



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION IV  
1600 EAST LAMAR BLVD  
ARLINGTON, TEXAS 76011-4511

February 11, 2013

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 05000445/2012005 AND 05000446/2012005

Dear Mr. Flores:

On December 31, 2012, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Comanche Peak Nuclear Power Plant, Units 1 and 2, facility. The enclosed inspection report documents the inspection results which were discussed on January 15, 2013, with Mr. K. Peters, Site Vice President, 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.

One self-revealing finding of very low safety significance (Green) was identified during this inspection. This finding was determined to involve a violation of NRC requirements. The NRC is treating this violation as a non-cited violation (NCV), consistent with Section 2.3.2 of the Enforcement Policy.

If you contest the non-cited violation, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region IV; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at the Comanche Peak Nuclear Power Plant, Units 1 and 2.

If you disagree with a cross-cutting aspect assignment 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, Units 1 and 2.

R. Flores

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

Sincerely,

**/RA/**

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

Docket Nos.: 05000445:05000446

License Nos.: NPF-87; NPF-89

Enclosure: Inspection Report 05000445/2012005 and 05000446/2012005

- w/Attachments:
1. Supplemental Information
  2. Request for Information for the Occupational Radiation Safety Inspection
  3. Request for Information for the Inservice Inspection
  4. Request for Information for the Occupational Radiation Safety Inspection

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- Acting DRS Director (Tom.Blount@nrc.gov)
- Acting DRS Deputy Director (Jeff.Clark@nrc.gov)
- Branch Chief, DRP/A (Wayne.Walker@nrc.gov)
- Senior Resident Inspector (John.Kramer@nrc.gov)
- Resident Inspector (Brian.Tindell@nrc.gov)
- Acting Senior Project Engineer (Matt.Young@nrc.gov)
- Project Engineer (Jason.Dykert@nrc.gov)
- Project Manager (Balwant.Singal@nrc.gov)
- Public Affairs Officer (Victor.Dricks@nrc.gov)
- Public Affairs Officer (Lara.Uselding@nrc.gov)
- Branch Chief, DRS/TSB (Ray.Kellar@nrc.gov)
- RITS Coordinator (Marisa.Herrera@nrc.gov)
- TSB Technical Assistant (Loretta.Williams@nrc.gov)
- Administrative Assistant (Phyllis.Holder@nrc.gov)
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U.S. NUCLEAR REGULATORY COMMISSION

REGION IV

Docket: 50-445, 50-446

License: NPF-87, NPF-89

Report: 05000445/2012005 and 05000446/2012005

Licensee: Luminant Generation Company LLC

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

Location: FM-56, Glen Rose, Texas

Dates: September 27 through December 31, 2012

Inspectors: J. Kramer, Senior Resident Inspector  
B. Tindell, Resident Inspector  
L. Carson II, Senior Health Physicist  
P. Elkmann, Senior Emergency Preparedness Inspector  
R. Kopriva, Senior Reactor Inspector  
L. Ricketson, P.E., Senior Health Physicist  
B. Baca, Health Physicist  
N. Greene, Ph.D., Health Physicist  
C. Hale, Reactor Inspector  
J. O'Donnell, Health Physicist

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

## SUMMARY OF FINDINGS

IR 05000445/2012005, 05000446/2012005; 9/27/2012 - 12/31/2012; Comanche Peak Nuclear Power Plant, Units 1 and 2 Integrated Resident and Regional Report; Operability Evaluations.

The report covered a 3-month period of inspection by resident inspectors and announced baseline inspections by region-based inspectors. One Green non-cited violation was identified. The significance of most findings is indicated by their color (Green, White, Yellow, or Red) using Inspection Manual Chapter 0609, "Significance Determination Process." The cross-cutting aspect is determined using Inspection Manual Chapter 0310, "Components Within the Cross-Cutting Areas." 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: Mitigating Systems

- Green. The inspectors reviewed a self-revealing non-cited violation of Technical Specification 5.4.1.a for the failure of the licensee to follow procedure and properly replace diesel generator governor oil. As a result, foreign material was introduced into the governor and caused a diesel generator start failure. The licensee replaced the governor to correct the problem. The licensee entered the finding into the corrective action program as Condition Report CR-2012-006280.

The licensee's failure to follow procedure and properly replace the diesel generator governor oil was a performance deficiency which resulted in a diesel generator start failure. The finding was more than minor because it was associated with the human performance attribute of the Mitigating Systems Cornerstone and adversely affected the cornerstone objective to ensure the reliability of systems that respond to initiating events to prevent undesirable consequences. Using NRC Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," the finding screened to a detailed risk evaluation because it represented an actual loss of function of a single train for greater than its technical specification allowed outage time. A senior reactor analyst evaluated the risk and determined that the risk was of very low safety significance. The finding has a human performance cross-cutting aspect associated with work control, in that, the job site conditions impacted the human performance of the work activity [H.3b]. (Section 1R15)

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

None.

## REPORT DETAILS

### Summary of Plant Status

Unit 1 began the inspection period at approximately 100 percent power. On November 2, 2012, operators initiated a manual reactor trip as a result of a reactor coolant pump 4 lower motor bearing high temperature. The unit was cooled to Mode 5 to repair the motor bearing. On November 11, 2012, operators performed a reactor startup and closed the main generator output breakers, placing Unit 1 on the grid. On November 12, 2012, the unit returned to approximately 100 percent power and operated at approximately 100 percent power for the remainder of the reporting period.

Unit 2 began the inspection period at approximately 100 percent power. On October 6, 2012, the operators shut down Unit 2 to begin a scheduled refueling outage. On November 2, 2012, the outage ended when the main generator output breakers were closed and Unit 2 was placed on the grid. On November 6, 2012, the unit returned to approximately 100 percent power and operated at that power level for approximately 10 hours before reducing power to 49 percent as a result of high sodium levels in the steam generators. On November 11, 2012, after steam generator sodium levels improved and repairs to the auxiliary condensers were completed, the unit returned to approximately 100 percent power. On November 17, 2012, the unit experienced an automatic reactor trip as a result of a low steam generator level. The low level was the result of a transient initiated by the heater drain system. The licensee repaired the heater drain system and commenced a reactor startup the same day. On November 18, operators closed the main generator output breakers and the unit returned to approximately 100 percent power the following day. On November 20, 2012, operators initiated a manual runback of the turbine to 900 megawatts, approximately 75 percent power, as a result of a transient of the heater drain system. The licensee returned the unit to approximately 100 percent power the same day and operated at approximately 100 percent power for the remainder of the reporting period.

### 1. REACTOR SAFETY

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

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

##### a. Inspection Scope

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

The inspectors focused on plant-specific design features and the licensee's procedures used to mitigate or respond to adverse weather conditions. The inspectors placed additional emphasis on the diesel generators and the Unit 1 feedwater control system. The inspectors reviewed the Final Safety Analysis Report and performance requirements for systems selected for inspection, and verified that procedures were appropriate. Specific documents reviewed during this inspection are listed in the attachment. The inspectors also reviewed corrective action program items to verify that the licensee was identifying adverse weather issues at an appropriate threshold and entering them into the corrective action program.

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

b. Findings

No findings were identified.

**1R04 Equipment Alignments (71111.04)**

.1 Partial Equipment Walkdowns (71111.04)

a. Inspection Scope

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

- October 24, 2012, Unit 2, reactor coolant pump backseat leakoff during refueling outage
- November 6, 2012, Unit 1, diesel generators during an orange ORAM (outage risk assessment and management) condition
- November 8, 2012, Unit 1, reactor coolant pump 4 oil collection system
- November 15, 2012, Unit 1, auxiliary feedwater pump 1-02 and the turbine driven auxiliary feedwater pump when auxiliary feedwater pump 1-01 was unavailable during 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 focused on 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 constitute completion of four partial system walkdown samples as defined in Inspection Procedure 71111.04-05.

b. Findings

No findings were identified.

.2 Complete System Walkdown (71111.01S)

a. Inspection Scope

The inspectors performed a complete system walkdown of the Unit 1 train B safety chill water system and the Unit 2 480 Volt bus 2EB3 to verify the functional capability of the system. The inspectors selected these systems because they were considered both safety-significant and risk-significant in the licensee's probabilistic risk assessment. The inspectors walked down the systems to review mechanical and electrical equipment line-ups, electrical power availability, system pressure and temperature indications, 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 systems' function. In addition, the inspectors reviewed the corrective action program database to ensure that system equipment-alignment problems were being identified and appropriately resolved. Specific documents reviewed during this inspection are listed in the attachment.

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

b. Findings

No findings were identified.

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

.1 Quarterly Fire Inspection Tours (71111.05Q)

a. Inspection Scope

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

- October 24, 2012, Unit 2, fire zone 2CA101, containment
- November 5, 2012, Unit 1, reactor coolant pump motor oil collection system
- November 15, 2012, Unit 1, fire zone AF33, train A component cooling water pump room
- November 15, 2012, Unit 2, fire zone AE32, train A component cooling water pump room
- November 20, 2012, transformer XST2A yard area

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 or their potential to affect equipment that could initiate or mitigate a plant transient. 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 constitute completion of five quarterly fire protection inspection samples as defined in Inspection Procedure 71111.05-05.

b. Findings

No findings were identified.

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

a. Inspection Scope

The inspectors performed internal flood protection walkdowns of the following plant areas:

- Unit 1, train B emergency core cooling system pumps and corridor
- Uninterruptible power supply air conditioning units

The inspectors verified the adequacy of flood control measures. The inspectors reviewed the Final Safety Analysis Report, the flooding analysis, and plant procedures to assess susceptibilities involving internal flooding. The inspectors reviewed the corrective action program to determine if licensee personnel identified and corrected flooding problems. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of two internal flood protection measures inspection samples as defined in Inspection Procedure 71111.06-05.

b. Findings

No findings were identified.

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

Completion of Sections .1 through .5, below, constitute completion of one inservice inspection activities sample as defined in Inspection Procedure 71111.08-05.

.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

The inspectors observed 36 nondestructive examination activities and reviewed one nondestructive examination package that included five types of examinations.

The inspectors directly observed the following nondestructive examinations:

<u>SYSTEM</u>	<u>WELD IDENTIFICATION</u>	<u>EXAMINATION TYPE</u>
Steam Generator	Steam Generator 4, main steam nozzle to vessel weld. TCX-2-1100-4-11	Magnetic Particle
Main Feedwater	Main feedwater pipe support. TCX-2-2402-H3	Magnetic Particle
Main Feedwater	Main feedwater pipe support. TCX-2-2203-H1	Magnetic Particle
Main Feedwater	Main feedwater pipe support. TCX-2-2203-H2	Magnetic Particle
Reactor Coolant	Reactor coolant pump motor 2-03 flywheel. TCX-RCPCPX-03	Penetrant
Safety Injection	Support. TCX-2-2582-H3. Description: SI-2-031-430-S32A	Penetrant
Chemical Volume and Control	MOV-2-8402A. Joints TUX 8-1, 9-1, and 10-1	Radiograph
Chemical Volume and Control	MOV-2-8402A. Joints TUX 7-1 and FW-11	Radiograph
Steam Generator	Steam Generator 4, auxiliary feedwater nozzle to vessel weld. TCX-2-1100-4-10 Examination angle-0°	Ultrasonic
Steam Generator	Steam Generator 4, auxiliary feedwater nozzle to vessel weld. TCX-2-1100-4-10 Examination angle-45°	Ultrasonic
Steam Generator	Steam Generator 4, auxiliary feedwater nozzle to vessel weld. TCX-2-1100-4-10 Examination angle-60°	Ultrasonic
Reactor Coolant	Reactor upper head penetration examination. Penetrations 63 and 65	Ultrasonic
Reactor Coolant	Description: Pipe to pipe. ID #: TXC-1-4500-3	Ultrasonic

