



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

July 29, 2010

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

Subject: COMANCHE PEAK NUCLEAR POWER PLANT - NRC INTEGRATED INSPECTION  
REPORT 05000445/2010003 AND 05000446/2010003

Dear Mr. Flores:

On June 19, 2010, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Comanche Peak Nuclear Power Plant. The enclosed integrated inspection report documents the inspection findings, which were discussed on June 29, 2010, with Mr. M. Lucas 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 self-revealing and two NRC-identified findings of very low safety significance (Green). All of 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 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 Nuclear Power Plant. In addition, if you disagree with the cross-cutting aspect 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 Nuclear Power Plant.

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/ David Proulx for***

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 05000445/2010003 and 005000446/2010003  
w/Attachment: Supplemental Information

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Publicly Avail	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Sensitive	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Sens. Type Initials	WCW
SRI:DRP/A	RI/DRP/A	SPE:/DRP/A	C:DRS/OB	C:DRS/PSB1	
JGKramer	BWTindell	DProulx	MHaire	MPShannon	
<b>/RA/</b>	<b>/RA/</b>	<b>/RA/</b>	<b>/RA/</b>	<b>/RA/</b>	
7/6/10	7/6/10	7/14/10	7/15/10	7/16/10	
C:DRS/PSB2	C:DRS/EB1	C:DRS/EB2	C:/DRS/TSB	C:DRP/A	
GEWerner	TRFarnholtz	NFO'Keefe	MHay	WCWalker	
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U.S. NUCLEAR REGULATORY COMMISSION

REGION IV

Docket: 50-445, 50-446

License: NPF-87, NPF-89

Report: 05000445/2010003 and 05000446/2010003

Licensee: Luminant Generation Company LLC

Facility: Comanche Peak Nuclear Power Plant, Units 1 and 2

Location: FM-56, Glen Rose, Texas

Dates: March 21 through June 19, 2010

Inspectors: J. Kramer, Senior Resident Inspector  
B. Tindell, Resident Inspector  
L. Carson II, Senior Health Physicist  
J. Dykert, Project Engineer  
N. Greene, Health Physicist  
W. Sifre, Senior Reactor Inspector  
M. Young, Reactor Inspector

Approved By: Wayne Walker, Chief, Project Branch A  
Division of Reactor Projects

## SUMMARY OF FINDINGS

IR 05000445/2010003, 05000446/2010003; 03/21/2010 - 06/19/2010; Comanche Peak Nuclear Power Plant, Units 1 and 2, Radiological Hazard Assessment and Exposure Controls, and Identification and Resolution of Problems.

The report covered a 3-month period of inspection by resident inspectors and announced baseline inspections by region based inspectors. Three Green noncited violations 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 identified a noncited violation of Technical Specification 5.4.1.a, for the failure to have an adequate procedure for placing a demineralizer resin bed in service. As a result, a reactivity management event occurred when the reactor coolant system was inadvertently borated. This caused an automatic rod withdrawal to maintain reactor coolant system temperature. Operators ultimately reduced power approximately 20 megawatts electric to stabilize the plant. The licensee entered the finding into the corrective action program as Condition Report CR-2010-002725.

The failure to adequately maintain a procedure required by Technical Specification 5.4.1.a was a performance deficiency and resulted in an unplanned boration, automatic rod withdrawal, and 20 megawatt power reduction. The finding was more than minor because it was associated with the procedure quality attribute of the initiating events cornerstone and affected the cornerstone objective, in that, it increased the likelihood of those events that upset plant stability. 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 contribute to both the likelihood of a reactor trip and the likelihood that mitigating equipment would not be available. This finding has a human performance crosscutting aspect associated with the decision making, in that, the licensee did not use conservative assumptions in the decision making process that lead to the use of the demineralizer [H.1b] (Section 4OA2.3).

Cornerstone: Occupational Radiation Safety

- Green. Inspectors identified a noncited violation of Technical Specification 5.4.1.a for the failure of a rigger to follow radiation work permit requirements. Specifically, a rigger made an unauthorized entry into a high radiation area on a radiation work permit that did not grant access to that area. A radiation protection technician confirmed that the rigger was not briefed and not authorized to enter the high radiation area and had the rigger exit the area. The licensee entered the finding into the corrective action program as Condition Report CR-2010-003458.

The failure to follow the instructions on a radiation work permit was a performance deficiency. The finding was more than minor because it was associated with the program and process attribute of the occupational radiation safety cornerstone and affected the cornerstone objective, in that, the failure to follow a radiation work permit instruction had the potential to increase personnel dose. Using NRC Manual Chapter 0609, Appendix C, "Occupational Radiation Safety Significance Determination Process," the finding was determined to be of 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 work practices because the licensee failed to effectively communicate expectations regarding procedural compliance to the rigger [H.4b] (Section 2RS01.b.1).

- Green. The inspectors reviewed a self-revealing noncited violation of Technical Specification 5.7.1.a for the failure to maintain a high radiation area barricaded and conspicuously posted. A high radiation area in the Unit 1 containment was posted as a radiation area. Consequently, an individual received unexpected electronic dosimeter dose rate alarm while building scaffolding in the Unit 1 containment building because the worker entered a high radiation area without the knowledge that the dose rates measured 145 millirem per hour. Subsequently, a radiation protection technician barricaded the area with rope and posted it as a high radiation area. The licensee entered the finding into the corrective action program as Condition Report CR-2010-003382.

The failure to barricade and post a high radiation area was a performance deficiency. The finding was more than minor because it was associated with the program and process attribute of the occupational radiation safety cornerstone and affected the cornerstone objective, in that, the failure to properly control a high radiation area had the potential to increase personnel dose. Using NRC Manual Chapter 0609, Appendix C, "Occupational Radiation Safety Significance Determination Process," the finding was determined to be of 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 work control because the licensee did not appropriately plan work activities by incorporating job site conditions or radiological safety [H.3a] (Section 2RS01.b.2).

## **B. Licensee-Identified Violations**

None.

## REPORT DETAILS

### Summary of Plant Status

Comanche Peak Nuclear Power Plant Unit 1 began the reporting period at approximately 100 percent power. On April 3, 2010, operators performed a unit shutdown to begin a scheduled refueling outage. On April 27, 2010, the outage ended when the main generator breakers were closed. On April 30, 2010, Unit 1 returned to approximately 100 percent power and operated at that power level for the remainder of the reporting period.

