequate for the maintenance performed, the acceptance criteria were clear, and the test ensured equipment operational readiness.

The inspectors evaluated the activities against technical specifications, the Final Safety Analysis Report, 10 CFR Part 50 requirements, licensee procedures, and various NRC generic communications to ensure that the test results adequately ensured that the equipment met the licensing basis and design requirements. In addition, the inspectors reviewed corrective action documents associated with postmaintenance tests to determine whether the licensee was identifying problems and entering them into the corrective action program and that the problems were being corrected commensurate with their importance to safety. Specific documents reviewed during this inspection are listed in the attachment.

These activities constituted completion of seven postmaintenance testing inspection samples as defined in Inspection Procedure 71111.19-05.

a. Findings

No findings of significance were identified.

**1R20 Refueling and Other Outage Activities (71111.20)**

a. Inspection Scope

The inspectors reviewed the outage safety plan and contingency plans for the Unit 2 refueling outage, conducted October 7 through November 1, 2009, to confirm that licensee personnel had appropriately considered risk, industry experience, and previous site-specific problems in developing and implementing a plan that assured maintenance of defense-in-depth. During the refueling outage, the inspectors observed portions of the shutdown and cooldown processes and monitored licensee controls over the outage activities listed below:

- Configuration management, including maintenance of defense-in-depth, is commensurate with the outage safety plan for key safety functions and compliance with the applicable technical specifications when taking equipment out of service
- Clearance activities, including confirmation that tags were properly hung and equipment appropriately configured to safely support the work or testing
- Installation and configuration of reactor coolant pressure, level, and temperature instruments to provide accurate indication, accounting for instrument error
- Status and configuration of electrical systems to ensure that technical specifications and outage safety-plan requirements were met, and controls over switchyard activities
- Monitoring of decay heat removal processes, systems, and components
- Verification that outage work was not impacting the ability of the operators to operate the spent fuel pool cooling system
- Reactor water inventory controls, including flow paths, configurations, and alternative means for inventory addition, and controls to prevent inventory loss
- Controls over activities that could affect reactivity
- Refueling activities including fuel handling
- Startup and ascension to full power operation, tracking of startup prerequisites, walkdown of the containment to verify that debris had not been left which could block emergency core cooling system suction strainers, and reactor physics testing
- Licensee identification and resolution of problems related to refueling outage activities

Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of one refueling outage and other outage inspection sample as defined in Inspection Procedure 71111.20-05.

b. Findings

1. Failure to Close the Containment Airlock Outer Door

Introduction. The inspectors reviewed a Green self-revealing noncited violation of Technical Specification 5.4.1.a for the failure of maintenance personnel to follow procedural requirements for closing the containment personnel airlock outer door. As a result, the containment personnel outer door was left open for over an hour and the containment integrity function of the door was compromised.

Description. On September 29, 2009, two maintenance personnel exited the Unit 2 containment after completing approximately 5 hours of activities inside containment.

The maintenance personnel became involved with the removal of equipment and tools from the airlock and failed to ensure the containment door was closed. The maintenance personnel then removed their protective clothing and left the area. Control room operators performed a check of the alarms in the control room and noted that alarm for the containment door was "locked in." The control room operators dispatched a nuclear equipment operator to investigate the alarm and the nuclear equipment operator discovered the containment personnel outer door partially open. The nuclear equipment operator closed the door. Based on a review of records, the door was determined to be open for greater than one hour.

The inspectors reviewed Condition Report CR-2009-005275 and determined that the likely cause of the event was that personnel operating the door did not have an appreciation of the significance of the door providing a containment integrity function because the licensee did not communicate the basis of the importance of the containment door to these personnel.

Analysis. The failure to follow procedural requirements when operating the containment personnel door was a performance deficiency and resulted in leaving the outer containment door open for approximately one hour. The finding was more than minor because it was associated with the containment barrier performance attribute of the barrier integrity cornerstone and affects the cornerstone objective to provide reasonable assurance that physical barriers protect the public from radionuclide releases caused by events. Using NRC Manual Chapter 0609, Attachment 4, "Phase 1 - Initial Screening and Characterization of Findings," the finding was determined to be of very low safety significance because the performance deficiency did not result in an actual open pathway in the physical integrity of the containment. The finding has a human performance crosscutting aspect associated with decision making because the licensee did not communicate the basis of the importance of the containment door providing an integrity function to the personnel operating the door [H.1c].

Enforcement. Technical Specification 5.4.1.a requires, in part, that written procedures shall be established, implemented, and maintained covering the applicable procedures recommended in Regulatory Guide 1.33, Revision 2, Appendix A. Regulatory Guide 1.33, Appendix A, Item 1.i, requires, in part, procedures for access to containment. Procedure SOP-907B, "Containment Personnel Airlocks," Revision 8, describes the steps to operate the containment doors. Step 5.1.1.A.6 requires, in part, to operate the containment door in accordance with Attachment 5 or the local job aid (which is similar to Attachment 5). Attachment 5, "Containment Airlock Door Operational Aid" used for exiting the containment through the personnel airlock Step K requires, in part, press the outer door close button to close the outer door. Contrary to the above, on September 29, 2009, maintenance personnel exited the containment and failed to press the outer door close button and close the outer door preventing the door from performing its containment integrity function. Since the violation was of very low safety significance and was documented in the licensee's corrective action program as Condition Report CR-2009-005275, it is being treated as a noncited violation, consistent with Section VI.A.1 of the NRC Enforcement Policy: NCV 05000446/2009005-02, "Failure to Close the Containment Airlock Outer Door."

## 2. Failure to Control Reactor Coolant System Pressure During Solid Plant Operations

Introduction. The inspectors reviewed a Green self-revealing noncited violation of Technical Specification 5.4.1.a for the failure of operators to follow procedural requirements for maintaining reactor coolant system pressure. Specifically, a reactor operator adjusted charging flow during solid plant operations and failed to control the reactor coolant system pressure increase. As a result, a power operated relief valve lifted to provide low temperature overpressure protection of the reactor coolant system.

