



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

August 3, 2011

Mr. Dennis R. Madison
Vice President
Southern Nuclear Operating Company, Inc.
Edwin I. Hatch Nuclear Plant
11028 Hatch Parkway North
Baxley, GA 31513

**SUBJECT: EDWIN I. HATCH NUCLEAR PLANT - NRC INTEGRATED INSPECTION
REPORT 05000321/2011003 AND 05000366/2011003**

Dear Mr. Madison:

On June 30, 2011, U. S. Nuclear Regulatory Commission (NRC) completed an inspection at your Edwin I. Hatch Nuclear Plant, Units 1 and 2. The enclosed integrated inspection report documents the inspection results, which were discussed on July 25, 2011, with you and other members of your staff.

The inspection examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. The inspectors reviewed selected procedures and records, observed activities and interviewed personnel.

This report documents two NRC identified and one self-revealing finding of very low safety significance (Green). Each of these findings were determined to involve violations of NRC requirements. However, because of the very low safety significance and because they are entered into your corrective action program (CAP), the NRC is treating these findings as non-cited violations (NCV) consistent with the NRC's Enforcement Policy. If you contest any NCV, 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 Hatch facility.

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In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosures, and your response (if any) will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of the 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/

Scott M. Shaeffer, Chief
Reactor Projects Branch 2
Division of Reactor Projects

Docket Nos.: 50-321, 50-366
License Nos.: DPR-57 and NPF-5

Enclosures: Inspection Report 05000321/2011003, 05000366/2011003
w/Attachment: Supplemental Information

cc w/encl: (See page 3)

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Letter to Dennis R. Madison from Scott M. Shaeffer dated August 3, 2011

SUBJECT: EDWIN I. HATCH NUCLEAR PLANT - NRC INTEGRATED INSPECTION
REPORT 05000321/2011003 AND 05000366/2011003

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U. S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket Nos.: 50-321, 50-366

License Nos.: DPR-57 and NPF-5

Report Nos.: 05000321/2011003 and 05000366/2011003

Licensee: Southern Nuclear Operating Company, Inc.

Facility: Edwin I. Hatch Nuclear Plant

Location: Baxley, Georgia 31513

Dates: April 1 – June 30, 2011

Inspectors: E. Morris, Senior Resident Inspector
D. Hardage, Resident Inspector
T. Chandler, Resident Inspector (Vogtle)
B. Collins, Reactor Inspector (1R08)
A. Nielsen, Senior Health Physicist (2RS2, 4OA1)
C. Dykes, Health Physicist (2RS4)
R. Kellner, Health Physicist (2RS1, 2RS3, 4OA1, 4OA5)
J. Rivera, Health Physicist (2RS8)
R. Bernhard, Senior Reactor Analyst

Approved by: Scott M. Shaeffer, Chief
Reactor Projects Branch 2
Division of Reactor Projects

Enclosure

SUMMARY OF FINDINGS

IR 05000321/2011003, 05000366/2011003; 04/01/2011-06 /30/2011; Edwin I. Hatch Nuclear Plant, Units 1 and 2, Problem Identification and Resolution, Other Activities.

The report covered a three-month period of inspection by one senior resident inspector, two resident inspectors, one reactor inspector, one senior health physicist, one senior reactor analyst, and three health physicists. Two NRC identified and one self-revealing NCV were identified and documented in this report. The significance of most findings is indicated by their color (greater than Green, or Green, White, Yellow, Red); the significance was determined using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP); the cross-cutting aspect was determined using IMC 0310, 'Components Within The Cross-Cutting Areas;' and that findings for which the SDP does not apply may be Green or be assigned a severity level after NRC management review.

Cornerstone: Mitigating Systems

- Green. A self-revealing NCV of 10 CFR 50, Appendix B, Criterion XVI, Corrective Actions, was identified for failure to promptly identify and take corrective actions to ensure Bussmann fuses identified by the Part 21 notification 2005-37, were removed from use in safety related applications. Corrective actions taken include replacing the KTN-R 10 amp fuses on the 1B emergency diesel generator with fuses manufactured after 1991, placing a hold on all KWN-R and KTN-R fuses size 30 amps below manufactured between 1987 and 1991, and replacement of these fuses with new KWN-R and KTN-R fuses with a date code 2009 or newer. This violation has been entered into the licensee's corrective action program as condition report (CR) 2010116039.

Failure to promptly identify and take corrective actions to ensure Bussmann fuses identified by the Part 21 notification 2005-37 were removed from use in safety related applications is a performance deficiency. This performance deficiency is more than minor because it is associated with the Equipment Performance attribute and adversely affected the Mitigating Systems Cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, on December 23, 2010, the Hatch 1B emergency diesel generator #3 stop circuitry operability light was discovered not illuminated on panel 1R43-P003B. Without power to this circuitry the 1B emergency diesel generator is inoperable and unavailable to provide its required safety function. The significance of this finding was screened using IMC 0609 Attachment 4, table 4a. The risk significance screening required a Phase 3 analysis, because the finding screened as potentially risk significant due to a seismic initiating event. The regional senior reactor analyst (SRA) performed a Phase 3 analysis for the finding. The analysis included two parts, the first covering the time period of total inoperability of the fuse; and the second covering the exposure time from when the non qualified fuses were installed until they were replaced, when they were subject to potential seismic failure. Calculations were performed using the NRC's plant specific risk models. The short exposure time for the first analysis, and the low likelihood of a seismic event at the plant for the second analysis, caused the combined result to be a very low risk condition. The finding was determined to be Green in the SDP.

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Because the performance deficiency occurred in 2006 and is outside the past three years, no cross-cutting aspect is assigned. (Section 4OA2.2)

- Green. An NRC-identified NCV of 10 CFR 50 Appendix B, Criterion V, Instructions, Procedures, and Drawings, was identified for failure to establish adequate procedures that address potential adverse system interactions when opening safety relief valves (SRV) without power. Immediate corrective actions taken by the licensee include changing procedure 31EO-TSG-001-0, Attachment 6, SRV Actuation Without Power to Allow Injection with Portable Pump, to ensure the SRV control circuits are isolated electrically from the direct current (DC) busses prior to installing the portable DC power supply. This violation has been entered into the licensee's corrective action program as CR 2011106008.

Failure to address potential adverse system interactions when developing procedures affecting quality is a performance deficiency. This performance deficiency is more than minor because it is associated with the Procedural Quality attribute of the Mitigating Systems Cornerstone and adversely affects the cornerstone objective to ensure the availability, reliability, and capability of the safety relief valves to reduce reactor pressure in response to a loss of alternating current (AC) and DC power event. Because this finding is associated with B.5.b mitigation strategies, the finding was assessed using MC 0609 Appendix L, B.5.b Significance Determination Process, Table 2. The inspectors performed an initial screening and determined the finding did not meet the criteria listed within Table 2 for greater than Green significance therefore this finding was screened as Green. Because the mitigating strategy was developed and implemented in site procedures in 2007, the performance deficiency occurred outside the past three years and no cross-cutting aspect is assigned. (Section 4OA5.3)

- Green. An NRC-identified NCV of 10 CFR 50, Appendix B, Criterion V. Instructions, Procedures, and Drawings, was identified for failure to establish adequate procedures that address the anticipated environmental conditions when operating containment vents without power. Immediate corrective actions taken by the licensee include changing procedure 34AB-R22-003-1/2, Station Blackout, to perform preliminary actions in the torus area before high containment pressure and temperature conditions require venting. This change is intended to allow required torus area entries to be performed prior to reaching high temperature conditions in the area. This violation has been entered into the licensee's corrective action program as CR 2011105966 and CR 2011106007.

Failure to address the anticipated environmental conditions when developing procedures affecting quality is a performance deficiency. This performance deficiency is more than minor because it is associated with the Procedural Quality attribute of the Mitigating Systems Cornerstone and adversely affects the cornerstone objective to ensure the availability, reliability, and capability of the containment vent valves to allow reliable pressure control of primary containment in response to a loss of AC and DC power event. This finding was assessed using MC 0609 Appendix L, B.5.b Significance Determination Process, Table 2. The inspectors performed an initial screening and determined the finding did not meet the

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criteria listed within Table 2 for greater than Green significance therefore this finding was screened as Green. Because the procedure was developed and implemented in 2005, the performance deficiency occurred outside the past three years and no cross-cutting aspect is assigned. (Section 4OA5.3)

REPORT DETAILS

Summary of Plant Status

Unit 1 began the inspection period at or near 100% Rated Thermal Power (RTP). The unit operated at or near 100% RTP during this inspection period.

