UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
245 PEACHTREE CENTER AVENUE NE, SUITE 1200
ATLANTA, GEORGIA 30303-1257

July 27, 2011

Carolina Power and Light Company
ATTN: Mr. Robert J. Duncan, II
Vice President - Robinson Plant
H. B. Robinson Steam Electric Plant
Unit 2
3581 West Entrance Road
Hartsville, SC 29550

SUBJECT: H.B. ROBINSON STEAM ELECTRIC PLANT - NRC INTEGRATED INSPECTION REPORT 05000261/2011003

Dear Mr. Duncan:

On June 30, 2011, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your H.B. Robinson reactor facility. The enclosed integrated inspection report documents the inspection results, which were discussed on July 25, 2011, with Mr. Randy Gideon 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.

The report documents two NRC-identified findings of very low safety significance (Green). These findings were determined to involve violations of NRC requirements. However, because of their very low safety significance and because they are entered into your corrective action program, the NRC is treating these findings as non-cited violations (NCVs) consistent with the NRC Enforcement Policy. If you contest these NCV's, 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 II; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at the H.B. Robinson facility. In addition, if you disagree with the cross-cutting aspect assigned to any finding in this report, you should provide a response within 30 days of the date of this report, with the basis for your disagreement, to the Regional Administrator, Region II, and the Senior Resident Inspector at H.B. Robinson facility.

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

Sincerely,

/RA/

Randall A. Musser, Chief
Reactor Projects Branch 4
Division of Reactor Projects

Docket No.: 50-261
License No.: DPR-23

Enclosure: Inspection Report 05000261/2011003
w/Attachment: Supplemental Information

cc w\encl: (See page 3)

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Letter to Robert J. Duncan, II from Randall A. Musser dated July 27, 2011

SUBJECT: H.B. ROBINSON STEAM ELECTRIC PLANT - NRC INTEGRATED INSPECTION REPORT 05000261/2011003

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U. S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket No:	50-261
License No:	DPR-23
Report No:	005000261/2011003
Facility:	H. B. Robinson Steam Electric Plant, Unit 2
Location:	3581 West Entrance Road Hartsville, SC 29550
Dates:	April 1, 2011 thru June 30, 2011
Inspectors:	J. Hickey, Senior Resident Inspector C. Scott, Resident Inspector G. Wilson, Senior Project Engineer A. Nielsen, Senior Health Physicist (Sections 2RS1, 2RS4, 2RS6, 2RS7, 4OA1, 4OA5) J. Griffis, Senior Health Physicist (Section 2RS5) C. Dykes, Health Physicist (Sections 2RS5, 2RS6, 4OA1) J. Rivera, Health Physicist (Section 2RS7) R. Kellner, Health Physicist (Sections 2RS1, 4OA1, 4OA5)
Approved by:	R. Musser, Chief Reactor Projects Branch 4 Division of Reactor Projects

Enclosure

SUMMARY OF FINDINGS

IR 05000261/2011-003, 04/01/2011 - 06/30/2011; H.B. Robinson Steam Electric Plant, Unit 2; Operability Determinations

The report covered a three month period of inspection by resident inspectors and an announced inspection by health physicist inspectors. Two NRC identified violations were identified. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP). The cross cutting aspects were determined using IMC 0310, "Components within the Cross Cutting Areas." Findings for which the SDP does not apply may be Green or be assigned a severity level after NRC management review.

A. NRC-Identified and Self-Revealing Findings

Cornerstone: Mitigating Systems

- Green. The inspectors identified a Non-Cited Violation (NCV) of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," for the licensee's failure to perform an adequate seismic analysis during the plant modification of the 125VDC Battery Chargers. Specifically, the interface evaluation for installation of the safety-related, Battery Charger, cable tray and conduit failed to consider the seismic interaction with the adjacent air-handling unit structure. Subsequent review and analysis determined that the modification introduced a degraded/nonconforming condition which does not affect operability. The licensee documented the issue in Nuclear Condition Report 458971 and initiated actions for a plant modification.

  The failure to perform an adequate seismic analysis for the installation of the safety-related cable trays and conduit is a performance deficiency. This performance deficiency is associated with the design control attribute of the Mitigating System Cornerstone. It is more than minor since it is similar to Inspection Manual Chapter 0612, Appendix E, Example, 3.a, in that the seismic analysis for the cable trays and conduits require revision and modification to the air handling unit structural supports to correctly resolve the seismic concerns. In accordance with IMC 0609 (Table 4a), "Phase 1 – Initial Screening and Characterization of Findings," the finding was determined to be of very low safety significance (Green) because the finding was not a design or qualification deficiency which resulted in a loss of operability or functionality. The inspectors did not identify a cross-cutting aspect associated with this finding because the performance deficiency occurred in 1991 and does not represent current licensee performance. (Section 1R15)

- Green. The inspectors identified a NCV of Technical Specification (TS) 3.5.4 Refueling Water Storage Tank (RWST), which required the RWST to be operable in modes 1 through 4. The licensee failed to comply with the TS Action Statements when the RWST was rendered inoperable by placing the non-seismically qualified purification loop in

operation. Upon discovery the licensee promptly restored the RWST to operable status by removing the purification loop from service, put administrative controls in place to prevent use of the purification loop, and initiated Action Request (AR) 452093 to evaluate the event.

Use of the non-seismically qualified Spent Fuel Pool Demineralizer System for purification of the Refueling Water Storage Tank was determined to be a performance deficiency. This action rendered the RWST inoperable and the licensee failed to comply with the required action statement for an inoperable RWST. The finding is more than minor because if left uncorrected, the performance deficiency has the potential to lead to a more significant safety concern. Specifically, during a seismic event the purification piping could break and cause a loss of inventory in the RWST. Significance Determination Process (SDP) Phase 1 screening determined that this finding was within the mitigating systems cornerstone and was potentially risk significant due to a seismic external event and therefore required a Phase 3 SDP analysis. A phase 3 risk assessment was performed by a regional SRA using the NRC SPAR model. An exposure period of 213 days was utilized as this represented the worst case one year exposure period determined using the RWST purification history data. No recovery credit was assumed in the analysis. The non-seismic RWST purification piping and the dedicated shutdown diesel generator were assumed to fail at the same seismic input as that assumed for a loss of offsite power. The dominant sequence was a seismically induced loss of offsite power leading to a station blackout with failure of the emergency power system and failure to recover offsite power or the emergency diesel generators. Subsequent battery depletion and operator failure to control the turbine driven auxiliary feedwater pump would lead to core damage. The risk was mitigated by the low probability of a seismic event and the failure probability of the emergency diesel generators. The analysis determined that the risk increase of the performance deficiency was an increase in core damage frequency less than 1E-6/year a GREEN finding of very low safety significance.

The cause of the finding was directly related to the conservative assumptions aspect in the Decision Making component of the Human Performance area because during a previous review of this evolution the licensee did not demonstrate the proposed action was safe in order to proceed. Instead the licensee could not find a requirement to show it was unsafe and concluded placing the RWST on purification was acceptable (H.1(b)) (Section 1R15).

B. Licensee-Identified Violations

None

REPORT DETAILS

Summary of Plant Status The unit began the inspection period at rated thermal power, and operated at full power for the entire inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

1R01 Adverse Weather Protection

.1 Readiness of Offsite and Alternate AC Power Systems

a. Inspection Scope

The inspectors verified that plant features and procedures for operation and continued availability of offsite and alternate alternating current (AC) power systems during adverse weather were appropriate. The inspectors reviewed the licensee's procedures affecting these areas and the communications protocols between the transmission system operator (TSO) and the plant to verify that the appropriate information was being exchanged when issues arose that could impact the offsite power system. Examples of aspects considered in the inspectors' review included:

- The coordination between the TSO and the plant during off-normal or emergency events;
- The explanations for the events;
- The estimates of when the offsite power system would be returned to a normal state; and,
- The notifications from the TSO to the plant when the offsite power system was returned to normal.

The inspectors also verified that plant procedures addressed measures to monitor and maintain availability and reliability of both the offsite AC power system and the onsite alternate AC power system prior to or during adverse weather conditions. Specifically, the inspectors verified that the procedures addressed the following:

- The actions to be taken when notified by the TSO that the post-trip voltage of the offsite power system at the plant would not be acceptable to assure the continued operation of the safety-related loads without transferring to the onsite power supply;
- The compensatory actions identified to be performed if it would not be possible to predict the post-trip voltage at the plant for the current grid conditions;
- A re-assessment of plant risk based on the maintenance activities which could affect grid reliability, or the ability of the transmission system to provide offsite power; and
- The communications between the plant and the TSO when changes at the plant could impact the transmission system, of when the capability of the transmission system to provide adequate offsite power was challenged.

Documents reviewed are listed in the Attachment to this report.

b. Findings

No findings were identified.

.2 Impending Adverse Weather

a. Inspection Scope

On April 5, 2011, a Tornado Watch was issued for the Robinson area, the inspectors reviewed actions taken by the licensee in accordance with Procedure OMM-021, Operation During Adverse Weather Conditions, prior to the onset of that weather, to ensure that the adverse weather conditions would neither initiate a plant event nor prevent any system, structure, or component from performing its design function. The inspectors reviewed the operator actions described in Procedure OMM-021, Operation During Adverse Weather, to verify that the desired results could be achieved.

The inspectors reviewed the following ARs associated with this area to verify that the licensee identified and implemented appropriate corrective actions:

- AR 468748, Rainwater Intrusion into the Oil House
- AR 455954, Freeze Protection Circuit 22 Indicating Light not lit

b. Findings

No findings were identified.

.3 External Flooding

a. Inspection Scope

The inspectors responded to the site following a very heavy rainstorm on May 27, 2011. The inspectors walked down the affected areas which contained risk-significant structures, systems, and/or components (SSCs) which were impacted by the unexpected surface water runoff into the protected area, Power Block and Auxiliary Building. The inspectors assessed the licensee's immediate response to the event.

b. Findings

Introduction: An Unresolved Item is being opened for the flooding event which occurred on May 27, 2001, because more information is required to determine if a performance deficiency exists.

Description: On May 27, 2011, a heavy rainstorm was not successfully managed by the sites engineered rainwater management features. This resulted in water run-off into the protected area, backing up of storm drains and water intrusion into the power block, Auxiliary Building and other support buildings. Additional review by the NRC is required following the completion of the licensee's root cause investigation. The review will

determine whether this issue represents a performance deficiency. This issue is identified as URI 05000261/2011003-1, Rainstorm Results in Flooding of the Power Block.

1R04 Equipment Alignment

a. Inspection Scope

Partial System Walkdowns:

The inspectors performed the following three partial system walkdowns for required equipment, while the indicated redundant structures, systems, and/or components (SSCs) were out-of-service for maintenance or following testing of the required equipment:

- "B" Service Water Booster Pump while performing maintenance on the "A" Service Water Booster Pump
- Steam Driven Auxiliary Feedwater Pump while performing maintenance on the "A" Motor Driven Auxiliary Feedwater Pump
- "A" Emergency Diesel Generator following surveillance testing

To evaluate the operability of the selected trains or systems under these conditions, the inspectors compared observed positions of valves, switches, and electrical power breakers to the procedures and drawings listed in the Attachment.