Comanche Peak Nuclear Power Plant Unit 2 began the reporting period at approximately 100 percent power. On June 1, 2010, operators reduced power to approximately 85 percent at the request of the system dispatcher due to scheduled work on switchyard breaker 8060. On June 5, 2010, operators reduced power to approximately 73 percent for turbine valve testing and then returned to approximately 85 percent power the same day. On June 7, 2010, Unit 2 returned to approximately 100 percent power and operated at that power level 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)

##### a. Inspection Scope

The inspectors performed a review of the licensee's preparations for summer weather for selected systems, including conditions that could lead to loss-of-offsite power and conditions that could result from high temperatures. 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. The inspectors toured offsite and onsite power systems in order to review the summer readiness and material condition of the equipment. The inspectors 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. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of one summer readiness for offsite and alternate-ac power sample as defined in Inspection Procedure 71111.01-05.

##### b. Findings

No findings of significance were identified.

## 1R04 Equipment Alignments (71111.04)

### .1 Partial System Walkdowns

#### a. Inspection Scope

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

- March 23, 2010, Units 1 and 2 service water to pump lube oil heat exchangers
- March 31, 2010, Unit 1 containment
- May 26, 2010, Unit 2 diesel generator 2-02 while diesel generator 2-01 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 reviewed for 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 three partial system walkdown samples as defined in Inspection Procedure 71111.04-05.

#### b. Findings

No findings of significance were identified.

### .2 Complete System Walkdown

#### a. Inspection Scope

The inspectors performed complete system walkdown of the Unit 1 safety injection system to verify the functional capability of the system. The inspectors selected this system because it was considered both safety-significant and risk-significant in the licensee's probabilistic risk assessment. The inspectors walked down the system to review mechanical and electrical equipment line ups, electrical power availability, system pressure and temperature indications, 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 one complete system walkdown sample as defined by IP 71111.04-05.

## **1R05 Fire Protection (71111.05)**

### **a. Inspection Scope**

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

- April 20, 2010, Unit 1 containment
- June 3, 2010, fire zone 1SA1A, Unit 1 emergency core cooling systems train B rooms
- June 4, 2010, fire zone 1SB2B, Unit 1 train A piping penetration room
- June 10, 2010, fire zone 1SE16, Unit 1, 832 foot switchgear 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, 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.

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

### **b. Findings**

No findings of significance were identified.

## 1R06 Flood Protection Measures (71111.06)

### a. Inspection Scope

On June 8, 2010, the inspectors observed the Unit 1 train B service water cable vaults while open to verify the cables were not submerged. In addition, the inspectors observed the material condition of the cable supports. The inspectors reviewed the licensee's efforts to maintain the cables in a qualified environment. The inspectors reviewed the corrective action program to determine if licensee personnel identified and corrected flooding problems.

These activities constitute completion of one underground cable flood protection measures inspection sample as defined in Inspection Procedure 71111.06-05.

### b. Findings

No findings of significance were identified.

## 1R08 In-service Inspection Activities (71111.08)

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

#### a. Inspection Scope

During the Unit 1 refueling outage (1RF14), the inspectors reviewed 4 types of nondestructive examination activities and 11 welds on the reactor coolant system pressure boundary and safety related systems. There were no examinations with relevant indications that 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>
Auxiliary Feedwater	Hanger 15 (14 VT-045)	Visual Testing
Auxiliary Feedwater	Hanger 17 (14 VT-045)	Visual Testing
Auxiliary Feedwater	Hanger 20 (14 VT-045)	Visual Testing
Feedwater	Hanger 6 weld area (14 MT-001)	Magnetic Particle Testing
Safety Injection	TBX-2-2534 Weld 2 (14 UT-023)	Ultrasonic Testing
Safety Injection	TBX-2-2534 Weld 3 (14 UT-023)	Ultrasonic Testing
Pressurizer Safety Valve A	Weld Overlay (14 OL-001)	Ultrasonic Testing
Pressurizer Safety Valve B	Weld Overlay (14 OL-002)	Ultrasonic Testing

<u>SYSTEM</u>	<u>WELD IDENTIFICATION</u>	<u>EXAMINATION TYPE</u>
Pressurizer Safety Valve C	Weld Overlay (14 OL-003)	Ultrasonic Testing
Reactor Vessel	Inlet Nozzle to Safe-End (TBX 1-4400-14)	Ultrasonic Testing
Reactor Coolant Cold Leg 4	Inlet Nozzle Safe-End to Elbow (TBX 1-4400-13)	Eddy Current Testing

The inspectors reviewed records for the following nondestructive examinations:

<u>SYSTEM</u>	<u>WELD IDENTIFICATION</u>	<u>EXAMINATION TYPE</u>
Reactor Vessel	Inlet Nozzle to Safe-End (TBX 1-4200-14)	Ultrasonic Testing
Reactor Coolant Cold Leg 2	Inlet Nozzle Safe-End to Elbow (TBX 1-4200-13)	Eddy Current Testing
Reactor Coolant Hot Leg 1	Outlet Nozzle Safe-End to Pipe (TBX 1-4100-2)	Visual Testing
Reactor Coolant Hot Leg 2	Outlet Nozzle Safe-End to Pipe (TBX 1-4200-2)	Visual Testing
Reactor Coolant Hot Leg 3	Outlet Nozzle Safe-End to Pipe (TBX 1-4300-2)	Visual Testing
Reactor Coolant Hot Leg 4	Outlet Nozzle Safe-End to Pipe (TBX 1-4400-2)	Visual Testing
Reactor Coolant Cold Leg 1	Inlet Nozzle Safe-End to Elbow (TBX 1-4100-13)	Visual Testing
Reactor Coolant Cold Leg 2	Inlet Nozzle Safe-End to Elbow (TBX 1-4200-13)	Visual Testing
Reactor Coolant Cold Leg 3	Inlet Nozzle Safe-End to Elbow (TBX 1-4300-13)	Visual Testing
Reactor Coolant Cold Leg 4	Inlet Nozzle Safe-End to Elbow (TBX 1-4400-13)	Visual Testing

During the review and observation of each examination, the inspectors verified that activities were performed in accordance with the ASME Code requirements and applicable procedures. The inspectors also verified the qualifications of all nondestructive examination technicians performing the inspections were 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. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of the requirements for Section 02.01.

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

These activities constitute completion of the requirements for Section 02.02.

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-747, "Boric Acid Corrosion Detection and Evaluation", Revision 5. 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 activities constitute completion of the requirements for Section 02.03.

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.

These activities constitute completion of the requirements of Section 02.04.

b. Findings

No findings of significance were identified.

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

a. Inspection scope

The inspectors reviewed 22 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 activities constitute completion of the requirements of Section 02.05.

b. Findings

No findings of significance were identified.