Unit 2 began the inspection period shutdown for a scheduled refueling outage. On May 1, the unit was restarted. On May 5, the unit was shutdown to make repairs to the 2B reactor feed pump. On May 6, the unit was restarted and reached 97% RTP on May 16. On May 17, unit power was reduced to 87% due to 2A safety relief valve pilot valve leakage. On May 27, the unit was shutdown to Mode 4 Cold Shutdown to replace the 2A safety relief valve pilot. On May 31, the unit was restarted and achieved 100% RTP on June 5. The unit operated the remainder of the inspection period at or near 100% RTP.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather

.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 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. 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:

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- 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 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, or when the capability of the transmission system to provide adequate offsite power was challenged.

Documents reviewed are listed in the Attachment. The inspectors also reviewed corrective action program items to verify that the licensee was identifying adverse weather issues at an appropriate threshold and entering them into their corrective action program in accordance with station corrective action procedures.

b. Findings

No findings were identified.

.2 Readiness to Cope With External Flooding

a. Inspection Scope

External Flooding. The inspectors performed a review of licensee readiness to cope with external flooding. The inspectors performed walkdowns of the systems listed below to verify that equipment was in place to mitigate the potential impacts from external flooding. The inspectors reviewed licensee procedure 34AB-Y22-002-0, Naturally Occurring Phenomena, to verify guidance existed to cope with an external flood. Additionally, the inspectors reviewed licensee documentation that shows design flood levels for area containing safety-related equipment. Documents reviewed are listed in the Attachment.

- Unit 1 & 2 Intake Area
- Independent Spent Fuel Storage Area

b. Findings

No findings were identified.

1R04 Equipment Alignment

a. Inspection Scope

Partial Walkdowns. The inspectors performed partial walkdowns of the following three systems when the opposite train was removed from service, a remaining operable system/train with high risk significance for the plant configuration exists, or a

system/train that was recently realigned following an extended system outage or a risk significant single train system exists. The inspectors checked system valve positions, electrical breaker positions, and operating switch positions to evaluate the operability of the opposite trains or components by comparing the position listed in the system operating procedure to the actual position. Documents reviewed are listed in the Attachment.

- Unit 2 'B' train of core spray during mode 5 operations with all low pressure core injection and 'A' core spray out of service for maintenance, April 5
- Unit 1 startup transformer 1D while the startup transformer 1C was out of service for maintenance, April 13
- Unit 2 reactor core isolation cooling system while high pressure coolant isolation pump was out of service for maintenance, May 17

b. Findings

No findings were identified.

1R05 Fire Protection

a. Inspection Scope

Fire Area Tours. The inspectors toured the following five risk significant plant areas to assess the material condition of the fire protection and detection equipment, verify fire protection equipment was not obstructed and that transient combustibles were properly controlled. The inspectors reviewed the Fire Hazards Analysis drawings to verify that the necessary fire fighting equipment, such as fire extinguishers, hose stations, ladders, and communications equipment, was in place. Documents reviewed are listed in the Attachment.

- Unit 1, Torus Area, fire area 1203A & 1205A
- Unit 2, Torus Area, fire area 2203A & 2205A
- Unit 1, Control Rod Drive Sump Room, fire area 1205C
- Unit 1 & 2, Control Room, fire area 0024C, D
- Unit 1, Reactor Building 158' Working Floor South, fire area 1203K

b. Findings

No findings were identified.

1R08 Inservice Inspection Activities (71111.08P)

From April 4, 2011, through April 8, 2011, the inspectors conducted a review of the implementation of the licensee's Inservice Inspection (ISI) Program for monitoring degradation of the reactor coolant system, emergency feedwater systems, risk-significant piping and components and containment systems.

The inspections described in Sections 1R08.1 and 1R08.2 below constituted one inservice inspection sample as defined in Inspection Procedure 71111.08-05.

.1 Piping Systems ISI

a. Inspection Scope

The inspectors evaluated the following non-destructive examinations mandated by the ASME Code Section XI, to verify compliance with the ASME Code Section XI, and Section V requirements, and if any indications and defects were detected, to evaluate if they were dispositioned in accordance with the ASME Code or an NRC-approved alternative requirement.

- Ultrasonic Testing (UT) examination of weld 2E21-1CS-10A-4A, ASME Class 1, Category B-J(2), Core Spray System, 10-inch diameter weld – Direct Observation
- Liquid Penetrant Testing (PT) examination of welds 2C41-1SBLC-1.5-62/63/64, ASME Class 1, Category NB-J, Standby Liquid Control System, 1.5-inch welds – Direct Observation
- Magnetic Particle (MT) examination of weld 2B11/2C-6, ASME Class 1, Category B-K, Reactor Coolant System, Reactor Vessel-to-Skirt weld – Direct Observation

During non-destructive surface and volumetric examinations performed since the previous refueling outage, the licensee did not identify any recordable indications that were accepted for continued service. Therefore, no NRC review was completed for this inspection procedure attribute.

The inspectors reviewed documentation for the following pressure boundary welds completed for risk-significant systems during the outage to evaluate if the licensee applied the preservice non-destructive examinations and acceptance criteria required by ASME Code Section XI. In addition, the inspectors reviewed the welding procedure specification, welder qualifications, welding material certification and supporting weld procedure qualification records, to evaluate if the weld procedures were qualified in accordance with the requirements of Construction Code and the ASME Code Section IX.

- Work Order 2081311515, 18-inch pipe-to-valve welds 2B21-F010A/B (FW15 and FW16) for Feed Pump Check Valve modification

b. Findings

No findings were identified.

.2 Identification and Resolution of Problems

a. Inspection Scope

The inspectors performed a review of ISI-related problems entered into the licensee's corrective action program and conducted interviews with licensee staff to determine if;

- The licensee had established an appropriate threshold for identifying ISI-related problems;
- The licensee had performed a root cause (if applicable) and taken appropriate corrective actions; and
- The licensee had evaluated operating experience and industry generic issues related to ISI and pressure boundary integrity.

The inspectors performed these reviews to evaluate compliance with 10 CFR Part 50, Appendix B, Criterion XVI, Corrective Action, requirements. The corrective action documents reviewed by the inspectors are listed in the Attachment.

b. Findings

No findings were identified.

1R11 Licensed Operator Requalification

a. Inspection Scope

Resident Quarterly Observation

On May 16 the inspectors observed the performance of a licensee simulator scenario, which included loss of 600 volt 2D, plant service water strainer clog, loss of area ventilation, and loss of coolant accident. The inspectors reviewed the proper classification in accordance with the Emergency Plan and licensee procedures 10-AC-MGR-019-0, Procedure Use and Adherence, and DI-OPS-59-0896, Operations Management Expectations, to verify formality of communication, procedure usage, alarm response, control board manipulations, group dynamics, and supervisory oversight. The inspectors attended the post-exercise critique of operator performance to assess if the licensee identified performance issues were comparable to those identified by the inspectors. In addition, the inspectors reviewed the critique results from previous training sessions to assess performance improvement.

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness

a. Inspection Scope

The inspectors reviewed the following two samples associated with structures, systems, and components to assess the licensee's implementation of the Maintenance Rule (10 CFR 50.65) with respect to the characterization of failures and the appropriateness of the associated (a) (1) or (a) (2) classification. The inspectors reviewed operator logs, associated CRs, Maintenance Work Orders (WO), and the licensee's procedures for implementing the Maintenance Rule to determine if equipment failures were being

identified, properly assessed, and corrective actions established to return the equipment to a satisfactory condition. Documents reviewed are listed in the Attachment.

- Unit 1 and 2 reactor core isolation cooling system, E51
- Unit 1 and 2 service, instrument air system, P51, P52

b. Findings

No findings were identified.

1R13 Maintenance Risk Assessments and Emergent Work Evaluation

a. Inspection Scope

The inspectors reviewed the following work activities listed below to verify that risk assessments were performed prior to components being removed from service. The inspectors reviewed the risk assessment and risk management controls implemented for these activities to verify they were completed in accordance with licensee procedure 90AC-OAM-002-0, Scheduling Maintenance, and 10 CFR 50.65 (a)(4). For emergent work, the inspectors assessed whether any increase in risk was promptly assessed and that appropriate risk management actions were implemented.