Description. On October 8, 2009, with the reactor coolant system in a solid plant condition with temperature approximately 160 degrees Fahrenheit and pressure approximately 320 pounds per square inch, a reactor operator made an adjustment on the charging flow controller to increase the charging flow. The operator was then distracted by a timer used to indicate that it was time to record reactor coolant system temperature and pressure. The operator turned their back to the controls to acknowledge the timer. During the time the operator's back was to the controls, charging flow increased from approximately 150 to 220 gallons per minute, pressure increased from 320 to 380 pounds per square inch, a pressurizer power operated relief valve lifted to provide low temperature overpressure protection, and control board annunciators alarmed. The operator then reduced charging flow to stabilize the plant pressure transient, but not before a power operated relief valve had lifted twice to control the increased pressure.

The inspectors reviewed Condition Report CR-2009-005542 and determined that the likely cause of the event was that the licensee did not have an operator dedicated to solely monitoring and controlling the solid plant parameters.

Analysis. The failure to follow procedural requirements when controlling reactor coolant system pressure was a performance deficiency and resulted in the lifting of a power operated relief valve. The finding was more than minor because it was associated with the human performance attribute of the initiating events cornerstone and affects the cornerstone objective to limit those events that upset plant stability and challenge critical safety functions during shutdown operations. Specifically, the inadvertent lifts of the power operated relief valves could lead to a loss of reactor coolant system inventory and pressure control. Using NRC Manual Chapter 0609, Appendix G, Attachment 1, Checklist 2, the finding was determined to be of very low safety significance because the licensee maintained adequate mitigation capability for the current plant state and the event was not characterized as a loss of control condition. The finding has a human performance crosscutting aspect associated with decision making because the licensee did not formally define the role of the reactor operator maintaining reactor coolant system pressure [H.1a].

Enforcement. Technical Specification 5.4.1.a requires, in part, that written procedures shall be established, implemented, and maintained covering the applicable procedures recommended in Regulatory Guide 1.33, Revision 2, Appendix A. Regulatory Guide 1.33, Appendix A, Item 2.j, requires, in part, general plant operating procedures for hot standby to cold shutdown. Procedure IPO-005B, "Plant Cooldown from Hot Standby to Cold Shutdown," Revision 9, caution prior to step 5.1.43.I, requires, in part, that the reactor coolant system pressure shall be maintained below the low temperature overpressure protection set-point when the



power operated relief valves are providing low temperature overpressure protection. Contrary to the above, on October 8, 2009, a reactor operator failed to control the reactor coolant system pressure below the low temperature overpressure protection set-point which caused a power operated relief valve to lift. Since the violation was of very low safety significance and was documented in the licensee's corrective action program as Condition Report CR-2009-005542, it is being treated as a noncited violation, consistent with Section VI.A.1 of the NRC Enforcement Policy: NCV 05000446/2009005-03, "Failure to Control Reactor Coolant System Pressure During Solid Plant Operations."

## **1R22 Surveillance Testing (71111.22)**

### **a. Inspection Scope**

The inspectors reviewed the Final Safety Analysis Report, procedure requirements, technical specifications, and corrective action documents to ensure that the surveillance activities listed below demonstrated that the systems, structures, and/or components tested were capable of performing their intended safety functions:

#### Pump or Valve Inservice Test

- September 29, 2009, Unit 2 main steam safety valve testing in accordance with Procedure MSM-S0-8702, "Main Steam Safety Valve Testing," Revision 3

#### Routine Surveillance Testing

- November 5, 2009, Unit 2 steam generator bowl drain Alloy 600 inspection in accordance with EPG-9.02, "CPNPP Alloy 600 Management Program," Revision 1
- December 14, 2009, Unit 1 flux map in accordance with NUC-115, "Performing Power Distribution Measurements," Revision 9
- December 14, 2009, Unit 1 main steam line pressure testing in accordance with Procedure INC-7310A, "Analog Channel Calibration Test and Channel Calibration Steam Pressure, Loop 4, Protection Set II, Channel 0545," Revision 6
- December 15, 2009, Unit 1 diesel fuel oil testing in accordance with Procedure CHM-550, "Chemistry Control of Diesel Fuel," Revision 8 and Procedure COP-609A, "Diesel Generator," Revision 9

The inspectors either witnessed or reviewed test data to verify that the significant surveillance test attributes were adequate to address the following:

- Preconditioning
- Evaluation of testing impact on the plant
- Acceptance criteria
- Test equipment
- Procedures
- Jumper/lifted lead controls
- Test data

- Testing frequency and method demonstrated technical specification operability
- Test equipment removal
- Restoration of plant systems
- Fulfillment of ASME Code requirements
- Updating of performance indicator data
- Reference setting data
- Annunciators and alarms setpoints

Specific documents reviewed during this inspection are listed in the attachment.

These activities constituted completion of five surveillance testing inspection samples (one inservice test sample and four routine surveillance testing samples) as defined in Inspection Procedure 71111.22-05.

b. Findings

No findings of significance were identified.

**1EP6 Drill Evaluation (71114.06)**

a. Inspection Scope

On November 11, 2009, the inspectors evaluated the conduct of a licensee emergency drill to identify any weaknesses and deficiencies in classification, notification, and protective action recommendation development activities. The inspectors observed emergency response operations in the simulator and emergency operations facility to determine whether the event classification, notifications, and protective action recommendations were performed in accordance with procedures. The inspectors also compared any inspector-observed weakness with those identified by the licensee staff in order to evaluate the critique and to verify whether the licensee staff was properly identifying weaknesses and entering them into the corrective action program. As part of the inspection, the inspectors reviewed the drill package and other documents listed in the attachment.

These activities constituted completion one emergency preparedness drill sample as defined in Inspection Procedure 71114.06-05.