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

Quarterly Licensed Operator Requalification Program Inspection

a. Inspection Scope

On May 25, 2010, 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 instrument air system for maintenance effectiveness. 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 one maintenance effectiveness sample 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:

- March 24, 2010, switchyard breaker 7980 outage while diesel generator 1-01 was unavailable for maintenance
- March 29, 2010, Unit 2 outage risk assessment
- April 7, 2010, switchyard work and rigging during Unit 1 midloop
- April 12, 2010, switchyard work while transformer XST1 was unavailable
- April 14, 2010, temporary storage of main transformer over Unit 2 service water cable vaults

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 five 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-2010-003775, Unit 2 motor driven auxiliary feedwater pump 2-01 steam emitted from packing
- CR-2010-005258, Unit 1 automatic insertion of control rods during turbine electro-hydraulic control system anomaly
- CR-2010-005369, Unit 1 pressurizer safety valve 1-8010C loop seal low temperature
- CR-2010-005374, Units 1 and 2 response to a notification of a failure of a nozzle check valve in the auxiliary feedwater system
- CR-2010-005716, Unit 1 diesel generator 1-02 jacket water leak

- CR-2010-005761, Unit 2 main turbine stop valve did not indicate full open after testing

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 six operability evaluation inspection samples as defined in Inspection Procedure 71111.15-05.

b. Findings

No findings of significance were identified.

**1R18 Plant Modifications (71111.18)**

a. Inspection Scope

The inspectors reviewed the permanent modification that installed vent valves in the Unit 1 emergency core cooling system for the managing of gas accumulation in the system. The inspectors reviewed key affected parameters associated with materials/components, timing, equipment protection from hazards, operations, flow paths, pressure boundary, ventilation boundary, structural, process medium properties, licensing basis, and failure modes for the modification. The inspectors verified that modification preparation, staging, and implementation did not impair emergency or abnormal operating procedure actions, key safety functions, or operator response to loss of key safety functions; postmodification testing will maintain the plant in a safe configuration during testing by verifying that unintended system interactions will not occur, systems, structures and components' performance characteristics still meet the design basis, the appropriateness of modification design assumptions, and the modification test acceptance criteria will be met; and licensee personnel identified and implemented appropriate corrective actions associated with permanent plant modifications. In addition, the inspectors performed a walkdown of the completed modification. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of one permanent plant modification sample 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:

- April 18, 2010, Unit 1 train A 6.9 kV safeguards bus functional check following meter and relay work
- April 20, 2010, Unit 1 diesel generator 1-01 testing following governor replacement and mechanical work
- April 21, 2010, Unit 1 train B component cooling water flow balance following valve actuator refurbishment
- May 19, 2010, visual verification and manual manipulation of the fuel pump control racks to ensure they were free of paint following painting activities on diesel generator 2-01
- May 26, 2010, diesel generator 2-01 testing following cleaning of the jacket water heat exchanger

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 five postmaintenance testing inspection samples as defined in Inspection Procedure 71111.19-05.

### b. 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 1 refueling outage, conducted April 3 through April 27, 2010, 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

No findings of significance were identified.

## 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:

#### Containment Isolation Valve Test

- April 18, 2010, containment chilled water return penetration in accordance with procedure OPT-835A, "Appendix J Leak Test of Penetration MV-0013 (1-HV-6082, 1CH-0272, and 1-HV-6083)," Revision 3

#### Pump or Valve Inservice Test

- May 25, 2010, Unit 1 containment spray pump train A testing in accordance with procedure OPT-205A, "Containment Spray System," Revision 16

#### Routine Surveillance Testing

- April 7, 2010, Unit 1 diesel generator testing in accordance with procedure OPT-430A, "Train A Integrated Test Sequence," Revision 5
- April 25, 2010 Unit 1 residual heat removal system 1-02 vent in accordance with procedure OPT-203A, "Residual Heat Removal System," Revision 16
- May 12, 2010, offsite sources verification in accordance with procedure OPT-215, "Class 1E Electrical Systems Operability," Revision 13

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 containment isolation valve sample, one inservice test sample, and three 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 May 6, 2010, 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 control room and technical support center 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.

These activities constituted completion of 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 and Public Radiation Safety**

**2RS01 Radiological Hazard Assessment and Exposure Controls (71124.01)**

a. Inspection Scope

This area was inspected to: (1) review and assess licensee's performance in assessing the radiological hazards in the workplace associated with licensed activities and the implementation of appropriate radiation monitoring and exposure control measures for both individual and collective exposures, (2) verify the licensee is properly identifying and reporting occupational radiation safety cornerstone performance indicators, and (3) identify those performance deficiencies that were reportable as a performance indicator and which may have represented a substantial potential for overexposure of the worker.

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. During the inspection, the inspectors interviewed the radiation protection manager, radiation protection supervisors, and radiation workers. The inspectors performed walkdowns of various portions of the plant, performed independent radiation dose rate measurements and reviewed the following items:

- Performance indicator events and associated documentation reported by the licensee in the occupational radiation safety cornerstone
- The hazard assessment program, including a review of the license's evaluations of changes in plant operations and radiological surveys to detect dose rates, airborne radioactivity, and surface contamination levels
- Instructions and notices to workers, including labeling or marking containers of radioactive material, radiation work permits, actions for electronic dosimeter alarms, and changes to radiological conditions
- Programs and processes for control of sealed sources and release of potentially contaminated material from the radiologically controlled area, including survey performance, instrument sensitivity, release criteria, procedural guidance, and sealed source accountability
- Radiological hazards control and work coverage, including the adequacy of surveys, radiation protection job coverage, and contamination controls; the use of electronic dosimeters in high noise areas; dosimetry placement; airborne radioactivity monitoring; controls for highly activated or contaminated materials (non-fuel) stored within spent fuel and other storage pools; and posting and physical controls for high radiation areas and very high radiation areas
- Radiation worker and radiation protection technician performance with respect to radiation protection work requirements
- Audits, self-assessments, and corrective action documents related to radiological hazard assessment and exposure controls since the last inspection

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

These activities constitute completion of the one radiological hazard assessment and exposure controls sample as defined in Inspection Procedure 71124.01-05.

b. Findings

1. Failure to Follow the Radiation Work Permit Requirements

Introduction. Inspectors identified a Green noncited violation of Technical Specification 5.4.1.a for the failure of a rigger to follow radiation work permit requirements. Specifically, a rigger made an unauthorized entry into a high radiation area on a radiation work permit that did not grant access to that area. A radiation protection technician confirmed that the rigger was not briefed and not authorized to enter the high radiation area and had the rigger exit the area.