- April 5 and 6 - Unit 2 outage safety assessments during Mode 5 operations.
- April 19 – April 22 including the following activities on Unit 1 emergency diesel generator testing, station service battery testing, undervoltage relay testing on the 1E, 1F, 1G safety buses, reactor protection system testing; and outage activities on Unit 2.
- May 2 – May 6 including Unit 2 startup from refueling outage and switchyard activities by Georgia Power Company.
- May 21 – May 27 including unit 1 reactor high water level functional test and calibration, 2C emergency diesel generator loss of coolant accident timer test, 1B turbine building chiller repairs, 1E11-F217B repairs, 1F battery charger maintenance, hot line tag on the Vidalia line, and pilot valve leakage on 2A SRV.
- June 4 – June 10, including 1A standby liquid control pump outage, 1F emergency bus undervoltage relay functional test and calibration, switchyard hot line tag, 2A battery charger maintenance, and 2B reactor building component cooling water heat exchanger cleaning.

b. Findings

No findings were identified.

1R15 Operability Evaluationsa. Inspection Scope

The inspectors reviewed the following six operability evaluations and compared the evaluations to the system requirements identified in the Technical Specifications (TS) and the Final Safety Analysis Report (FSAR) to ensure operability was adequately assessed and the system or component remained available to perform its intended function. Also, the inspectors assessed the adequacy of compensatory measures implemented as a result of the condition. Documents reviewed are listed in the Attachment.

- Unit 2 core spray jockey pump discovered with no visible oil level, CR 2011106192
- Standby plant service water discharge pressure at zero pressure, CR 2011105437
- High drywell pressure signal bypass logic relay exceeded its maximum time, CR 2011105586
- 1B emergency diesel generator glycol leak, CR 2011105705
- 'C' main control room air conditioner tripped on high compressor discharge pressure, CR 2011106885
- 2B residual heat removal service water pump motor lower guide bearing high temperature, CR 2011107167

b. Findings

No findings were identified.

1R18 Plant Modificationsa. Inspection Scope

The inspectors reviewed the following plant permanent and temporary modifications to ensure that safety functions of important safety systems have not been affected. Also, the inspectors verified that the design bases, licensing bases and performance capability of risk significant structures, systems and components have not been degraded through modifications. The inspectors verified that any modifications performed during increased risk-significant configurations did not place the plant in an unsafe condition. Documents reviewed are listed in the Attachment.

.1 Permanent Modification:

- DCP 2080067101, Main Steam SRV Replacement

b. Findings

No findings were identified.

1R19 Post Maintenance Testing

a. Inspection Scope

For the following six post maintenance tests, the inspectors reviewed the test scope to verify the test demonstrated the work performed was completed correctly and the affected equipment was functional and operable in accordance with TS requirements. The inspectors also reviewed equipment status and alignment to verify the system or component was available to perform the required safety function. Documents reviewed are listed in the Attachment.

- WO 2100241101, Perform preventive maintenance on 2T47-B007A and dampers, April 30, 2011
- WO 2110600301, 34SV-T48-004-2 drywell to torus leakage test failed, May 1, 2011
- WO 2090717601, Unit 2 'C' plant service water pump oil change and megger test, May 9, 2011
- WO 1110118102, Rebuild Unit 1 high pressure coolant injection pump barometric condenser vacuum pump, May 10, 2011
- WO 1110709002, 'C' main control room air conditioner tripped on high compressor discharge pressure, May 19, 2011
- WO 11012544702, 1A standby liquid control pump internal inspection, June 8, 2011

b. Findings

No findings were identified.

1R20 Refueling and Other Outage Activities

a. Inspection Scope

The inspectors performed the inspection activities described below for the Unit 2 refueling outage that began on March 29 through May 2 and for a Unit 2 maintenance outage May 27 through May 31. The inspectors confirmed that, when the licensee removed equipment from service, the licensee maintained defense-in-depth commensurate with the outage risk control plan for key safety functions and applicable TS and that configuration changes due to emergent work and unexpected conditions were controlled in accordance with the outage risk control plan. Documents reviewed are listed in the Attachment. Inspection activities included:

- Reviewed reactor coolant system pressure, level and temperature instruments to verify that the instruments provided accurate indication and that allowances were made for instrumentation errors.
- Verified that outage work did not impact the operation of the spent fuel cooling system.
- Reviewed the status and configuration of electrical systems to verify that those systems met technical specification requirements and the licensee's outage risk control plan.

- Observed decay heat removal parameters to verify that the system was properly functioning and providing cooling to the core.
- Reviewed system alignments to verify that the flow paths, configurations and alternative means for inventory addition were consistent with the outage risk plan.
- Reviewed selected control room operations to verify that the licensee was controlling reactivity in accordance with the technical specifications.
- Observed the licensee's control of containment penetrations to verify that the requirements of the technical specifications were met.
- Reviewed the licensee's plans for changing plant configuration to verify that technical specifications, license conditions and other requirements, commitments and administrative procedure prerequisites were met prior to changing plant configuration.
- Inspection of drywell and torus containment for degraded conditions prior to reactor startup.
- Observed portions of reactor startup and plant heatup

b. Findings

No findings were identified.

1R22 Surveillance Testing

a. Inspection Scope

The inspectors reviewed six licensee surveillance test procedures and either witnessed the test or reviewed test records to determine if the scope of the test adequately demonstrated the affected equipment was operable. The inspectors reviewed these activities to assess for preconditioning of equipment, procedure adherence, and equipment alignment following completion of the surveillance. The inspectors reviewed licensee procedure NMP-GM-005-GL03, Human Performance Tools, and attended selected briefings to determine if procedure requirements were met. Documents reviewed are listed in the Attachment.

Surveillance Tests

- 34SV-C11-002-2, Scram Discharge Volume Isolation Valve Timing & Closure Test
- 57SV-C51-004-2, Intermediate Range Monitor Functional Test
- 34SV-E51-002-1, [Reactor Core Isolation Cooling] Pump Operability

In-Service Test

- 34SV-R43-010-0, Diesel Generator Fuel Oil Transfer Pump Surveillance Test
- 34SV-E21-001-1, Core Spray Pump Operability

Leak-rate Test

- 42SV-TET-001-2, Primary Containment Periodic Type B and Type C Leakage Tests (main steam isolation valves 2B21-F022B, F022C, F028A, F028B, F028C, F028D)

b. Findings

No findings were identified.

Cornerstone: Emergency Preparedness

1EP6 Drill Evaluationa. Inspection Scope

The inspectors observed the following emergency plan evolution. The inspectors observed licensee activities in the simulator and Technical Support Center to verify implementation of licensee procedure 10AC-MGR-006-0, Hatch Emergency Plan. The inspectors reviewed the classification of the simulated events and the development of protective action recommendations to verify these activities were conducted in accordance with licensee procedure NMP-EP-110, Emergency Classification Determination and Initial Actions, and NMP-EP-112, Protective Action Recommendations. The inspectors also reviewed licensee procedure NMP-EP-111, Emergency Notifications, to verify the proper offsite notifications were made. The inspectors attended the post-exercise critique to assess the licensee's effectiveness in identifying areas of improvement. Documents reviewed are listed in the Attachment.

- Emergency Preparedness Drill / Evolution conducted on May 11, 2011

b. Findings

No findings were identified.

2. RADIATION SAFETY (RS)

2RS1 Radiological Hazard Assessment and Exposure Controlsa. 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), and airborne radioactivity areas established within the radiologically controlled area (RCA) of the Unit 2 (U2) drywell and reactor building, Unit 1 (U1) and U2 control and turbine buildings, 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

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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 outage jobs, the inspectors attended pre-job briefings and reviewed radiation work permit (RWP) details to assess communication of radiological control requirements and current radiological conditions to workers. The inspectors also walked down the Independent Spent Fuel Storage Installation (ISFSI) and independently measured radiation dose rates or directly observed conduct of licensee radiation and contamination surveys.

Hazard Control and Work Practices The inspectors evaluated access barrier effectiveness for selected U1 and U2 Locked High Radiation Area (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 (including airborne controls) were evaluated for selected U2 Refueling Outage 21 (2R21) tasks including safety relief valve, N2G weld overlay activities, reactor vessel disassembly/assembly, work in reactor 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 (HPT) 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 safety relief valve work, N2G weld overlay activities, and condenser hotwell activities. 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. safety relief valve and condenser hotwell 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 CRs 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 NMP-GM-002, Corrective Action Program, Ver. 11 and NMP-GM-002-001, Corrective Action Program Instructions, Ver. 21. The inspectors also evaluated the scope of the licensee's internal audit program and reviewed recent assessment results.

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Radiation protection activities were evaluated against the requirements of FSAR Section 12; 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.