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

The inspectors assessed 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 technical specifications, and the licensee's procedures required by technical specifications as criteria for determining compliance. The inspectors interviewed the radiation protection manager, radiation protection supervisors, and radiation workers. The inspectors performed independent radiation dose rate measurements and reviewed the following items:

- Performance indicator events and associated documentation packages reported by the licensee in the occupational radiation safety cornerstone
- Controls (surveys, posting, and barricades) of three radiation, high radiation, or airborne radioactivity areas
- Radiation work permits procedures, engineering controls, and air sampler locations
- Conformity of electronic personal dosimeter alarm set points with survey indications and plant policy; workers' knowledge of required actions when their electronic personnel dosimeter noticeably malfunctions or alarms
- Barrier integrity and performance of engineering controls in two airborne radioactivity areas
- Adequacy of the licensee's internal dose assessment for any actual internal exposure greater than 50 millirem committed effective dose equivalent
- Physical and programmatic controls for highly activated or contaminated materials (non-fuel) stored within spent fuel and other storage pools
- 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 control during job performance
- Dosimetry placement in high radiation work areas with significant dose rate gradients
- 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

Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of 21 access control to radiologically significant areas samples as defined in Inspection Procedure 71121.01-05

b. Findings

Introduction. The inspectors reviewed a Green self-revealing noncited violation of Technical Specification 5.7.1.a concerning a high radiation area that was not barricaded and conspicuously posted. Personnel entered the high radiation area without knowledge of the dose rates in the lower valve gallery on the 832-foot elevation of the auxiliary building.

Description. On June 17, 2009, two workers' electronic dosimeters alarmed when they entered the lower valve gallery on the 832-foot elevation of the auxiliary building. The lower valve gallery had been de-posted from a locked high radiation area to radiation area after a resin transfer and flush operation. Consequently, two workers received unexpected dose rates of 102 millirem per hour and 70 millirem per hour, respectively. The workers immediately exited the area and informed radiation protection. A radiation protection technician was dispatched to investigate and their electronic dosimeter alarmed at 175 millirem per hour. A second radiation protection technician conducted radiation measurements and found a maximum dose rate of 900 millirem per hour at 30 centimeters from the source of radiation. The radiation protection technician, subsequently, barricaded the area with rope and posted it as a high radiation area.

The licensee placed the finding into the corrective action program as Condition Report CR-2009-002876. The licensee's apparent cause evaluation determined that Procedure RPI-624, "Resin Transfer Job Coverage," Revision 3, had unclear procedural instructions regarding what was meant to survey the "affected area" after a resin transfer and system flushes were completed. The high radiation area was caused by a slug of resin in the lower section of the line that had not been surveyed. However, the radiation protection technician did not perform a radiation survey of the entire area and system.

Analysis. The failure to barricade and post a high radiation area is a performance deficiency. The finding was more than minor because it was associated with the occupational radiation safety cornerstone attribute (exposure control) of program and process and affected the cornerstone objective, in that, the failure to properly control a high radiation area had the potential to increase personnel dose. Using the occupational radiation safety significance determination process, the inspectors determined the finding to have very low safety significance because: (1) it was not associated with as low as reasonably achievable (ALARA) planning or work controls, (2) there was no overexposure, (3) there was no substantial potential for an overexposure, and (4) the ability to assess dose was not compromised. The finding has a human performance crosscutting aspect associated with resources because the licensee did not ensure that the procedure was complete and accurate [H.2c].

Enforcement. Technical Specification Section 5.7.1.a requires, in part, that each entryway to high radiation areas not exceeding 1.0 rem per hour at 30 centimeters shall be barricaded and conspicuously posted as a high radiation area. Contrary to this

requirement, on June 17, 2009, a portion of the lower valve gallery on the 832-foot elevation of the auxiliary building gallery measured 900 millirem per hour at 30 centimeters and was not barricaded and conspicuously posted as a high radiation area. Since this violation was of very low safety significance and was documented in the licensee's corrective action program as Condition Report CR-2009-002876, it is being treated as a noncited violation, consistent with Section VI.A.1 of the NRC Enforcement Policy: NCV 05000445/2009005-04; 05000446/2009005-04, "Failure to Barricade and Post a High Radiation Area."

## **2OS2 ALARA Planning and Controls (71121.02)**

### **a. Inspection Scope**

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

- Site-specific trends in collective exposures, plant historical data, and source-term measurements
- Site-specific ALARA procedures
- Work activities of highest exposure 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
- Assumptions and basis for the current annual collective exposure estimate, the methodology for estimating work activity exposures, the intended dose outcome, and the accuracy of dose rate and man-hour estimates
- Method for adjusting exposure estimates, or re-planning work, when unexpected changes in scope or emergent work were encountered
- Exposure tracking system
- Source-term control strategy or justifications for not pursuing such exposure reduction initiatives
- 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

Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of 10 of the required 15 samples and four of the optional samples as defined in Inspection Procedure 71121.02-05.

b. Findings

No findings of significance were identified.

**40A1 Performance Indicator Verification (71151)**

.1 Data Submission Issue

a. Inspection Scope

The inspectors performed a review of the data submitted by the licensee for the third quarter 2009 performance indicators for any obvious inconsistencies prior to its public release in accordance with NRC Inspection Manual Chapter 0608, "Performance Indicator Program."

This review was performed as part of the inspectors' normal plant status activities and, as such, did not constitute a separate inspection sample.

b. Findings

No findings of significance were identified.

.2 Mitigating Systems Performance Index - Residual Heat Removal System (MS09)

a. Inspection Scope

The inspectors sampled licensee submittals for the mitigating systems performance index residual heat removal system performance indicator for Units 1 and 2 for the period from the fourth quarter 2008 through the third quarter 2009. To determine the accuracy of the performance indicator data reported during those periods, the inspectors used definitions and guidance contained in Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 5. The inspectors reviewed the licensee's operator narrative logs, mitigating systems performance index derivation reports, issue reports, event reports and NRC integrated inspection reports for the period of the fourth quarter 2008 through the third quarter 2009 to validate the accuracy of the submittals. The inspectors reviewed the mitigating systems performance index component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with

applicable Nuclear Energy Institute guidance. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the performance indicator data collected or transmitted for this indicator and none were identified. Specific documents reviewed are described in the attachment to this report.

These activities constitute completion of two mitigating systems performance index residual heat removal system samples as defined in Inspection Procedure 71151-05.

b. Findings

No findings of significance were identified.