Complete System Walkdown:

The inspectors conducted a detailed review of the alignment and condition of the Auxiliary Feed Water System to verify that the existing alignment of the system was consistent with the correct alignment. To determine the correct system alignment, the inspectors reviewed the procedures, drawings, and the Updated Final Safety Analysis Report (UFSAR) section listed in the Attachment. The inspectors also walked down the system. During the walkdown, the inspectors reviewed the following:

- Valves were correctly positioned and did not exhibit leakage that would impact the functions of any given valve.
- Electrical power was available as required.
- Major system components were correctly labeled, lubricated, cooled, ventilated, etc.
- Hangers and supports were correctly installed and functional.
- Essential support systems were operational.
- Ancillary equipment or debris did not interfere with system performance.
- Tagging clearances were appropriate.
- Valves were locked as required by the locked valve program.
- Breakers were correctly positioned.
- Cabinets, cable trays, and conduits were correctly installed and functional.
- Visible cabling appeared to be in good material condition.

The inspectors reviewed the documents listed in the Attachment to verify that the ability of the system to perform its functions could not be affected by outstanding design issues, temporary modifications, operator workarounds, adverse conditions, and other system-related issues tracked by the engineering department.

The inspectors reviewed the following ARs associated with this area to verify that the licensee identified and implemented appropriate corrective actions:

- 297099, Main Generator Condition Monitor Breaker Found Open
- 287252, Spent Fuel Cask Crane Breaker Found On When Caution Tagged Off

b. Findings

No findings were identified.

1R05 Fire Protection

a. Inspection Scope

For the five areas identified below, the inspectors reviewed the control of transient combustible material and ignition sources, fire detection and suppression capabilities, fire barriers, and any related compensatory measures to verify that those items were consistent with UFSAR Section 9.5.1, Fire Protection System, and UFSAR Appendix 9.5.A, Fire Hazards Analysis. The inspectors walked down accessible portions of each area and reviewed results from related surveillance tests to verify that conditions in these areas were consistent with descriptions of the areas in the UFSAR. Documents reviewed are listed in the Attachment.

The following areas were inspected:

- E1/E2 Bus Room - Fire Zone 20
- Residual Heat Removal (RHR) Pump Pit - Fire Zone 27
- North Cable Vault Room - Fire Zone 9
- “A” Diesel Generator Room - Fire Zone 2
- South Cable Vault Room - Fire Zone 10

The inspectors reviewed the following ARs associated with this area to verify that the licensee identified and implemented appropriate corrective actions:

- AR 422363, Secondary Fire Alarm Panel Error Message
- AR 422062, Failed Carbon Monoxide Sensor for the Self Contained Breathing Apparatus Compressor

b. Findings

No findings were identified.

1R06 Underground Cable Inspection

a. Inspection Scope

The inspectors walked down two underground cable manholes/bunkers to verify the following:

- The cable was not submerged in water;
- The condition of any cable splices;
- The condition of any cable support structures; and
- The condition of any dewatering devices, if applicable.

The following cable/locations were inspected:

- "B" Emergency Diesel Generator Fuel Oil Transfer Pump location H574-SB
- "B" Emergency Diesel Generator Fuel Oil Transfer Pump location H575-SB

Documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

1R11 Licensed Operator Requalification

a. Inspection Scope

Operating Experience Smart Sample FY 2010-02: "Sample Selections for Reviewing Licensed Operator Examinations and Training Conducted on the Plant Referenced Simulator"

The inspectors observed licensed operator performance during requalification simulator training to verify that operator performance was consistent with expected operator performance, as described in Lesson Number LOC1101R. This training tested the operators' ability to operate components from the control room, direct auxiliary operator actions, and determine the appropriate emergency action level classifications while responding to a loss of the primary Fire Alarm Console, a seismic event which caused fuel failure, a service water leak in the Auxiliary Building, loss of main condenser vacuum, reactor trip with control rods which failed to insert requiring emergency boration, and excessive leakage into the "C" steam generator which required manual action to isolate. The inspectors focused on clarity and formality of communication, the use of procedures, alarm response, control board manipulations, group dynamics, and supervisory oversight.

The inspectors observed the post-exercise critique to verify that the licensee identified deficiencies and discrepancies that occurred during the simulator training.

The inspectors reviewed the following ARs associated with this area to verify that the licensee identified and implemented appropriate corrective actions:

- AR 397232, Biennial Task Review Delayed
- AR 404779, Shift Technical Advisor Oversight Role Did Not Meet Expectations During Training Scenario

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness

a. Inspection Scope

The inspectors reviewed the three degraded SSC/function performance problems or conditions listed below to verify the appropriate handling of these performance problems or conditions in accordance with 10 CFR 50, Appendix B, Criterion XVI, Corrective Action, and 10 CFR 50.65, Maintenance Rule. Documents reviewed are listed in the Attachment.

The problems/conditions were:

- AR 456681; "C" Component Cooling Water (CCW) Pump has 160 drops per minute (DPM) Leak Inboard Seal, 60 DPM Leak Outboard Seal
- AR 462685; South Service Water Strainer not Rotating
- Preventive Maintenance Practices: Operating Experience Smart Sample (OPESS) FY 2010-01, "Recent Inspection Experience for Components Installed Beyond Vendor Recommended Service Life"

During the reviews, the inspectors focused on the following:

- Appropriate work practices;
- Identifying and addressing common cause failures;
- Scoping in accordance with 10 CFR 50.65(b);
- Characterizing reliability issues (performance);
- Charging unavailability (performance);
- Trending key parameters (condition monitoring);
- 10 CFR 50.65(a)(1) or (a)(2) classification and reclassification; and
- Appropriateness of performance criteria for SSCs/functions classified (a)(2) and/or appropriateness and adequacy of goals and corrective actions for SSCs/functions classified (a)(1).

Additionally, for the OPESS FY 2010-01, the inspectors selected seven components to evaluate the licensees preventive maintenance practices compared to vendor recommended preventive maintenance practices.

The inspectors reviewed the following ARs associated with this area to verify that the licensee identified and implemented appropriate corrective actions:

- AR 462610, Lack of Corrective Maintenance Procedures for DS Type Breakers
- AR 452796, Lowering Seal Water Tank Level on the “A” Charging Pump

b. Findings

No findings were identified.

1R13 Maintenance Risk Assessments and Emergent Work Evaluation

a. Inspection Scope

For the four samples listed below, the inspectors reviewed risk assessments and related activities to verify that the licensee performed adequate risk assessments and implemented appropriate risk-management actions when required by 10 CFR 50.65(a)(4). For emergent work, the inspectors also verified that any increase in risk was promptly assessed, and that appropriate risk-management actions were promptly implemented. Documents reviewed are listed in the Attachment.

Those periods included the following:

- April 12-16, 2011, Yellow Risk while “A” Service Water (SW) Pump out of service (OOS)
- May 2-3, 2011, "A" Emergency Diesel Generator (EDG) unavailable during maintenance inspection
- June 17, 2011, Emergent work to Replace Charging Pump “B” Fluid Cylinder
- June 24, 2011, Emergent work to Repair the “B” EDG Room Exhaust Damper

The inspectors reviewed the following ARs associated with this area to verify that the licensee identified and implemented appropriate corrective actions:

- 473364, Response to Emergent Issues Less than Adequate
- 461080, Did not Evaluate All Work when Emergent Work Impacted Risk

b. Findings

No findings were identified.

1R15 Operability Evaluations

a. Inspection Scope

The inspectors reviewed the four operability determinations associated with the ARs listed below. The inspectors assessed the accuracy of the evaluations, the use and

control of any necessary compensatory measures, and compliance with the TS. The inspectors verified that the operability determinations were made as specified by Procedure OPS-NGGC-1305, Operability Determinations. The inspectors compared the justifications provided in the determinations to the requirements from the TS, the UFSAR, associated design-basis documents, to verify that operability was properly justified and the subject components or systems remained available, such that no unrecognized increase in risk occurred:

- AR 458971, Seismic Concern with Battery Room Air Handling Unit
- AR 467701, Leak on CVC-121D Drain Pipe Weld
- AR 464738, SI-863-A, Residual Heat Removal Recirculation Valve Motor Operator Stall Loads Greater Than Design Calculation
- AR 422778, Refueling Water Storage Tank (RWST) Operability with Purification In Service

b. Findings

.1 Inadequate Seismic Analysis for Installation of Safety Related Cable Trays and Conduit

Introduction: The inspectors identified a Non-Cited Violation (NCV) of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," for the licensee's failure to perform an adequate seismic analysis during the plant modification of the 125VDC Battery Chargers. Specifically, the interface evaluation for installation of the safety related, Battery Charger, cable tray and conduit failed to consider the seismic interaction with the adjacent air-handling unit structure. Subsequent review and analysis determined that the modification introduced a degraded/nonconforming condition. The licensee documented the issue in Nuclear Condition Report 458971 and initiated actions for a plant modification.

Description: On April 11, 2011, the inspectors performed a seismic walk down of the equipment located in the 125VDC Battery Room. The inspectors identified an apparent missing bolt on the support structure for the Battery Room Air Handling Unit (ACU-2). The bolt appeared to be missing from a connection of one of the vertical support legs with the horizontal frame member. The Battery Room Air handling unit is located above the safety related 125VDC battery racks and supported by a structural steel frame from the ceiling of the Reactor Auxiliary Building. Two safety related cable trays and one conduit is located immediately below and adjacent to air handling unit, respectively. The air handling unit ACU-2 is not safety related but it must remain seismically secure to ensure that it will not catastrophically detach from the ceiling anchorage and adversely impact safety related equipment. The inspectors notified the licensee and questioned whether the steel structure would impact the safety related battery, located below, following a design bases seismic event. The licensee documented the inspectors concerns in NCR 458971.

Site engineering performed an evaluation to determine the structural adequacy of the frame structure with the missing bolt. The licensee's analysis concluded that the missing

bolt represented a degraded/non-conformance in that the structure is designed to have all four corners of the upper horizontal frame secured but determined that the structure would not detach and adversely impact the safety related battery racks below. During a review of EC 80853 rev.0 the inspectors observed that the licensee's evaluation did not analyze the potential impact on the cable trays and conduit, located below and adjacent to the framed structure. Inspectors noted that, based upon the vertical and horizontal deflections documented in the licensee's evaluation, the safety related cable trays and conduits could potentially be impacted by the support structure during a design bases seismic event. Upon notification of the inspectors concern, the licensee performed another analysis to address the potential interaction of the support structure with the cable tray's located immediately below and adjacent conduit. Based on the analysis in EC80853 rev.1 the licensee determined that the support structure for ACU-2 would impact the cable tray supports and adjacent conduit but the safety related cables in the trays would still meet their design function. The safety related supports and conduits were considered operable but degraded/non-conforming.