2RS2 As Low As Reasonably Achievable (ALARA)

a. Inspection Scope

Work Planning and Exposure Tracking The inspectors reviewed planned work activities and their collective exposure estimates for the current 2R21 outage. ALARA planning packages were reviewed for the following high collective exposure tasks: N2G nozzle weld overlay and inspection; reactor head disassembly and re-assembly; shielding installation and removal; safety relief valve maintenance; and insulation removal. For the selected tasks, the inspectors reviewed established dose goals and discussed assumptions regarding the bases for the current estimates with responsible ALARA planners. The inspectors evaluated the incorporation of exposure reduction initiatives and operating experience, including historical post-job reviews, into RWP requirements. Day-to-day collective dose data for the selected tasks were compared with established dose estimates and evaluated against procedural criteria (trigger points) for additional ALARA review. Where applicable, changes to established estimates were discussed with ALARA planners and evaluated against work scope changes or unanticipated elevated dose rates.

Source Term Reduction and Control The inspectors reviewed the collective exposure three-year rolling average (TYRA) from 2007 – 2009 and reviewed historical collective exposure trends from 1976 – 2009. The inspectors reviewed historical dose rate trends for recirculation piping (BRAC points) and compared them to current 2R21 data. Source term reduction initiatives were reviewed and discussed with Chemistry and HP staff.

Radiation Worker Performance Radiation worker performance was observed and evaluated as part of IP 71124.01 and is documented in section 2RS1. While observing job tasks, the inspectors evaluated the use of remote technologies to reduce dose including teledosimetry and remote visual monitoring.

Problem Identification and Resolution The inspectors reviewed and discussed selected CAP documents associated with ALARA program implementation. The inspectors evaluated the licensee's ability to identify and correct the issues in accordance with licensee procedure NMP-GM-002. The inspectors also evaluated the scope and frequency of the licensee's self-assessment program and reviewed recent assessment results.

ALARA program activities were evaluated against the requirements of FSAR Section 12, TS Section 5.4, 10 CFR Part 20, and approved licensee procedures. Records reviewed are listed in Sections 2RS1 and 2RS2 of the Attachment.

b. Findings

No findings were identified.

2RS3 In-Plant Airborne Radioactivity Control and Mitigation

a. Inspection Scope

Engineering Controls The inspectors reviewed the use of temporary and permanent engineering controls to mitigate airborne radioactivity inside the U2 drywell, reactor building and turbine building during the 2R21 refueling outage. The inspectors observed the use of negative pressure units (NPU) and vacuums to control contamination during safety relief valve work and reactor vessel disassembly and inspection activities and reviewed NPU testing records. The inspectors also reviewed ventilation flow, charcoal, and High Efficiency Particulate Air (HEPA) filter test records for the Main Control Room Environmental Control System. The inspectors evaluated the effectiveness of continuous air monitors and air samplers placed in work area "breathing zones" to provide indication of increasing airborne levels. In addition, plant guidance and its implementation for the monitoring of potential airborne beta-gamma and alpha-emitting radionuclides were reviewed and discussed with licensee representatives.

Respiratory Protection Equipment The inspectors reviewed the use of respiratory protection devices to limit the intake of radioactive material. This included review of program guidance for issuance and use of respiratory protection devices, discussion with responsible licensee representatives, and review of devices used for routine tasks and devices stored for use in emergency situations. The inspectors reviewed Total Effective Dose Equivalent (TEDE)-ALARA evaluations conducted for selected 2R21 outage tasks. Selected whole-body count (WBC) routine and investigative analysis results for occupational workers were reviewed and discussed. Use of powered air purifying respirator equipment (PAPRs) was evaluated for the workers involved in Subpile [under vessel] room work and those involved in reactor head disassembly/removal activities. The inspectors toured selected onsite compressors available for supplying breathing air for 2R21 outage activities and reviewed recent air quality sampling results. Training, fit testing, and medical qualifications for selected HP, maintenance, and support staff using respiratory protection for 2R21 activities were reviewed. Selected Self-Contained Breathing Apparatus (SCBA) units and negative pressure respirators (NPRs) staged for routine and emergency use in the Main Control Room and other locations were inspected for material condition, SCBA bottle air pressure, number of units, and number of spare masks and air bottles available. The inspectors reviewed maintenance records for selected SCBA units for the past two years and evaluated SCBA and NPR compliance with National Institute for Occupational Safety and Health certification requirements.

SCBA for Emergency Use: The inspectors reviewed the current status, operability and availability of selected SCBA equipment maintained within the technical support center, U1 and U2 control rooms, and fire brigade staging facilities. Maintenance activities for selected respiratory protective equipment, e.g., compressed gas cylinders, regulators, valves, and hose couplings, by certified vendor technicians was evaluated for selected SCBA units. Training, fit testing, and medical qualifications for selected HP, maintenance, and operations staff assigned Emergency Response Organization duties were reviewed. For selected U1 and U2 control room operators, the inspectors discussed annual hands-on SCBA training activities including donning, doffing and functionally checking SCBA equipment and availability of corrective lens, as applicable, for on-shift personnel.

Problem Identification and Resolution: CRs associated with airborne radioactivity mitigation and respiratory protection were reviewed and assessed. The inspectors evaluated the licensee's ability to identify and correct the issues in accordance with procedure NMP-GM-002 and NMP-GM-002-001. Documents reviewed are listed in section 2RS3 of the Attachment.

Licensee activities associated with the use of engineering controls and respiratory protection equipment and airborne radioactivity monitoring and controls were evaluated against details and requirements documented in FSAR Sections 11 and 12; TS Section 5.4, Procedures; 10 CFR Part 20; RG 8.15, Acceptable Programs for Respiratory Protection; and approved licensee procedures. Documents reviewed are listed in Sections 2RS1, 2RS2, and 2RS3 of the Attachment.

b. Findings

No findings were identified.

2RS4 Occupational Dose Assessment

a. Inspection Scope

External Dosimetry Inspectors reviewed and discussed the licensee's National Voluntary Accreditation Program (NVLAP) certification data for accreditation years 2010-2011 and 2011-2012 for Ionizing Radiation Dosimetry. Program procedures were reviewed for processing active personnel dosimeters and onsite storage of dosimeters were discussed. Comparisons between ED and personnel dosimeter results were discussed in detail.

Internal Dosimetry Inspectors reviewed and discussed the in vivo bioassay program with the licensee. Inspectors reviewed procedures that addressed methods for determining internal or external contamination, releasing contaminated individuals, the assignment of dose and the frequency of measurements depending on the nuclides. Inspectors reviewed and evaluated WBC records selected from February 2009 to March 2011. The licensee's program for in vitro monitoring was reviewed and discussed in detail.

Special Dosimetric Situations Inspectors reviewed records for declared pregnant workers (DPWs) since January 2009 and discussed guidance for monitoring and instructing DPWs. Inspectors reviewed the licensee's practices for monitoring external dose in areas of expected dose rate gradients, including the use of multi-badging and extremity dosimetry. The inspectors evaluated the licensee's neutron dosimetry program and reviewed neutron surveys related with ISFSI loading and monitoring.

Problem Identification and Resolution Inspectors reviewed and discussed licensee CAP documents associated with occupational dose assessment. The inspectors evaluated the licensee's ability to identify and correct the identified issues in accordance with procedure NPM-GM-002. The inspectors also discussed the scope of the licensee's internal audit program and reviewed recent assessment results

HP program occupational dose assessment activities were evaluated against the requirements of FSAR Section 12; TS Section 5.4; 10 CFR Parts 19 and 20; and approved licensee procedures. Records reviewed are listed in Section 2RS01, 2RS02, and 2RS04 of the Attachment.

b. Findings

No findings were identified.

2RS8 Radioactive Solid Waste Processing and Radioactive Material Handling, Storage, and Transportation

a. Inspection Scope

Radioactive Material Storage The inspectors walked down indoor and outdoor areas of the Waste Separation and Temporary Storage Facility building. During the walk-down, the inspectors observed the physical condition and labeling of several storage containers, and the posting of Radioactive Material Areas. The inspectors also reviewed licensee's radwaste procedures for routine surveys and waste storage, in order to evaluate the impact of long-term storage.

Radioactive Waste System Walkdown, Characterization and Classification The inspectors walked down accessible sections of the liquid and solid radwaste systems, to assess material condition and conformance of equipment with system design diagrams. This included the indoor portion of the Radwaste Building containing storage tanks, the unused equipment area, the Radwaste Control Room, and the outdoor Resin Processing Pad Areas for Units 1 and 2. The inspectors discussed the function of radwaste components with the radwaste operator. The inspectors discussed possible changes to the radwaste processing systems with radwaste staff. The processes for the dewatering of resins, spent resin tank recirculation, resin sampling, and transfer of resins from the Processing Pads to the shipping casks and temporary storage casks were discussed with the resin processing contractor.