.3 Mitigating Systems Performance Index - Cooling Water Systems (MS10)

a. Inspection Scope

The inspectors sampled licensee submittals for the mitigating systems performance index cooling water systems performance indicator for Units 1 and 2 for the period from the fourth quarter 2008 through the third quarter 2009. To determine the accuracy of the performance indicator data reported during those periods, the inspectors used definitions and guidance contained in Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 5. The inspectors reviewed the licensee's operator narrative logs, issue reports, mitigating systems performance index derivation reports, event reports and NRC integrated inspection reports for the period of the fourth quarter 2008 through the third quarter 2009 to validate the accuracy of the submittals. The inspectors reviewed the mitigating systems performance index component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable Nuclear Energy Institute guidance. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the performance indicator data collected or transmitted for this indicator and none were identified. Specific documents reviewed are described in the attachment to this report.

These activities constitute completion of two mitigating systems performance index cooling water system samples as defined in Inspection Procedure 71151-05.

b. Findings

No findings of significance were identified.

.4 Occupational Radiological Occurrences

a. Inspection Scope

The inspectors sampled licensee submittals for the occupational radiological occurrences performance indicator for the period from the first quarter 2009 through third quarter 2009. To determine the accuracy of the performance indicator data reported during those periods, performance indicator definitions and guidance contained in Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 5, was used. The inspectors reviewed the licensee's assessment of the performance indicator for occupational radiation safety to determine if

indicator related data was adequately assessed and reported. To assess the adequacy of the licensee's performance indicator data collection and analyses, the inspectors discussed with radiation protection staff, the scope and breadth of its data review, and the results of those reviews. The inspectors independently reviewed electronic dosimetry dose rate and accumulated dose alarm and dose reports and the dose assignments for any intakes that occurred during the time period reviewed to determine if there were potentially unrecognized occurrences.

These activities constitute completion of one occupational radiological occurrences sample as defined by Inspection Procedure 71151-05.

b. Findings

No findings of significance were identified.

.5 Radiological Effluent Technical Specifications/Offsite Dose Calculation Manual  
Radiological Effluent Occurrences

a. Inspection Scope

The inspectors sampled licensee submittals for the radiological effluent technical specifications/offsite dose calculation manual radiological effluent occurrences performance indicator for the period from the first quarter 2009 through third quarter 2009. To determine the accuracy of the performance indicator data reported during those periods, performance indicator definitions and guidance contained in Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 5, was used. The inspectors reviewed the licensee's issue report database since this indicator was last reviewed to identify any potential occurrences such as unmonitored, uncontrolled, or improperly calculated effluent releases that may have impacted offsite dose. Additionally, the inspectors reviewed the licensee's historical 10 CFR 50.75(g) file and selectively reviewed the licensee's analysis for discharge pathways resulting from a spill, leak, or unexpected liquid discharge focusing on those incidents which occurred over the last few years.

These activities constitute completion of one radiological effluent occurrences sample as defined by Inspection Procedure 71151-05.

**40A2 Identification and Resolution of Problems (71152)**

**Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity, Emergency Preparedness, Public Radiation Safety, Occupational Radiation Safety, and Physical Protection**

.1 Routine Review of Identification and Resolution of Problems

a. Inspection Scope

As part of the various baseline inspection procedures discussed in previous sections of this report, the inspectors routinely reviewed issues during baseline inspection activities and plant status reviews to verify that they were being entered into the licensee's corrective action program at an appropriate threshold, that adequate attention was being given to timely corrective actions, and that adverse trends were identified and



addressed. The inspectors reviewed attributes that included: the complete and accurate identification of the problem; the timely correction, commensurate with the safety significance; the evaluation and disposition of performance issues, generic implications, common causes, contributing factors, root causes, extent of condition reviews, and previous occurrences reviews; and the classification, prioritization, focus, and timeliness of corrective actions. Minor issues entered into the licensee's corrective action program because of the inspectors' observations are included in the attached list of documents reviewed.

These routine reviews for the identification and resolution of problems did not constitute any additional inspection samples. Instead, by procedure, they were considered an integral part of the inspections performed during the quarter and documented in Section 1 of this report.

b. Findings

No findings of significance were identified.

.2 Daily Corrective Action Program Reviews

a. Inspection Scope

In order to assist with the identification of repetitive equipment failures and specific human performance issues for follow-up, the inspectors performed a daily screening of items entered into the licensee's corrective action program. The inspectors accomplished this through review of the station's daily corrective action documents.

The inspectors performed these daily reviews as part of their daily plant status monitoring activities, so these reviews did not constitute any separate inspection samples.

b. Findings

No findings of significance were identified.

.3 Semi-Annual Trend Review

a. Inspection Scope

The inspectors performed a review of the licensee's corrective action program and associated documents to identify trends that could indicate the existence of a more significant safety issue. The inspectors focused their review on repetitive equipment issues, but also considered the results of daily corrective action item screening discussed in Section 4OA2.2, above, licensee trending efforts, and licensee human performance results. The inspectors nominally considered the 6-month period of the third and fourth quarter 2009, although some examples expanded beyond those dates where the scope of the trend warranted.

The inspectors also included issues documented outside the normal corrective action program in major equipment problem lists, repetitive and/or rework maintenance lists, departmental problem/challenges lists, system health reports, quality assurance audit/surveillance reports, self-assessment reports, and maintenance rule assessments.

The inspectors compared and contrasted their results with the results contained in the licensee's corrective action program trending reports. Corrective actions associated with a sample of the issues identified in the licensee's trending reports were reviewed for adequacy.

These activities constitute completion of one semi-annual trend inspection sample as defined in Inspection Procedure 71152-05.

b. Findings

No findings of significance were identified.

.4 Selected Issue Follow-up Inspection

a. Inspection Scope

The inspectors completed a review of the licensee's transition from the Smart Form corrective action database to the new ActionWay corrective action database. The inspectors interviewed corrective action program department personnel and reviewed documents related to the transition. The inspectors also reviewed the corrective action program procedures to ensure that the licensee continued to comply with commitments and regulatory requirements. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of one in-depth problem identification and resolution sample as defined in Inspection Procedure 71152-05.

b. Findings

No findings of significance were identified.

.5 Operator Workaround

a. Inspection Scope

The inspectors reviewed the cumulative effects of the operator workarounds and burdens to determine the reliability, availability, and potential for incorrect operation of systems or components. The inspectors verified the ability of operators to respond in a correct and timely manner to plant transients and accidents, and if the licensee has identified and implemented appropriate corrective actions associated with operator workarounds.