Further discussions with the licensee revealed that the original cable tray supports were designed to be flexible to account for the expected lateral movement of the flexible ACU-2 support structure, during a seismic event, to negate the potential impact of the two structures. The inspectors discovered that in 1991, during a plant modification of the 'A' Battery Chargers, the licensee installed new cable trays with rigid supports. The inspectors reviewed plant modification, M-940-4, 'Battery Charger Addition' to determine the bases for the installment of rigid supports. The licensee's discussion of interface requirements in M-940-4 did not include the seismic interaction of the existing flexible ACU-2 support structure with the new rigid supports for the cable trays. Additionally the 1991 modification did not evaluate the potential consequences of the impact of the flexible ACU-2 support structure with the newly installed cable trays and supports. The inspectors discovered that the installation of the new rigid supports for the cable trays introduced the degraded/non-conforming condition. The licensee's analysis concluded that replacing the missing bolt would not resolve the seismic concern and that the degraded/non-conforming condition would still exist due to the expected lateral movement of the ACU-2 support structure. The licensee initiated actions for replacement of the missing bolt and installation of lateral supports on the ACU support structure to resolve the seismic concerns.

Analysis: Failure to perform an adequate seismic analysis for the installation of the safety related cable trays and conduits is a performance deficiency. This performance deficiency is more than minor because it is similar to IMC 0612, Appendix E, Example 3.a., in that the seismic analysis for the cable trays and conduits require revision and modification to the air handling unit structural supports to correctly resolve the seismic concerns. The finding is associated with the design control attribute of the Mitigating Systems Cornerstone. In accordance with IMC 0609 (Table 4a), "Phase 1 – Initial Screening and Characterization of Findings," the finding was determined to be of very low safety significance (Green) because the finding was not a design or qualification deficiency which resulted in a loss of operability or functionality. The inspectors did not identify a cross-cutting aspect associated with this finding because the performance deficiency occurred in 1991 and does not represent current licensee performance.

Enforcement: 10 CFR Part 50, Appendix B, Criterion III, "Design Control," requires, in part, that design control measures shall provide for verifying or checking the adequacy of design, such as by the performance of design reviews, by the use of alternate or simplified calculation methods, or by the performance of a suitable testing program. Plant modification, M-940-4, 'Battery Charger Addition', installed new cable trays with rigid supports below the ACU-2. Contrary to the above, in 1991, during the plant modification of the "A" train battery chargers, the licensee's design control measures failed to verify the adequacy of the design of the new cable tray supports. Because the finding is of very low safety significance and it was entered into the licensee's corrective action program (CAP) as NCR 458971, this violation is being treated as a Green NCV, consistent with of the NRC Enforcement Policy: NCV 05000261/2011003-02, Inadequate Seismic Analysis for Installation of Safety Related Cable Trays and Conduit.

.2 Unresolved Item Closure

(Closed) URI 05000261/2011002-04, Refueling Water Storage Tank Operability While On Purification

a. Inspection Scope

The inspectors previously opened URI 05000261/2011002-04, Refueling Water Storage Tank Operability While on Purification, in NRC Integrated Inspection Report 05000261/2011002. The inspectors performed a review of AR 452093 to evaluate the licensee's conclusions regarding the impact on RWST operability when placing the purification loop in operation. The inspectors also performed a system walkdown to inspect the condition of the seismic boundary valves.

b. Findings

Introduction: The inspectors identified a Green NCV of Technical Specification (TS) 3.5.4 Refueling Water Storage Tank (RWST), which required the RWST to be operable in modes 1 through 4. The licensee placed the non-seismically qualified purification loop in operation on the seismically qualified RWST. This action introduced a degraded non-conforming condition which made the RWST inoperable.

Description: The inspectors noted on March 8, 2011, with the unit in Mode 1, that the RWST purification loop had been in operation for approximately 14 hours. The piping and components of the purification loop are shown on plant drawings to be beyond the seismic qualification boundary for the RWST. The licensee had previously reviewed this issue using AR 422778 in late 2010 and determined it was acceptable to place the RWST on purification without declaring the RWST inoperable. The inspectors questioned the basis for that conclusion. The licensee promptly removed the RWST from purification, put administrative controls in place to prevent use of the purification loop, and initiated AR 452093 to evaluate the issue. The inspectors determined that placing the RWST on purification for a matter of operational convenience introduced a degraded non-conforming condition and was a performance deficiency. Specifically, the purification system is not seismically qualified and when the boundary valves were

opened the RWST was made inoperable. TS 3.5.4 Action B required the RWST to be restored to operable status within one hour or place the unit in Mode 3 within the next six hours. This action was not completed on March 7, 2011. The inspectors reviewed AR 422778 which concluded it was acceptable to place the RWST on purification. The inspectors determined the licensee's approach primarily focused on trying to determine why placing the RWST on purification was unacceptable as opposed to supporting why it was acceptable to perform the evolution. The inspectors reviewed the RWST system alignments since January 2008 and determined the RWST had been on purification for a total of approximately 307 days.

Analysis: Use of the non-seismically qualified spent fuel pool purification on the Refueling Water Storage Tank introduced a degraded non-conforming condition and was determined to be a performance deficiency. This action rendered the RWST inoperable and the licensee failed to comply with the required action statement for an inoperable RWST. The finding is more than minor because if left uncorrected, the performance deficiency has the potential to lead to a more significant safety concern. Specifically, during a seismic event the purification piping could break and cause a loss of inventory in the RWST. Significance Determination Process (SDP) Phase 1 screening determined that this finding was within the mitigating systems cornerstone and was potentially risk significant due to a seismic external event and therefore required a Phase 3 SDP analysis. A phase 3 risk assessment was performed by a regional SRA using the NRC SPAR model. An exposure period of 213 days was utilized as this represented the worst case one year exposure period determined using the RWST purification history data. No recovery credit was assumed in the analysis. The non-seismic RWST purification piping and the dedicated shutdown diesel generator were assumed to fail at the same seismic input as that assumed for a loss of offsite power. The dominant sequence was a seismically induced loss of offsite power leading to a station blackout with failure of the emergency power system and failure to recover offsite power or the emergency diesel generators. Subsequent battery depletion and operator failure to control the turbine driven auxiliary feedwater pump would lead to core damage. The risk was mitigated by the low probability of a seismic event and the failure probability of the emergency diesel generators. The analysis determined that the risk increase of the performance deficiency was an increase in core damage frequency less than 1E-6/year a GREEN finding of very low safety significance.

The cause of the finding was directly related to the conservative assumptions aspect in the Decision Making component of the Human Performance area because the licensee did not demonstrate the proposed action (placing the RWST on purification) was safe in order to proceed. Instead the licensee could not find a requirement to show it was unsafe and concluded placing the RWST on purification was acceptable (H.1(b)).

Enforcement: TS 3.5.4, Refueling Water Storage Tank (RWST), Action B requires the RWST to be restored to operable status within one hour and Action C requires the unit to be placed in Mode 3 in six hours if the required Action B is not completed. Contrary to the above, on March 7, 2011 the licensee rendered the RWST inoperable by placing the non-seismically qualified purification loop in operation and did not comply with Actions B and C. The licensee restored operability on March 8, 2011, by removing the purification

loop from service. Because the finding is of very low safety significance and it was entered into the licensee's corrective action program (CAP) as AR 452093, this violation is being treated as a Green NCV, consistent with the NRC Enforcement Policy: NCV 05000261/2011003-03, Refueling Water Storage Tank Inoperable While on Purification.

URI 05000261/2011002-4, Refueling Water Storage Tank Operability While on Purification is closed.

1R18 Plant Modifications

.1 Temporary Modification

a. Inspection Scope

The inspectors reviewed the two temporary modifications described in the Engineering Changes (ECs) listed below to verify that the modifications did not affect the safety functions of important safety systems, and to verify that the modifications satisfied the requirements of 10 CFR 50, Appendix B, Criterion III, Design Control.

- EC 81447, Temporary Support for CVC-121D, Chemical and Volume Control System Drain Valve
- EC 79649, Code Leak Repair of the Differential Pressure Sense Line for the Service Water Strainer near SW-395 Isolation Valve.

Documents reviewed are listed in the Attachment.

The inspectors reviewed the following ARs associated with this area to verify that the licensee identified and implemented appropriate corrective actions:

- AR 471119, Carbon Steel Used for SI-949 Instrument Isolation Valve Body Instead of Stainless Steel
- AR 467745, Engineering Change Specified Breaker Which Would Not Fit In Cubicle

b. Findings

No findings were identified.

1R19 Post Maintenance Testing

a. Inspection Scope

For the six post-maintenance tests listed below, the inspectors witnessed the test and/or reviewed the test data to verify that test results adequately demonstrated restoration of the affected safety functions described in the UFSAR and TS. Documents reviewed are listed in the Attachment.

The following tests were witnessed / reviewed:

- WO 1625708-01, Repair "C" Safety Injection (SI) Pump Inboard Bearing Housing Leak ; PMT in accordance with OST 151-3 Safety Injection System Components Test- Pump "C", Rev. 34;
- WO 1904082-01; Replace DA-33B "B" EDG Starting Air Compressor Check Valve; PMT in accordance with OST-701-04, Diesel Generators Inservice Valve Test, Rev.18;
- WO 1510826-17; Replacement of Hydra-motor on FCV-6416, Steam Driven Auxiliary Feedwater Pump Flow Control Valve; PMT in accordance with OST-206, Comprehensive Flow Test for the Steam Driven Auxiliary Feedwater Pump, Rev. 56;
- WO 1020063-01; Replace Gyrol Rotating Assembly on "A" Charging Pump; PMT in accordance with OST-101-1, CVCS Component Test Charging Pump "A", Rev. 47;
- WO 1526033-01; Trip Testing of MCC-6(18F), Supply Breaker for V6-33D Service Water Inlet Isolation for Containment Cooler HVH-4; PMT in accordance with OST-902-2, Containment Fan Coolers Component Test "B", Rev. 0.; and
- WO 1469941-03; Disassemble, Inspect and Repair DA-023A, "A" EDG Starting Air Valve; PMT in accordance with OST-401-1, EDG "A" Slow Speed Start, Rev. 47.

The inspectors reviewed the following ARs associated with this area to verify that the licensee identified and implemented appropriate corrective actions:

- 455965, Flapper on Dedicated Shutdown Diesel Exhaust Stuck Open
- 445840, Wrong Temperature Elements Installed in DG-1B and DG-3B, "B" EDG Cooling System Thermostatic Elements

b. Findings

No findings were identified.

1R22 Surveillance Testing

a. Inspection Scope

For the four surveillance tests listed below, the inspectors witnessed testing and/or reviewed the test data to verify that the systems, structures, and components involved in these tests satisfied the requirements described in the TS, the UFSAR, and applicable licensee procedures, and that the tests demonstrated that the SSCs were capable of performing their intended safety functions. Documents reviewed are listed in the Attachment.

- OST-401-2, Emergency Diesel Generator "B" Slow Speed Start, Rev. 44
- OST-352-3, Comprehensive Flow Test for Containment Spray Pump "A", Rev. 18

Inservice Testing Surveillance

- OST-251-1, Residual Heat Removal Pump "A" and Components Test, Rev. 25

Reactor Coolant System Leakage Detection Surveillance

- OST-051, Reactor Coolant Leakage Evaluation (Every 72 Hours During Steady State Operation and Within 12 Hours of Reaching Steady State Operation), Rev. 44

The inspectors reviewed the following ARs associated with this area to verify that the licensee identified and implemented appropriate corrective actions:

- AR 470180, Core Map Flux Traces Not Properly Documented
- AR 468381, Spare Battery Cell Voltage Readings are High

b. Findings

No findings were identified.