The inspectors reviewed the 2009 Radioactive Effluent Release Report and the 2009-2010 radionuclide characterization and classification for the DAW and dewatered resin waste streams. The inspectors evaluated analyses for hard-to-detect nuclides, reviewed the use of scaling factors, and examined quality assurance comparison results between licensee waste stream characterizations and outside laboratory data. The inspectors also evaluated how changes to plant operational parameters were taken into account in waste characterization.

Shipment Preparation and Records The inspectors directly observed preparation of an intermodal shipment containing DAW in the form of scrap metal. The inspectors noted package markings and placarding, and interviewed the shipping technician regarding Department of Transportation (DOT) regulations. In addition, training records for selected individuals currently qualified to ship radioactive material were reviewed for compliance with 49 CFR Part 172 Subpart H. Six shipping records were reviewed for consistency with licensee procedures and compliance with NRC and DOT regulations. This included review of emergency response information, waste classification, radiation survey results, information on the waste manifest, and the authorization of the receiving licensee to receive shipments.

Identification and Resolution of Problems The inspectors reviewed selected CRs in the area of radwaste/shipping, as well as the results of a self-assessment. The inspectors evaluated the licensee's ability to identify and correct the issues in accordance with procedure NMP-GM-002-001.

Radioactive material and waste storage activities were reviewed against the requirements of 10 CFR Part 20. Radwaste processing activities and equipment configuration were reviewed for compliance with the licensee's Process Control Program and FSAR Chapter 11. Waste stream characterization analyses were reviewed against regulations detailed in 10 CFR Part 20, 10 CFR Part 61, and guidance provided in the Branch Technical Position on Waste Classification (1983). Transportation program implementation was reviewed against regulations detailed in 10 CFR Part 20, 10 CFR Part 71 (which requires licensees to comply with DOT regulations in 49 CFR Parts 107, 171-180, and 390-397), as well as the guidance provided in NUREG-1608. Training activities were assessed against 49 CFR Part 172 Subpart H. Documents reviewed are listed in section 2RS8 of the Attachment.

b. Findings

No findings were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator (PI) Verification

a. Inspection Scope

The inspectors reviewed a sample of the licensee submittals for the PIs listed below to verify the accuracy of the data reported. The PI definitions and the guidance contained

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in NEI 99-02, Regulatory Assessment Indicator Guideline, Rev. 6 and licensee procedure 00AC-REG-005-0, Preparation and Reporting of NRC PI Data, were used to verify procedure and reporting requirements were met.

Cornerstone: Barrier Integrity

- Reactor Coolant System Leakage
- Reactor Coolant System Activity

The inspectors reviewed raw PI data collected April 2010 through March 2011 for the Barrier Integrity indicators identified. The inspectors compared graphical representations from the most recent PI report to the raw data to verify the data was included in the report. The inspectors also examined a sampling of operations logs and procedures to verify the PI data was appropriately captured for inclusion into the PI report, and the individual PIs were calculated correctly. The inspectors observed a chemistry technician perform a sample of the reactor coolant system and a portion of the analysis in accordance with licensee procedure 64CH-SAM-025-0, Reactor Coolant Sampling and Analysis. Applicable licensee event reports (LERs) issued during the referenced time frame were also reviewed. Documents reviewed are listed in the Attachment.

Occupational Radiation Safety Cornerstone The inspectors reviewed the Occupational Exposure Control Effectiveness PI results for the Occupational Radiation Safety Cornerstone from January through December 2010. For the assessment period, the inspectors reviewed ED alarm logs and selected CRs 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 Attachment.

Public Radiation Safety Cornerstone The inspectors reviewed the Radiological Effluent Technical Specification/Offsite Dose Calculation Manual Radiological Effluent Occurrences PI results from January through December 2010. The inspectors reviewed CAP documents, effluent dose data, and licensee procedural guidance for classifying and reporting PI events. Reviewed documents are listed in Section 4OA1 of the Attachment.

b. Findings

No findings were identified.

4OA2 Identification and Resolution of Problems

.1 Daily Screening of Corrective Action Items

As required by Inspection Procedure 71152, Identification and Resolution of Problems, and in order to help identify repetitive equipment failures or specific human performance issues for follow-up, the inspectors performed a daily screening of items entered into the licensee's corrective action program. This review was accomplished by either attending daily screening meetings that briefly discussed major CRs, or accessing the licensee's computerized corrective action database and reviewing each CR that was initiated.

.2 Annual Samples:

a. Inspection Scope

The inspectors performed a detailed review of the following two CRs to verify the full extent of the issues were identified, an appropriate evaluation was performed, and appropriate corrective actions were specified and prioritized. The inspectors evaluated the CR against the licensee's corrective action program as delineated in licensee procedure NMP-GM-002, and 10 CFR 50, Appendix B. Documents reviewed are listed in the Attachment.

- CR 2010116039, Control circuit #3 for the 1B emergency diesel generator de-energized on panel 1R43P003B
- CR 2010113110, Delays in work activities performed during rod sequence exchanges have resulted in challenges in core management

b. Findings and Observations

Introduction: A Green self-revealing NCV of 10 CFR 50, Appendix B, Criterion XVI, Corrective Actions, was identified for failure to promptly identify and take corrective actions to ensure Bussmann fuses identified by the Part 21 notification 2005-37, were removed from use in safety related applications.

Description: On March 3, 2006, NRC Information Notice 2006-05, Possible Defect in Bussmann KWN-R and KTN-R Fuses, was issued to inform licensees of a possible defect in Bussmann KWN-R and KTN-R reported to the NRC as Part 21 2005-37. The information notice states that KTN-R fuses with ratings less than or equal to 30 amps manufactured between 1987 and 1991 were potentially defective. In response to Information Notice 2006-005, the licensee initiated action item 2006202114 to procure new KTN-R fuses and replace existing KTN-R fuses currently within warehouse inventory. Actions taken under action item 2006202114 were completed in August 2006, but failed to identify all existing Part 21 KTN-R fuses within the warehouse inventory. Specifically, KTN-R 10 amp fuses purchased in 1990 and listed at the site under stock number 67142 were not removed from warehouse stock and not replaced as directed under action item 2006202114. 10 CFR 50, Appendix B, Criterion XVI, Corrective Actions, requires in part that measures shall be established to assure that conditions

adverse to quality such as defective material and equipment are promptly identified and corrected.

Subsequently, on May 18, 2010, under work order 1100323603 the licensee replaced ten KTN-R 10 amp fuses for the 1B emergency diesel generator control and indication circuitry with fuses purchased in 1990 and within the scope of the Bussmann Fuse Part 21. Approximately seven months later on December 23, 2010, the Hatch 1B emergency diesel generator #3 stop circuitry operability light was discovered not illuminated on panel 1R43-P003B due to the failure of a Bussmann KTN-R 10 amp fuse. Without power to this circuitry the 1B emergency diesel generator is inoperable and unavailable. Specifically, because of the loss of power, the permissive in the #3 circuitry does not change state to de-energize the 1B emergency diesel generator "shutdown relay"; therefore, seven seconds after an initial start the diesel would trip because of its "shutdown relay" remaining energized. Additionally, this failure would also prevent the DC system from energizing the generator excitation control circuitry which would prevent the diesel from providing power to the emergency bus. Hatch CR 2010116039 was initiated to document and investigate this failure. The failed fuse was sent to Wyle labs for dissection and it was confirmed by Wyle labs in failure analysis report 58240R11 that the fuse failure was caused by the manufacturing soldering issues identified in the Bussmann Fuse Part 21. Corrective actions taken under CR 2010116039 included replacing the KTN-R 10 amp fuses on the 1B emergency diesel generator with fuses manufactured after 1991, placing a hold on all KWN-R and KTN-R fuses size 30 amps below manufactured between 1987 and 1991 and replacement of these fuses with new KWN-R and KTN-R fuses with a date code 2009 or newer.

Analysis: Failure to promptly identify and take corrective actions to ensure Bussmann fuses identified by the Part 21 notification 2005-37, were removed from use in safety related applications is a performance deficiency. This performance deficiency is more than minor because it is associated with the Equipment Performance attribute and adversely affected the Mitigating Systems Cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, on December 23, 2010, the Hatch 1B emergency diesel generator #3 stop circuitry operability light was discovered not illuminated on panel 1R43-P003B. Without power to this circuitry the 1B emergency diesel generator is inoperable and unavailable to provide its required safety function. The significance of this finding was screened using IMC 0609 Attachment 4, table 4a. The risk significance screening required a Phase 3 analysis, because the finding screened as potentially risk significant due to a seismic initiating event. The regional SRA performed a Phase 3 analysis for the finding. The analysis included two parts, the first covering the time period of total inoperability of the fuse; and the second covering the exposure time from when the non qualified fuses were installed until they were replaced, when they were subject to potential seismic failure. Calculations were performed using the NRC's plant specific risk models. The short exposure time for the first analysis, and the low likelihood of a seismic event at the plant for the second analysis, caused the combined result to be a very low risk condition. The finding was determined to be Green in the SDP. Because the performance deficiency occurred in 2006 and is outside the past three years, no cross-cutting aspect is assigned.