<u>SYSTEM</u>	<u>WELD IDENTIFICATION</u>	<u>EXAMINATION TYPE</u>
Reactor Coolant	Description: Pipe to pipe. ID #:TXC-1-4500-2	Ultrasonic
Steam Generator	Steam Generator 4, lower head to tubesheet weld. TCX-1-3100-4-1 Examination angle-0°	Ultrasonic
Steam Generator	Steam Generator 4, lower head to tubesheet weld. TCX-1-3100-4-1 Examination angle-45°	Ultrasonic
Steam Generator	Steam Generator 4, lower head to tubesheet weld. TCX-1-3100-4-1 Examination angle-60°	Ultrasonic
Main Steam	Branch connection to flange – TXC-2-2200-37	Ultrasonic
Main Steam	Branch connection to flange – TXC-2-2200-30	Ultrasonic
Main Steam	Branch connection to flange – TXC-2-2200-39	Ultrasonic
Main Steam	Branch connection to flange – TXC-2-2200-40	Ultrasonic
Reactor Coolant	Steam Generator 4 – inlet nozzle (hot leg) inner radius. TCX-1-3100-4A	Ultrasonic
Reactor Coolant	Steam Generator 4 – outlet nozzle (cold leg) inner radius. TCX-1-3100-4B	Ultrasonic
Reactor Coolant	Unit 2 – Hot Leg, Loop 1 Azimuth 202°, nozzle to safe-end	Visual
Reactor Coolant	Unit 2 – Hot Leg, Loop 2 Azimuth 337°, nozzle to safe-end	Visual
Reactor Coolant	Unit 2 – Hot Leg, 3Loop 3 Azimuth 22°, nozzle to safe-end	Visual
Reactor Coolant	Unit 2 – Hot Leg, Loop 4 Azimuth 158°, nozzle to safe-end	Visual
Reactor Coolant	Steam Generator 1 – Channel Head Drain	Visual
Reactor Coolant	Steam Generator 2 – Channel Head Drain	Visual
Reactor Coolant	Steam Generator 3 – Channel Head Drain	Visual
Reactor Coolant	Steam Generator 4 – Channel Head Drain	Visual

<u>SYSTEM</u>	<u>WELD IDENTIFICATION</u>	<u>EXAMINATION TYPE</u>
Safety Injection	Support TCX-2-2582-H3 Description: SI-3-031-430-S32A	Visual
Reactor Coolant	Reactor upper head. Robotic visual examination.	Visual
Main Feedwater	Main feedwater pipe support. TCX-2-2203-H1	Visual
Main Feedwater	Main feedwater pipe support. TCX-2-2203-H2	Visual
Main Feedwater	Main feedwater pipe support. TCX-2-2402-H3	Visual

The inspectors reviewed records for the following nondestructive examinations:

<u>SYSTEM</u>	<u>WELD IDENTIFICATION</u>	<u>EXAMINATION TYPE</u>
Reactor Coolant System	Reactor vessel lower head – bottom mounted instrumentation penetrations.	Visual

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 that the qualifications of nondestructive examination technicians performing the inspections were current.

The inspectors observed the following welding activities:

<u>SYSTEM</u>	<u>WELD IDENTIFICATION</u>	<u>WELD TYPE</u>
Chemical Volume and Control	3 inch - pipe to pipe Weld FW TXU 7-1	Tungsten Inert Gas Welding (GTAW)
Chemical Volume and Control	3 inch - elbow to pipe Weld FW-11	Tungsten Inert Gas Welding (GTAW)

The inspectors reviewed records for the following welding activities:

<u>SYSTEM</u>	<u>WELD IDENTIFICATION</u>	<u>WELD TYPE</u>
Chemical Volume and Control	3 inch - pipe to valve Weld FW TUX 8-1	Tungsten Inert Gas Welding (GTAW)
Chemical Volume and Control	3 inch - pipe to valve Weld TUX 9-1	Tungsten Inert Gas Welding (GTAW)
Chemical Volume and Control	3 inch - pipe to elbow Weld TUX 10-1	Tungsten Inert Gas Welding (GTAW)

The inspectors verified, by review, that the welding procedure specifications and the welder 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 actions constitute completion of the requirements for Section 02.01.

b. Findings

No findings were identified.

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

a. Inspection Scope

The inspectors reviewed the results of the licensee's bare metal visual inspection of the reactor vessel upper head penetrations, and verified that there was no evidence of boric acid challenging the structural integrity of the reactor head components and attachments. The inspectors also verified that the required inspection coverage was achieved and limitations were properly recorded. The inspectors reviewed the results of the licensee's volumetric inspection of the reactor vessel head and confirmed that the inspection met Code Case N-729-1. The inspectors also verified that the required inspection coverage was achieved and limitations were properly recorded. The inspectors verified that the personnel performing the inspection were certified examiners to their respective nondestructive examination method. Specific documents reviewed during this inspection are listed in the attachment.

These actions constitute completion of the requirements for Section 02.02.

b. Findings

No findings were identified.

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

a. Inspection Scope

The inspectors evaluated the implementation of the licensee's boric acid corrosion control program for monitoring degradation of those systems that could be adversely affected by boric acid corrosion. The inspectors reviewed the documentation associated with the licensee's boric acid corrosion control walkdown as specified in Procedure STA-737, "Boric Acid Corrosion Detection and Evaluation," Revision 6. The inspectors verified that the visual inspections emphasized locations where boric acid leaks could cause degradation of safety-significant components, and that engineering evaluation used corrosion rates applicable to the affected components and properly assessed the effects of corrosion induced wastage on structural or pressure boundary integrity. The inspectors confirmed that corrective actions taken were consistent with the

ASME Code, and 10 CFR 50, Appendix B requirements. Specific documents reviewed during this inspection are listed in the attachment.

These actions constitute completion of the requirements for Section 02.03.

b. Findings

No findings were identified.

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

a. Inspection Scope

The technical specifications require, in part, that for the Unit 2 model D5 steam generators (alloy 600 thermally treated) inspect 100 percent of the tubes at sequential periods of 120, 90, and, thereafter, 60 effective full power months.

At the last inspection, refueling outage 2RF12, which took place in the spring of 2011, the steam generators had completed 180 effective full power months from the first inservice inspection of the steam generators. The required 100 percent inspection scope was completed during that refueling outage. The current refueling outage, 2RF13, falls into the second sequential period; therefore, the steam generators were not required to be inspected. No primary side inspections were performed. Therefore, the inspectors determined this section of Inspection Procedure 71111.08 was not applicable.

These actions constitute completion of the requirements for Section 02.04.

b. Findings

No findings were identified.

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

a. Inspection scope

The inspectors reviewed 37 condition reports which dealt with inservice inspection activities and found the corrective actions for inservice inspection issues were appropriate. From this review the inspectors concluded that the licensee has an appropriate threshold for entering inservice inspection 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 inservice inspection operating experience. Specific documents reviewed during this inspection are listed in the attachment.

b. Findings

No findings were identified.

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

**.1 Quarterly Inspection of Licensed Operator Requalification Program (71111.11Q)**

**a. Inspection Scope**

On November 26, 2012, the inspectors observed a crew of licensed operators in the plant's simulator during requalification training. The inspectors assessed the following areas:

- Licensed operator performance
- The ability of the licensee to administer the evaluations
- The modeling and performance of the control room simulator
- The quality of post-scenario critiques
- Follow-up actions taken by the licensee for identified discrepancies

These activities constitute completion of one quarterly inspection of licensed operator requalification program sample as defined in Inspection Procedure 71111.11-05.

**b. Findings**

No findings were identified.

**.2 Quarterly Observation of Licensed Operator Performance (71111.11Q)**

**a. Inspection Scope**

The inspectors observed the performance of on-shift licensed operators in the plant's main control room. At the time of the observations, the plant was in a period of heightened activity. The inspectors assessed the operators' adherence to plant procedures and other operations department policies. The inspectors observed the operators' performance of the following activities:

- October 15, 2012, Unit 2, control of core offload
- October 27, 2012, Unit 2, midloop activities
- November 1, 2012, Unit 2, reactor startup
- November 20, 2012, Unit 1, recovery from unit runback

These activities constitute completion of one quarterly observation of licensed operator performance sample as defined in Inspection Procedure 71111.11-05.

**b. Findings**

No findings were identified.

**1R12 Maintenance Effectiveness (71111.12)**

**a. Inspection Scope**

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

- Service water intake structure, structural monitoring
- Unit 1 train B safety chill water system

The inspectors reviewed events where ineffective equipment maintenance had resulted in failures 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 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 two maintenance effectiveness samples as defined in Inspection Procedure 71111.12-05.

b. Findings

No findings were identified.

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

a. Inspection Scope

The inspectors reviewed the licensee'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:

- October 3, 2012, Unit 2, refueling outage
- October 9, 2012, Unit 2, containment integrated leakage rate test
- October 17, 2012, Unit 2, bus 2EA2 while protected with defense-in-depth postings
- November 6, 2012, Unit 1, forced outage



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 constitute completion of four maintenance risk assessments and emergent work control inspection samples as defined in Inspection Procedure 71111.13-05.

b. Findings

No findings were identified.

**1R15 Operability Evaluations (71111.15)**

a. Inspection Scope

The inspectors reviewed the following issues:

- CR-2011-005478, Units 1 and 2, water in control room air conditioning unit X-04 due to clogged drain
- CR-2012-006280, Unit 2, foreign material in diesel generator governor
- CR-2012-011513, Unit 1, blackout sequencer 1-02 partial actuation
- CR-2012-012553, Unit 1, auxiliary feedwater pump 1-01 outboard pump bearing oil darker than normal

The inspectors selected these 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 constitute completion of four operability evaluation inspection samples as defined in Inspection Procedure 71111.15-05.

b. Findings

Introduction. The inspectors reviewed a Green self-revealing non-cited violation of Technical Specification 5.4.1.a for the failure of the licensee to follow procedure and properly replace diesel generator governor oil. As a result, foreign material was introduced into the governor and caused a diesel generator start failure. The licensee replaced the governor to correct the problem.

Description. On June 20, 2012, the licensee initiated a surveillance test of diesel generator 2-01. During the test, the engine started to crank but the engine speed would not exceed 200 revolutions per minute and after approximately 100 seconds, operators shut down the diesel generator. Normal speed for the engine is 450 revolutions per minute. A few hours later and as part of troubleshooting, operators performed a normal slow start of the diesel engine. The governor output shaft did not move for the first 30 seconds and then moved. The engine reached rated speed at 55 seconds and appeared to be operating correctly. During a slow start, the diesel generator would reach rated speed in approximately 38 seconds.

The licensee's apparent cause evaluation determined that the cause of the diesel generator failure to start was a failure of the mechanical governor to function on the demand start. The failure of the governor was the result of a soft particle stuck either in the governor pilot valve or an internal check valve.

The inspectors reviewed the apparent cause evaluation and determined that maintenance personnel replaced the governor oil on April 11, 2011. Procedure MSM-C0-3367, "Emergency Diesel Engine Governor Maintenance," Revision 4, provides written instructions for performing maintenance of diesel generator governors. Step 5.1 and the caution prior to Step 8.4.6 required, in part, to exercise extreme care to prevent the entry of foreign material into clean systems and that the cleanliness of governor internals is of utmost importance to governor operation. Erratic governor behavior and failure has been caused by contamination of governor oil system. On April 11, 2011, the licensee failed to exercise extreme care to prevent the entry of foreign material into the governor. As a result, foreign material was introduced into the governor and that caused a diesel generator start failure. The licensee replaced the governor and returned the diesel generator to operation.

The inspectors performed a walkdown of the governor and determined that the confined area near the governor created a challenge to keep foreign material from entering the governor. The inspectors determined that the governor oil replacement was the likely cause of the introduction of foreign material into the governor.

Analysis. The licensee's failure to follow procedure and properly replace the diesel generator governor oil was a performance deficiency which resulted in a diesel generator start failure. The finding was more than minor because it was associated with the human performance attribute of the Mitigating Systems Cornerstone and adversely affected the cornerstone objective to ensure the reliability of systems that respond to initiating events to prevent undesirable consequences. Using NRC Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," the finding screened to a detailed risk evaluation because it represented an

actual loss of function of a single train for greater than its technical specification allowed outage time.

A senior reactor analyst performed a detailed evaluation of the finding. Diesel generator 2-01 failed to start after a period of seven days from the previous successful start. The analyst assumed that once the diesel generator was up to rated speed and voltage, the degraded governor oil had no effect on the engine's reliability. Therefore, the change in risk is restricted to the 7-day period and is further reduced to 3.5 days to reflect a T/2 assumption. The standardized plant analysis risk model, Revision 8.22, was run at a truncation of 1.0E-11, average test and maintenance, and diesel generator 2-01 fail-to-start set to "TRUE," indicating that the performance deficiency had a common cause potential. The resulting delta-core damage frequency was 2.31E-4. For a 3.5 day exposure, the incremental conditional core damage probability was 2.2E-6.