Cornerstone: Emergency Preparedness

1EP6 Drill Evaluation

a. Inspection Scope

On April 19, 2011, the inspectors observed an emergency preparedness drill to verify licensee self-assessment of classification, notification, and protective action recommendation development in accordance with 10 CFR 50, Appendix E. The inspectors also attended the post-drill critique to verify that the licensee properly identified failures in classification, notification and protective action recommendation development activities.

b. Findings

No findings were identified.

2. RADIATION SAFETY

Cornerstone: Public Radiation Safety

2RS1 Radiological Hazard Assessment and Exposure Controls

a. Inspection Scope

Hazard Assessment and Instructions to workers: During facility tours, the inspectors directly observed labeling of radioactive material and postings for radiation areas, high radiation areas (HRAs), locked high radiation areas (LHRAs) and contaminated areas established within the radiologically controlled area (RCA) of the Unit 2 (U2) auxiliary building, and radioactive waste (radwaste) processing and storage locations. The inspectors independently measured radiation dose rates or directly observed conduct of licensee radiation surveys for selected RCA areas. The inspectors reviewed survey records for several plant areas including surveys for alpha emitters, hot particles,

airborne radioactivity, gamma surveys with a range of dose rate gradients, and pre-job surveys for upcoming tasks. The inspectors also discussed changes to plant operations that could contribute to changing radiological conditions since the last inspection. For selected high risk radiological work, the inspectors observed Just-In-Time training, attended pre-job briefings, and reviewed radiation work permit (RWP) details to assess communication of radiological control requirements and current radiological conditions to workers.

Hazard Control and Work Practices: The inspectors evaluated access barrier effectiveness for selected U2 LHRA and Very High Radiation Area (VHRA) locations. Changes to procedural guidance for LHRA and VHRA controls were discussed with health physics (HP) supervisors. Controls and their implementation for storage of irradiated material within the spent fuel pool (SFP) were reviewed and discussed in detail. Established radiological controls were evaluated for selected tasks including transfer of spent resin, work in auxiliary building HRAs, and radwaste processing and storage. In addition, licensee controls for areas where dose rates could change significantly as a result of plant shutdown and refueling operations were reviewed and discussed.

Occupational workers' adherence to selected RWPs and HP technician proficiency in providing job coverage were evaluated through direct observations and interviews with licensee staff. Electronic dosimeter (ED) alarm set points and worker stay times were evaluated against area radiation survey results for transfer of spent resin to a liner. ED alarm logs were reviewed and worker response to dose and dose rate alarms during selected work activities was evaluated. For HRA tasks involving significant dose rate gradients, e.g. spent resin transfer activities, the inspectors evaluated the use and placement of whole body and extremity dosimetry to monitor worker exposure.

Control of Radioactive Material: The inspectors observed surveys of material and personnel being released from the RCA using small article monitor, personnel contamination monitor, and portal monitor instruments. The inspectors reviewed the last two calibration records for selected release point survey instruments and discussed equipment sensitivity, alarm setpoints, and release program guidance with licensee staff. The inspectors compared recent 10 CFR Part 61 results for the Dry Active Waste (DAW) radioactive waste stream with radionuclides used in calibration sources to evaluate the appropriateness and accuracy of release survey instrumentation. The inspectors also reviewed records of leak tests on selected sealed sources and discussed nationally tracked source transactions with licensee staff.

Problem Identification and Resolution: Nuclear Condition Reports (NCRs) associated with radiological hazard assessment and control were reviewed and assessed. The inspectors evaluated the licensee's ability to identify and resolve the issues in accordance with procedure CAP-NGGC-205, "Condition Evaluation and Corrective Action Process", Rev. 12. The inspectors also evaluated the scope of the licensee's internal audit program and reviewed recent assessment results.

Radiation protection activities were evaluated against the requirements of Updated Final Safety Analysis Report (UFSAR) Section 12; Technical Specifications (TS) Sections 5.4 and 5.7; 10 CFR Parts 19 and 20; and approved licensee procedures. Licensee programs for monitoring materials and personnel released from the RCA were evaluated against 10 CFR Part 20 and IE Circular 81-07, Control of Radioactively Contaminated Material. Documents reviewed are listed in Section 2RS1 of the Attachment.

b. Findings

No findings were identified.

2RS4 Occupational Dose Assessment

a. Inspection Scope

External Dosimetry: The inspectors reviewed National Voluntary Laboratory Accreditation Program (NVLAP) certification data (including thermoluminescent dosimeter (TLD) testing for neutron, gamma, and beta exposures) and discussed program guidance for storage, processing, and evaluation of results for active and passive personnel dosimeters currently in use. Comparisons between ED and TLD data were discussed in detail. In addition, the inspectors reviewed ED alarm logs and evaluated licensee assessment actions for selected alarm events.

Internal Dosimetry: Program guidance (including derived air concentration (DAC)-hr tracking), instrument detection capabilities, and assessment results for internally deposited radionuclides were reviewed in detail. The inspectors reviewed selected in vivo (Whole Body Count) analyses from January 2010 to January 2011. Capabilities for collection and analysis of special bioassay samples were evaluated and discussed with licensee staff.

Special Dosimetric Situations: The inspectors evaluated the licensee's use of multi-badging, extremity dosimetry, and dosimeter relocation within non-uniform dose rate fields and discussed worker monitoring in neutron areas with licensee staff. The inspectors also reviewed records of monitoring for declared pregnant workers from May 2009 to May 2011 and discussed monitoring guidance with dosimetry staff. In addition, the adequacy of shallow dose assessments for selected Personnel Contamination Events occurring between January 2010 and January 2011 were reviewed and discussed.

Problem Identification and Resolution: The inspectors reviewed and discussed selected Corrective Action Program (CAP) documents associated with occupational dose assessment. The inspectors evaluated the licensee's ability to identify and resolve the issues in accordance with procedure CAP-NGGC-0200, "Condition Identification and Screening Process", Rev. 33. The inspectors also discussed the scope of the licensee's internal audit program and reviewed recent assessment results.

Occupational dose assessment activities were evaluated against the requirements of UFSAR Section 12; TS Section 5.4; 10 CFR Parts 19 and 20; and approved licensee procedures. Records reviewed are listed in Sections 2RS1 and 2RS4 of the report Attachment.

b. Findings

No findings were identified.

2RS5 Radiation Monitoring Instrumentation

a. Inspection Scope

Radiation Monitoring Instrumentation: During tours of the reactor auxiliary building, spent fuel pool areas, and RCA exit point, the inspectors observed installed radiation detection equipment including the following instrument types: area radiation monitors (ARM), continuous air monitors, personnel contamination monitors (PCM), small article monitors (SAM), portal monitors (PM), and liquid and gaseous effluent monitors. The inspectors observed the physical location of the components, noted the material condition, and compared sensitivity ranges with UFSAR details.

In addition to equipment walk-downs, the inspectors observed functional checks and alarm set-point testing of various fixed and portable detection instruments, including SAMs, teletectors, PCMs, and PMs. The most recent 10 CFR Part 61 analysis for DAW was reviewed to determine if calibration and check sources were representative of the plant source term. Inspectors also reviewed and witnessed daily performance tests of laboratory instrumentation such as gas proportional counters, high purity germanium (HPGe) detectors, scintillation counters and gross alpha and beta counters. The inspectors reviewed calibration records for selected PCMs, PMs, and SAMs located at the RCA exit. The inspectors also reviewed calibration records for instruments used to quantify effluent sample activity including HPGe detectors and liquid scintillation counters. Calibration source documentation was reviewed for the ARM high-range calibrator and the Cs-137 source used for portable instrument checks. Historical calibration records were also reviewed for ARM channels R-32A and R-32B (Containment High-Range monitors), R-14 (Plant Vent Radiation Monitor), and R-21 (Fuel Handling Building upper level exhaust). Calibration stickers on portable survey instruments were noted during inspection of storage areas for ready-to-use equipment.

Operability and reliability of selected radiation detection instruments were reviewed against details documented in the following: 10 CFR Part 20; NUREG-0737, Clarification of TMI Action Plan Requirements; TS Sections 3 and 5; UFSAR Chapters 11 and 12; and applicable licensee procedures. Documents reviewed during the inspection are listed in Sections 2RS5 and 2RS6 of the report Attachment.

Problem Identification and Resolution: Selected licensee NCR documents associated with instrumentation were reviewed and assessed. The inspectors evaluated the licensee's ability to identify, characterize, prioritize, and resolve the identified issues in accordance with procedure CAP-NGGC-0200, "Corrective Action Program", Rev. 33. The inspectors also evaluated the scope of the licensee's internal audit program and reviewed recent assessment results. Documents reviewed are listed in Section 2RS5 of the report Attachment.

b. Findings

No findings were identified.

2RS6 Radioactive Gaseous and Liquid Effluent Treatment

a. Inspection Scope

Program Reviews: The inspectors evaluated gaseous and liquid effluent treatment system waste storage, processing, and release activities. The evaluation included a review and discussion of procedural guidance and changes to the effluent treatment systems as detailed in the Offsite Dose Calculation Manual (ODCM), UFSAR, and 50.59 screening/review documents issued since January 1, 2009. In addition, Annual Radiological Effluent Release Report documents for 2009 and 2010 were reviewed for trends in the liquid and gaseous effluent release data reported. Quality assurance program activities including review of inter-laboratory comparison results and recent audit results and licensee actions were reviewed and discussed.

Equipment Walk downs: The inspectors walked down accessible components of the gaseous and liquid discharge systems to ascertain material condition, configuration and alignment. The walk downs included material condition and configuration of tanks, piping, valves and liquid waste radiation monitors. The inspectors observed the material condition of portable instrumentation that would give early indication of an unexpected effluent release to include continuous air monitors, and telemetric dose rate instrumentation used for monitoring various rad waste processes.

Effluents: The inspectors reviewed performance records and calibration results for selected radiation monitors, flowmeters, and air filtration systems. The last two surveillances performed on auxiliary building High Efficiency Particulate Air (HEPA) and containment purge HEPA/Charcoal air treatment systems were also reviewed. The inspectors evaluated out-of-service effluent monitors and compensatory action data for the period January 2009 – May 2011. In addition, isokinetic sample line flow rates were reviewed and discussed with chemistry staff to evaluate the adequacy of representative sampling. The inspectors observed the weekly collection of airborne effluent samples from the Upper Fuel Handling Building, chemistry lab hood exhaust and liquid effluent samples from the turbine building (condensate polisher discharge). Chemistry technician proficiency in collecting, processing, and counting the samples, as well as preparing the applicable release permits were evaluated. The inspectors reviewed recent liquid and gaseous release permits including pre-release sampling results,

effluent monitor set-points, and resultant doses to the public. The licensee's process for identifying and quantifying hard-to-detect radionuclides in effluent streams was discussed with licensee staff and the most recent 10 CFR 61 analysis for DAW was reviewed. The inspectors evaluated the effects of changing ventilation alignments on gaseous effluents released.