Description. On April 7, 2010, a rigger was tasked to move a pressurizer relief valve near the entrance to the pressurizer room on the 905-foot elevation of the reactor building. The rigger was on Task 1 of Radiation Work Permit 1247, "1RF14 Crane Operations, Maintenance and Rigging Activities inside the Reactor Building." Task 1 of this radiation work permit did not grant access to a nearby high radiation area. During this task, the rigger quickly stepped beyond the high radiation area boundary by ducking beneath the rope. The inspectors observed the rigger enter the posted high radiation

area and questioned the nearby radiation protection technician to determine if the rigger was briefed to enter that area. The radiation protection technician, in turn, questioned the rigger and confirmed that the rigger was not briefed and was not authorized to enter the high radiation area. The rigger had been added to the task after the initial briefing by the containment coordinator. Further questioning revealed that the rigger was not aware of the radiation work permit requirements. The radiation protection technician, subsequently, asked the rigger to exit the area.

The licensee placed the finding into the corrective action program as condition report CR-2010-003458. The licensee acknowledged that the rigger should have been briefed immediately when added to a job. In addition, the licensee acknowledged that workers need to be more cognizant of their high radiation area boundary controls.

Analysis. The failure to follow the instructions on a radiation work permit was a performance deficiency. The finding was more than minor because it was associated with the program and process attribute of the occupational radiation safety cornerstone and affected the cornerstone objective, in that, the failure to follow a radiation work permit instruction had the potential to increase personnel dose. Using NRC Manual Chapter 0609, Appendix C, "Occupational Radiation Safety Significance Determination Process," the finding was determined to be of 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 work practices because the licensee failed to effectively communicate expectations regarding procedural compliance to the contract rigger [H.4b].

Enforcement. Technical Specification Section 5.4.1.a requires, in part, that written procedures shall be established, implemented, and maintained covering the applicable procedures recommended in Appendix A to Regulatory Guide 1.33, "Quality Assurance Program Requirements," of February 1978. Section 7(e) to Regulatory Guide 1.33 requires, in part, that radiation protection procedures for access control to radiation areas, including a radiation work permit system. Procedure STA-656, "Radiation Work Control," Revision 15, Section 5.4.1 requires, in part, that radiation workers read and follow radiation work permits. Radiation Work Permit 1247, Task 1 did not permit entry into a high radiation area. Contrary to the above, on April 7, 2010, a rigger failed to comply with Radiation Work Permit 1247, Task 1 requirements when entering 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-2010-003458, it is being treated as a noncited violation, consistent with Section VI.A.1 of the NRC Enforcement Policy: NCV 05000445/2010003-01, "Failure to Follow the Radiation Work Permit Requirements."

## 2. Failure to Barricade and Post a High Radiation Area

Introduction. The inspectors reviewed a Green self-revealing noncited violation of Technical Specification 5.7.1.a for the failure to maintain a high radiation area barricaded and conspicuously posted. A high radiation area in the Unit 1 containment was posted as a radiation area. Consequently, an individual received unexpected electronic dosimeter dose rate alarm while building scaffolding in the Unit 1 containment building because the worker entered a high radiation area without the knowledge that the dose

rates measured 145 millirem per hour. Subsequently, a radiation protection technician barricaded the area with rope and posted it as a high radiation area.

Description. On April 6, 2010, an individual received an electronic dosimeter alarm while building scaffolding in the Unit 1 containment building. As licensee personnel erected the scaffolding, they were under the impression that the general area dose rates were less than 80 millirem per hour based on Task 1 for Radiation Work Permit 1215, "Scaffolding Activities." The dosimeter settings on Radiation Work Permit 1215, Task 1 were 20 millirem (dose) and 80 millirem per hour (dose rate). The workers were told to extend the scaffolding to an outward point (near the overhead pressurizer spray line) within the upper loop room 4 in order to carry out a snubber activity. As the workers installed the handrails on the scaffolding, one individual received a dose rate alarm. The highest dose rate on the alarming dosimeter was 108 millirem per hour. The worker immediately exited the area and informed the foreman. A radiation protection technician was dispatched to investigate radiological conditions, which were found to be between 120 to 145 millirem per hour at 30 centimeters from a pressurizer line using both a teletector and an ion chamber. 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-2010-003382. The licensee's apparent cause evaluation determined that the major contributor to the violation was a miscommunication between the scaffold builders and radiation protection relative to the scope of the scaffolding work. Inadvertent access to the high radiation area was caused by performing scaffolding work in close proximity to the unshielded portion of the pressurizer spray line overhead. This area of the workspace had not been surveyed because the scaffolding to reach that area had not been erected.

Analysis. The failure to barricade and post a high radiation area was a performance deficiency. The finding was more than minor because it was associated with the program and process attribute of the occupational radiation safety cornerstone and affected the cornerstone objective, in that, the failure to properly control a high radiation area had the potential to increase personnel dose. Using NRC Manual Chapter 0609, Appendix C, "Occupational Radiation Safety Significance Determination Process," the finding was determined to be of 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 work control because the licensee did not appropriately plan work activities by incorporating job site conditions or radiological safety [H.3a].

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 the above, on April 6, 2010, the licensee did not barricade and conspicuously post a high radiation area. Specifically, a portion of the upper loop room 4 on the 841-foot elevation of the Unit 1 containment building measured 145 millirem per hour at 30 centimeters and the entryway 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-2010-003382, it is being treated as a noncited violation, consistent with Section VI.A.1 of the NRC Enforcement

Policy: NCV 05000445/2010003-02, "Failure to Barricade and Post a High Radiation Area."

## **2RS02 Occupational ALARA Planning and Controls (71124.02)**

### a. Inspection Scope

The inspectors accessed the licensee performance with respect to maintaining occupational individual and collective radiation exposures ALARA. 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. During the inspection, the inspectors interviewed licensee personnel and reviewed the following items:

- Site-specific ALARA procedures and collective exposure history, including the current 3-year rolling average, site-specific trends in collective exposures, and source-term measurements
- ALARA work activity evaluations/postjob reviews, exposure estimates, and exposure mitigation requirements
- The methodology for estimating work activity exposures, the intended dose outcome, the accuracy of dose rate and man-hour estimates, and intended versus actual work activity doses and the reasons for any inconsistencies
- Records detailing the historical trends and current status of tracked plant source terms and contingency plans for expected changes in the source term due to changes in plant fuel performance issues or changes in plant primary chemistry
- Radiation worker and radiation protection technician performance during work activities in radiation areas, airborne radioactivity areas, or high radiation areas
- Audits, self-assessments, and corrective action documents related to ALARA planning and controls since the last inspection

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

These activities constitute completion of the one occupational ALARA planning and controls sample as defined in Inspection Procedure 71124.02-05.

### b. Findings

No findings of significance were identified.