The analyst noted that two mitigating factors were not included in the standardized plant analysis risk model result. First, the alternate power generators are not modeled. These units have been evaluated in the past to result in a mitigation factor of greater than one order of magnitude for diesel generator failures. Second, the manner of the failure was such that the diesel generator started successfully without any corrective action other than a repeated attempt to start. Thus, the recovery factors in the standardized plant analysis risk model, which are based on average failure states, are overly-bounding for this case. The analyst qualitatively determined that the internal events incremental conditional core damage probability would be below 1.0E-7 when these factors are taken into consideration. There are no external events that would result in a significant increase in the significance. The senior reactor analyst concluded that the risk of the diesel failure was of very low safety significance.

The finding has a human performance cross-cutting aspect associated with work control, in that, the confined job site conditions impacted the human performance of the work activity [H.3b].

Enforcement. Technical Specification 5.4.1.a requires, in part, that written procedures shall be established, implemented, and maintained covering the applicable procedures recommended in Regulatory Guide 1.33, Revision 2, Appendix A. Regulatory Guide 1.33, Revision 2, Appendix A, Item 9.a, requires, in part, that maintenance that can affect the performance of safety-related equipment should be performed in accordance with written procedures. Procedure MSM-C0-3367, "Emergency Diesel Engine Governor Maintenance," Revision 4, provides written instructions for performing maintenance of diesel generator governors. Step 5.1 and the caution prior to Step 8.4.6 required, in part, to exercise extreme care to prevent the entry of foreign material into clean systems and that the cleanliness of governor internals is of utmost importance to governor operation. Erratic governor behavior and failure has been caused by contamination of governor oil system.

Contrary to the above, on April 11, 2011, the licensee failed to implement written procedures as required by Technical Specification 5.4.1.a. Specifically, the licensee failed to implement Procedure MSM-C0-3367 and exercise extreme care to prevent the entry of foreign material into the governor when replacing the governor oil. As a result, foreign material was introduced into the governor and caused a diesel generator start failure. The licensee replaced the governor and returned the diesel generator to operation. Because the violation was of very low safety significance and was

documented in the licensee's corrective action program as Condition Report CR-2012-006280, it is being treated as a non-cited violation, consistent with Section 2.3.2 of the Enforcement Policy: NCV 05000446/2012005-01, "Foreign Material in Diesel Generator Governor Causes Start Failure."

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

##### **a. Inspection Scope**

The inspectors reviewed the plant modification of the auxiliary feedwater pump constant level oilers and the associated level indicating gauges. The inspectors reviewed Final Design Authorization FDA-2012-000089-01-02, the Final Safety Analysis Report, and technical specifications to ensure the modification did not affect operability of the auxiliary feedwater pumps. The inspectors observed the installation of the modification and the subsequent post modification testing.

These activities constitute completion of one plant modifications inspection sample as defined in Inspection Procedure 71111.18-05.

##### **b. Findings**

No findings were identified.

#### **1R19 Post-Maintenance Testing (71111.19)**

##### **a. Inspection Scope**

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

- October 23, 2012, Unit 2, service water pump 2-02 testing following pump replacement
- October 29, 2012, Unit 2, main steam isolation valve 2-02 testing following valve maintenance
- October 31, 2012, Unit 2, safety injection pump 2-01 testing following pump replacement
- October 31, 2012, Unit 1, blackout sequencer 1-02 testing following relay and power supply replacement
- November 29, 2012, Unit 1, motor driven auxiliary feedwater pump 1-01 testing following pump outer bearing oil replacement

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 post-maintenance 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 constitute completion of five post-maintenance testing inspection samples as defined in Inspection Procedure 71111.19-05.

b. Findings

No findings were identified.

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

The activities below constitute completion of two refueling and other outage activities samples as defined in Inspection Procedure 71111.20-05.

.1 Unit 2 Refueling Outage

a. Inspection Scope

The inspectors reviewed the outage safety plan and contingency plans for the Unit 2 refueling outage, conducted October 6, 2012, through November 2, 2012, 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 of the reactor 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
- Licensee's management of fatigue

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

b. Findings

No findings were identified.

.2 Unit 1 Reactor Coolant Pump Outage

a. Inspection Scope

The inspectors reviewed the outage safety plan and contingency plans for the Unit 1 reactor coolant pump outage, conducted November 2, 2012, through November 11, 2012, 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 outage, the inspectors observed portions of the shutdown and cooldown of the reactor 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
- 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
- Startup and ascension to full power operation, tracking of startup prerequisites, and walkdown of the containment to verify that debris had not been left which could block emergency core cooling system suction strainers
- Licensee identification and resolution of problems related to outage activities
- Licensee's management of fatigue

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

b. Findings

No findings 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 components tested were capable of performing their intended safety functions.

Containment Isolation Valve Test

- October 9, 2012, Unit 2, containment integrated leakage rate test in accordance with Procedure PPT-S2-7014, "Containment Integrated Leakage Rate Test," Revision 1

Reactor Coolant System Leakage Detection Surveillance Testing

- December 6, 2012, Unit 2, water inventory balance in accordance with Procedure OPT-303, "Reactor Coolant System Water Inventory," Revision 13

Routine Surveillance Testing

- October 4, 2012, Unit 1, auxiliary feedwater pump 1-01 inservice test in accordance with Procedure OPT-206A, "AFW System," Revision 29
- October 19, 2012, Unit 2, train B undervoltage relay calibration in accordance with Procedure MSE-S2-0603B, "Unit 2 Train B Undervoltage Relay Calibration and Response Time Surveillance Test," Revision 4

- December 5, 2012, Unit 2, diesel generator 2-01 24-hour load run in accordance with Procedure OPT-214B, "Diesel Generator Operability Test," Revision 16

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 and 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 constitute completion of five surveillance testing inspection samples (one containment isolation valve test sample, one reactor coolant system leakage detection surveillance test sample, and three routine surveillance testing samples) as defined in Inspection Procedure 71111.22-05.

b. Findings

No findings were identified.

**Cornerstone: Emergency Preparedness**

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

a. Inspection Scope

The inspectors performed an in-office review to verify that no changes to the site emergency plan or emergency plan implementing procedures were submitted to the NRC in calendar year 2012 that required a detailed review according to the requirements of Inspection Procedure 71114.04.

These activities constitute completion of one emergency action level and emergency plan changes sample as defined in Inspection Procedure 71114.04-05.

b. Findings

No findings were identified.



## 2. RADIATION SAFETY

### Cornerstones: Public Radiation Safety and Occupational Radiation Safety

#### 2RS1 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. 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 licensee'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

No findings were identified.

**2RS2 Occupational ALARA Planning and Controls (71124.02)**

a. Inspection Scope

This area was inspected to assess performance with respect to maintaining occupational individual and collective radiation exposures as low as is reasonably achievable (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. 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 were identified.

## **2RS5 Radiation Monitoring Instrumentation (71124.05)**

### a. Inspection Scope

This area was inspected to verify the licensee is assuring the accuracy and operability of radiation monitoring instruments that are used to: (1) monitor areas, materials, and workers to ensure a radiologically safe work environment; and (2) detect and quantify radioactive process streams and effluent releases. 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, performed walkdowns of various portions of the plant, and reviewed the following items:

- Audits, self-assessments, and corrective action documents related to radiation monitoring instrumentation since the last inspection
- Selected plant configurations and alignments of process, postaccident, and effluent monitors with descriptions in the Final Safety Analysis Report and the offsite dose calculation manual
- Select instrumentation, including effluent monitoring instrument, portable survey instruments, area radiation monitors, continuous air monitors, personnel contamination monitors, portal monitors, and small article monitors to examine their configurations and source checks
- Calibration and testing of process and effluent monitors, laboratory instrumentation, whole body counters, postaccident monitoring instrumentation, portal monitors, personnel contamination monitors, small article monitors, portable survey instruments, area radiation monitors, electronic dosimetry, air samplers, continuous air monitors

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

These activities constitute completion of the one radiation monitoring instrumentation sample as defined in Inspection Procedure 71124.05-05.

### b. Findings

No findings were identified.

## **2RS6 Radioactive Gaseous and Liquid Effluent Treatment (71124.06)**

### a. Inspection Scope

This area was inspected to: (1) ensure the gaseous and liquid effluent processing systems are maintained so radiological discharges are properly mitigated, monitored, and evaluated with respect to public exposure; (2) ensure abnormal radioactive gaseous or liquid discharges and conditions, when effluent radiation monitors are out-of-service, are controlled in accordance with the applicable regulatory requirements and licensee procedures; (3) verify the licensee's quality control program ensures the radioactive

effluent sampling and analysis requirements are satisfied so discharges of radioactive materials are adequately quantified and evaluated; and (4) verify the adequacy of public dose projections resulting from radioactive effluent discharges. The inspectors used the requirements in 10 CFR Part 20; 10 CFR Part 50, Appendices A and I; 40 CFR Part 190; the offsite dose calculation manual, and licensee procedures required by the technical specifications as criteria for determining compliance. The inspectors interviewed licensee personnel and reviewed and/or observed the following items:

- Radiological effluent release reports since the previous inspection and reports related to the effluent program issued since the previous inspection
- Effluent program implementing procedures, including sampling, monitor setpoint determinations and dose calculations
- Equipment configuration and flow paths of selected gaseous and liquid discharge system components, filtered ventilation system material condition, and significant changes to their effluent release points, and associated 10 CFR 50.59 reviews
- Selected portions of the routine processing and discharge of radioactive gaseous and liquid effluents (including sample collection and analysis)
- Controls used to ensure representative sampling and appropriate compensatory sampling
- Results of the inter-laboratory comparison program
- Effluent stack flow rates
- Surveillance test results of technical specification-required ventilation effluent discharge systems since the previous inspection
- Significant changes in reported dose values
- A selection of radioactive liquid and gaseous waste discharge permits
- Part 61 analyses and methods used to determine which isotopes are included in the source term
- Offsite dose calculation manual changes
- Meteorological dispersion and deposition factors
- Latest land use census
- Records of abnormal gaseous or liquid tank discharges
- Groundwater monitoring results
- Changes to the licensee's written program for identifying and controlling contaminated spills/leaks to groundwater

- Identified leakage or spill events and entries made into 10 CFR 50.75 (g) records, if any, and associated evaluations of the extent of the contamination and the radiological source term
- Offsite notifications and reports of events associated with spills, leaks, or groundwater monitoring results
- Audits, self-assessments, reports, and corrective action documents related to radioactive gaseous and liquid effluent treatment since the last inspection

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

These activities constitute completion of the one radioactive gaseous and liquid effluent treatment sample, as defined in Inspection Procedure 71124.06-05.

b. Findings

No findings were identified.

**2RS7 Radiological Environmental Monitoring Program (71124.07)**

a. Inspection Scope

This area was inspected to: (1) ensure that the radiological environmental monitoring program verifies the impact of radioactive effluent releases to the environment and sufficiently validates the integrity of the radioactive gaseous and liquid effluent release program; (2) verify that the radiological environmental monitoring program is implemented consistent with the licensee's technical specifications and/or offsite dose calculation manual, and to validate that the radioactive effluent release program meets the design objective contained in Appendix I to 10 CFR Part 50; and (3) ensure that the radiological environmental monitoring program monitors non-effluent exposure pathways, is based on sound principles and assumptions, and validates that doses to members of the public are within the dose limits of 10 CFR Part 20 and 40 CFR Part 190, as applicable. The inspectors reviewed and/or observed the following items:

- Annual environmental monitoring reports and offsite dose calculation manual
- Selected air sampling and thermoluminescence dosimeter monitoring stations
- Collection and preparation of environmental samples
- Operability, calibration, and maintenance of meteorological instruments
- Selected events documented in the annual environmental monitoring report which involved a missed sample, inoperable sampler, lost thermoluminescence dosimeter, or anomalous measurement
- Selected structures, systems, or components that may contain licensed material and has a credible mechanism for licensed material to reach ground water

- Records required by 10 CFR 50.75(g)
- Significant changes made by the licensee to the offsite dose calculation manual as the result of changes to the land census or sampler station modifications since the last inspection
- Calibration and maintenance records for selected air samplers, composite water samplers, and environmental sample radiation measurement instrumentation
- Interlaboratory comparison program results
- Audits, self-assessments, reports, and corrective action documents related to the radiological environmental monitoring program since the last inspection

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

These activities constitute completion of the one radiological environmental monitoring program sample as defined in Inspection Procedure 71124.07-05.

b. Findings

No findings were identified.