Ground Water Protection: The licensee's implementation of the Industry Ground Water Protection Initiative was reviewed for consistency with the industry commitments outlined in NEI 07-07. Changes to the ODCM and UFSAR related to surface water and the potential for groundwater intrusion from reviewed and discussed. This review included review of documentation of onsite monitoring in wells, and holding ponds. The review also included discussion with plant personnel about suspected leaks and spills at or below the reporting criteria. The inspectors reviewed the 10 CFR 50.59 (g) records for the period of January 2009 to January 2011.

Problem Identification and Resolution: Selected NCRs associated with effluent release activities were reviewed and assessed. The inspectors evaluated the licensee's ability to identify, characterize, prioritize, and resolve selected issues in accordance with procedure CAP-NGGC-0200, "Corrective Action Program", Rev. 33. The inspectors also evaluated the scope of the licensee's internal audit program and reviewed recent assessment results.

Observed task evolutions, count room activities, and offsite dose results were evaluated against details and guidance documented in the following: 10 CFR Part 20 and Appendix I to 10 CFR Part 50; ODCM; RG 1.21; RG 1.109, Calculation of Annual Doses to Man from Routine Releases of Reactor Effluents for the Purpose of Evaluating Compliance with 10 CFR Part 50 Appendix I; and TS Section 5. Procedures and records reviewed during the inspection are listed in Section 2RS6 of the report Attachment.

b. Findings

No findings were identified.

2RS7 Radiological Environmental Monitoring Program (REMP)

a. Inspection Scope

REMP Implementation: The inspectors observed several airborne, surface water, and broadleaf sample collection and surveillance activities at selected monitoring locations, as required by the licensee's environmental monitoring program. The inspectors noted the material condition and operability of airborne particulate filter and iodine cartridge sample stations. The inspectors also observed the collection of a supplemental surface water sample on the West Settling Pond. Environmental TLDs at selected sites were also checked for material condition. The inspectors determined the current location of selected sample points using NRC global positioning system instrumentation. Land use census results, changes to the ODCM, and sample collection/processing activities were discussed with environmental technicians and licensee staff.

The inspectors reviewed the last two calibration records for selected environmental air sampler flowmeters. The inspectors also reviewed the 2009 and 2010 Radiological Environmental Operating Reports, the results of the 2009 and 2010 interlaboratory comparison program, the 2010 assessment of the environmental program, and procedural guidance for environmental sample collection and processing. Selected environmental measurements were reviewed for consistency with licensee effluent data and compared with detection level sensitivity requirements. The licensee's groundwater monitoring program was reviewed as part of Inspection Procedure (IP) 71124.06.

Meteorological Monitoring Program: The inspectors observed surveillance on the meteorological tower and local data collection equipment. The inspectors observed the physical condition of the tower and its instrumentation and discussed equipment operability and maintenance history with licensee staff. The inspectors evaluated transmission of locally generated meteorological data to the main control room operators. For the meteorological measurements of wind speed, wind direction, and temperature, the inspectors reviewed the last two calibration records for applicable tower instrumentation. The inspectors also evaluated measurement data recovery for 2009 and 2010.

Identification and Resolution of Problems: The inspectors reviewed selected NCRs in the areas of radiological environmental monitoring and meteorological tower maintenance. The inspectors evaluated the licensee's ability to identify and resolve the issues in accordance with procedural guidance.

Procedural guidance, program implementation, meteorological monitoring, and environmental monitoring results were reviewed against 10 CFR Part 20, Appendix I to 10 CFR Part 50, TS Section 5.0, ODCM, UFSAR Chapter 2, Safety Guide 23 – Onsite Meteorological Programs - 1972, and the Branch Technical Position - An Acceptable Radiological Environmental Monitoring Program - 1979. Documents reviewed are listed in Section 2RS7 of the report Attachment.

b. Findings

No findings were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator (PI) Verification

a. Inspection Scope

The inspectors verified the PIs identified below. For each PI, the inspectors verified the accuracy of the PI data that had been previously reported to the NRC by comparing those data to the actual data, as described below. The inspectors also compared the licensee's basis in reporting each data element to the PI definitions and guidance contained in NEI 99-02, "Regulatory Assessment Indicator Guideline". In addition, the

inspectors interviewed licensee personnel associated with collecting, evaluating, and distributing these data.

Mitigating Systems Cornerstone

- Safety System Functional Failures

For the period from the first quarter of 2010 through the first quarter of 2011, the inspectors reviewed Licensee Event Reports (LERs), records of inoperable equipment, and Maintenance Rule records to verify that the licensee had accurately accounted for unavailability hours that the subject systems had experienced during the subject period. The inspectors also reviewed the number of hours those systems were required to be available and the licensee's basis for identifying unavailability hours.

Occupational Radiation Safety Cornerstone

The inspectors reviewed the Occupational Exposure Control Effectiveness PI results for the Occupational Radiation Safety Cornerstone from January 2010 through March 2011. For the assessment period, the inspectors reviewed ED alarm logs and selected NCRs related to controls for exposure significant areas. The inspectors also reviewed licensee procedural guidance for collecting and documenting PI data. Documents reviewed are listed in sections 2RS1 and 4OA1 of the report Attachment.

Public Radiation Safety Cornerstone

The inspectors reviewed the Radiological Effluent Technical Specification/Offsite Dose Calculation Manual Radiological Effluent Occurrences PI results from January 2010 through March 2011. The inspectors reviewed CAP documents, effluent dose data, and licensee procedural guidance for classifying and reporting PI events. Reviewed documents are listed in Sections 2RS6 and 4OA1 of the report Attachment.

b. Findings

No findings were identified.

4OA2 Identification and Resolution of Problems

.1 Routine Review of ARs

To aid in the identification of repetitive equipment failures or specific human performance issues for followup, the inspectors performed frequent screenings of items entered into the CAP. The review was accomplished by reviewing daily AR reports.

.2 Annual Sample Review

a. Inspection Scope

The inspectors selected AR 437411, APP-002-B1 (Loss of DC Control Power to 480V Bus E-2 Undervoltage Sensing Channel) Came in while Starting "B" Residual Heat Removal Pump for detailed review. The inspectors reviewed this report to verify:

- complete and accurate identification of the problem in a timely manner;
- evaluation and disposition of performance issues;
- evaluation and disposition of operability and reportability issues;
- consideration of extent of condition, generic implications, common cause, and previous occurrences;
- appropriate classification and prioritization of the problem;
- identification of root and contributing causes of the problem;
- identification of corrective actions which were appropriately focused to correct the problem; and
- completion of corrective actions in a timely manner.

The inspectors also reviewed these ARs to verify compliance with the requirements of the CAP as delineated in Procedure CAP-NGGC-0200, Corrective Action Program, and 10 CFR 50, Appendix B. Documents reviewed are listed in the Attachment.

- 470807, Screening Committee Inefficiencies
- 474297, Work Request Converted to NCRs are being Cancelled

b. Observations and Findings

No findings were identified.

.3 Semi-Annual Trend Review

a. Inspection Scope

The inspectors performed a review of the CAP and associated documents to identify trends that could indicate the existence of a more significant safety issue. The inspector's review focused on repetitive equipment issues, but also considered the results of daily inspector CAP item screening discussed in Section 4OA2.1, licensee trending efforts, and licensee human performance results. The inspector's review nominally considered the six month period of January, 2011 through June, 2011, although some examples may expand beyond those dates when the scope of the trend warranted. The reviews included issues documented outside the normal CAP in major equipment problem lists, repetitive and/or rework maintenance lists, departmental problem/challenges lists, system health reports, quality assurance audit/surveillance reports, self assessment reports, and Maintenance Rule assessments. The inspectors

compared and contrasted their results with the results contained in the latest monthly and quarterly trend reports.
The inspectors also evaluated the trend reports against the requirements of the CAP as specified in 10 CFR 50, Appendix B, Criterion XVI, and in Procedures CAP-NGGC-0200, Corrective Action Program, and CAP-NGGC-0206, Corrective Action Program Trending and Analysis.

b. Assessment and Observations

No findings were identified. The inspectors evaluated trending methodology and observed that the licensee had performed a detailed review. The licensee routinely reviewed cause codes, involved organizations, key words, and system links to identify potential trends in their CAP data. The inspectors compared the licensee process results with the results of the inspectors' daily screening, and did not identify any discrepancies or potential trends in the CAP data that the licensee had failed to identify.

4OA3 Event Follow-up

.1 (Closed) LER 2010-005-01, "Emergency Diesel Generator Inoperable Due to Inverter Failure".

On June 24, 2010, a failure of the 'B" Inverter occurred during surveillance testing. The failure resulted in a loss of RHR temperature control and inoperability of the "B" EDG. The "B" Inverter failure was caused by an age-related failure of a circuit card. The failed circuit card was replaced and tested satisfactorily. Revision 1 updated the cause of the indicated RHR system temperature rise in the idle "A" RHR loop. The enforcement aspects of this LER were document in IR 05000261/2011002 Section 4OA7 Licensee-Identified Violations. Revision 1 of the LER was reviewed and no additional findings were identified and no additional violation of NRC requirements occurred. This LER is closed.

4OA5 Other Activities

.1 Quarterly Resident Inspector Observations of Security Personnel and Activities

a. Inspection Scope

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

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

b. Findings

No findings were indentified.

.2 (Closed) TI 2515/179 Verification of Licensee Responses to NRC Requirement for Inventories of Materials Tracked in the National Source Tracking System (NSTS) Pursuant to Title 10, Code of Federal Regulations, Part 20.2207 (10 CFR 20.2207)

a. Inspection Scope

The inspectors performed this Temporary Instruction (TI) concurrent with IP 71124.01, Radiological Hazard Assessment and Exposure Controls. The inspectors reviewed the licensee's source inventory records and identified the sources that met the criteria for reporting to the National Source Tracking System (NSTS). The inspectors visually identified the sources contained in various calibration systems and observed the presence of the source by direct radiation measurement using a calibrated portable radiation detection survey instrument. The inspectors observed the physical condition of the source containers (irradiation devices). The inspectors reviewed the licensee's procedures for source receipt, maintenance, transfer, reporting and disposal. The inspectors reviewed documentation that was used to report the sources to the NSTS. Documents reviewed are listed in sections 2RS1 of the Attachment.

b. Findings

No findings were identified. This completes the Region II inspection requirements.

.3 (Closed) NRC Temporary Instruction 2515/183, "Followup to the Fukushima Daiichi Nuclear Station Fuel Damage Event"

a. Inspection Scope

The inspectors assessed the activities and actions taken by the licensee to assess its readiness to respond to an event similar to the Fukushima Daiichi nuclear plant fuel damage event. This included: (1) an assessment of the licensee's capability to mitigate conditions that may result from beyond design basis events, with a particular emphasis on strategies related to the spent fuel pool, as required by NRC Security Order Section B.5.b issued February 25, 2002, as committed to in severe accident management guidelines, and as required by 10 CFR 50.54(hh); (2) an assessment of the licensee's capability to mitigate station blackout (SBO) conditions, as required by 10 CFR 50.63 and station design bases; (3) an assessment of the licensee's capability to mitigate internal and external flooding events, as required by station design bases; and (4) an assessment of the thoroughness of the walkdowns and inspections of important equipment needed to mitigate fire and flood events, which were performed by the licensee to identify any potential loss of function of this equipment during seismic events possible for the site.

b. Findings

Inspection Report 05000261/2011011 (ML111330081) documented detailed results of this inspection activity. Following issuance of the report, the inspectors conducted detailed follow-up on selected issues. No findings were identified during this follow-up inspection.