## **2RS03 In-Plant Airborne Radioactivity Control and Mitigation (71124.03)**

### a. Inspection Scope

The inspectors verified that in-plant airborne concentrations are being controlled consistent with ALARA to the extent necessary to validate plant operations as reported by the performance indicator and to verify that the practices and use of respiratory

protection devices on-site do not pose an undue risk to the wearer. The inspectors interviewed licensee personnel and reviewed the following:

- The licensee's use, when applicable, of ventilation systems as part of its engineering controls
- The licensee's respiratory protection program for use, storage, maintenance, and quality assurance of National Institute for Occupational Safety and Health certified equipment, qualification and training of personnel, and user performance
- The licensee's capability for refilling and transporting self-contained breathing apparatus air bottles to and from the control room and operations support center during emergency conditions, status of self-contained breathing apparatus staged and ready for use in the plant and associated surveillance records, and personnel qualification and training
- Self-assessments, audits, corrective actions, and reports related to the respiratory protection program and devices

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

These activities constitute completion of the one in-plant airborne radioactivity control and mitigation sample as defined in Inspection Procedure 71124.03-05.

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 first quarter 2010 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 Reactor Coolant System Specific Activity

a. Inspection Scope

The inspectors sampled licensee submittals for the reactor coolant system specific activity performance indicator for Units 1 and 2 for the period from the second quarter 2009 through the first quarter 2010. 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 6, was used. The inspectors reviewed the licensee's reactor coolant system chemistry samples, technical specification requirements, issue reports, event reports, and NRC integrated inspection reports to validate the accuracy of the submittals. 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 reactor coolant system specific activity samples as defined by Inspection Procedure 71151-05.

b. Findings

No findings of significance were identified.

.3 Reactor Coolant System Leakage

a. Inspection Scope

The inspectors sampled licensee submittals for the reactor coolant system leakage performance indicator for Units 1 and 2 for the period from the second quarter 2009 through the first quarter 2010. 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 6, was used. The inspectors reviewed the licensee's operator logs, reactor coolant system leakage tracking data, issue reports, event reports, and NRC integrated inspection reports to validate the accuracy of the submittals. 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. Specific documents reviewed are described in the attachment to this report.

These activities constitute completion of two reactor coolant system leakage samples as defined by Inspection Procedure 71151-05.

b. Findings

No findings of significance were identified.

.4 Occupational Exposure Control Effectiveness

a. Inspection Scope

Cornerstone: Occupational Radiation Safety

The inspectors reviewed performance indicator data for the third quarter and the fourth quarter 2009. The objective of the inspection was to determine the accuracy and completeness of the performance indicator data reported during these periods. The inspectors used the definitions and clarifying notes contained in Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6, as criteria for determining whether the licensee was in compliance.

The inspectors reviewed corrective action program records associated with high radiation area (greater than 1 rem per hour) and very high radiation area non-conformances. The inspectors reviewed radiological, controlled area exit transactions greater than 100 millirem. The inspectors also conducted walkdowns of high radiation areas (greater than 1 rem per hour) and very high radiation area entrances to determine the adequacy of the controls of these areas.

These activities constitute completion of one occupational exposure control effectiveness sample as defined in 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

Cornerstone: Public Radiation Safety

The inspectors reviewed performance indicator data for the third quarter and the fourth quarter 2009. The objective of the inspection was to determine the accuracy and completeness of the performance indicator data reported during these periods. The inspectors used the definitions and clarifying notes contained in Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6, as criteria for determining whether the licensee was in compliance.

The inspectors reviewed the licensee's corrective action program records and selected individual annual or special reports to identify potential occurrences such as unmonitored, uncontrolled, or improperly calculated effluent releases that may have impacted offsite dose.

These activities constitute completion of one radiological effluent technical specifications/offsite dose calculation manual radiological effluent occurrences sample as defined in Inspection Procedure 71151-05.

b. Findings

No findings of significance were identified.

**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 Selected Issue Follow-up Inspection

a. Inspection Scope

During a review of items entered in the licensee's corrective action program, the inspectors identified that Condition Report CR-2010-002725 documented the inadvertent boration of the reactor coolant system when placing a demineralizer bed in service, a reactivity management event. The inspectors reviewed procedures associated with

placing the demineralizer in service and interviewed operations department personnel involved with the issue.

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

b. Findings

Introduction. The inspectors identified a Green noncited violation of Technical Specification 5.4.1.a for the failure to adequately maintain a procedure for placing a demineralizer resin bed in service. As a result, a reactivity management event occurred when the reactor coolant system was inadvertently borated. This caused an automatic rod withdrawal to maintain reactor coolant system temperature. Operators ultimately reduced power approximately 20 megawatts electric to stabilize the plant.

Description. On March 21, 2010, chemistry personnel informed the control room staff that the reactor coolant system lithium concentration needed to be lowered. The preferred method to remove lithium was via the chemical and volume control system cation demineralizer. However, the cation demineralizer was removed from service and emptied four days earlier for resin replacement. The operators determined that it was appropriate to use a boron thermal regeneration system demineralizer even though it had not been used in that function before. Operators used Procedure SOP-106A, "Boron Thermal Regeneration System," to place the demineralizer in service. The procedure included flushing and sampling of the demineralizer prior to placing it in service. The inspectors determined that the procedure was inadequate to ensure a controlled reactivity management activity took place because the demineralizer flushing time was inadequate and the procedure did not include a step to sample the demineralizer effluent for boron.

The inspectors reviewed Condition Report CR-2010-002725 that documented the event. In the condition report, the licensee identified that the procedural requirements to sample the demineralizer for boron prior to being placed in service did not exist and planned to add steps to the Procedure SOP-106A for sampling the demineralizer for boron prior to connecting it to the reactor coolant system. The inspectors reviewed Procedure SOP-106A and identified that the verbiage in the limitations section that described flushing of the demineralizer prior to it being placed in service would incorrectly lead the operators to believe that inadvertent boration or dilution of the reactor coolant system would not happen. In addition, the inspectors identified that procedure step 5.2.M.6 also contained wording similar to the limitation section that would result in an inadequate flush of the demineralizer.

The inspectors determined, through discussion with licensee personnel and review of the Condition Report CR-2010-002725, that the cause of the event was nonconservative assumptions in decision making process to use the boron thermal regeneration system demineralizer to reduce the reactor coolant system lithium concentration.

Analysis. The licensee's failure to have documented instructions appropriate to the circumstances for activities affecting quality was a performance deficiency and resulted in an unplanned boration, automatic rod withdraw, and 20 megawatt power reduction. The finding was more than minor because it was associated with the procedure quality attribute of the initiating events cornerstone and affected the cornerstone objective, in that, it increase the likelihood of those events that upset plant stability. 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 contribute to both the likelihood of a reactor trip and the likelihood that mitigating equipment would not be available.