**2RS8 Radioactive Solid Waste Processing, and Radioactive Material Handling, Storage, and Transportation (71124.08)**

a. Inspection Scope

This area was inspected to verify the effectiveness of the licensee's programs for processing, handling, storage, and transportation of radioactive material. The inspectors used the requirements of 10 CFR Parts 20, 61, and 71 and Department of Transportation regulations contained in 49 CFR Parts 171-180 for determining compliance. The inspectors interviewed licensee personnel and reviewed the following items:

- The solid radioactive waste system description, process control program, and the scope of the licensee's audit program
- Control of radioactive waste storage areas including container labeling/markings and monitoring containers for deformation or signs of waste decomposition
- Changes to the liquid and solid waste processing system configuration including a review of waste processing equipment that is not operational or abandoned in place
- Radio-chemical sample analysis results for radioactive waste streams and use of scaling factors and calculations to account for difficult-to-measure radionuclides
- Processes for waste classification including use of scaling factors and 10 CFR Part 61 analysis

- Shipment packaging, surveying, labeling, marking, placarding, vehicle checking, driver instructing, and preparation of the disposal manifest
- Audits, self-assessments, reports, and corrective action reports radioactive solid waste processing, and radioactive material handling, storage, and transportation performed since the last inspection

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

These activities constitute completion of the one radioactive solid waste processing, and radioactive material handling, storage, and transportation sample as defined in Inspection Procedure 71124.08-05.

b. Findings

No findings were identified.

**4. OTHER ACTIVITIES**

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

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

.1 Data Submission Issue

a. Inspection Scope

The inspectors performed a review of the data submitted by the licensee for the third quarter 2012 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 were identified.

.2 Mitigating Systems Performance Index - Emergency ac Power System (MS06)

a. Inspection Scope

The inspectors sampled licensee submittals for the mitigating systems performance index emergency ac power system performance indicator for Units 1 and 2 for the period from the third quarter 2011 through the second quarter 2012. To determine the accuracy of the performance indicator data reported during those periods, the inspectors used definitions and guidance contained in Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6. The inspectors reviewed the licensee's operator narrative logs, mitigating systems performance index derivation reports, condition reports, and NRC integrated inspection reports to validate

the accuracy of the submittals. The inspectors reviewed the mitigating systems performance index component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable Nuclear Energy Institute guidance. The inspectors also reviewed the licensee's condition 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.

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

b. Findings

No findings were identified.

.3 Mitigating Systems Performance Index - High Pressure Injection Systems (MS07)

a. Inspection Scope

The inspectors sampled licensee submittals for the mitigating systems performance index high pressure injection systems performance indicator for Units 1 and 2 for the period from the third quarter 2011 through the second quarter 2012. To determine the accuracy of the performance indicator data reported during those periods, the inspectors used definitions and guidance contained in Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6. The inspectors reviewed the licensee's operator narrative logs, condition reports, mitigating systems performance index derivation reports, and NRC integrated inspection reports to validate the accuracy of the submittals. The inspectors reviewed the mitigating systems performance index component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable Nuclear Energy Institute guidance. The inspectors also reviewed the licensee's condition 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.

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

b. Findings

No findings were identified.

.4 Mitigating Systems Performance Index - Heat Removal System (MS08)

a. Inspection Scope

The inspectors sampled licensee submittals for the mitigating systems performance index heat removal system performance indicator for Units 1 and 2 for the period from the third quarter 2011 through the second quarter 2012. To determine the accuracy of the performance indicator data reported during those periods, the inspectors used definitions and guidance contained in Nuclear Energy Institute Document 99-02,



“Regulatory Assessment Performance Indicator Guideline,” Revision 6. The inspectors reviewed the licensee’s operator narrative logs, condition reports, mitigating systems performance index derivation reports, and NRC integrated inspection reports to validate the accuracy of the submittals. The inspectors reviewed the mitigating systems performance index component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable Nuclear Energy Institute guidance. The inspectors also reviewed the licensee’s condition 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.

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

b. Findings

No findings were identified.

.5 Mitigating Systems Performance Index – Residual Heat Removal System (MS09)

a. Inspection Scope

The inspectors sampled licensee submittals for the mitigating systems performance index residual heat removal system performance indicator for Units 1 and 2 for the period from the fourth quarter 2011 through the third quarter 2012. 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, and NUREG-1022, “Event Reporting Guidelines 10 CFR 50.72 and 50.73,” definitions and guidance were used. The inspectors reviewed the licensee’s operator narrative logs, operability assessments, maintenance rule records, maintenance work orders, condition reports, and NRC Integrated Inspection reports to validate the accuracy of the submittals. The inspectors also reviewed the licensee’s condition report database to determine if any problems had been identified with the performance indicator data collected or transmitted for this indicator and none were identified. Specific documents reviewed are described in the attachment to this report.

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

b. Findings

No findings were identified.

.6 Mitigating Systems Performance Index – Cooling Water Systems (MS10)

a. Inspection Scope

The inspectors sampled licensee submittals for the mitigating systems performance index cooling water systems performance indicator for Units 1 and 2 for the period from the fourth quarter 2011 through the third quarter 2012. To determine the accuracy of the performance indicator data reported during those periods, the inspectors used definitions

and guidance contained in Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6. The inspectors reviewed the licensee's operator narrative logs, mitigating systems performance index derivation reports, condition reports, and NRC integrated inspection reports to validate the accuracy of the submittals. The inspectors reviewed the mitigating systems performance index component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable Nuclear Energy Institute guidance. The inspectors also reviewed the licensee's condition report database to determine if any problems had been identified with the performance indicator data collected or transmitted for this indicator and none were identified. Specific documents reviewed are described in the attachment to this report.

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

b. Findings

No findings were identified.

.7 Occupational Exposure Control Effectiveness (OR01)

a. Inspection Scope

The inspectors reviewed performance indicator data for the third quarter of 2011 through the third quarter of 2012. 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 areas (greater than 1 rem/hr) and very high radiation area non-conformances. The inspectors reviewed radiological, controlled area exit transactions greater than 100 mrem. The inspectors also conducted walkdowns of high radiation areas (greater than 1 rem/hr) 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 were identified.

.8 Radiological Effluent Technical Specifications/Offsite Dose Calculation Manual Radiological Effluent Occurrences (PR01)

a. Inspection Scope

The inspectors reviewed performance indicator data for the third quarter of 2011 through the third quarter of 2012. 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 were identified.

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

.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 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 were identified.

.3 Semi-Annual Trend Review

a. Inspection Scope

The inspectors reviewed the licensee's corrective action program and associated documents to identify trends that could indicate the existence of a more significant safety issue. The inspectors focused on plant transients. The inspectors reviewed documents and interviewed personnel to determine if the licensee completely and accurately identified problems in a timely manner commensurate with its significance, evaluated and dispositioned operability issues, considered the extent of condition, prioritized the problem commensurate with its safety significance, identified appropriate corrective actions, and completed corrective actions in a timely manner commensurate with the safety significance of the issue.

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

b. Findings and Observations

No findings were identified.

The inspectors observed that the units have experienced several plant transients in the recent months. On November 2, 2012, Unit 1 operators initiated a manual reactor trip as a result of a reactor coolant pump 4 lower motor bearing high temperature. On November 6, 2012, Unit 2 operators reduced power to 49 percent as a result of high sodium levels in the steam generators. On November 17, 2012, Unit 2 operators experienced an automatic reactor trip as a result of a low steam generator level. The low level was the result of a transient initiated by the heater drain system. On November 20, 2012, Unit 2 operators initiated a manual runback of the turbine to 900 megawatts, approximately 75 percent power, as a result of a transient of heater drain system. The licensee initiated condition reports for the above transients.

.4 Operator Workarounds

a. Inspection Scope

The inspectors reviewed the Unit 2 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 workarounds sample as defined in Inspection Procedure 71152-05.

b. Findings

No findings were identified.

**40A3 Event Followup (71153)**

The activities documented below constitute completion of two event followup samples as defined in Inspection Procedure 71153.

.1 Unit 1 Manual Reactor Trip

a. Inspection Scope

On November 2, 2012, operators manually tripped the reactor as a result of a high motor bearing temperature on reactor coolant pump 4. The inspectors responded to the control room to access the operators' performance and procedure usage. The inspectors performed a walkdown of the control boards to verify appropriate equipment response following the trip. The inspectors discussed the trip with operations management and the control room staff.

b. Findings

No findings were identified.

.2 Unit 2 Automatic Reactor Trip

a. Inspection Scope

On November 17, 2012, the unit experienced an automatic reactor trip as a result of a low steam generator level. The low level was the result of a transient initiated by the heater drain system. The inspectors responded to the control room to access the operators' performance and procedure usage. The inspectors performed a walkdown of the control boards to verify appropriate equipment response following the trip. The inspectors discussed the trip with operations management and the control room staff.

b. Findings

No findings were identified.

#### 40A5 Other

- .1 (Closed) NRC 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 NRC Inspection Reports 05000445/2010003; 2011003; 2011004 and 05000446/2010003; 2011003; 2011004, the inspectors completed activities associated with Temporary Instruction 2515/177.

- .2 (Closed) NRC Temporary Instruction 2515/187, "Inspection of Near-Term Task Force Recommendation 2.3 Flooding Walkdowns"

a. Inspection Scope

The inspectors verified that the licensee's walkdown packages for the safe shutdown impoundment riprap, service water intake structure north wall, and the service water pipe tunnel contained the elements as specified in Nuclear Energy Institute 12-07 Walkdown Guidance.

The inspectors accompanied the licensee on their walkdowns of the safe shutdown impoundment riprap, service water intake structure north wall, and the diesel generator fuel oil storage tank covers. In addition, the inspectors independently performed a walkdown of the service water pipe tunnel. For each of the walkdowns, the inspectors confirmed that the licensee verified the following flood protection features, as applicable:

- External visual inspection for indications of degradation that would prevent its credited function from being performed
- Reasonable simulation
- Critical structure system and component dimensions were measured
- Available physical margin was determined
- Flood protection feature functionality was determined using either visual observation or by review of other documents

The inspectors verified that noncompliances with current licensing requirements, and issues identified in accordance with the 10 CFR 50.54(f) letter, Item 2.g of Enclosure 4, were entered into the licensee's corrective action program. In addition, issues identified in response to Item 2.g that could challenge risk significant equipment and the licensee's ability to mitigate the consequences will be subject to additional NRC evaluation.

b. Findings

No findings were identified.

## 40A6 Meetings

### Exit Meeting Summary

On October 18, 2012, the inspectors presented the results of the first radiation safety inspection to Mr. K. Peters, Site Vice President, and other members of the licensee staff. The licensee acknowledged the issues presented. The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

On October 19, 2012, the inspectors presented the inspection results of the review of inservice inspection activities to Mr. K. Nickerson, Director, Site Engineering, 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 December 7, 2012, the inspectors presented the results of the second radiation safety inspection to Mr. K. Peters, Site Vice President, and other members of the licensee staff. The licensee acknowledged the issues presented. The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

On January 15, 2013, the inspectors presented the resident inspection results to Mr. K. Peters, 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  
T. Gilder, Director, Performance Improvement  
D. Goodwin, Director, Engineering Support  
T. Hope, Manager, Nuclear Licensing  
B. Kidwell, Manager, Emergency Preparedness  
F. Madden, Director, Oversight and Regulatory Affairs  
B. Mays, Vice President, Engineering and Support  
K. Nickerson, Director, Site Engineering  
B. Patrick, Director, Maintenance  
K. Peters, Site Vice President  
S. Sewell, Director, Organizational Effectiveness  
M. Smith, Director, Operations  
S. Smith, Plant Manager  
K. Tate, Manager, Security  
D. Wilder, Director, Plant Support

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

#### Opened and Closed

05000446/2012005-01	NCV	Foreign Material in Diesel Generator Governor Causes Start Failure (Section 1R15)
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#### Closed

2515/177	TI	Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems (NRC Generic Letter 2008-01) (Section 4OA5.1)
2515/187	TI	Inspection of Near-Term Task Force Recommendation 2.3 Flooding Walkdowns (Section 4OA5.2)



## LIST OF DOCUMENTS REVIEWED

### Section 1R01: Adverse Weather Protection

#### PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
OWI-912	Cold Weather	3
STA-634	Extreme Temperature Equipment Protection Program	4
ABN-912	Extreme Cold Weather/Heat Tracing and Freeze Protection System Malfunction	8

#### CONDITION REPORTS

2012-012000

### Section 1R04: Equipment Alignments

#### CONDITION REPORTS

2012-011186

### Section 1R05: Fire Protection

#### CONDITION REPORTS

2012-011627      2012-012332

#### MISCELLANEOUS DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
M1-1928	Fire Hazard Analysis Auxiliary and Electrical Control Bldg EL 807'-0" and EL 801'-6"	CP-3