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Enforcement: 10 CFR 50, Appendix B, Criterion XVI, Corrective Actions, requires in part that measures shall be established to assure that conditions adverse to quality such as defective material and equipment are promptly identified and corrected. Contrary to the above from August 2006 to December 2010 the licensee failed to promptly identify and take corrective actions to ensure defective material identified by the Bussmann Fuse Part 21 notification 2005-37, was removed from use in safety related applications. Specifically, KTN-R 10 amp fuses purchased in 1990 and listed at the site under stock number 67142 were not removed from warehouse stock and not replaced as directed under action item 2006202114. Immediate corrective actions taken by the licensee include replacing the KTN-R 10 amp fuses on the 1B emergency diesel generator with fuses manufactured after 1991, placing a hold on all KWN-R and KTN-R fuses size 30 amps below manufactured between 1987 and 1991, and replacement of these fuses with new KWN-R and KTN-R fuses with a date code 2009 or newer. Because this violation was of very low safety significance and it was entered into the licensee's corrective actions program as CR 2010116039, this violation is being treated as an NCV, consistent with the Enforcement Policy. NCV 05000321,366/2011003-01, "Failure to promptly identify and take corrective actions to ensure Bussmann fuses identified by the Part 21 notification 2005-37, were removed from use in safety related applications."

.3 Semi-Annual Trend Review

a. Inspection Scope

The inspectors performed a review of the licensee's corrective action program and associated documents to identify trends which could indicate the existence of a more significant safety issue. The review was focused on repetitive equipment issues, but also considered the results of inspector daily CR screening, licensee trending efforts, and licensee human performance results. The review nominally considered the six month period of January 2011 through June 2011 although some examples extended beyond those dates when the scope of the trend warranted. The inspectors compared and contrasted their results with the results contained in the licensee's quarterly trend reports. Corrective actions associated with a sample of the issues identified in the licensee's trend reports were reviewed for adequacy. The inspectors also evaluated the trend reports against the requirements of the licensee's corrective action program as specified in licensee procedure NMP-GM-002, and 10 CFR 50, Appendix B. Documents reviewed are listed in the Attachment.

b. Findings and Observations

No findings were identified.

4OA5 Other Activities.1 Quarterly Resident Inspector Observations of Security Personnel and Activitiesa. Inspection Scope

During the inspection period, the inspectors conducted observations of 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 identified.

.2 (Closed) Temporary Instruction (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 TI concurrent with IP 71124.01, Radiation Hazard Analysis. 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 reviewed the physical condition of the irradiation device. 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, "Follow-up 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

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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 05000321,366/2011010 (ML11330108) documented detailed results of this inspection activity. Following issuance of the report, the inspectors conducted detailed follow-up on selected issues. The following findings were identified during this follow-up inspection:

Introduction: A Green NRC-identified NCV of 10 CFR 50 Appendix B, Criterion V. Instructions, Procedures, and Drawings, was identified for failure to establish adequate procedures that address potential adverse system interactions when opening safety relief valves without power.

Description: During performance of TI-183, the inspectors questioned the ability of the licensee to perform procedure 31EO-TSG-001-0, Technical Support Guidelines, Attachment 6, SRV Actuation Without Power to Allow Injection with Portable Pump, as written. This procedure was implemented by the licensee in July 2007 and installs a portable DC power supply to locally energize and operate the safety relief valves when on site electrical power is unavailable. The procedure for operating SRV's without power is written such that the safety relief valves control circuits are not verified to be electrically isolated from the stations DC distribution system prior to installing a portable DC power supply. The portable DC power supply does not have the electrical capacity to supply power to the SRV's and to back feed the station's DC busses. Therefore if the SRV's remained electrically connected to the stations DC busses the portable DC power supply would not produce sufficient voltage to energize the SRV solenoids resulting in the SRV's failing to open. In this case the SRV's would periodically lift at their mechanical relief setpoint of 1150 +/- 34.5 psig. With the reactor pressure vessel (RPV) at this high pressure and no high pressure injection cooling available, reactor coolant inventory lost could not be made up by the low pressure portable pump. This would ultimately result in the core becoming uncovered and subsequent fuel damage. This issue was entered into the licensee's corrective actions program as CR 2011106008. The licensee was able to demonstrate to the inspectors that, although the possibility exists for the portable DC power supply to fail to open SRV's due to the backfeed condition, due to self protecting features the DC power supply would not be damaged and there is a high likelihood the licensee would be able to identify and correct the backfeed circuit prior to the core becoming uncovered.

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Analysis: Failure to consider potential adverse system interactions when developing procedures affecting quality is a performance deficiency. This performance deficiency is more than minor because it is associated with the Procedural Quality attribute of the Mitigating Systems Cornerstone and adversely affects the cornerstone objective to ensure the availability, reliability, and capability of the safety relief valves to reduce reactor pressure in response to a loss of AC and DC power event. Because this finding is associated with B.5.b mitigation strategies, the finding was assessed using MC 0609 Appendix L, B.5.b Significance Determination Process, Table 2. The inspectors performed an initial screening and determined the finding did not meet the criteria listed within Table 2 for greater than Green significance, therefore this finding was screened as Green. Because the mitigating strategy was developed and implemented in site procedures in 2007 the performance deficiency occurred outside the past three years and no cross-cutting aspect is assigned.

Enforcement: 10 CFR 50, Appendix B, Criterion V. Instructions, Procedures, and Drawings, requires in part that activities affecting quality shall be prescribed by procedures appropriate to the circumstances. Contrary to the above from July 2007 to June 2011 the licensee failed to prescribe within procedure 31EO-TSG-001-0, Technical Support Guidelines, Attachment 6, SRV Actuation Without Power to Allow Injection with Portable Pump, the potential adverse system interactions when operating SRV's with a portable DC power supply, which is an activity affecting quality. Immediate corrective actions taken by the licensee include changing 31EO-TSG-001-0, Attachment 6, SRV Actuation Without Power to Allow Injection with Portable Pump, to ensure the SRV control circuits are isolated electrically from the DC busses prior to installing the portable DC power supply. Because this violation was of very low safety significance and it was entered into the licensee's corrective actions program as CR 2011106008, this violation is being treated as an NCV, consistent with the Enforcement Policy. NCV 05000321,366/2011003-02, "Failure to consider potential adverse system interactions when developing procedure to open SRV's without power."

Introduction: A Green NRC-identified NCV of 10 CFR 50, Appendix B, Criterion V. Instructions, Procedures, and Drawings, was identified for failure to establish adequate procedures that address the anticipated environmental conditions when operating containment vents without power.

Description: During performance of TI-183, the inspectors questioned whether the manual operation of the containment vent procedure, 31EO-TSG-001-0, Attachment 10, Manually Open Containment Vent Lines, could be performed as written. This procedure was implemented by the licensee in September 2005 and has operators manually operate vent valves to relieve pressure inside primary containment during a loss of AC and DC power event. The inspectors determined this procedure did not take into account anticipated environmental conditions within the areas operators would enter during performance of portions of this procedure. Under some scenarios this procedure may not be able to be performed due to the high ambient temperature conditions expected to be present within the area operators would be required to enter to install rigs and operate dampers. During a loss of AC and DC power condition, reactor decay heat would be transferred from the reactor to the torus suppression pool through the safety relief valves. The suppression pool will heat up, reach saturation conditions, and cause

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pressure within the primary containment to increase. The licensee's emergency operating procedures and severe accident guidelines direct the venting of the torus before the primary containment pressure limit is exceeded. The primary containment pressure limit maximum acceptable torus pressure would require torus venting prior to exceeding 60 psig. Utilizing ASME Steam Tables, for a 60 psig pressure (74.7 psia) the saturation temperature is ~307 degrees F. Should the licensee vent containment at a torus pressure as low as 40 psig (54.7 psia) the saturation temperature is still ~285 degrees F. Attachment 10 directs operators to perform numerous strenuous and complicated tasks within the torus area. Among the actions operators would perform include 1) transferring several air bottles down vertical ladders to the torus area, 2) disconnecting fittings and connecting temporary air lines to three dampers while standing directly on top of the un-lagged metal shell of the saturated torus, and 3) periodically operating the three dampers using air cylinders while maintaining radio contact to control primary containment pressure. This evolution would be performed in very low light conditions using portable battery operated lighting (flashlights) due to the loss of power to installed area lighting. These conditions would hinder performance and require increased time within the high temperature environment to complete the Attachment 10 procedure. The inability to vent primary containment during a loss of AC and DC power utilizing the containment vent valves could result in the over pressurization and subsequent failure of primary containment. To address this issue the licensee initiated CR's 2011105966 and 2011106007. The licensee has changed procedure 34AB-R22-003-1/2, Station Blackout, to perform preliminary actions in the torus area before the high containment pressure conditions require venting. This change is intended to allow required torus area entries to be performed prior to the time when high temperature saturation conditions are reached inside the torus.