These activities constitute completion of one operator workaround sample as defined in Inspection Procedure 71152-05.

b. Findings

No findings of significance were identified.

#### **40A3 Event Followup (71153)**

a. Inspection Scope

On October, 21, 2009, a small amount, approximately 500 milliliters, of diisopropylamine spilled in the instrument support area of the chemistry lab. The technician involved in the spill initiated additional hood ventilation and poured water on the spilled material to minimize any airborne fume hazard. The inspectors responded to the area and monitored, from a safe location, the licensee actions to limit the affects of the spill and the actions to clean up the spill. Specific documents reviewed during this inspection are listed in the attachment.

b. Findings

No findings of significance were identified.

#### **40A5 Other Activities**

.1 Quarterly Resident Inspector Observations of Security Personnel and Activities

a. Inspection Scope

During the inspection period, the inspectors performed observations of security force personnel and activities to ensure that the activities were consistent with the licensee's security procedures and regulatory requirements relating to nuclear plant security. These observations took place during both normal and off-normal plant working hours.

These quarterly resident inspector observations of security force personnel and activities did not constitute any additional inspection samples. Rather, they were considered an integral part of the inspectors' normal plant status review and inspection activities.

b. Findings

No findings of significance were identified.

.2 Temporary Instruction 2515/175, "Emergency Response Organization, Drill/Exercise Performance Indicator, Program Review"

a. Inspection Scope

The inspectors performed Temporary Instruction 2515/175, ensured the completeness of Attachment 1, and forwarded the data to NRC Headquarters.

b. Findings

No findings of significance were identified.

.3 Temporary Instruction 2515-172, "Reactor Coolant System Dissimilar Metal Butt Welds"

a. Inspection Scope

In October 2009, the inspectors performed portions of Temporary Instruction 2515/172, "Reactor Coolant System Dissimilar Metal Butt Welds" at Unit 2, during Refueling Outage 2RF11. The licensee implemented their Dissimilar Metal Butt Weld Program in accordance with "The Materials Reliability Program: Primary System Piping Butt Weld Inspection and Evaluation Guideline" (MRP-139, Revision 1). The reactor coolant system for this unit is stainless steel with carbon steel nozzles and has the following dissimilar welds with dimensions based on inside diameter:

- One 14-inch pressurizer surge line nozzle weld which was mitigated during the previous outage (spring 2008) using a weld overlay process. Volumetric Category F weld, Visual Category is no longer applicable since each weld was mitigated
- Two 6-inch pressurizer safety nozzles, both mitigated during the previous outage (spring 2008) using a weld overlay process. Volumetric Category F weld, Visual Category is no longer applicable since each weld was mitigated
- One 6-inch pressurizer power-operated relief valve nozzle, mitigated during the previous outage (spring 2008) using a weld overlay process. Volumetric Category F weld, Visual Category is no longer applicable since each weld was mitigated
- One 4-inch pressurizer spray nozzle, mitigated during the previous outage (spring 2008) using a weld overlay process. Volumetric Category F weld, Visual Category is no longer applicable since each weld was mitigated
- Four 27.5-inch reactor vessel inlet (cold leg) nozzles (unmitigated as of this outage, 2RF11). Volumetric Category E, Visual Category is K
- Four 29-inch reactor vessel outlet (hot leg) nozzles (unmitigated as of this outage, 2RF11). Volumetric Category D, Visual Category is J

The steam generator inlet and outlet nozzles for unit 2 are welded to the reactor coolant system piping with 308L stainless steel and are therefore not considered susceptible to primary water stress corrosion cracking and consequently not included in the MRP-139 program. They are tracked in other dissimilar metal weld programs for this unit.

Licensee's Implementation of the MRP-139 Baseline Inspections (03.01)

The inspectors reviewed records of structural weld overlays and nondestructive examination activities associated with the licensee's pressurizer structural weld overlay mitigation effort. The baseline inspections of the pressurizer dissimilar metal butt welds were completed during 2RF10 (the spring 2008 refueling outage) with a MRP-139 program deviation and NRC relief request B-4 dated February 29, 2008, due to the fact that the pressurizer weld overlay mitigation efforts were not completed by the dates specified in the MRP-139 program.

At the present time, the licensee is not planning to take any other deviations from the baseline inspection requirements of MRP-139, and all other applicable dissimilar metal welds are scheduled in accordance with MRP-139 guidelines.

#### Volumetric Examinations (03.02)

The inspectors reviewed the ultrasonic examination and eddy current examination records of the unmitigated hot and cold leg reactor vessel nozzles. These examinations were conducted in accordance with ASME Code, Section XI, Supplement VIII Performance Demonstration Initiative requirements regarding personnel, procedures, and equipment qualifications. No relevant conditions were identified during these examinations.

Inspectors reviewed records for the non-destructive evaluations performed on three of the pressurizer weld overlays. This effort is documented in Section 1R08 of this inspection report. Inspection coverage met the requirements of MRP-139 and no relevant conditions were identified.

The certification records of ultrasonic examination personnel were reviewed for those personnel that performed the examinations of the hot and cold leg reactor vessel nozzles. All personnel records showed that they were qualified under the Electric Power Research Institute Performance Demonstration Initiative.

No deficiencies were identified during the examinations.

#### Weld Overlays (03.03)

All of the pressurizer nozzles were mitigated with weld overlay repairs during the previous outage. Three of these weld overlay repairs were reviewed during this inspection with no issues (section 1R08 of this report).

#### Mechanical Stress Improvement (03.04)

During this outage, the licensee continued to assess the feasibility of employing a stress improvement technique on the reactor vessel hot and cold leg nozzles, however the licensee has not employed a mechanical stress improvement process.

#### Inservice Inspection Program (03.05)

The licensee's MRP-139 Inservice Inspection Program appears to be meeting the MRP-139 requirements in that there is a program to monitor and mitigate, as applicable, each of the susceptible dissimilar metal welds, implemented through procedure "Strategic Plan for Alloy 600," Revision 0.