This finding has a human performance crosscutting aspect associated with decision making, in that, the licensee did not use conservative assumptions in the decision making process that lead to the use of the boron thermal regeneration system demineralizer [H.1b].

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 Appendix A to Regulatory Guide 1.33, "Quality Assurance Program Requirements," of February 1978. Section 3(n) of Regulatory Guide 1.33 recommends procedures for letdown and purification systems. Procedure SOP-106A, "Boron Thermal Regeneration System," Revision 12 provides the steps to operate the boron thermal regeneration system for reactor coolant system dilution or cleanup. Contrary to the above, on March 21, 2010, operators used Procedure SOP-106A, which was not adequately maintained, when placing a boron thermal regeneration system demineralizer resin bed in service. As a result, a reactivity management event occurred when the reactor coolant system was inadvertently borated. Since the violation was of very low safety significance and was documented in the licensee's corrective action program as Condition Report CR-2010-002725, it is being treated as a noncited violation, consistent with Section VI.A.1 of the NRC Enforcement Policy: NCV 05000445/2010003-03, "Inadequate Procedure Causes Inadvertent Power Reduction."

#### .4 Operator Workarounds

##### 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 April 12, 2010, the plant experienced a phase-to-ground fault on the transmission line between the 138 kV switchyard and transformer XST1, the preferred offsite power source to Unit 2 and the alternate offsite power source to Unit 1 safety related 6.9 kV buses. The Unit 2 safety-related 6.9 kV buses transferred to transformer XST2. The

Unit 1 safety-related 6.9 kV buses were not affected by the fault since they were already powered from transformer XST2. As a result of the transfer, the Unit 2 motor driven and the turbine driven auxiliary feedwater pumps started as expected.

Upon notification of the fault, the inspectors responded to the control room to evaluate the plant and operator response. The inspectors performed a control board walkdown to check equipment status and discussed the plant response with the operators. The inspectors toured the area of the fault and observed material hanging from the phase B insulator mounting adaptor on a 138 kV transmission tower. The licensee determined the material was a vine and was brought there by a bird for building a nest. The licensee replaced the transmission insulator. Approximately eight hours after the initial fault, the licensee restored transformer XST1 as the preferred offsite power source to Unit 2. The licensee documented the issue in Condition Report CR-2010-003783 and plans to modify the mounting adaptors to reduce the probability of nest building.

These activities constitute completion of one event followup sample as defined in Inspection Procedure 71153-05.

b. Findings

No findings of significance were identified.

**4OA5 Other**

.1 (Closed for Units 1 and 2) Temporary Instruction 2515/172, "Reactor Coolant System Dissimilar Metal Butt Welds"

Temporary Instruction 2515/172 was previously performed at Comanche Peak Unit 1 during refueling outage 1RF13 and Unit 2 during refueling outage 2RF11. The results of those inspections were documented in Inspection Reports 05000445/2008005 and 05000446/2009005, respectively.

a. Inspection Scope

Portions of Temporary Instruction 2515/172 were performed at Comanche Peak Unit 1, during refueling outage 1RF14. Specific documents reviewed during this inspection are listed in the attachment. This unit has the following dissimilar metal butt welds:

- One 14-inch pressurizer surge line nozzle weld was mitigated during Refueling Outage 1RF12, spring 2007, using a full strength weld overlay. This weld is identified as Category F in accordance with MRP-139, "Materials Reliability Program: Primary System Piping Butt Weld Inspection and Evaluation Guidelines," Section 6, "Examination Schedules." The visual category is no longer applicable due to the weld mitigation.
- One 4-inch pressurizer spray nozzle weld was mitigated during refueling outage 1RF12, spring 2007, using a full strength weld overlay. This weld is identified as Category F in accordance with MRP-139, "Materials Reliability Program: Primary System Piping Butt Weld Inspection and Evaluation Guidelines," Section 6, "Examination Schedules." The visual category is no longer applicable due to the weld mitigation.

- Three 6-inch pressurizer safety nozzle welds were mitigated during refueling outage 1RF12, spring 2007, using a full strength weld overlay. These welds are identified as Category F in accordance with MRP-139, "Materials Reliability Program: Primary System Piping Butt Weld Inspection and Evaluation Guidelines," Section 6, "Examination Schedules." The visual category is no longer applicable due to the welds mitigation.
- Four 29-inch reactor coolant system hot leg nozzles were inspected using ultrasonic testing during refueling outage 1RF13, fall of 2008. These welds are identified as Volumetric Category D and Visual Category J in accordance with MRP-139, "Materials Reliability Program: Primary System Piping Butt Weld Inspection and Evaluation Guidelines," Section 6, "Examination Schedules."
- Four 27.5-inch reactor coolant cold leg nozzles were inspected during refueling outage 1RF14. These welds are identified as Volumetric Category E and Visual Category K in accordance with MRP-139, "Materials Reliability Program: Primary System Piping Butt Weld Inspection and Evaluation Guidelines," Section 6, "Examination Schedules."

#### Licensee's Implementation of the Materials Reliability Program (MRP-139) Baseline Inspections (03.01)

The inspectors reviewed records of structural weld overlays and nondestructive examination activities associated with the licensee's pressurizer.

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

#### Volumetric Examinations (03.02)

The inspectors observed the ultrasonic examination of the pressurizer safety structural weld overlays and the ultrasonic examination and eddy current examinations of the unmitigated reactor coolant inlet nozzle welds TBX 1-4200-13 and TBX 1-4200-14 on April 16, 2010. The inspectors also reviewed the ultrasonic examination and eddy current examination records of all of the unmitigated hot leg and cold leg dissimilar metal butt welds performed on April 16 through 18, 2010. These examinations were conducted in accordance with ASME Code, Section XI, Supplement VIII Performance Demonstrated Initiative requirements regarding personnel, procedures, and equipment qualifications. No deficiencies were identified during the nondestructive examinations.

#### Weld Overlays (03.03)

The licensee did not perform any weld overlays during this refueling outage.

#### Mechanical Stress Improvement (03.04)

The licensee did not employ a mechanical stress improvement process.

Inservice Inspection Program (03.05)

The licensee has prepared an MRP-139 inservice inspection program. All the welds for both Units 1 and 2 in the MRP-139 inservice inspection program are appropriately categorized in accordance with MRP-139. The inservice inspection frequencies are consistent with the inservice inspection frequencies called for by MRP-139.

b. Findings

No findings of significance were identified.

.2 (Open) Temporary Instruction 2515/177, "Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal and Containment Spray Systems (NRC Generic Letter 2008-01)"

As documented in Sections 1R04.2, 1R18, and 1R22, the inspectors confirmed the acceptability of the described licensee's actions. This inspection effort counts towards the completion of Temporary Instruction 2515/177 which will be closed in a later inspection report.