### Section 1R06: Flood Protection Measures

#### DRAWINGS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
M1-0313	Flow Diagram – Ventilation Control Building UPS Area A/C Systems	CP-21
M1-0236 Sh. 01	Flow Diagram Vents and Drains System Auxiliary Building	CP-17
M1-0236 Sh. B	Flow Diagram Vents and Drains System Safeguards and Auxiliary Building	CP-3

#### CONDITION REPORTS

2012-006995

## WORK ORDERS

4160670

3657316

### **Section 1R08: Inservice Inspection Activities**

#### CONDITION REPORTS

2011-001730	2011-005859	2011-011428	2012-001789	2012-005329
2011-002860	2011-006088	2011-011726	2012-001922	2012-005394
2011-003711	2011-006096	2011-012490	2012-001935	2012-005646
2011-003722	2011-006132	2011-012678	2012-001991	2012-005681
2011-003808	2011-006186	2011-012901	2012-002002	2012-005767
2011-003836	2011-006276	2011-013075	2012-002110	2012-005873
2011-003893	2011-006370	2011-013204	2012-002289	2012-005922
2011-003963	2011-006409	2011-013235	2012-002627	2012-005956
2011-004012	2011-006583	2011-013416	2012-002684	2012-006200
2011-004034	2011-006796	2011-013552	2012-002726	2012-006459
2011-004198	2011-006802	2011-013634	2012-002761	2012-006587
2011-004296	2011-006814	2011-013714	2012-002766	2012-007048
2011-004452	2011-007035	2011-013774	2012-002998	2012-007186
2011-004521	2011-007420	2011-013797	2012-003178	2012-007267
2011-004543	2011-007595	2011-013799	2012-003331	2012-007290
2011-004565	2011-007822	2011-013908	2012-003394	2012-007717
2011-004607	2011-008225	2011-013948	2012-003413	2012-007763
2011-004639	2011-008258	2011-013956	2012-003423	2012-007772
2011-004690	2011-008371	2012-000077	2012-003448	2012-007838
2011-004727	2011-008727	2012-000145	2012-003529	2012-007955
2011-004810	2011-008930	2012-000175	2012-003549	2012-007958
2011-004987	2011-008948	2012-000263	2012-003610	2012-008137
2011-004992	2011-009263	2012-000777	2012-003618	2012-008144
2011-005117	2011-009899	2012-000848	2012-003735	2012-008451
2011-005146	2011-009975	2012-001258	2012-004126	2012-009103
2011-005426	2011-010045	2012-001292	2012-004142	2012-009150
2011-005470	2011-010087	2012-001380	2012-004337	2012-009472
2011-005523	2011-010090	2012-001473	2012-004623	2012-010309
2011-005701	2011-010196	2012-001684	2012-004678	
2011-005805	2011-010662	2012-001689	2012-005174	

DRAWINGS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
SK-0001-10-000172-21-01	Chemical and Volume Control	1
BRP-CS-2-AB-069 Sheets 1 and 2	Chemical and Volume Control	CP-6

NONDESTRUCTIVE EXAMINATION REPORTS

MT-2012-002	MT-2012-005	MT-2012-009	MT-2012-016	PT-2012-015
PT-2012-016	RT-FW-11	RT-TUX-7-1	RT-TUX-8-1	RT-TUX-9-1
RT-TUX-10-1	UT-2012-028	UT-2012-029	UT-2012-031	UT-2012-039
UT-2012-044	UT-2012-046	UT-2012-050	UT-2012-051	UT-2012-055
UT-2012-056	VT-2012-070	VT-2012-071	VT-2012-094	VT-2012-118
WDI-PJR-1308102-FSR-001				

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
	RCS Pressure Boundary Dissimilar Metal Weld Visual Examination Plan	3
	RCS Pressure Boundary Dissimilar Metal Weld Visual Examination Plan	4
STA-737	Boric Acid Corrosion Detection And Evaluation	6
TX-ISI-11	Liquid Penetrant Examination for Comanche Peak Steam Electric Station	11
TX-ISI-210-	Ultrasonic Examination Procedure for Welds in Ferritic Steel Vessels	7
TX-ISI-8	VT-1 and VT-3 Examination Procedure for CPSES	6
WLD-106	CPSES Welding Program Manual	2

WORK ORDERS

3810474	3811873	3814062	4126033	4158042
4158087	4162345	4325372	4325385	4325413
4333871	4358851	4368387	4408186	4409608
4409637	4427800	4488074	4489415	4491886
4495800	4495925	4496017	4496875	4498261

MISCELLANEOUS DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
	On-going Self-Assessment or NOD Surveillance - QA Surveillance	July 14, 2011
	Comanche Peak Steam Electric Station, Units 1 and 2 - Request for Relief to Extend the Inservice Inspection Interval for the Reactor Vessel Weld Examination (Tac Nos. ME0777 And ME0778)	December 22, 2009
Assessment No. CR-2011-006510	Comanche Peak Nuclear Power Plant Welding Program Self Assessment	August 30, 2011
Condition Report CR-2012-002117	CPNPP Self-Assessment Report: Reactor Coolant System Materials Management Program	April 26, 2012
Condition Report CR-2012-002117	CPNPP Self-Assessment Worksheet: Boric Acid Corrosion Control (BACC) and Leak Management Program	April 12, 2012
Condition Report CR-2012-002117	CPNPP Self-Assessment Worksheet: Boric Acid Corrosion Control (BACC) and Leak Management Program	April 12, 2012
CP-201200879 TXX-12116	Comanche Peak Nuclear Power Plant, Docket Nos. 50-445 and 50-446, Relief Request No. V-1 for Unit 1 and Unit 2 Inservice Testing Plan for Pumps and Valves (ASME OM Code 2004 Edition, thorough 2006 Addenda: Third Interval Start Date: August 3, 2013)	September 6, 2012
CP-201200978 TXX-12129	Comanche Peak Nuclear Power Plant, Docket 50-445, Relief Request No. C-2 for the Unit 1 Reactor Pressure Vessel Leak-Off Flange (Third ISI Interval Start Date: August 13, 2010)	August 23, 2012
EV-CR-2011-002860-1	Evaluation of increased leakage from borated systems in U2 containment prior to 2RF12	March 14, 2011
EV-CR-2012-001473-1	Evaluation to identify acceptable stainless steel replacement for bolts, nuts, and washers for TBX-RHA	February 9, 2012
EV-CR-2012-001473-3	Evaluations for boric acid accumulations on RHR pumps	February 9, 2012
EV-CR-2012-003331-1	Evaluations for boric acid accumulations identified during the U2 containment boric acid inspection for the U2 Trip	April 2, 2012
EV-CR-2012-010309-1	Evaluations for boric acid accumulations identified during the 2RF13 mode 3 boric acid inspection	October 6, 2012
FDA 10-000172-21	Replace Remote Operated Manual Gate Valve 2-8402A with a Motor Operated Gate Valve. Work Order # 4333871	September 19, 2012
Self-Assessment SA-2009-025	CPSES Self-Assessment Report Title: Inservice Inspection Processes and Program	September 17, 2009
Self-Assessment SA-2010-004	CPSES Self-Assessment Report: Steam Generator	June 16, 2010
Weld Doc:	Comanche Peak Nuclear Power Plant Weld Record(s).	April 18, 2012

MISCELLANEOUS DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
120209	Work Order 4333871	
Weld Doc: 1202139	Comanche Peak Nuclear Power Plant Weld Record(s). Work Order 4333871	May 17, 2012
WPS: CP-301	Comanche Peak Steam Electric Station Welding Procedure Specification	11

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

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
IPO-010B	Reactor Coolant Systems Reduced Inventory Operations	13

**Section 1R12: Maintenance Effectiveness**

CONDITION REPORTS

2012-010932

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

CONDITION REPORTS

2012-010737

**Section 1R15: Operability Evaluations**

MISCELLANEOUS DOCUMENTS

<u>TITLE</u>	<u>DATE</u>
SI and Blackout Sequencers Study Guide	June 10, 2011

WORK ORDERS

4154915

CONDITION REPORTS

2012-004598      2012-004336      2012-011513      2005-003468

**Section 1R19: Post-Maintenance Testing**

CONDITION REPORTS

2012-011360      2008-002053

MISCELLANEOUS DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
OPT-509B	MSIV Testing	6
ETP-215B	Service Water Pump Test	5

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

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
IPO-010B	Reactor Coolant Systems Reduced Inventory Operations	13
OPT-305	Containment Close Out Inspection	12

**Section 1R22: Surveillance Testing**

WORK ORDERS

4180576      4135154

**2RS01 Radiological Hazard Assessment and Exposure Controls**

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
RPI-110	Radiation Protection Shift Activities	19
RPI-212	Radioactive Source Control	12
RPI-602	Radiological Surveillance and Posting	51
RPI-606	Radiation Work and General Access Permits	22
RPI-623	Radiological Briefings	5
RPI-700	Sealed Source Leak Testing	11
STA-652	Radioactive Material Control	17
STA-656	Radiation Work Control	18
STA-660	Control of High Radiation Areas	15

CONDITION REPORTS

2011-007690      2011-011743      2011-013888      2011-013951      2011-014104  
2012-010171      2012-010669      2012-010850

## RADIOLOGICAL SURVEYS

<u>NUMBER</u>	<u>TITLE</u>	<u>DATE</u>
12-08-0603	Auxiliary Building Piping 832' X-213	September 1, 2012
12-09-0043	Warehouse C	September 17, 2012
12-09-0237	Auxiliary Building Piping 832' X-213	September 15, 2012
12-09-0535	Auxiliary Building Piping 832' X-213	September 28, 2012
12-10-0603	Auxiliary Building Piping 832' X-213	October 4, 2012
12-10-0938	Warehouse C	October 16, 2012

## RADIATION WORK PACKAGES

<u>NUMBER</u>	<u>TITLE</u>
20111215	1RF15 Scaffold Activities
20110600	1RF15 Refuel
20122103	2RF13 Chemistry Sampling Crud Burst and Cleanup
20122219	Rework 2-8956B Check Valve
20122402	Gas Void UTs Elevated Dose Rates and Posted HRAs
20122404	2RF13 ISI, VT2, and FAC Activities
20122600	2RF13 Refuel Activities
20122603	2RF13 Alloy 600 Inspections

## MISCELLANEOUS DOCUMENTS

<u>TITLE</u>	<u>DATE</u>
LHRA and VHRA Key Inventory	October 2012
Sealed Sources Inventory	October 2012
Leak Test Records	October 2012

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

### PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
RPI-601	Radiation Protection Outage Preparations	22
RPI-606	Radiation Work and General Access Permits	22
RPI-607	Radiation Work Permit In-Process Review/Revision	2
RPI-608	Control of Shielding	11
RPI-628	Stop Work Criteria	0
STA-651	ALARA Program	10

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
STA-657	ALARA Job Planning/Debriefing	11

CONDITION REPORTS

2011-000954	2011-009376	2011-010859	2011-011158	2011-012155
2011-011569				

RADIATION WORK PACKAGES

<u>NUMBER</u>	<u>TITLE</u>
20110403	Snubber Work
20110404	ISI Inspection
20111100	Radiation Protection/Decon in Containment
20111101	Operators in RCAs
20111102	Radiation Protection/Decon in BOP
20111600	1RF15 Refuel
20111603	1RF15 Alloy 600 Inspections
20112215	Scaffolding
20120202	Maintenance in Reactor Building
20120601	In-Core Instruments

MISCELLANEOUS DOCUMENTS

<u>TITLE</u>	<u>DATE</u>
1RF15 Radiation Protection Outage ALARA Report	January 30, 2012
1RF15 Radiation Work Permit 1600 Critique	January 30, 2012
CPNPP Five Year Dose Reduction Plan 2010-2015	January 19, 2012
CPNPP-EPRI pH Evaluation	December 2007
Unit-1 RWST Activity Graph	October 2012

**Section 2RS05: Radiation Monitoring Instrumentation**

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
INC-7081X	DCOT & CCAL – Liquid Waste Eff Process Radiation Monitor CH X-RE-5253	6
INC-7084	DCOT & CCAL – Turbine Building Floor Drains LPRM CH 1-RE-5100/2-RE-5100	8



PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
INC-7090X	DCOT, ACOT & CCAL Vent Stack WRGM, CH's X-RE-5570B	6
RPI-862	Calibration Of The Argos/Sirius Personnel Contamination Monitor	9
RPI-881	Calibration of Portable Dose Rate Instruments	18
RPI-886	Calibration Of The Eberline Pm-7 Personnel Monitor	5
RPI-889	Calibration Of The Eberline Ams-4	3
RPI-895	Calibration Of The NE Technology SAM (Small Articles Monitor)	5