#### b. Findings

No findings of significance were identified.

.4 Fitness-for-Duty

a. Inspection scope

The inspectors evaluated this issue by reviewing the NRC Office of Investigations Report 4-2009-020 and exhibits; reviewing procedures, and records; conducting telephonic interviews with responsible personnel and plant employees; and assessments.

b. Findings

Introduction. The inspectors identified a noncited Severity Level IV violation of 10 CFR 26.27 for the failure of an individual to comply with the licensee's fitness-for-duty requirements. This noncited violation was identified during an NRC investigation of an unrelated issue that was not substantiated.

Description. On January 15, 2009, the licensee informed the NRC that an investigation conducted by a licensee contractor on January 7, 2009, revealed information on a separate issue. Following notification of the NRC, the NRC's Office of Investigations initiated an investigation into the failure to comply with the licensee's fitness-for-duty requirements.

Based on the results of the NRC Office of Investigations' investigation completed on August 13, 2009, the NRC has concluded that an individual was trained in, and knowledgeable of, the responsibilities to report issues to licensee management as delineated in the licensee's fitness-for-duty procedures. Accordingly, the failure of an individual to comply with the licensee's fitness-for-duty requirements was a violation of 10 CFR 26.27 and Licensee Policy 123, Attachment 1, "Fitness-for-Duty," Revision 4.

During their investigation, the licensee determined that the failure to comply with the licensee's fitness-for-duty requirements, as required by 10 CFR 26.27, did not involve any incidents that constituted an unreasonable risk to the public health and safety as well as the security of the plant.

Analysis. The failure of an individual to comply with the licensee's fitness-for-duty requirements as required by 10 CFR 26.27 was a performance deficiency. The violation was dispositioned through the traditional enforcement process. In addition, in accordance with Section IV.A.4 of the Enforcement Policy, this issue is considered more than minor. The failure of an individual to comply with the licensee's fitness-for-duty requirements required by 10 CFR 26.27 could have posed a risk to public health and safety. However, the licensee did not discover any facts to suggest that during this event the individual was not able to safely and competently perform assigned duties because of the violation. Further, the issue involved the act of a low-level individual, it appears to be an isolated action without management involvement or lack of oversight, and the licensee took remedial action that demonstrated the seriousness of the violation to other employees. In accordance with the NRC Enforcement Policy, this issue is considered a Severity Level IV violation.

Enforcement. Title 10 CFR 26.27, "Written Policy and Procedures," requires, in part, that each licensee shall establish, implement, and maintain written policies and procedures designed to meet the general performance objectives and specific requirements of this part. Specifically, 10 CFR 26.27(b)(6) requires, in part, that at a

minimum, the policy statement must address other factors that could affect fitness-for-duty. Attachment 1 to Policy 123, "Fitness-for-Duty," Revision 4, requires, in part, that any individual must inform supervision as applicable to meet the fitness-for-duty requirements.

Contrary to the above, on January 6, 2009, an individual did not inform supervision of the fitness-for-duty issue as required. The failure to comply with the licensee's fitness-for-duty requirements, and report the issue to management, resulted in a violation of 10 CFR 26.27 that was of very low security significance. The licensee documented the issue in its corrective action program as Condition Report CR-2009-000104. The issue is being dispositioned as a noncited violation consistent with Section VI.A.1 of the NRC Enforcement Policy: NCV 05000445/2009005-05; 05000446/2009005-05, "Failure to Report as required by 10 CFR 26.27."

.5 (Closed) Unresolved Item 05000445/2005008-02; 05000446/2005008-02, "Assessing and Managing Maintenance Risk for Post-Fire Safe Shutdown Equipment"

This unresolved item involves external event risk. The issues identified affect all nuclear power plants and will receive the reviews required for generic requirements (e.g., a backfit analysis). Depending upon the results of that analysis, the issue might be revisited. Consequently, this unresolved item is being administratively closed.

#### **40A6 Meetings**

##### Exit Meeting Summary

On September 17, 2009, the inspectors telephonically presented the inspection results of the security inspection to Mr. F. Madden, Director, Oversight and Regulatory Affairs, and other members of the licensee staff who acknowledged the findings. The licensee did not provide any information to the inspectors that were identified as proprietary information. On November 19, 2009, the final inspection results were telephonically presented to Mr. D. Wilder, Manager, Plant Support and other members of your staff.

On October 8, 2009, the inspectors presented inspection results of the occupational radiation safety inspection to Mr. M. Lucas, Site Vice President, and other members of the licensee staff. The licensee acknowledged the issues presented. The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

On October 16, 2009, the inspectors presented the inspection results of the inservice inspection to Mr. R. Flores, Senior Vice President and Chief Nuclear Officer, and other members of the licensee staff. The licensee acknowledged the issues presented. The inspectors acknowledged review of proprietary material during the inspection which had been or will be returned to the licensee.

On December 9, 2009, the inspectors presented the inspection results of the ALARA planning and controls inspection to Mr. M. Lucas, Site Vice President, and other members of the licensee staff. The licensee acknowledged the issues presented. The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

On January 13, 2010, the inspectors presented the resident inspection results to Mr. R. Flores, Senior Vice President and Chief Nuclear Officer, and other members of the licensee staff. The licensee acknowledged the issues presented. The inspectors acknowledged review of proprietary material during the inspection. No proprietary information has been included in the report.