.3 (Closed) Temporary Instruction 2515/179, "Verification of Licensee Responses to NRC Requirement for Inventories of Materials Tracked in the National Source Tracking System Pursuant to title 10, Code of Federal Regulations, Part 20.2207 (10 CFR 20.2207)"

a. Inspection Scope

The inspectors confirmed that the licensee has reported the initial inventories of sealed sources pursuant to 10 CFR 20.2207 and verified that the National Source Tracking System database correctly reflects the Category 1 and 2 sealed sources in custody of the licensee. Inspectors interviewed personnel and performed the following:

- Reviewed the licensee's source inventory
- Verified the presence of any Category 1 or 2 sources
- Reviewed procedures for and evaluated the effectiveness of storage and handling of sources
- Reviewed documents involving transactions of sources
- Reviewed adequacy of licensee maintenance, posting, and labeling of nationally tracked sources

b. Findings

No findings of significance were identified.

.4 (Closed) Temporary Instruction 2515/180, "Inspection of Procedures and Processes for Managing Fatigue"

a. Inspection Scope

The objective of this temporary instruction was to determine if licensees' implementation procedures and processes required by 10 CFR 26, Subpart I, "Managing Fatigue" are in place to reasonably ensure the requirements specified in Subpart I are being addressed. The inspectors interfaced with the licensee personnel to obtain and review station policies, procedures, and processes necessary to complete all portions of this temporary instruction.

b. Findings

No findings of significance were identified.

**40A6 Meetings**

Exit Meeting Summary

On April 16, 2010, the inspectors presented the radiation safety inspection results 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 April 20, 2010, the inspectors presented the inspection results of the review of inservice inspection activities 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 June 29, 2010, the inspectors presented the resident inspection results to Mr. M. Lucas, Site Vice President, 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  
S. Sewell, Director, Operations  
S. Smith, Assistant Plant Manager  
K. Tate, Manager, Security  
D. Wilder, Manager, Plant Support

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

#### **Opened and Closed**

05000445/2010003-01	NCV	Failure to Follow the Radiation Work Permit Requirements (Section 2RS01.b.1)
05000445/2010003-02	NCV	Failure to Barricade and Post a High Radiation Area (Section 2RS01.b.2)
05000445/2010003-03	NCV	Inadequate Procedure Causes Inadvertent Power Reduction (Section 4OA2.3)

#### **Closed**

05000445/2515/172 05000446/2515/172	TI	Reactor Coolant System Dissimilar Metal Butt Welds (Section 4OA5.1)
05000445/2515/179 05000446/2515/179	TI	Verification of Licensee Responses to NRC Requirement for Inventories of Materials Tracked in the National Source Tracking System Pursuant to Title 10, Code of Federal Regulations, Part 20.2207 (10 CFR 20.2207) (Section 4OA5.3)
05000445/2515/180 05000446/2515/180	TI	Inspection of Procedures and Processes for Managing Fatigue (Section 4OA5.4)

#### **Discussed**

05000445/2515/177 05000446/2515/177	TI	Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal and Containment Spray Systems (NRC Generic Letter 2008-01) (Section 4OA5.2)
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## LIST OF DOCUMENTS REVIEWED

### Section 1RO1: Adverse Weather Protection

#### CONDITION REPORTS

2001-001914                      2004-003620

#### OTHER

NRC Generic Letter 2006-02, Grid Reliability and the Impact on Plant Risk and the Operability of Offsite Power

### Section 1RO4: Equipment Alignments

#### CONDITION REPORTS

2010-000760                      2010-002740

#### PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
EPG-731	ASME Section XI Repair/Replacement Activities	1

### Section 1RO8: Inservice Inspection Activities

#### PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
N/A	Reactor Vessel Closure Head Visual Examination Plan	4
N/A	Reactor Vessel Closure Head Visual Examination Plan	3
N/A	RCS Pressure Boundary Dissimilar Metal Weld Visual Examination Plan	3
N/A	Reactor Vessel Lower Head Visual Examination Plan	3
TX-ISI-11	Liquid Penetrant Examination for Comanche Peak Steam Electric Station	11
TX-ISI-70	Magnetic Particle Examination for Comanche Peak Steam Electric Station	10
TX-ISI-8	VT-1 and VT-3 Examination Procedure for CPSES	6
TX-ISI-301	Ultrasonic Examination of Ferritic Piping Welds	4
TX-ISI-302	Ultrasonic Examination of Austenitic Piping Welds	3
WDI-STD-1007	Generic Procedure for the Ultrasonic Examination of Weld Overlaid Similar and Dissimilar Welds Using PDI-UT-8	1
WLD-105	Welding Material Storage and Control	6
WLD-102	Preparation and Qualification of Welding Procedure	6

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
	Specifications	
WLD-103	Welder Performance Qualifications	6
WLD-104	Hold Points, Inspections, and Records for Welding	8
WLD-106	ASME/ANSI General Welding Requirements	2
WLD-117	Repair Guidelines	0
MRS-SSP-2592-01	Comanche Peak Unit 1 Reactor Vessel Outlet Nozzle to Safe End Weld Mechanical Stress Improvement Process Field Service Procedure	1
MRS-SSP-2592-02	Comanche Peak Unit 1 Reactor Vessel Inlet Nozzle to Safe End Weld Mechanical Stress Improvement Process Field Service Procedure	1

DRAWINGS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
TBX-2-2570	Charging Pump #2 Discharge	2
BRP-CS-1-AB-001	Chemical and Volume Control	6
RT-49447-R1	Reactor Vessel Head Key Layout	1
RT-49447-R1	Reactor Vessel Head Key Layout	3
RT-49447-R1	Reactor Vessel Head Key Layout	4
RT-49447-D1	Reactor Vessel Head Layout D1	1
RT-49447-D1	Reactor Vessel Head Layout D1	3
RT-49447-D2	Reactor Vessel Head Layout D2	2

CALCULATIONS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
RC-1S057	Pipe Stress Calculation for Reactor Coolant System	2

MISCELLANEOUS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
SA-2009-006	Self Assessment: Reactor Coolant System Materials Management Program	May 2, 2009
SA-2009-025	Inservice Inspection Processes and Program	September 17, 2009

MISCELLANEOUS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
EVAL-2009-004	Worksheet 1: Special Processes - Nondestructive Examination (NDE) & Welding	August 5, 2009
EVAL-2009-004	Maintenance-M&TE, Special Processes, Material Controls	August 31, 2009
SA-2006-043	Fluid Leak Management	September 25, 2006
N/A	Strategic Plan for Alloy 600	1
N/A	Analytical Verification of MSIP for RV Hot Leg Nozzle to Safe End Weld Comanche Peak Unit 1	October 2009