.4 (Closed) NRC Temporary Instruction 2515/184, "Availability and Readiness Inspection of Severe Accident Management Guidelines (SAMGs)"

On May 27, 2011, the inspectors completed a review of the licensee's severe accident management guidelines (SAMGs), implemented as a voluntary industry initiative in the 1990's to determine: (1) whether the SAMGs were available and updated, (2) whether the licensee had procedures and processes in place to control and update its SAMGs, (3) the nature and extent of the licensee's training of personnel on the use of SAMGs, and (4) licensee personnel's familiarity with SAMG implementation.

The results of this review were provided to the NRC task force chartered by the Executive Director for Operations to conduct a near-term evaluation of the need for agency actions following the Fukushima Daiichi fuel damage event in Japan. Plant-specific results for Robinson Unit 2 were provided as an Enclosure to a memorandum to the Chief, Reactor Inspection Branch, Division of Inspection and Regional Support, dated June 02, 2011 (ML111530328).

.5 Operation of an Independent Spent Fuel Storage Installation (ISFSI) (IP 60855.1)

a. Inspection Scope

The inspectors performed a semi-annual walkdown and external inspection of the two ISFSIs on site (reference dockets 72-3 and 72-60). The inspectors observed the general condition of the structures and passive cooling passages.

b. Findings

No findings were identified.

.6 (Closed) VIO 05000261/2010006-02 Materially Inaccurate Information Provided to NRC in LER 2009-001 which impacted the Regulatory Process

On October 10, 2010, the NRC identified a violation of 10 CFR 50.9 for submitting materially inaccurate information to the NRC in LER 2009-001-00, "Emergency Diesel Generator Inoperable in Excess of Technical Specifications Allowed Completion Time. The inaccurate information described the licensee's troubleshooting and response to a failure of the "B" EDG output breaker to close. Based on this information, the NRC exercised enforcement discretion in response to the resulting technical specification violation. Subsequently, the NRC determined the description of the licensee's actions were not as comprehensive as described in LER 2009-001-00.

AR 419191 was initiated by the licensee to perform a root cause of the event. The root cause concluded there was inadequate verification of the factual statements contained in LER 2009-001-00. The licensee attributed this to not having specific guidance for the validation of information and that the source quality assurance records should be used to validate factual statements. Corrective actions included revising how corrective action program documentation may be used for validation and the requirement to use source documents, if available for LER inputs.

The inspectors reviewed the root cause and corrective actions of AR 419191 and have concluded they are adequate. This VIO is closed.

4OA6 Meetings, Including Exit

On May 27, 2011, the visiting inspectors discussed the results of the Radiation Protection inspection with licensee staff.

On July 25, 2011, the resident inspectors presented the inspection results to Mr. Randy Gideon and other members of his staff. The inspectors confirmed that proprietary information was not provided or examined during the inspection.

4OA7 Licensee-Identified Violations

None

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee personnel

R. Buzard, Licensing
T. Cosgrove, Plant General Manager
H. Curry, Training Manager
R. Duncan, Vice President
S. Garrity, Environmental & Chemistry Superintendent
R. Gideon, Director Site Operations
T. Hobbs, Nuclear Assurance Manager
B. Houston, Radiation Protection Superintendent
C. Kamilaris, Manager, Support Services - Nuclear
G. Kilpatrick, Operations Manager
L. Martin, Engineering Manager
B. Matherne, Outage & Scheduling Manager
C. Morris, Maintenance Manager

NRC personnel

R. Musser, Chief, Reactor Projects Branch 4

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

05000261/2011003-01	URI	Rainstorm Results in Flooding of the Power Block (Section 1R06)

Closed

05000261/2011002-4	URI	Refueling Water Storage Tank Operability While On Purification (Section 1R15.2)
05000261/2010-005-01	LER	Emergency Diesel Generator Inoperable due to Inverter Failure (Section 4OA3.1)
Temporary Instruction	TI	TI 2515/179 Verification of Licensee Responses to NRC Requirement for Inventories of Materials Tracked in the National Source Tracking System (NSTS) Pursuant to Title 10, Code of Federal Regulations, Part 20.2207 (10 CFR 20.2207). (Section 4OA5.2)
Temporary Instruction	TI	2515/183, “Followup to the Fukushima Daiichi Nuclear Station Fuel Damage Event” (Section 4OA5.3)
Temporary Instruction	TI	2515/184, “Availability and Readiness Inspection of Severe Accident Management Guidelines (SAMGs)” (Section 4OA5.4)
05000261/2010006-03	VIO	Materially Inaccurate Information Provided to NRC in LER 2009-001 which impacted the Regulatory Process (Section 4OA5.6)

Opened & Closed

05000261/2011003-02	NCV	Inadequate Seismic Analysis for Installation of Safety Related Cable Trays and Conduit (Section 1R15.1)
05000261/2011003-03	NCV	Refueling Water Storage Tank Inoperable While On Purification (Section 1R15.2)

LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather Protection

Procedures
OMM-021, Operation during Adverse Weather Conditions, Rev. 40
PLP-118, Hot Weather Operations, Rev 11
EMG-SUBS-00006, General Load Reduction and System Restoration Plan, Rev 7.
AOP-026-BD, Grid Instability, Rev. 10

NGGM-IA-0003, Transmission Interface Agreements for Operation, Maintenance, and Engineering Activities at Nuclear Plants, Rev.9

Action Requests
457732, CCW Pump Work Delayed Due to Inclement Weather
471699, ECC Notifications of Greater Importance of Offsite Power

Other documents
Regulatory Guide 1.76, Rev 1

Section 1R04: Equipment Alignment

Partial System Walkdown

Procedures
OST-303-2, Service Water Booster Pump B Test, Rev. 16
OP-903, Service Water System, Rev. 120
OP-402, Auxiliary Feedwater System, Rev 77
OP-604, Emergency Diesel Generators, Rev 85

Other documents
SD-4, Service Water System Description, Rev. 14

Complete System Walkdown

Procedures
FRP-H.1, Response to Loss of Secondary Heat Sink, Rev. 24
OP-402, Auxiliary Feedwater System, Rev. 76
PLP-085, Emergency Core Cooling System Gas Management Program, Rev 2
JPM IP-126, SW Backup to MDAFW Pumps, Rev. 0
JPM IP-002, Shift Auxiliary Feedwater Pump Suction to Service Water, Rev. 76

Action Requests
AR 262601-13, SER 2-05 Revision 1, Gas Intrusion

Other documents
GL 2008-01, Managing Gas Accumulation In ECCS, Decay Heat Removal, and Containment Spray Systems

RNP-11-0010, Install AFW Vent on Alt SW Suction Line, January, 18 2011
HBR2-10618, Inservice Inspection Drawing Aux. Feed & Cond., Sheet 147, Rev. 3
G-190197, Feedwater Condensate and Air Evacuation System Flow Diagram, Sheet 4, Rev. 60
NEI 09-10, Guidelines for Effective Prevention and Management of System Gas Accumulation, October 2009

Section 1R05: Fire Protection

UFSAR Sections of Appendix 9.5.1A

Drawings
HBR2-11937, "Fire Pre-Plan RHR pump Room (RHR Pump Pit)", sheet 43, Rev. 0
HBR2-11937, "Fire Pre-Plan South Cable Vault", sheet 6, Rev. 0
HBR2-11937, "Fire Pre-Plan North Cable Vault", sheet 5, Rev. 0
HBR2-11937, "Fire Pre-Plan Emergency Switchgear (E-1/E-2) Room", sheet 30, Rev. 1
HBR2-11937, "Fire Pre-Plan "A" Diesel Generator Room", sheet 10, Rev. 2

Other documents
OMM-003, "Fire Protection Pre-Plans/Unit 2", Rev. 55

Section 1R06: Flood Protection Measures

Procedures
CAP-NGGC-0200, Condition Identification and Screening Process, Rev. 32
CAP-NGGC-0205, Condition Evaluation and Corrective Action Process, Rev. 11

Work Orders
WO 1823570, Inspection of Cable Manholes H574-SB and H575-SB

Action Requests
AR 370343, Water Discovered in Cable Hand Hole H569-SA for the "A" EDG Fuel Oil Transfer Pump
AR 397055, Water Discovered in Cable Hand Hole H569-SA for the "A" EDG Fuel Oil Transfer Pump
AR 380192, Response to Non-Cited Violation for "A" EDG Fuel Oil Transfer Pump cable being submerged in water.

Other documents
Drawing SK-51005-E-3002, Diesel Fuel Oil Transfer Pump Cables, Rev. 2

Section 1R12: Maintenance Effectiveness

Procedures
OP-301-1, Chemical and Volume Control System (Infrequent Operation), Rev. 49
CM-605, Rotating Shaft Flexible Coupling Maintenance, Rev. 23
CM-625, Rotating Shaft Flexible Coupling Alignment, Rev. 13

CM-019, Component Coolant Water Pump Maintenance Worthington, Type 12 LN-21, Rev 27
OST-908, Component Cooling System Component Test, Rev. 75
NGG-PMB-MOV-01, NGG Equipment Reliability Template Motor Operated Valves, Rev. 0
MST-012-1, Maintenance And Testing Of "A" Reactor Trip Breaker, Rev. 5
NGG-PMB-INS-01, NGG Equipment Reliability Template for Transmitters, Rev. 0

Work Orders
WO 1859536, 'C' CCW Pump Has 120 DPM Leak on the Inboard Seal
WO 1851933, CCW-PMP-C- Correct Shaft Sleeve Nut
WO 1863837, Replace SW-395 Inlet Pipe with New ¼" Carbon Steel Pipe

Action Requests
436467, 'C' Component Cooling Water Pump Has 120 DPM Leak on Seal
424086, Unplanned LCO 3.7.6 Entry for 'B' CCW Pump
423054, CCW Pump-C Inboard Seal Leakage has Increased to 70 DPM
421207, Insulation Damaged During 'C' CCW Pump Seal Maintenance

Other documents
For system Component Cooling Water System:
Event Log Report for 10/62009 – 4/8/2011
Scoping and Performance Criteria
EC80799, Evaluation of Component Cooling Water Pump Vibration Levels, Rev 0
EC79225, Machining CCW Pump Shaft Sleeve Nut, Rev. 0
SD-013, Component Cooling Water System, Rev. 11
DA-023A, "A" EDG Starting Air Valve Preventive Maintenance Basis Document
EC 60720, EDG Starting Air Modification
CVC-350, Emergency Boration Valve Preventive Maintenance Basis Document
SW-377, "D" Service Water Pump Discharge Check Vale Preventive Maintenance Schedule
PRV-1707B, Penetration Pressurization System Air Receiver "B" Pressure Regulator Preventive Maintenance Schedule
52/RTA, "A" Reactor Trip Breaker Preventive Maintenance Schedule
FC-425, Reactor Coolant Loop 2 Flow Comparator Preventive Maintenance Schedule
Vendor Manual 728-589-13, Instruction Manual for Control and Protection Instrumentation
LT-614, Component Cooling Water Surge Tank Level Transmitter Preventive Maintenance Schedule