Analysis: Failure to address the anticipated environmental conditions when developing procedures affecting quality is a performance deficiency. This performance deficiency is more than minor because it is associated with the Procedural Quality attribute of the Mitigating Systems Cornerstone and adversely affects the cornerstone objective to ensure the availability, reliability, and capability of the containment vent valves to allow reliable primary containment pressure control in response to a loss of AC and DC power event. This finding was assessed using MC 0609 Appendix L, B.5.b Significance Determination Process, Table 2. The inspectors performed an initial screening and determined the finding did not meet the criteria listed within Table 2 for greater than Green significance therefore this finding was screened as Green. Because the procedure was developed and implemented in 2005, the performance deficiency occurred outside the past three years and no cross-cutting aspect is assigned.

Enforcement: 10 CFR 50, Appendix B, Criterion V. Instructions, Procedures, and Drawings, requires in part that activities affecting quality shall be prescribed by procedures appropriate to the circumstances. Contrary to the above from September 2005 through June 2011 the licensee failed to prescribe within procedures the appropriate circumstances of considering the environmental conditions within the torus area for manually operating containment vent valves, which is an activity affecting quality. Specifically, procedures did not address operation of the vent valves in an anticipated high temperature condition. Immediate corrective actions taken by the licensee include changing procedure 34AB-R22-003-1/2, Station Blackout, to perform

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preliminary actions in the torus area before high torus temperature conditions are reached. Because this violation was of very low safety significance and it was entered into the licensee's corrective actions program as CR 2011105966 and CR 2011106007, this violation is being treated as an NCV, consistent with the Enforcement Policy. NCV 05000321,366/2011003-03, "Failure to address the anticipated environmental conditions when developing procedures to manually operate containment vent valves."

.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 E.I. Hatch Station 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).

4OA6 Meetings, Including Exit

On June 25, 2011, the resident inspectors presented the inspection results to you and other members of your staff. The inspectors confirmed that proprietary information was not provided or examined during the inspection.

ATTACHMENT: SUPPLEMENTAL INFORMATION

Enclosure

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee personnel

S. Bargeron, Plant Manager
G. Brinson, Maintenance Manager
B. Duval, Site Support Manager
G. Johnson, Engineering Director
C. Lane, Engineering Systems Manager
D. Madison, Hatch Vice President
K. Underwood, Performance Improvement Supervisor
R. Varnadore, Operations Manager

LIST OF ITEMS OPENED AND CLOSED

Closed

2515/179	TI	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)
2515/183	TI	Follow-up to the Fukushima Daiichi Nuclear Station Fuel Damage Event. (Section 4OA5.3)
2515/184	TI	Availability and Readiness Inspection of Severe Accident Management Guidelines (SAMGs). (Section 4OA5.4)

Opened & Closed

05000321,366/2011003-01	NCV	Failure to promptly identify and take corrective actions to ensure Bussmann fuses identified by the Part 21 notification 2005-37 were removed from use in safety related applications. (Section 4OA2.2)
05000321,366/2011003-02	NCV	Failure to consider potential adverse system interactions when developing procedure to open SRV's without power. (Section 4OA5.3)
05000321,366/2011003-03	NCV	Failure to address the anticipated environmental conditions when developing procedures to manually operate containment vent valves. (Section 4OA5.3)

LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather

DI-OPS-87-0408, Actions for GENCOMM Alerts, Ver. 1.1

34AB-S11-001-0, Operation with Degraded System Voltage, Ver. 2.8

Licensee response to Generic Letter 2006-02, Grid Reliability and the Impact of Plant Risk and the Operability of Offsite Power

Section 1R04: Equipment Alignment

Procedures

34SO-E21-001-2, Core Spray System, Ver. 22.14

34SO-S22-001-1, 230 KV Substation Switching, Ver. 6.0

34SO-R22-001-1, 4160 VAC System, Ver. 16.20

34SO-E51-001-2, Reactor Core Isolation Cooling System, Ver. 22.1

Drawings

H-26046, Ver. 46.0

Other

E.I. Hatch Updated Final Safety Analysis Report

E.I. Hatch Technical Specifications

E.I. Hatch Technical Specifications Bases

Section 1R05: Fire Protection

Procedures

E.I. Hatch Fire Protection Fire Hazards Analysis

42FP-FPX-018-0, Use, Control and Storage of Flammable/Combustible Materials, Version 1.2

34AB-X43-001-1, Fire Procedure, Version 10.25

42SV-FPX-024-0, Fire Hose Stations – Appendix B Areas, Version 3.2

Drawings

A-43965 sheet 104A/B, Unit 2 Pre-Fire Plan North Torus Area

A-43965 sheet 105A/B, Unit 2 Pre-Fire Plan South Torus Area

A-43965 sheet 56A/B, Unit 1 Pre-Fire Plan South Torus Area

A-43965 sheet 57A/B, Unit 1 Pre-Fire Plan North Torus Area

A-43965 sheet 54A/B, Unit 1 Pre-Fire Plan Control Rod Drive Sump Room

A-43965 sheet 48A/B, Unit 1 & 2 Pre-Fire Plan Control Room

A-43965 sheet 60A/B, Unit 1 Pre-Fire Plan Working Floor South Reactor Bldg Elevation 158'-0"

Condition Reports

2011105566,

Section 1R06: Internal Flood Protection

Documents

HNP-2-FSAR Chapter 9.3.3.2.2.B

Procedure 52PM-Y46-001-0, Inground Pullbox and Cable Duct Inspection For Water, Ver 6.8

Section 1R08: Inservice Inspection ActivitiesProcedures

NMP-MA-005-002, General Welding Standard for Pressure Boundary Applications, Ver. 4.0

Condition Reports

2009105294, 2009107886, 2010102002, 2010102210, 2010103245, 2010104062, 2010107127, 2011103515, 2011104016, 2011104377,

Other

00739, Welder Performance Qualification Record (Floyd), dated 6/10/2002
 00838, Welder Performance Qualification Record (Floyd), dated 6/26/2002
 01-01-T-400, Procedure Qualification Record, Rev. 1
 01-01-TS-301, Procedure Qualification Record, Rev. 2
 01-01-TS-302, Procedure Qualification Record, Rev. 2
 01-01-TS-401, Procedure Qualification Record, Rev. 2
 02291, Welder Performance Qualification Record (Cooper), dated 7/5/1992
 07236, Welder Performance Qualification Record (Schwebes), dated 4/6/2006
 07327, Welder Performance Qualification Record (Schwebes), dated 4/6/2006
 09777, Welder Performance Qualification Record (Stewart), dated 3/6/2008
 11287, Welder Performance Qualification Record (Stewart), dated 1/19/2001
 Aquilex WSI ASME IX – Welder Maintenance Log (Cooper)
 Aquilex WSI ASME IX Process Expiration Record, dated March 08, 2011
 N833712-01, Arcos Certification of Tests (Lot XW8599/Heat W85282), dated 04/23/09
 N833712-01, Weldstar Certificate of Compliance, dated April 24, 2009
 PQR-01-01-S-402, Procedure Qualification Record, Rev. 0
 S11H2M011, Magnetic Particle Examination Report, dated 4-7-11
 S11H2P005, Liquid Penetrant Examination Report, dated 4-7-11
 S11H2P006, Liquid Penetrant Examination Report, dated 4-7-11
 S11H2P007, Liquid Penetrant Examination Report, dated 4-7-11
 S11H2U053, Ultrasonic Testing Calibration/Examination Report, dated 4-7-11
 SNC NDE Examiner Certification Review (España), dated 3-14-11
 SNC NDE Examiner Certification Review (Gatica), dated 3-15-11
 SNC NDE Examiner Certification Review (Grell), dated 3-10-11
 SNC NDE Examiner Certification Review (Kilpela), dated 3-21-11
 SNC NDE Examiner Certification Review (Nelson), dated 3-14-11
 SNC NDE Examiner Certification Review (Thompson), dated 3-21-11
 WO2081311515, Weld Pup Pieces to 2B21-F010A/B, Rev. 0
 WPS-01-01-TS-501, Weld Procedure Specification, Rev. 4