NON-DESTRUCTIVE EXAMINATION REPORTS

14 OL-001	14 OL-002	14 OL-003	14 MT 001
14 VT-045	14 UT-023		

CONDITION REPORTS

2009-004989	2009-004985	2009-006905	2009-006916
2009-006906	2009-006914	2009-006284	2009-003082
2008-003470	2007-001277	2010-003978	2010-003553
2010-003209	2010-002442	2010-000816	2010-003898
2010-003217	2010-003941	2010-003217	2008-003194
2008-003480	2008-003131	2007-000670	

WORK ORDERS

3867534	3867856	3779667	3779668
3779669	3700402	3917654	

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

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
ABN-501	Station Service Water System Malfunction	8
SOP-103A	Chemical and Volume Control System	17

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

CONDITION REPORTS

2005-000658                      2006-003080                      2010-004001

**Section 1R15: Operability Evaluations**

CONDITION REPORTS

1999-000582                      2004-000089

**Section 1R18: Plant Modifications**

MISCELLANEOUS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
M1-0263	Flow Diagram Safety Injection System	19
OPT-521A	ECCS Operability	5

CONDITION REPORTS

2008-003459                      2008-000989                      2005-001483                      2010-003005

**Section 1R19: Postmaintenance Testing**

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
MSM-G0-0220	General Painting Activities	2
PPT-P1-6200	CCW to RHR/CS HX Outlet Valve Flow Control Test	2
MSE-P1-0661A	Unit 1 Train A 6.9kV Safeguards Bus Protective Relay Functional Check	0
MSE-C0-0866	Emergency Diesel Generator DSC Digital Governor Control	1
MSE-P0-0865	Emergency Diesel Generator Start-Up Testing	1
MSM-P0-3375	Emergency Diesel Engine Break-In Run and Post Maintenance Run	7

WORK ORDERS

3594825                      3882516                      3882476

## Section 1R22: Surveillance Testing

### PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
SOP-814	Ventilation Chilled Water System	17
OWI-801	Operations Department Local Leak Rate Testing	5
STA-743	10CFR50 Appendix J Containment Leakage Rate Testing Program	2

### CONDITION REPORTS

2010-003305                      2009-006404

### WORK ORDERS

3618530

## 2RS01 Radiological Hazard Assessment and Exposure Controls

### PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
RPI-602	Radiological Surveillance and Posting	40
RPI-606	Radiation Work and General Access Permits	21
RPI-623	Radiological Briefings	4
STA-213	Survey and Release of Material and Personnel	16
STA-652	Radioactive Material Control	16
STA-653	Contamination Control Program	12
STA-655	Exposure Monitoring Program	19
STA-656	Radiation Work Control	15
STA-660	Control of High Radiation Areas	14

### CONDITION REPORTS

2010-000074                      2010-000319                      2010-000631                      2010-001513  
2010-001884                      2010-001890                      2010-001912                      2010-002252  
2010-002296                      2010-003382                      2010-003458                      2010-003548  
2010-008951

## RADIOLOGICAL SURVEYS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
10-04-0231	1RF14 Down post U1 841' LOOPS 1 and 4 from HRA to RA	April 5, 2010
10-04-0310	U1 RB 841' LOOPS 1 and 4	April 6, 2010
10-04-0334	Follow-up Survey for Dose Rate Alarm in Upper Loops 1 and 4 841' U1 Containment	April 6, 2010
10-04-0395	Follow-up to Verify Dose Rates from Spray Line in U1 Containment 841' LOOP 4	April 7, 2010
10-04-0788	Airborne Radioactivity Survey for U1 RB 832' Equip Hatch	April 12, 2010
10-04-0776	Airborne Radioactivity Survey for U1 Aux Bldg 810' RM77B	April 12, 2010
10-04-0800	Airborne Radioactivity Survey for 790 Room 1-66 B-Train	April 12, 2010
10-04-0755	Airborne Radioactivity Survey for Equipment Hatch	April 12, 2010
10-04-0877	Airborne Radioactivity Survey for the Refuel Cavity	April 13, 2010

## RADIATION WORK PACKAGES

<u>NUMBER</u>	<u>TITLE</u>
20100099	Minor Maintenance and Routine Operations Surveillance during 1RF14
20100205	Replace Elastomers and rework 1-HCV-0128-AO in Room 1-080
20101100	1RF14 RP/Decontamination Support Inside Containment
20101102	1RF14 RP/Decontamination Support for Balance of Plant Activities
20101215	Scaffolding Activities
20101217	1RF14 Insulator Activities
20101247	1RF14 Crane Operations, Maintenance, and Containment Coordination

## MISCELLANEOUS DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
N/A	LHRA and VHRA Key Inventory	April 13, 2010
N/A	Apparent Cause (high Tier) Report on CR-2010-003382	April 13, 2010

## **2RS02 Occupational ALARA Planning and Controls**

### PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
STA-651	ALARA Program	10
STA-657	ALARA Job Planning/Debriefing	13

CONDITION REPORTS

2010-000177                      2010-008201                      2010-008533

RADIATION WORK PACKAGES

<u>NUMBER</u>	<u>DESCRIPTION</u>
20101600	1RF14 Refueling Activities including Support Work
20101603	1RF14 MSIP Activities including All Support

MISCELLANEOUS DOCUMENTS

1RF14 PCE Reduction Plan – SMF 2008-2550

**2RS03 In-Plant Airborne Radioactivity Control and Mitigation**

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
RPI-802	Performance of Source Checks	16
RPI-880	Operation of the Eberline Beta Particulate Monitor (AMS-4)	3
RPI-902	Issue and Control of Respiratory Protection Equipment	13
RPI-922	Use and Maintenance of Portable HEPA Filter Ventilation Units	5
STA-659	Respiratory Protection Program	17

CONDITION REPORTS

2010-002171                      2010-008876

MISCELLANEOUS DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
N/A	Air Quality Test Logs	April 2010
N/A	Weekly/Monthly SCBA Inspection Logs	January 16 – March 31, 2010

**Section 40A1: Performance Indicator Verification**

DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
OPT-303	Reactor Coolant System Water Inventory	13

CONDITION REPORTS

2010-005196

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

CONDITION REPORTS

2001-001914                      2004-003620

**Section 40A5: Other**

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
RPI-212	Radioactive Source Control	11
RPI-700	Sealed Source Leak Testing	10

CONDITION REPORTS

2010-003873                      2010-003894                      2010-003895

MISCELLANEOUS DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
NRC Form 748	National Source Tracking Transaction Report	January 12, 2009
N/A	National Source Tracking System Annual Inventory 2010 for Comanche Peak	February 18, 2010