## **SUPPLEMENTAL INFORMATION**

### **KEY POINTS OF CONTACT**

#### **Licensee Personnel**

R. Flores, Senior Vice President and Chief Nuclear Officer  
M. Lucas, Site Vice President  
S. Bradley, Manager, Radiation Protection  
D. Fuller, Manager, Emergency Preparedness  
T. Hope, Manager, Nuclear Licensing  
D. Kross, Plant Manager  
F. Madden, Director, Oversight and Regulatory Affairs  
B. Mays, Director, Site Engineering  
B. Patrick, Director, Maintenance  
M. Pearson, Director, Performance Improvement  
S. Sewell, Director, Operations  
K. Tate, Manager, Security  
D. Wilder, Manager, Plant Support

#### **NRC Personnel**

J. Kramer, Senior Resident Inspector  
B. Tindell, Resident Inspector

### **LIST OF ITEMS OPENED AND CLOSED**

#### **Opened and Closed**

05000445/2009005-01 05000446/2009005-01	NCV	Inadequate Procedure for Environmentally Qualified Actuator Refurbishment (Section 1R15)
05000446/2009005-02	NCV	Failure to Close the Containment Airlock Outer Door (Section 1R20.b.1)
05000446/2009005-03	NCV	Failure to Control Coolant System Pressure During Solid Plant Operations (Section 1R20.b.2)
05000445/2009005-04 05000446/2009005-04	NCV	Failure to Barricade and Post a High Radiation Area (Section 2OS1)
05000445/2009005-05 05000446/2009005-05	NCV	Failure to Report as Required by 10 CFR 26.27 (Section 4OA5.4)

#### **Closed**

05000445/2005008-02 05000446/2005008-02	URI	Assessing and Managing Maintenance Risk for Post-Fire Safe Shutdown Equipment (Section 4OA5.5)
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## LIST OF DOCUMENTS REVIEWED

### Section 1RO1: Adverse Weather Protection

#### PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
ABN-912	Extreme Cold Weather/Heat Tracing and Freeze Protection System Malfunction	8
OWI-912	Cold Weather	2
STA-634	Extreme Temperature Equipment Protection Program	4

### Section 1RO4: Equipment Alignments

#### PROCEDURES/DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
OPT-206A	AFW System	28
DBD-ME-229	Design Basis Document – Component Cooling Water	35
ER-SPU-4.1.1	Engineering Report Auxiliary Feedwater	0

#### DRAWINGS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
M1-0206	Flow Diagram Auxiliary Feedwater System	CP-20
M1-0206 Sheet 1	Flow Diagram Auxiliary Feedwater System Pump Trains	CP-14
M1-0206 Sheet 2	Flow Diagram Auxiliary Feedwater System Yard Layout	CP-19
M1-0218 Sheet 1	Flow Diagram Instrument Air Safeguards Building	CP-20
M1-0218 Sheet 2	Flow Diagram Containment Instrument Air System	CP-17

#### CONDITION REPORTS

2009-006965	2009-002236	2008-003203	2009-001922
2007-000858	2008-002472	2008-001628	2008-001251
2009-006907	2009-004640	2009-002852	2009-002236

#### WORK ORDERS

3799411	3795803	3648450	3543126
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## Section 1RO5: Fire Protection

### PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
	Comanche Peak Fire Protection Report	27
FPI-204B	Fire Preplan Instruction Manual, Unit 2 Containment Building Elevation 905'-0"	3
FPI-202B	Fire Preplan Instruction Manual, Unit 2 Containment Building Elevation 832'-6"	1
FPI-107B	Fire Preplan Instruction Manual, Unit 2 Safeguards Elevation 852' Electrical Equipment Area and Feedwater Penetration Area	3

### DRAWINGS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
M1-1920 Sheet 01A	Fire Hazard Analysis - Unit 1 Containment and Safeguards Building Plan at EI 790'-6"	CP-3
M2-1920 Sheet 01A	Fire Hazard Analysis - Unit 2 Containment and Safeguards Building Plan at EI 790'-6"	CP-3

## Section 1RO6: Flood Protection Measures

### DRAWINGS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
M2-0236 Sheet A	Flow Diagram Vents and Drains System Safeguards Building	CP-15
M2-0231 Sheet A	Flow Diagram Component Cooling Water System	CP-15
M1-0237	Flow Diagram Vents and Drains System Turbine and Fuel Handling Building	CP-48
M1-0280	Flow Diagram Waste Management System Co-Current Waste	CP-26
M1-0280 Sheet A	Flow Diagram Waste Management System Co-Current Waste	CP-15

### CONDITION REPORT

2009-006801

## Section 1RO8: Inservice Inspection Activities

### DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
STA-737	Boric Acid Corrosion Detection and Evaluation	4
WCI-607	Fluid Leak Management Process	1

DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
STA-705	Radioactive Systems Leakage Inspection Program	6
GQP 9.7	Liquid Penetrant Examination and Acceptance Standards for Welds, Base Materials and Cladding	11
TX-ISI-11	Liquid Penetrant Examination for CPSES	11
TX-ISI-302	Ultrasonic Examination of Austenitic Piping Welds	3
TX-ISI-70	Magnetic Particle Examination for CPSES	10
TX-ISI-8	VT-1 and VT-3 Examination Procedure for CPSES	6
WLD-105	Welding Material Storage and Control	6
WLD-103	Welder Performance Qualifications	6
WLD-101	Welding Program Requirements	6
WLD-106	ASME/ANSI General Welding Requirements	2
6-SI-2-102-2501R-1	Safety Injection Piping	1
BRP-CC-2-AB-050	Component Cooling Water Piping	2
6-FW-2-096-1303-2	Feedwater Piping	2

CONDITION REPORTS

2008-001122	2008-003398	2009-001778	2008-001250
2008-003972	2009-002130	2008-001700	2008-004033
2009-002842	2008-001879	2009-000024	2009-003434
2008-003345	2009-000629	2009-006117	2008-003379
2009-001632	2009-006121		

**Section 1R11: Licensed Operator Requalification Program**

CONDITION REPORTS

2009-000582	2009-000630	2009-000968
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**Section 1R12: Maintenance Effectiveness**

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
CHM-109	Chemistry Action Guidelines for Out-of-Specification Results	8
STA-610	Secondary Water Chemistry Control Program	11
	EPRI PWR Secondary Chemistry Guidelines	6
DBD-ME-003	Design Basis Document, Control Room Habitability	10

CONDITION REPORTS

2008-002681	2008-002798	2008-002707	2009-000155
2009-006380	2009-001141	2009-004665	2009-004332
2009-006668	2009-004296	2009-008523	2009-004055
2009-006850			

WORK ORDERS

371760                      372477

OTHER DOCUMENTS

Maintenance Rule Review Panel meetings

**Section 1R13: Maintenance Risk Assessments and Emergent Work Control**

PROCEDURE

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
ABN-907	Acts of Nature	11

**Section 1R15: Operability Evaluations**

DRAWING

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
M2-2730 Sheet 2	Diesel Generator CP2-MEDGEE-02 Engine Start-Stop Pneumatic Control Schematics	CP-13