Section 1R13: Maintenance Risk Assessments and Emergent Work Evaluation

Procedures
OMM-048, Work Coordination and Risk Assessment, Rev. 47
CM, Charging Pump Maintenance Valve Disassembly and Reassembly, Rev. 19

Other documents
Risk Mitigation Plan for 4/12 - 4/16
Risk Mitigation Plan for 5/5 - 5/6

Work Orders
WO 1469964, Replace Fuel Oil Transfer Pump "A"
WO 1944448, Replace Charging Pump "B" Fluid Cylinder
Action Requests
471729, "B" Charging Pump Inboard Plunger is Leaking

Section 1R15: Operability Evaluations

Procedures
MOD-005, Modification and Design Control Procedure, Rev. 10
TMM-001, Plant Design Control Procedure, Rev. 18
EGR-NGGC-0005, Engineering Change, Rev. 31
CPL-HBR2-C-001, Civil Inspection Requirements, Rev. 7
OST-155, Safety Injection System Integrity Test, Rev. 32

Action Requests
AR 467701, Leak on CVC-121D Drain Pipe Weld
AR 458971, Seismic Concern with Battery Room Air Handling Unit
AR 464738, STALL Loads for SI-863-A outside Current Approved Design Calculation

Other documents

EC 80853, Seismic Concern with ACU-2 Support Structure, Rev.0
EC 80853, Seismic Concern with ACU-2 Support Structure, Rev. 1
Functionality Assessment, ACU-2 and its Support Structure in Battery Room
M-940-4, Battery Charger Addition, Rev.0
M-445M, Battery Room Modification, Rev. 2
Operability Evaluation, Leak on CVC-121D Drain Pipe Weld, May, 25 2011
5379-685, Chemical and Volume Control System Purification and Make-Up Flow Diagram Sheet 2 of 3, Rev. 57
RNP-RA/10-0024, Request for Emergency Technical Specifications Change to Section 3.4.17, Chemical and Volume Control System (CVCS), March 10, 2010
Technical Guidance 9900, Operability Determination Process, April, 16 2008
Operability Evaluation, SI-863B, RHR LOOP VALVE, NCR 464738, May, 10 2011
RNP-C/EQ-1343, Weak Link Analysis MOVs: SI-863A, B (RHR Loop Recirculation Isolation), Rev.7

Section 1R18: Plant Modifications

Other documents
EC 81447, Temporary Support for CVC-121D, Chemical and Volume Control System Drain Valve
EC 79649, Code Leak Repair of the Differential Pressure Sense Line for the Service Water Strainer Near SW-395 Isolation Valve.

Section 1R19: Post Maintenance Testing

Procedures
OST-151-3, Safety Injection System Components Test-Pump"C", Rev. 34
OST-701-4, Diesel Generators Inservice Valve Test, Rev. 18
OST-101-1, CVCS Component Test Charging Pump A, Rev. 47
OST-206, Comprehensive Flow Test for the Steam Driven Auxiliary Feedwater Pump, Rev. 56

Work Orders
WO 1904082-01, Replace DA-33B per requirements of EC 80371
WO 1020063-01, Replace Gyrol Rotating Assembly on "A" Charging Pump
WO 1625708-01, "C" SI Pump Inboard Bearing Housing has a Small Leak
WO 01510826-17; Replacement of Hydra-motor on FCV-6416
WO 01927873-01, CS/VI-8C Light Socket on RTGB Needs Replaced
WO 01927676-01, Replace CS/Vi-8B Light Socket on Module M-117
WO 01528299-07, Replace Gemco Switch CS/V1-8C
WO 01528299-08, Replace Gemco Switch- CS/V1-8A

Action Requests
462197, SI-870B-MO Two Studs/Nuts for the Operator to Yoke Mounting

Other documents
EC 80371, Replace EDG Starting Air Compressor Check Valve, Rev. 0
Steam Driven AFW Fragnet Operations Overview, Rev. 1

Section 1R22: Surveillance Testing

Procedures
OST-401-2, Emergency Diesel Generator "B" Slow Speed Start, Rev. 44
OST-251-1, Residual Heat Removal Pump 'A' and Components Test, Rev. 25
OST-352-3 Comprehensive Flow Test For Containment Spray Pump A, Rev. 18
OMM-015 Operations Surveillance Testing, Rev. 43
PLP-033, Post Maintenance Testing (PMT) Program, Rev. 56

Other documents
SD-005, Emergency Diesel Generators System Description, Rev. 15
SD-024, Containment Spray System, Rev 10

Section 1EP6: Drill Evaluation

Other documents
Emergency Response Organization Exercise Scenario Package for 4-19-2011
Emergency Notification Forms for the 4-19-2011 Exercise

Section 2RS1: Radiological Hazard Assessment and Exposure Controls

Procedures, Guidance Documents, and Manuals

AP-031, "Administrative Controls for Entry into Locked and Very High Radiation Areas", Rev. 54
CAP-NGGC-0200, "Condition Identification and Screening Process", Rev. 33
CAP-NGGC-0205, "Condition Evaluation and Corrective Action Process", Rev. 12
ERC-003, "Hot Spot Identification/Elimination Procedure", Rev. 25
HPP-001, "Radiologically Controlled Area Surveillance Program", Rev. 111
HPP-003, "Control of Hot Particles", Rev. 11
HPP-007, "Handling and Storage of Contaminated and Radioactive Materials", Rev. 36
HPP-018, "Control and Inventory of Radioactive Sources", Rev. 27
HPP-259, Spent Resin Transfer to Waste Processing Containers Using the Self Engaging Dewatering System (SEDS)", Rev. 3
HPS-NGGC-0003, "Radiological Posting, Labeling and Surveys", Rev. 15
NRC Regulatory Issue Summary 2007-18, Data for Updating the Interim Inventory of Radioactive Sources, 9/7/2007
PLP-031, "Contamination Monitoring Program for Personnel/Personal Effects", Rev. 35
RST-030, "Surveillance of the 24P-Independent Spent Fuel Storage Installation", Rev. 6

Records and Data

Air Sample Analysis Form - AS-20110518-004, Spent Fuel Pool, 5/18/11
Air Sample Analysis Form - AS-20110518-006, Spent Fuel Pool, 5/18/11
Calibration Certificate, J.L Shepherd & Associates, Source S/N 824, 11/10/2009
Calibration Certificate, J.L Shepherd & Associates, Source S/N 87CS-S-16, 9/17/1987
Ionization Chamber Calibration Record - Fluke Biomedical Calibration Report # 42724-1, 6/25/2010
Ionization Chamber Calibration Record - Fluke Biomedical Calibration Report # 46163-1, 4/11/2011
National Source Tracking System Inventory – License # DPR-23, 5/23/2011
National Source Tracking System Confirmation of Annual Inventory Reconciliation – Reconciliation Year 2010, 01/26/2010
National Source Tracking System Confirmation of Annual Inventory Reconciliation – Reconciliation Year 2011, 01/17/2011
Radiation Survey # 011910-5, Rad Waste Bunker, 1/19/10
Radiation Survey # 121610-2, ISFSI24P, 12/16/10
Radiation Survey # 022410-9, Waste Water Demineralizer, Skid, 2/24/10
Radiation Survey # 022410-8, Drumming Room, 2/24/10
Radiation Survey # 051911-8, Spent Fuel Pit Building, 5/18/11
Radiation Survey # 022411-1, SFP Recirc Pump Room, 2/24/11
Radiation Survey # 052411-2, SFP Recirc Pump Room, 5/24/11
Radiation Survey # 041211-2, Demineralizer Room, 4/12/11
Radiation Survey # 051611-3, Demineralizer Room, 5/16/11
Radiation Survey # 022011-1, A & B Waste Condensate Area, 2/20/11
Radiation Survey # 051911-5, A & B Waste Condensate Area, 5/19/11
Radiation Survey # 052411-3, A & B Waste Condensate Area, 5/24/11
Radiation Survey – Daily Sweep Survey, 4/30/11 to 5/6/11
Radiation Survey – Weekly Survey Datasheets (Attachment 10.6 of HPP-001), 4/30/11 to 5/6/11

Radioactive Source Inventory – HPP-018, “Control and Inventory of Radioactive Sources”, Rev. 27, Attachment 10.5, 1/28/11
Radioactive Source Inventory – HPP-018, “Control and Inventory of Radioactive Sources”, Rev. 26, Attachment 10.4, 7/15/10
Radioactive Source Inventory – HPP-018, “Control and Inventory of Radioactive Sources”, Rev. 27, Attachment 10.5, 1/18/11
RWP # 6252, SFP Skimmer Filter Change – HIGH RISK, 5/16/11
RWP # 6255, SRST Resin Transfer to HIC, 5/23/11
RWP # 6259, SRST Resin Transfer Activities Outside RW Bldg, 5/23/11
Surveillance Test Results - RST-004, “Sealed Source Leak Test”, Rev. 41, 7/14/10
Surveillance Test Results - RST-004, “Sealed Source Leak Test”, Rev. 43, 1/1/11
Surveillance Test Results - RST-030, “Surveillance of the 24-P-Independent Spent Fuel Storage Installation”, Rev. 6, 1/6/11
Surveillance Test Results - RST-030, “Surveillance of the 24-P-Independent Spent Fuel Storage Installation”, Rev. 6, 3/30/11
Technical information Document, RC-09-001, “Reevaluate EPRI 10135609 Alpha Level Characterization following RO-25 and Review Impact of Plant Source Term on RC Instrument Calibration”, 10/22/09

Action Requests
242892, 240698, 398415, 406736, 408630, 425703, 432465, 434009, 445389, 449537, 451237, 458270, 461534, 463692, 463860, 467458, 467712, 467713, 468073

Section 2RS4: Occupational Dose Assessment

Procedures, Guidance Documents, and Manuals
HPS-NGGC-0016, “Access Control”, Rev. 7
HPP-105, “Airborne Radioactivity Surveillance”, Rev. 43
DOS-NGGC-0002, “Dosimetry Issuance”, Rev. 27
DOS-NGGC-0005, “Skin Dose from Contamination”, Rev. 11
DOS-NGGC-0006, “Personnel Exposure Investigations”, Rev. 13
DOS-NGGC-0007, “Internal Dose Calculations”, Rev. 12
DOS-NGGC-0008, “In-vitro Bioassay”, Rev. 10
DOS-NGGC-0021, “Whole Body Counter (WBC) System Operation”, Rev. 19
NGGS-DOS-0012, “Thermoluminescent Dosimeter (TLD) Processing”, Rev. 25
Technical Information Document RC-07-002, “Internal Contamination Sensitivity of RCA Boundary Personnel Contamination Monitors”, 12/17/07
CAP-NGGC-0200, “Condition Identification and Screening Process”, Rev. 33