CONDITION REPORTS

2011-000498	2011-006833	2012-007687	2012-008063	2012-008251
2012-010167	2012-011264	2012-012478		

CALIBRATION OF INSTALLED MONITORS

<u>NUMBER</u>	<u>TITLE</u>	<u>DATE</u>
3719821	Turbine Building Sump Liquid Effluent 2-RE-5100	January 14, 2011
4084148	Turbine Building Sump Liquid Effluent 2-RE-5100	July 11, 2012
3578968	Liquid Waste Processing Discharge X-RE-5253	March 24, 2010
3912453	Liquid Waste Processing Discharge X-RE-5253	November 7, 2011
3539008	North Vent Stack Wide Range Gas X-RE-5570B	March 25, 2010
3914751	North Vent Stack Wide Range Gas X-RE-5570B	December 16, 2011
3610666	Unit 1 Containment High Range 1-RE-6290A	April 20, 2010
3937711	Unit 1 Containment High Range 1-RE-6290A	October 14, 2011
3817738	Unit 2 Containment High Range 2-RE-6290B	April 16, 2011
4141666	Unit 2 Containment High Range 2-RE-6290B	October 24, 2012
3-04-308372-01	Unit 1 Containment Incore High Range 1-RE-6256	July 19, 2005
3561314	Unit 1 Containment Incore High Range 1-RE-6256	November 11, 2009
3907837	Flow channel 5288	August 4, 2011

CALIBRATION OF RADIATION PROTECTION INSTRUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>DATE</u>
0058	ARGOS/Sirius Personnel Contamination Monitor	June 19, 2012
0026	Eberline Model PM-7 Personnel Contamination Monitor	November 27, 2012
1907	MGP Telepole	May 30, 2012

## CALIBRATION OF RADIATION PROTECTION INSTRUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>DATE</u>
3122	Radeye G	July 11, 2012
30282	Electrometer/Ion Chamber	March 07, 2012

## MISCELLANEOUS DOCUMENTS

<u>TITLE</u>	<u>DATE</u>
Chemistry Quality Assurance Report (Ge Detectors 1-6)	December 3, 2012
Chemistry Quality Assurance Report (Ge Detectors 1-6)	December 4, 2012

## **Section 2RS06: Radioactive Gaseous and Liquid Effluent Treatment**

### PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
CHM-104	Quality Assurance and Quality Control	21
CHM-170	Liquid and Gaseous Effluent Program	3
CLI-741	Setpoint Modification and DRMS Pre-Release Surveillance	7
CLI-745	Radioactive Effluent Post-Release Permit Processing and Surveillance Tracking	2
CLI-768	Calculation of Dose Equivalent I-131	5
COP-816	Plant Ventilation	6
PPT-SX-7503A	Control Room Ventilation Filtration Carbon Analysis – Train A	0
PPT-SX-7504B	Control Room Ventilation Filtration Carbon Analysis – Train B	0
PPT-SX-7511A	Primary Plant ESF Filter Carbon Analysis – Train A	1
PPT-SX-7512B	Primary Plant ESF Filter Carbon Analysis – Train B	1
PPT-SX-7520A	Control Room Ventilation Filter Test CPX-VAFUPK-21	1
STA-654	Groundwater Protection Program	8

### AUDITS, SELF-ASSESSMENTS, AND SURVEILLANCES

<u>NUMBER</u>	<u>TITLE</u>	<u>DATE</u>
EVAL-2011-001	Radiation Protection	June 23, 2011
EVAL-2011-006	Radioactive Waste, Effluent, Environmental, and Chemistry	August 25, 2011

CONDITION REPORTS

2010-006694	2011-001885	2011-002479	2011-003303	2011-003459
2011-009252	2011-009403	2011-009686	2011-010612	2012-010418
2012-010712	2012-011703			

RELEASE PERMITS

G2011-173	G2012-214	G2012-215	G2012-216	G2012-220
G2012-221	L2011-046	L2012-065		

SAMPLING AND ANALYSIS RESULTS

<u>NUMBER</u>	<u>TITLE</u>	<u>DATE</u>
177142	Effluent Support System - SPVS Gas	December 4, 2012
177143	Effluent Support System - Iodine WRGM	December 4, 2012
177144	Effluent Support System - SPVS Particulate	December 4, 2012
177145	Effluent Support System - NPVS Gas	December 4, 2012
177146	Effluent Support System - NPVS Iodine	December 4, 2012
177147	Effluent Support System - NPVS Particulate	December 4, 2012

IN-PLACE FILTER TESTING RECORDS

<u>SYSTEM</u>	<u>TEST</u>	<u>DATE</u>
Primary Plant Ventilation Exhaust Filter Unit X-16	Charcoal Sample	October 15, 2011
Primary Plant Ventilation Exhaust Filter Unit X-02	Charcoal Sample	November 21, 2011
Control Room Emergency Pressurization Unit X-21	Filter Sample	February 21, 2012
Control Room Emergency Pressurization Unit X-22	Filter Sample	March 21, 2012
Primary Plant Ventilation Exhaust Filter Unit X-15	Charcoal Sample	March 26, 2012
Control Room Emergency Filtration Unit X-23	Charcoal Sample	April 19, 2012
Primary Plant Ventilation Exhaust Filter Unit X-01	Charcoal Sample	April 23, 2012
Control Room Emergency Filtration Unit X-24	Charcoal Sample	June 12, 2012

## MISCELLANEOUS DOCUMENTS

<u>TITLE</u>	<u>REVISION / DATE</u>
CPSES Offsite Dose Calculation Manual – Unit 1 and Unit 2	32
Final Safety Analysis Report – Ch. 11: Radioactive Waste Management	104
Results of Radiochemistry Cross Check Program – 4 <sup>th</sup> Quartile 2011	January 12, 2012
2010 Radioactive Effluent Release Report	March 28, 2011
Annual Radiological Environmental Operating Report for 2010	March 29, 2011
2011 Radioactive Effluent Release Report	April 4, 2012
Annual Radiological Environmental Operating Report for 2011	April 25, 2012
Radiation Monitoring System health Report – 1 <sup>st</sup> Quarter FY12	
Radiation Monitoring System health Report – 3 <sup>rd</sup> Quarter FY12	

## CONDITION REPORTS

2010-2024          2010-7432          2010-8111          2010-9198          2011-3303

## **Section 2RS07: Radiological Environmental Monitoring Program**

### PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
STA-654	Groundwater Protection Program	8
RPI-521	General Area Monitoring Program	12
RPI-710	Radiological Environmental Monitoring, Sampling, and Analysis Program	18
RPI-713	Collection, Preparation, and Shipment of Radiological Environmental Samples	12
RPI-714	Land Use Census	5

### AUDITS, SELF-ASSESSMENTS, AND SURVEILLANCES

<u>NUMBER</u>	<u>TITLE</u>	<u>DATE</u>
	EPRI Groundwater Protection Initiative Self Assessment	July 26, 2012
22873	NUPIC Audit for GEL Laboratories LLC (Supplier No. 5644)	December 10, 2011
EVAL-2011-006	Radioactive Waste, Effluent, Environmental, and Chemistry (QA)	August 2, 2011

### CONDITION REPORTS

2010-005641          2010-007417          2010-009485          2010-011063          2011-005937

CONDITION REPORTS

2011-010659	2011-010945	2012-001947	2012-003122	2012-004808
2012-007450	2012-007451	2012-007544	2012-007854	

CALIBRATION AND MAINTENANCE RECORDS

<u>NUMBER</u>	<u>TITLE</u>	<u>DATE</u>
2181B	Low Volume Air Sampler Calibration Data Sheet	April 19, 2012
2181B	Low Volume Air Sampler Calibration Data Sheet	November 27, 2012
2184B	Low Volume Air Sampler Calibration Data Sheet	March 22, 2012
2184B	Low Volume Air Sampler Calibration Data Sheet	June 13, 2012
2188B	Low Volume Air Sampler Calibration Data Sheet	February15, 2011
2188B	Low Volume Air Sampler Calibration Data Sheet	July 3, 2012
2194B	Low Volume Air Sampler Calibration Data Sheet	March 2, 2012
2194B	Low Volume Air Sampler Calibration Data Sheet	June 13, 2012
2196B	Low Volume Air Sampler Calibration Data Sheet	February 14, 2011
2196B	Low Volume Air Sampler Calibration Data Sheet	November 27, 2012

MISCELLANEOUS DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
	Offsite Dose Calculation Manual - Units 1 & 2	32
	Percentage of Good Control Room Meteorological Data from Jan. 1, 2012 to Dec. 3, 2012	December 4, 2012
2011	Radiological Environmental Operating Report	May 1, 2012
2010	Land Use Census	August 4, 2010
2011	Land Use Census	December 13, 2011

**Section 2RS08: Radioactive Solid Waste Processing and Radioactive Material handling, Storage, and Transportation**

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
RPI-215	Waste Stream Sampling	6
RPI-232	Characterizing Radioactive Material for Shipment	5
RPI-242	Radioactive Waste Characterization and Classification	7
STA-709	Radioactive Waste Management Program	9
STA-713	Process Control Program	2

CONDITION REPORTS

2010-011055	2011-005649	2012-005042	2011-008222	2010-011041
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### CONDITION REPORTS

2011-001130	2011-006170	2011-007503	2011-007690	2011-010278
2011-009448	2011-010177	2011-010865	2011-011621	2011-011631
2011-013432	2011-013567	2011-013781	2012-012700	2012-012778

### RADIOACTIVE MATERIAL SHIPMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>DATE</u>
2010-055	RHR Pump Impeller-Diffuser	December 15, 2010
2011-024	Dry Active Waste	April 27, 2011
2011-054	Dry Active Waste, Contaminated Metal	September 21, 2011
2012-009	Anion Resins	April 4, 2012

### RADIOACTIVE MATERIAL SHIPMENT SURVEYS

<u>NUMBER</u>	<u>TITLE</u>	<u>DATE</u>
11-03-00388	5 Gallon Container Survey	March 21, 2011
11-10-0164	Shipment Drum Container Survey	October 3, 2011
12-02-0369	5 Gallon Container Survey	February 21, 2012
12-04-0274	Classification Drum Container Survey	April 11, 2012

### RADIOACTIVE MATERIAL STORAGE SURVEYS

<u>NUMBER</u>	<u>TITLE</u>	<u>DATE</u>
12-09-0043	Warehouse "C"	September 4, 2012
12-11-0586	Warehouse "C"	November 26, 2012
12-11-0587	Warehouse "C" Yard	November 26, 2012
12-11-0592	Interim Low Level Rad Waste Storage Area	November 26, 2012

### MISCELLANEOUS DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
	2010 Radioactive Effluent Release Report	March 28, 2011
	2011 Radioactive Effluent Release Report	April 4, 2012
	CPNPP Core Status and Fuel Performance Update Report	November 30, 2012
	CPNPP Self-Assessment Report Condition Report: CR-2010-001175	January 24, 2011
	Customer Monthly Report: Burial and Return Summary	December 2010 - October 2012

MISCELLANEOUS DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
	Radioactive Material/Waste Shipping Log	December 8, 2010 - November 7, 2012
	Radioactive Waste Storage Vault Inventory	
	Training Records for Shipping Personnel	
	Waste Stream Report	November 6, 2012
EVAL-2011-006	CPNPP Quality Assurance Evaluation Planning and Performance Evaluation: Radioactive Waste, Effluent, Environment, and Chemistry	January 19, 2011
RPI-202-1	2011 Radioactive Material Receipt Log	5
RPI-202-1	2012 Radioactive Material Receipt Log	6

**Section 40A1: Performance Indicator Verification**

MISCELLANEOUS DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>DATE</u>
N/A	Radiation Safety NRC Performance Indicators	October 2012

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

CONDITION REPORTS

2012-011607      2012-011805      2012-01229

**Section 40A5: Other**

CONDITION REPORTS

2012-008970      2012-008977

MISCELLANEOUS DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>
PEUS-WR-12-3- PART-1	CPNPP Post Fukushima Flooding Walkdown Report

## **REQUEST FOR INFORMATION – OCCUPATIONAL RADIATION SAFETY INSPECTION**

The following items are requested to support the occupational radiation safety inspection conducted during the week of October 15, 2012. The areas of inspection are radiological hazard assessment and exposure controls (71124.01), occupational ALARA planning and controls (71124.02), and performance indicator verification (71151) for the occupational and public radiation safety cornerstones.