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
MSE-C0-8805	Limiterque Actuator Refurbishment For Types SMB-000, SMB-00, SBD-00 and SB-00S	4

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
MSE-C0-8806	Limiterque Actuator Refurbishment For Types SMB-0 Thru SMB-3/SB-1 Thru SB-3/SBD-3	4
MSE-C0-8811	Limiterque SMC-1 and SMC-2 Actuator Refurbishment	0
MSE-C0-8815	Limiterque Actuator Refurbishment for SMB-5 with Thrust Unit	0

CONDITION REPORTS

2009-005283	2009-005329	2009-000848	2009-006185
2009-000911	2009-006051	2009-006613	2009-006620
2009-006622	2009-006623	2009-006556	2009-006500

**Section 1R18: Plant Modifications**

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
STA-602	Temporary Modifications and Transient Equipment	16
STA-606	Control of Maintenance and Work Activities	29
	10 CFR 50.59 Resource Manual	3

CONDITION REPORTS

2009-002494	2009-002038	2009-001449
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MISCELLANEOUS DOCUMENT

Temporary Modification 36-731-38

**Section 1R19: Postmaintenance Testing**

PROCEDURE

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
ETP-413B	50 MW Load Reduction Test and Steam Generator Water Level Control System Tuning	0

WORK ORDERS

3799264	3799252	3494844	3792761
3560573			

CONDITION REPORTS

2009-008286                      2009-005161

**Section 1R20: Refueling and Other Outage Activities**

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
SOP-101B	Reactor Coolant System	8
IPO-010B	Reactor Coolant System Reduced Inventory Operations	12

**Section 1R22: Surveillance Testing**

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
CLI-654	Chemistry/Radiochemistry Instruction Manual	4
COP-609A	Diesel Generator	9
CHM-550	Chemistry Control of Diesel Fuel	8
INC-7310A	Analog Channel Operational Test and Channel Calibration Steam Pressure Loop 4, Protection Set II, Channel 0545	6

WORK ORDERS

3745582                      3755576

**Section 1EP6: Drill Evaluation**

CONDITION REPORTS

2009-004979                      2009-006979                      2009-006980                      2009-006975  
2009-006973                      2009-006986                      2009-006981

OTHER DOCUMENTS

November 11, 2009, Exercise Handbook  
November 11, 2009, Red Team Exercise Final Report

**Section 2OS1: Access Controls to Radiologically Significant Areas**

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
RPI-110	Radiation Protection Shift Activities Procedure	17
RPI-509	Personnel Dosimetry Program	13

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
RPI-528	Multiple Badging Dosimetry	8
RPI-602	Radiological Surveillance and Posting	35
RPI-606	Radiation Work and General Access Permit	20
RPI-620	Crud Burst Trending and Radiological Transients	6
RWS-302	NSSS Spent Resin Handling	19
STA-650	General Health Physics Plan	6
STA-653	Contamination Control Program	11
STA-655	Exposure Monitoring Program	18
STA-656	Radiation Work Control	15

CONDITION REPORTS

2009-002876	2009-002691	2009-002499	2008-003335
2008-003283	2008-003277	2008-002535	

RADIATION WORK PERMITS

2009-0500	Perform Filter Change Out 852' Auxiliary Building
2009-507	Carousel Purge
2009-1215	Scaffolding Activities
2009-2100	2RF11 RP Support in Unit 2 Containment
2009-2217	Insulation Work
2009-2404	In-Service Inspection (ISI) Activities
2009-2600	Refueling Activities
2009-2603	Hot/Cold Leg ISI Material Stress I Inspection Program



AUDITS, SELF-ASSESSMENTS, AND SURVEILLANCES

<u>TITLE</u>	<u>DATE</u>
CPSES Nuclear Overview Department Evaluation Report Evaluation Number: EVAL-2009-002: Radiation Protection	June 4, 2009 to July 21, 2009
Self-Assessment Number: SA-2008-030: Focus Review of the ALARA Program	July 21, 2008 to July 31, 2008
Self-Assessment Number: SA-2008-037: Analysis of Personnel Contaminations During 1RF13	January 7, 2009 to January 19, 2009
Self-Assessment Number: SA-2008-039: High Radiation Area Control	December 8, 2008 to December 11, 2008

**Section 20S2: ALARA Planning and Controls**

CONDITION REPORTS

2009-005752	2009-005755	2009-005918	2009-005924
2009-006163	2009-006342	2009-006651	

RADIATION WORK PERMITS

20092101	20092215	20092401	20092403
20092600			

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
STA-650	General Health Physics Plan	6
STA-651	ALARA Program	10
STA-655	Exposure Monitoring Program	18
STA-656	Radiation Work Control	15
RPI-509	Personnel Dosimetry Program	13
RPI-606	Radiation Work and General Access Permits	20

**Section 40A2: Identification and Resolution of Problems**

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
OPT-308	Estimated Critical Condition Calculation	8
Operations Guideline 36	Operator Burdens and Work - Arounds	03/26/2009

**Section 40A3: Event Follow-up**

CONDITION REPORTS

2009-006270                      2009-006344                      2009-006350                      2009-006885

**Section 40A5: Other Activities**

DRAWINGS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
DWG 1106J62	"Westinghouse Steam Generator Model D5-2"	October 9, 1991

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
PDI-ISI-254-SE-NB	Remote Inservice Examination of Reactor Vessel Nozzle to Safe End, Nozzle to Pipe, and Safe End to Pipe Welds Using the Nozzle Scanner	1
STA-421	Initiation of Condition Reports	16
STA-422	Processing Condition Reports	24

CONDITION REPORTS

2009-004378

MISCELLANEOUS DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
EPG-9.02	CPSES Alloy 600 Management Program	0
	Strategic Plan for Alloy 600	0
4500-2R10-001	Surge PZR Nozzle Data Package	0
4506-2R10-001	Spray PZR Nozzle Data Package	0
4503-2R10-001	Safety PZR 'C' Nozzle WOL Data Package	0