Records and Data
Extremity TLD Results, 1/1/10 – 12/31/10
RWP 5560, Diving Activities in Spent Fuel Pool
RWP 5624, Waste Holdup Tank Filter Change Activities
RWP 5508, CV Entries Outside Biowall with Reactor Critical
Radiological Survey 031610-3, Spent Fuel Pool
Radiological Survey 042610-1, Waste Holdup Tank
Radiological Survey 042011-4, CV L2 Entire Floor Map

Personnel Contamination Events 10-011 and 10-016
Personnel Exposure Investigation 4400
Tritium Bioassay Results, Work Orders 252618 and 252619
Estimated Neutron Dose Worksheets, 1/27/11
NVLAP Certificate of Accreditation to ISO/IEC 17025:2005, 10/1/10 – 9/30/11
NVLAP Proficiency Testing Reports, 2nd quarter 2009, 4th quarter 2009, and 1st quarter 2010

Other Documents
2010 Internal Audit of the Progress Energy Dosimetry Laboratory
R-RP-10-01, Assessment of Radiation Protection

Action Requests
466682, 401567, 465699, 466628, 466432, 354683, 365051

Section 2RS5: Radiation Monitoring Instrumentation

Procedures
LP-256, "Containment High Range Radiation Monitor RMS 32A & 32B", Rev 13
HPP-004, "Radiological Control of Tools and Equipment"' Rev 62
OMM-014, "Radiation Monitor Setpoints", Rev 51
RST-012, "Calibration of Radiation Monitoring System R-14", Rev 27
HPS-NGGC-0020, "Calibration and Operation of the Eberline AMS-4 Air Monitor", Rev 2
HPS-NGGC-009, "Operation of Radiation/Contamination Survey Instruments/Equipment" Rev 7
HPS-NGGC-0018, "Preventive Maintenance for the J.L. Shepherd Model 89 Gamma Irradiator", Rev 3
SIC-041, "Calibration and Operation of Canberra Personnel Monitors", Rev 12
SIC-008, "Calibration and Operation of the SAM9 Small Articles Monitor", Rev 17
CHE-NGGC-0200, "Radiochemistry Quality Assurance/Quality Control Program", Rev 5
EMP-028, "Process Monitor Setpoint Determination", Rev 33

Calibrations and Data
RST-020, "Verification of Electronic Calibration of Radiation Monitoring System Monitors 32A&B", Rev 19, Test date 4/14/10
Work Order Package, Calibration R-32B, 2/15/10
RST-020, "Verification of Electronic Calibration of Radiation Monitoring System Monitors 32A&B", Rev 19, Test date 9/29/08
Work Order Package, Calibration R-32B 9/23/08
Work Order Package, Calibration R-32A 9/23/08
Portable Air Sampling Equipment Calibration Record, RadCo serial 1200371 1/26/11
Eberline AMS-4 Calibration Record, serial 2123, 10/10/10
DRD Quality Control Test Record 03/07/11
Canberra Personnel Monitor Calibration Data Sheet, Argos-5AB #0507-007, 2/09/10
Canberra Personnel Monitor Calibration Data Sheet, Argos-5AB #0507-007, 2/12/09
Canberra Personnel Monitor Calibration Data Sheet, GEM-5 #0507-020, 4/13/10
Canberra Personnel Monitor Calibration Data Sheet, GEM-5 #0507-020, 7/23/09
GE Detector 1 calibration 7/15/2009
GE Detector 1 calibration 11/15/2010

Packard 1900TR Calibration Data Form, 5/28/10
Packard 1900TR Calibration Data Form, 8/18/10
SAM9 Calibration Data Sheet, serial #134, 1/5/11
SAM9 Calibration Data Sheet, serial #134, 1/6/10
WBC Calibration Record, report #02-09-09-02, 9/02/09
WBC Calibration Record, report #02-10-08-31, 8/31/10
R-14 Calibration Data Sheet, 1/11/10
R-14D Calibration Data Sheet, 1/26/10

Action Requests
466554, 466682, 434229, 326086, 332850, 354554, 432668

Section 2RS6: Radioactive Gaseous and Liquid Effluent Treatment

Procedures
OMM-007, "Equipment Inoperable Record", Rev 84
RCP-142, "Calibration of the Genie Gamma Spectroscopy System", Rev 15
DOS-NGGC-0221, "Whole Body Counter (WBC) System Operation", Rev 19
EMP-013, "Operation of R-14 and F-14", Rev 52
EMP-028, "Process Monitor Setpoint Calculation",
EMP-023, "Liquid Waste Release and Sampling", Rev 53
EMP-024, "ODCM Surveillance", Rev 61
EMP-022, "Gaseous Waste Release Permits", Rev 52
EMP-019, "Liquid and Gaseous Effluent Composite Preparation and Update", Rev 16
EMP-008, "Groundwater Monitoring", Rev 2

Data and Calibrations
EMP-024 Attachment 10.1, "Environmental and Chemistry ODCM Surveillance Log"
Multiple monitors 10/9-10/15/10 pages 10-36
R-14 Monitor 10/25-10/27/10
R-37 11/8-11/11/10
Attachment 10.3, "E&C ODCM Supplemental Surveillance Log"
R-14C, 10/25 -10/27/10
R-37, 11/10-11/11/10
Attachment 10.16, "E&C Supplemental Surveillance Log"
R-24, 1/2- 1/9/10
EST-020, "Hot Machine Shop Exhaust System Fan HVE-14", 05/19/10
Results of Radiochemistry Cross Check Program 1st Quarter 2010
Results of Radiochemistry Cross Check Program 2nd Quarter 2009
Radiochemistry Laboratory Analysis Request Form- West Pond Weekly Composite Sample, 5/16/11
Radiochemistry Laboratory Analysis Request Form- West Pond Weekly Composite Sample, 5/23/11
Radiochemistry Laboratory Analysis Request Form- East Pond Weekly Composite Sample, 5/16/11
Radiochemistry Laboratory Analysis Request Form- East Pond Weekly Composite Sample, 5/23/11

EMP-023 Attachment 10.3, “Liquid Waste Release Permit”, Release # 10-126L 5/31/10
EMP-023 Attachment 10.3, “Liquid Waste Release Permit”, Release # 09-025L 1/30/09
EMP-023 Attachment 10.3, “Liquid Waste Release Permit”, Release # 09-024L 1/29/09
EMP-022 Attachment 10.5, “Gaseous Waste Release Permit”, Release #11-108G 5/17/11
EMP-022 Attachment 10.5, “Gaseous Waste Release Permit”, Release #10-114G 6/15/10
EMP-022 Attachment 10.2, “Gaseous Waste Release Permit”, Release #11-004G 1/02/11
2009 H.B. Robinson Annual Radioactive Effluent Release Report
2010 H.B. Robinson Annual Radioactive Effluent Release Report
Tritium Analytical Results for 4th Quarter 2010

Action Requests
391799

Section 2RS7: Radiological Environmental Monitoring Program (REMP)

Procedures and Reports
2009 and 2010 Environmental Operating Reports
2009 and 2010 Annual Radioactive Effluent Release Report
R-EC-09-01, “Assessment of Environmental and Chemistry”, 2010
EMP-001, “Environmental Sampling”, Rev 53
CHE-NGGC-0200, “Radiochemistry Quality Assurance/Quality Control Program”, Rev 5
EMP-033, “RNP Land Use Census”, Rev 5
EMP-003, “Meteorological Tower Inspection”, Rev 7
PM-180, “Meteorology Tower Equipment Calibration”, Rev 6
EMP-004, “Environmental Air Sampler Operation and Calibration”, Rev 17
Technical Specifications (TS), Section 5.0, “Administrative Controls”
Offsite Dose Calculation Manual (ODCM), Section 4.0, “Radiological Environmental Monitoring Program” and Section 5.0, “Interlaboratory Comparison Program”
Updated Final Safety Analysis Report (FSAR), Section 2.3, “Meteorology”

Records and Data

Calibration of MET Tower Equipment, 8/4/10 and 1/24/11
Air Sampler Calibration Worksheets, 2/26/10 and 4/11/11 (several selected air samplers)
2009 and 2010 Interlaboratory Comparison Results
Robinson Plant Groundwater Contamination Risks Table

Action Requests
445416, 360372, 361121, 314750, 357778, 369093, 409783, 463714

Section 4OA1: Performance Indicator Verification

Procedures, Manuals, and Guides
REG-NGGC-0009, “NRC Performance Indicators and Monthly Operating Report Data”, Rev. 10
CAP-NGGC-205, “Condition Evaluation and Corrective Action Process”, Rev. 12

Records and Data
Robinson 2, 1Q/2011 Performance Indicators - Reactor Oversight Process (ROP)
EMP-023 Attachment 10.4, “Liquid Waste Release Permit”, Release # 11-042L 3/09/11
EMP-022 Attachment 10.5, “Gaseous Waste Release Permit”, Release #11-112G 5/24/11

Action Requests
394750, 395113, 399750, 413927, 426011, 427504, 427813, 445711, 444611, 451252, 451260, 398174

Section 4OA2: Identification and Resolution of Problems

Procedures
CAP-NGGC-0200, Corrective Action Program, Rev. 33
CAP-NGGC-0206, Corrective Action Program Trending and Analysis, Rev. 5
CAP-NGGC-0205, Condition Evaluation and Corrective Action Process, Rev. 12

Work Orders
WO 1860776, APP-002-B1 Came in while Starting “B” RHR Pump

Action Requests
AR 437347, Breaker Fuse Holder Fatigue and Restraint Evaluation

Other documents
APP-002, Engineering Safegaurds, Rev. 62
PM-475, Volt Bus 1, 2A, 2B and 3, Inspection and Cleaning, Rev. 5

Section 4OA5 Other Activities

TI-2515/183/184

Procedures
RMA-025, Review of WOG Severe Accident Management Guidelines as Applied to H.B Robinson, Rev. 0
PRO-NGGC-0204, Procedure Review and Approval, Rev. 19
EGR-NGGC-0005, Engineering Change, Rev. 31
AP-043, RNP Procedure Biennial Review Process, Rev. 7
SAMP-00, Sever Accident Management Program, Rev. 4
REG-NGGC-0010, 10 CFR 50.59 and Selected Regulatory Reviews, Rev. 15
SAM-1, Inject into the Steam Generator, Rev. 3

Action Requests
AR 458937, WOG SAMG rev. 1 has not been incorporated at Robinson
AR 453557, Add performance criteria to the testing procedures.
AR 457924, “D” Deepwell Pump power supply testing
AR 459725, Wrenches for man-way removal may be too small
AR 453557, Overall Licensee response to Fukushima Daiichi event

Other documents
Operations Training, Severe Accident Control Room Management, May, 5 2010
Operations Training, PowerPoint Presentation LOCT Cycle 09-04, November, 09 2009
Letter dated December, 05 1994, Proposed Change to Quality Assurance Program
Westinghouse Owners Group, Severe Accident Management, June 1994