Please provide the requested information on or before October 9, 2012. Please submit this information using the same lettering system as below. For example, all contacts and phone numbers for Inspection Procedure 71124.01 should be in a file/folder titled "1- A," applicable organization charts in file/folder "1- B," etc. If information is placed in [ims.certrec.com](http://ims.certrec.com), please ensure the inspection exit date entered is at least 30 days later than the onsite inspection dates so the inspectors will have access to the information while writing the report.

In addition to the corrective action document lists provided for each inspection procedure listed below, provide updated lists of corrective action documents at the entrance meeting. The dates for these lists should range from the end dates of the original lists to the day of the entrance meeting.

Since more than one inspection procedure is being conducted and if the information requests appear to be redundant, there is no need to provide duplicate copies. Enter a note explaining in which file the information can be found.

If you have any questions or comments, contact Louis C. Carson II at 817-200-1221 or [Louis.Carson@nrc.gov](mailto:Louis.Carson@nrc.gov). Paul Elkmann will also be assisting on this inspection.

### **1. Radiological Hazard Assessment and Exposure Controls (71124.01)**

- a. List of contacts and telephone numbers for the radiation protection organization staff and technicians
- b. Applicable organization charts
- c. Audits, self assessments, and license event reports written since October 2011, related to this inspection area
- d. Procedure indexes for the radiation protection procedures
- e. Specific procedures related to the following areas noted below. Additional procedures may be requested by number after the inspectors review the procedure indexes.
  - Radiation protection program description
  - Radiation protection conduct of operations
  - Personnel dosimetry program
  - Posting of radiological areas
  - High radiation area controls
  - Radiological controlled area access controls and radworker Instructions
  - Conduct of radiological surveys
  - Radioactive source inventory and control
  - Declared pregnant worker program



- f. List of corrective action documents (including corporate and subtiered systems) since October 2011.
- Initiated by the radiation protection organization
  - Assigned to the radiation protection organization

NOTE: The lists should indicate the significance level of each issue and the search criteria used. Please provide documents which are "searchable" so that the inspectors can perform word searches.

If not covered above, a summary of corrective action documents since October 2011, involving unmonitored releases, unplanned releases, or releases in which any dose limit or administrative dose limit was exceeded for public radiation safety performance indicator verification in accordance with Inspection Procedure 71151.

- g. List of radiologically significant work activities scheduled to be conducted during the inspection period. Since the inspection is scheduled during an outage, also include a list of work activities greater than 1 rem with the dose estimate for the work activity.
- h. List of active radiation work permits
- i. Radioactive source inventory list

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

- a. List of contacts and telephone numbers for ALARA program personnel
- b. Applicable organization charts
- c. Copies of audits, self-assessments, and licensee event reports, written since October 2011, focusing on ALARA
- d. Procedure index for ALARA program
- e. Specific procedures related to the following areas noted below. Additional procedures may be requested by number after the inspectors review the procedure indexes.
- ALARA program
  - ALARA committee
  - Radiation work permit preparation
- f. A summary list of corrective action documents including corporate and subtiered systems written since October 2011, related to the ALARA program. In addition to ALARA, the summary should also address radiation work permit violations, electronic dosimeter alarms, and radiation work permit dose estimates.

NOTE: The lists should indicate the significance level of each issue and the search criteria used. Please provide documents which are "searchable."

- g. List of work activities greater than 1 rem, since October 2011. Include original dose estimate and actual dose.

- h. Site dose totals and 3-year rolling averages for the past 3 years, based on dose of record
- i. Outline of source term reduction strategy
- j. The annual ALARA report for 2011 and the last post refueling outage report

## REQUEST FOR INFORMATION – INSERVICE INSPECTION

The following items are requested to support the inservice inspection conducted October 8 through October 19, 2012. The inspection procedure being used will be Inspection Procedure 71111.08 “Inservice Inspection (ISI) Activities.” In an effort to keep the requested information organized, please submit the information using the same request designation. For example, the names and phone numbers for the program leads should be in a file/folder titled A.5.b.

If you have any questions or comments, please contact the lead inspector Ronald Kopriva at (817) 200-1104 (Ron.Kopriva@nrc.gov ) or Christie Hale at (469)-831-0830 (Christie.Hale@nrc.gov).

### A. Information Requested for the In-Office Preparation Week

The following information should be sent to the Region IV office in hard copy or electronic format (ims.certrec.com preferred), in care of Ronald Kopriva, by October 1, 2012, to facilitate the selection of specific items that will be reviewed during the onsite inspection week. The inspectors will select specific items from the information requested below and then request from your staff additional documents needed during the onsite inspection week (Section B of this attachment). We ask that the specific items selected from the lists be available and ready for review on the first day of inspection. Please provide requested documentation electronically if possible. If requested documents are large and only hard copy formats are available, please inform the inspector(s), and provide subject documentation during the first day of the onsite inspection. If you have any questions regarding this information request, please call the inspector as soon as possible.

#### .1 ISI/Welding Programs and Schedule Information

- a. A detailed schedule (including preliminary dates) of:
  - Nondestructive examinations planned for Class 1 & 2 systems and containment, performed as part of your ASME Section XI, risk informed (if applicable), and augmented inservice inspection programs during the upcoming outage. Provide a status summary of the nondestructive examination inspection activities vs. the required inspection period percentages for this interval by category per ASME Section XI, IW-2400. Do not provide separately if other documentation requested contains this information.
  - Reactor pressure vessel head examinations planned for the upcoming outage.
  - Examinations planned for Alloy 82/182/600 components that are not included in the Section XI scope (If applicable).
  - Examinations planned as part of your boric acid corrosion control program (Mode 3 walkdowns, bolted connection walkdowns, etc.).
  - Welding activities that are scheduled to be completed during the upcoming outage (ASME Class 1, 2, or 3 structures, systems, or components).
- b. A copy of ASME Section XI Code Relief Requests and associated NRC safety evaluations applicable to the examinations identified above.

- c. A list of nondestructive examination reports (ultrasonic, radiography, magnetic particle, dye penetrant, Visual VT-1, VT-2, and VT-3), which have identified relevant conditions on Code Class 1 and 2 systems since the beginning of the last refueling outage. This should include the previous Section XI pressure test(s) conducted during start up and any evaluations associated with the results of the pressure tests. Also, include in the list the nondestructive examination reports with relevant conditions in the reactor pressure vessel head penetration nozzles that have been accepted for continued service. The list of nondestructive examination reports should include a brief description of the structures, systems, or components where the relevant condition was identified.
- d. A list with a brief description (e.g., system, material, pipe size, weld number, and nondestructive examinations performed) of the welds in Code Class 1 and 2 systems which have been fabricated due to component repair/replacement activities since the beginning of the last refueling outage, or are planned to be fabricated this refueling outage.
- e. If reactor vessel weld examinations required by the ASME Code are scheduled to occur during the upcoming outage, provide a detailed description of the welds to be examined and the extent of the planned examination. Please also provide reference numbers for applicable procedures that will be used to conduct these examinations.
- f. Copy of any 10 CFR Part 21 reports applicable to your structures, systems, or components within the scope of Section XI of the ASME Code that have been identified since the beginning of the last refueling outage.
- g. A list of any temporary noncode repairs in service (e.g., pinhole leaks).
- h. Please provide copies of the most recent self-assessments for the inservice inspection, welding, and Alloy 600 programs.

.2 Reactor Pressure Vessel Head (RPVH)

- a. Provide the detailed scope of the planned nondestructive examinations of the reactor vessel head which identifies the types of nondestructive examination methods to be used on each specific part of the vessel head to fulfill commitments made in response to NRC Bulletin 2002-02 and NRC Order EA-03-009. Also, include examination scope expansion criteria and planned expansion sample sizes if relevant conditions are identified. (If applicable)
- b. A list of the standards and/or requirements that will be used to evaluate indications identified during nondestructive examination of the reactor vessel head (e.g., the specific industry or procedural standards which will be used to evaluate potential leakage and/or flaw indications).

.3 Boric Acid Corrosion Control Program

- a. Copy of the procedures that govern the scope, equipment and implementation of the inspections required to identify boric acid leakage and the procedures for boric acid leakage/corrosion evaluation.
- b. Please provide a list of leaks (including Code class of the components) that have been identified since the last refueling outage and associated corrective action documentation. If during the last cycle, the unit was shutdown, please provide documentation of

containment walkdown inspections performed as part of the boric acid corrosion control program.

- c. Please provide a copy of the most recent self-assessment performed for the boric acid corrosion control program.

#### .4 Steam Generator Tube Inspections

- a. A detailed schedule of:
  - Steam generator tube inspection, data analyses, and repair activities for the upcoming outage (if occurring).
  - Steam generator secondary side inspection activities for the upcoming outage (if occurring).
- b. Please provide a copy of your steam generator inservice inspection program and plan. Please include a copy of the operational assessment from last outage and a copy of the following documents as they become available:
  - Degradation assessment
  - Condition monitoring assessment
- c. If you are planning on modifying your technical specifications such that they are consistent with Technical Specification Task Force Traveler TSTF-449, "Steam Generator Tube Integrity," please provide copies of your correspondence with the NRC regarding deviations from the standard technical specifications.
- d. Copy of steam generator history documentation given to vendors performing eddy current testing of the steam generators during the upcoming outage.
- e. Copy of steam generator eddy current data analyst guidelines and site validated eddy current technique specification sheets. Additionally, please provide a copy of EPRI Appendix H, "Examination Technique Specification Sheets," qualification records.
- f. Identify and quantify any steam generator tube leakage experienced during the previous operating cycle. Also provide documentation identifying which steam generator was leaking and corrective actions completed or planned for this condition (If applicable).
- g. Provide past history of the condition and issues pertaining to the secondary side of the steam generators (including items such as loose parts, fouling, top of tube sheet condition, crud removal amounts, etc.).
- h. Provide copies of your most recent self-assessments of the steam generator monitoring, loose parts monitoring, and secondary side water chemistry control programs.
- i. Indicate where the primary, secondary, and resolution analyses are scheduled to take place.
- j. Provide a summary of the scope of the steam generator tube examinations, including examination methods such as Bobbin, Rotating Pancake, or Plus Point, and the percentage of tubes to be examined. Do not provide these documents separately if already included in other information requested.

.5 Additional Information Related to all Inservice Inspection Activities

- a. A list with a brief description of inservice inspection, boric acid corrosion control program, and steam generator tube inspection related issues (e.g., condition reports) entered into your corrective action program since the beginning of the last refueling outage (for Unit 2). For example, a list based upon data base searches using key words related to piping or steam generator tube degradation, such as inservice inspection, ASME Code, Section XI, NDE, cracks, wear, thinning, leakage, rust, corrosion, boric acid, or errors in piping/steam generator tube examinations.
- b. Please provide names and phone numbers for the following program leads: Inservice inspection (examination, planning)
  - Containment exams
  - Reactor pressure vessel head exams
  - Snubbers and supports
  - Repair and replacement program
  - Licensing
  - Site welding engineer
  - Boric acid corrosion control program
  - Steam generator inspection activities (site lead and vendor contact)

**B. Information Provided Onsite to the Inspectors at the Entrance Meeting (October 8, 2012):**

.1 Inservice Inspection / Welding Programs and Schedule Information

- a. Updated schedules for inservice inspection/nondestructive examination activities, including steam generator tube inspections, planned welding activities, and schedule showing contingency repair plans, if available.
- b. For ASME Code Class 1 and 2 welds selected by the inspector from the lists provided from section A of this enclosure, please provide copies of the following documentation for each subject weld:
  - Weld data sheet (traveler)
  - Weld configuration and system location
  - Applicable Code Edition and Addenda for weldment
  - Applicable Code Edition and Addenda for welding procedures
  - Applicable weld procedures used to fabricate the welds and copies of procedure qualification records supporting the weld procedures
  - Copies of mechanical test reports identified in the procedure qualification records above
  - Copies of the nonconformance reports for the selected welds (If applicable)

- Radiographs of the selected welds and access to equipment to allow viewing radiographs (If radiographic testing was performed)
  - Copies of the preservice examination records for the selected welds
  - Copies of welder performance qualifications records applicable to the selected welds, including documentation that welder maintained proficiency in the applicable welding processes specified in the weld procedures (at least 6 months prior to the date of subject work)
  - Copies of nondestructive examination personnel qualifications (Visual inspection, penetrant testing, ultrasonic testing, radiographic testing), as applicable
- c. For the inservice inspection related corrective action issues selected by the inspectors from section A of this enclosure, provide a copy of the corrective actions and supporting documentation.
- d. For the nondestructive examination reports with relevant conditions on Code Class 1 and 2 systems selected by the inspectors from Section A above, provide a copy of the examination records, examiner qualification records, and associated corrective action documents.
- e. A copy of (or ready access to) most current revision of the inservice inspection program manual and plan for the current Interval.
- f. For the nondestructive examinations selected by the inspectors from Section A of this enclosure, provide a copy of the nondestructive examination procedures used to perform the examinations (including calibration and flaw characterization/sizing procedures). For ultrasonic examination procedures qualified in accordance with ASME Section XI, Appendix VIII, provide documentation supporting the procedure qualification (e.g., the EPRI performance demonstration qualification summary sheets). Also, include qualification documentation of the specific equipment to be used (e.g., ultrasonic unit, cables, and transducers including serial numbers) and nondestructive examination personnel qualification records.

.2 Reactor Pressure Vessel Head

- a. Provide the nondestructive personnel qualification records for the examiners who will perform examinations of the reactor pressure vessel head.
- b. Provide drawings showing the following (if a visual examination is planned for the upcoming refueling outage). The drawings listed above should include fabrication drawings for the nozzle attachment welds as applicable.
- Reactor pressure vessel head and control rod drive mechanism nozzle configurations
  - Reactor pressure vessel head insulation configuration
- c. Copy of nondestructive examination reports from the last reactor pressure vessel head examination.

- d. Copy of evaluation or calculation demonstrating that the scope of the visual examination of the upper head will meet the 95 percent minimum coverage required by NRC Order EA-03-009 (If a visual examination is planned for the upcoming refueling outage).
- e. Provide a copy of the procedures that will be used to identify the source of any boric acid deposits identified on the reactor pressure vessel head. If no explicit procedures exist which govern this activity, provide a description of the process to be followed including personnel responsibilities and expectations.
- f. Provide a copy of the updated calculation of effective degradation years for the reactor pressure vessel head susceptibility ranking.
- g. Provide copy of the vendor qualification report(s) that demonstrates the detection capability of the nondestructive examination equipment used for the reactor pressure vessel head examinations. Also, identify any changes in equipment configurations used for the reactor pressure vessel head examinations which differ from that used in the vendor qualification report(s).

.3 Boric Acid Corrosion Control Program

- a. Please provide boric acid walkdown inspection results, an updated list of boric acid leaks identified so far this outage, associated corrective action documentation, and overall status of planned boric acid inspections.
- b. Please provide any engineering evaluations completed for boric acid leaks identified since the end of the last refueling outage. Please include a status of corrective actions to repair and/or clean these boric acid leaks. Please identify specifically which known leaks, if any, have remained in service or will remain in service as active leaks.

.4 Steam Generator Tube Inspections

- a. Copies of the examination technique specification sheets and associated justification for any revisions.
- b. Copy of the guidance to be followed if a loose part or foreign material is identified in the steam generators.
- c. Please provide a copy of the eddy current testing procedures used to perform the steam generator tube inspections (specifically calibration and flaw characterization/sizing procedures, etc.). Also include documentation for the specific equipment to be used.
- d. Please provide copies of your responses to NRC and industry operating experience communications such as Generic Letters, Information Notices, etc. (as applicable to steam generator tube inspections). Do not provide these documents separately if already included in other information requested such as the degradation assessment.
- e. List of corrective action documents generated by the vendor and/or site with respect to steam generator inspection activities.



.5 Codes and Standards

- a. Ready access to (i.e., copies provided to the inspector(s) for use during the inspection at the onsite inspection location, or room number and location where available):
- Applicable Editions of the ASME Code (Sections V, IX, and XI) for the inservice inspection program and the repair/replacement program
  - EPRI and industry standards referenced in the procedures used to perform the steam generator tube eddy current examination

## **REQUEST FOR INFORMATION – OCCUPATIONAL RADIATION SAFETY INSPECTION**

The following items are requested for the Occupational/Public Radiation Safety Inspection conducted the week of December 3, 2012.

Please provide the requested information on or before November 13, 2012. Please submit this information using the same lettering system as below. For example, all contacts and phone numbers for Inspection Procedure 71124.01 should be in a file/folder titled "1- A," applicable organization charts in file/folder "1- B," etc. If information is placed on *ims.certrec.com*, please ensure the inspection exit date entered is at least 30 days later than the onsite inspection dates, so the inspectors will have access to the information while writing the report.

In addition to the corrective action document lists provided for each inspection procedure listed below, please provide updated lists of corrective action documents at the entrance meeting. The dates for these lists should range from the end dates of the original lists to the day of the entrance meeting.

If more than one inspection procedure is to be conducted and the information requests appear to be redundant, there is no need to provide duplicate copies. Enter a note explaining in which file the information can be found.

If you have any questions or comments, please contact Larry Ricketson at (817) 200-1165 or [Larry.Ricketson@nrc.gov](mailto:Larry.Ricketson@nrc.gov).

### **1. Radiation Monitoring Instrumentation (71124.05)**

- a. List of contacts and telephone numbers for the following areas:
  - Effluent monitor calibration
  - Radiation protection instrument calibration
  - Installed instrument calibrations
  - Count room and Laboratory instrument calibrations
- b. Applicable organization charts
- c. Copies of audits, self-assessments, vendor or NUPIC audits for contractor support and licensee event reports, written since date of last inspection, related to:
  - Count room and Laboratory instrument calibrations
  - Area radiation monitors, continuous air monitors, criticality monitors, portable survey instruments, electronic dosimeters, teledosimetry, personnel contamination monitors, or whole body counters
  - Installed radiation monitors

- d. Procedure index for:
- Calibration, use and operation of continuous air monitors, criticality monitors, portable survey instruments, temporary area radiation monitors, electronic dosimeters, teledosimetry, personnel contamination monitors, and whole body counters.
  - Calibration of installed radiation monitors
- e. Please provide specific procedures related to the following areas noted below. Additional Specific Procedures will be requested by number after the inspector reviews the procedure indexes.
- Calibration of portable radiation detection instruments (for portable ion chambers)
  - Whole body counter calibration
  - Laboratory instrumentation quality control
- f. A summary list of corrective action documents (including corporate and subtiered systems) written since date of last inspection, related to the following programs:
- Area radiation monitors, continuous air monitors, criticality monitors, portable survey instruments, electronic dosimeters, teledosimetry, personnel contamination monitors, whole body counters
  - Installed radiation monitors
  - Effluent radiation monitors
  - Count room radiation instruments
- NOTE: The lists should indicate the significance level of each issue and the search criteria used.
- g. Offsite dose calculation manual, technical requirements manual, or licensee controlled specifications which lists the effluent monitors and calibration requirements.
- h. Current calibration data for the whole body counter's.
- i. Primary to secondary source calibration correlation for effluent monitors.
- j. A list of the point of discharge effluent monitors with the two most recent calibration dates and the work order numbers associated with the calibrations.

## 2. **Radioactive Gaseous and Liquid Effluent Treatment (71124.06)**

- a. List of contacts and telephone numbers for the following areas:
- Radiological effluent control
  - Engineered safety feature air cleaning systems

- b. Applicable organization charts
- c. Audits, self assessments, vendor or NUPIC audits of contractor support, and licensee event reports written since date of last inspection, related to:
  - Radioactive effluents
  - Engineered Safety Feature Air cleaning systems
- d. Procedure indexes for the following areas:
  - Radioactive effluents
  - Engineered Safety Feature Air cleaning systems
- e. Please provide specific procedures related to the following areas noted below. Additional Specific Procedures will be requested by number after the inspector reviews the procedure indexes.
  - Sampling of radioactive effluents
  - Sample analysis
  - Generating radioactive effluent release permits
  - Laboratory instrumentation quality control
  - In-place testing of HEPA filters and charcoal absorbers
  - New or applicable procedures for effluent programs (e.g., including ground water monitoring programs)
- f. List of corrective action documents (including corporate and subtiered systems) written since date of last inspection, associated with:
  - Radioactive effluents
  - Effluent radiation monitors
  - Engineered Safety Feature Air cleaning systems

NOTE: The lists should indicate the significance level of each issue and the search criteria used.

- g. 2010 and 2011 Annual Radioactive Effluent Release Report
- h. Current Copy of the Offsite Dose Calculation Manual
- i. Copy of the 2010 and 2011 interlaboratory comparison results for laboratory quality control performance of effluent sample analysis
- j. Effluent sampling schedule for the week of the inspection
- k. New entries into 10 CFR 50.75(g) files since date of last inspection

- l. Operations department (or other responsible department) log records for effluent monitors removed from service or out of service
- m. Listing or log of liquid and gaseous release permits since date of last inspection
- n. For technical specification-required air cleaning systems, the most recent surveillance test results of in-place filter testing (of HEPA filters and charcoal adsorbers) and laboratory testing (of charcoal efficiency)

**3. Radiological Environmental Monitoring Program (71124.07)**

- a. List of contacts and telephone numbers for the following areas:
  - Radiological environmental monitoring
  - Meteorological monitoring
- b. Applicable organization charts
- c. Audits, self assessments, vendor or NUPIC audits of contractor support, and licensee event reports written since date of last inspection, related to:
  - Radiological environmental monitoring program (including contractor environmental laboratory audits, if used to perform environmental program functions)
  - Environmental TLD processing facility
  - Meteorological monitoring program
- d. Procedure index for the following areas:
  - Radiological environmental monitoring program
  - Meteorological monitoring program
- e. Please provide specific procedures related to the following areas noted below. Additional Specific Procedures will be requested by number after the inspector reviews the procedure indexes.
  - Environmental Program Description
  - Sampling, collection and preparation of environmental samples
  - Sample analysis (if applicable)
  - Laboratory instrumentation quality control
  - Procedures associated with the Offsite Dose Calculation Manual

- Appropriate QA Audit and program procedures, and/or sections of the station's QA manual (which pertain to the REMP)

f. A summary list of corrective action documents (including corporate and subtiered systems) written since date of last inspection, related to the following programs:

- Radiological environmental monitoring
- Meteorological monitoring

NOTE: The lists should indicate the significance level of each issue and the search criteria used.

- g. Wind Rose data and evaluations used for establishing environmental sampling locations
- h. Copies of the 2 most recent calibration packages for the meteorological tower instruments
- i. Copy of the 2010 and 2011 Annual Radiological Environmental Operating Report and Land Use Census, and current revision of the Offsite Dose Calculation Manual
- j. Copy of the environmental laboratory's interlaboratory comparison program results for 2010 and 2011, if not included in the annual radiological environmental operating report
- k. Data from the environmental laboratory documenting the analytical detection sensitivities for the various environmental sample media (i.e., air, water, soil, vegetation, and milk)
- l. Quality Assurance audits (e.g., NUPIC) for contracted services
- m. Current NEI Groundwater Initiative Plan and status

**4. Radioactive Solid Waste Processing, and Radioactive Material Handling, Storage, and Transportation (71124.08)**

a. List of contacts and telephone numbers for the following areas:

- Solid Radioactive waste processing
- Transportation of radioactive material/waste

b. Applicable organization charts (and list of personnel involved in solid radwaste processing, transferring, and transportation of radioactive waste/materials)

c. Copies of audits, department self-assessments, and licensee event reports written since date of last inspection related to:

- Solid radioactive waste management
- Radioactive material/waste transportation program

d. Procedure index for the following areas:

- Solid radioactive waste management

- Radioactive material/waste transportation
- e. Please provide specific procedures related to the following areas noted below. Additional specific procedures will be requested by number after the inspector reviews the procedure indexes.
- Process control program
  - Solid and liquid radioactive waste processing
  - Radioactive material/waste shipping
  - Methodology used for waste concentration averaging, if applicable
  - Waste stream sampling and analysis
- f. A summary list of corrective action documents (including corporate and subtiered systems) written since date of last inspection related to:
- Solid radioactive waste
  - Transportation of radioactive material/waste

NOTE: The lists should indicate the significance level of each issue and the search criteria used.

- g. Copies of training lesson plans for 49CFR172 subpart H, for radwaste processing, packaging, and shipping.
- h. A summary of radioactive material and radioactive waste shipments made from date of last inspection to present
- i. Waste stream sample analyses results and resulting scaling factors for 2010 and 2011
- j. Waste classification reports if performed by vendors (such as for irradiated hardware)
- k. Although it is not necessary to compile the following information, the inspector will also review training, and qualifications records of personnel responsible for the conduct of radioactive waste processing, package preparation, and shipping