Section 1R11: Licensed Operator Requalification

Drill Scenario LT-SG-50464-09

Procedures

34AB-R23-001-2, Loss of 600 Volt Emergency Bus, Ver. 1.9
 34AB-R25-001-2, Loss of Vital Alternating Current Bus, Ver. 6.13
 34AB-C71-002-2, Loss of Reactor Protection System, Ver. 4.8
 34SO-C71-001-2, 120 Volt Alternating Current Reactor Protection System Supply System, Ver. 10.13

34SO-B31-001-2, Reactor Recirculation System, Ver. 38.4
 34AB-P41-001-2, Loss of Plant Service Water, Ver. 10.6
 34AB-T41-001-2, Loss of Emergency Core Cooling System, Main Control Room, or Area Ventilation, Ver. 3.6
 34AB-B21-002-2, Reactor Pressure Vessel Water Level Corrections, Ver. 6.12
 NMP-EP-110-GL02, Hatch Nuclear Power Emergency Action Levels Thresholds Values and Basics, Ver. 2.0
 Emergency Operating Procedure Flowcharts

Section 1R12: Maintenance Effectiveness

System Health Report – E51 System – 4th quarter 2011
 E51 Maintenance Rule Scoping Manual Documents
 E51 Maintenance Rule Performance Criteria
 System Health Report – Service, Instrument Air Systems P51, P52, 4th quarter 2011
 P51 & P52 Maintenance Rule Scoping Manual Documents
 P51 & P52 Maintenance Rule Performance Criteria
 NMP-ES-002, System Monitoring and Health Reporting, Ver. 14.0
 DI-ENG-74-0309, Engineering Management Expectations, Ver. 10.1
 52SV-E51-001-0, Reactor Core Isolation Cooling Overspeed Trip Functional Test and Calibration, Ver. 6.6
 34IT-E51-003-1, Reactor Core Isolation Cooling Turbine Speed Control Test, Ver. 3.10

Condition Reports

2010101738, 2009105109, 2010113577, 2011100653, 2011100654, 2010111202, 2010107858, 2010115839, 2010116248, 2008107655, 2010113194, 2010111523, 2010115432, 2006109827, 2009111239, 2008110034, 2010108009, 2010115096,

Section 1R13: Maintenance Risk Assessments and Emergent Work Evaluation

Procedures

31GO-OPS-024-0, Outage Safety Assessment, Ver. 1.5
 DI-OPS-91-0311, Risk Challenge Board Assessment. Ver. 1.0

Other

Equipment Out of Service calculations 4/16/11-4/22/11
 Equipment Out of Service calculations 4/30/11-5/05/11
 Equipment Out of Service calculations 5/21/11-5/27/11
 Equipment Out of Service calculations 6/04/11-6/10/11
 Outage Risk Assessments 4/18 – 4/22, 2011

Section 1R15: Operability Evaluations

Procedures

NMP-AD-012, Operability Determinations and Functional Assessments, Ver. 10.0

Condition Report

2011105437, 2011106192, 2007100686, 2011105586, 2011105719, 2011105705, 2011106885, 2011107167, 2011103728, 2011107162

Drawings

H-21033, H-11600

Work Orders

2110547501, 2110604501, 2110552701, 1110561301, 1110709002

Other

Control room logs

E. I. Hatch Technical Specifications

E. I. Hatch Technical Specifications Bases

E. I. Hatch Updated Final Safety Analysis Report

Part 9900: Technical Guidance – Operability Determinations & Functionality Assessments for Resolution of Degraded or Nonconforming Conditions Adverse to Quality or Safety

Section 1R18: Plant ModificationsProcedures

42SV-TET-001-2, Primary Containment Periodic Type B and Type C Leakage Test, Ver. 32

34AB-T23-002-2, Small Pipe Break Inside Primary Containment, Ver. 4.11

Condition Reports

2011102036, 2011102077, 2011102422, 2011102659, 2011102654

Section 1R19: Post Maintenance TestingWork Orders

2100241101, 2110600301, 2091717601, 1110118102, 1110709002, 1101264702, 1090255801, 1101440901

Procedures

34SV-T47-001-2, Drywell Cooler Operability, Ver. 4.2

34SV-T48-004-2, Drywell to Suppression Chamber Leakage Test, Ver.4.5

34SV-T48-002-2, Suppression Chamber to Drywell Vacuum Breaker Operability and Containment Purge/Vent Valve Position Check, Ver. 5.6

52PM-P41-003-0, Plant Service Water System Pump Motor Oil Change and Megger Test, Ver. 5.5

34SV-E41-002-1, HPCI Pump Operability, Ver.25.22

34SO-Z41-001-1, Control Room Ventilation System, Ver. 20.1

52PM-C41-104-1, Standby Liquid Control System Pump Major Inspection/Overhaul, Ver. 2.2

34SV-C41-001-1, Standby Liquid Control Monthly Test, Ver. 10.0

Condition Reports

2011106136, 2011106558

Section 1R20: Refueling and Outage ActivitiesProcedures

34GO-OPS-001-1 and 2, Plant Startup

34GO-OPS-003-2, Startup System Status Checklist

Other

Fuel move sheets for Unit 2 Core, Cycle 21 H2R21 U2 following shuffle

Unit 2 R21 Core Verification Video Discs 1, 2, & 3

Operating Logs

Section 1R22: Surveillance TestingCondition Report

2011105094, 2011105337, 2011104750,

Procedures

34SV-R43-010-0, Diesel Generator Fuel Oil Transfer Pump Surveillance Test, Ver. 4.12
 34SV-C11-002-2, Scram Discharge Volume Isolation Valve Timing & Closure Test, Ver. 4.10
 42SV-TET-001-2, Primary Containment Periodic Type B and Type C Leakage Tests, Ver. 32.0
 57SV-C51-004-2, Intermediate Range Monitor Functional Test, Ver. 10.8
 34SV-E51-002-1, [Reactor Core Isolation Cooling] Pump Operability, Ver. 20.15
 34SV-E21-001-1, Core Spray Pump Operability, Ver. 19.0

Other

42SV-TET-001-0, Volumetric Leak Rate Monitor Local Leak Rate Test Data Sheets for 2B21-F022B, F022C, F028A, F028B, F028C, F028D dated 04/19/11
 42SV-TET-001-0, Volumetric Leak Rate Monitor Local Leak Rate Test Data Sheets for 2B21 baseline test dated 04/19/11

Section 1EP6: Drill Evaluation

EP Exercise Narrative and Timeline for drill conducted May 11, 2011
 Drill event notification forms from drill conducted May 11, 2011

Section 2RS1: Radiological Hazard Assessment and Exposure ControlsProcedures, Guidance Documents, and Manuals

60AC-HPX-004-0, "Radiation and Contamination Control", Rev./Ver. 19.6
 60AC-HPX-007-0, "Control of Radioactive Materials", Ver. 8.3
 62RP-RAD-004-0, "Monitor Alarm Response and Personnel Decontamination", Ver. 14.4
 62RP-RAD-006-0, "RPW Processing", Ver. 11.10
 62RP-RAD-008-0, "Radiation and Contamination Surveys", Ver. 12.2
 62RP-RAD-016-0, "Control of High Radiation Areas", Ver. 26.12
 62RP-RAD-017-0, "Release Surveys", Ver. 14.1
 62RP-RAD-055-0, "Underwater Storage and Inventory of Radioactive Materials in the Spent Fuel Pools", Ver. 3.2
 62RP-RAD-022, "Diving Procedure", Ver. 12.4
 DI-RAD-03-1087, "Scheduling and Frequency of Work, Inspections and Surveillances", Ver. 5.3
 NMP-GM-002, "Corrective Action Program", Ver. 9
 NMP-HP-305, "Alpha Radiation Monitoring", Ver. 1.0
 Southern Nuclear Company Lesson Plan, H-GE-PG-41100-00, Enhanced Radworker Training, 3/14/11

Other

RWP 11-2205, RF Vessel Disassembly/Reassembly, Cavity/Dryer Separator Work & Support, Rev. 0
 RWP 11-2603, Shield Door Activities, Insulation, Temporary Vent. & Support Including Subpile Room, Rev. 0
 RWP 11-2005, RB -- Chem/I&C Transport Source, Perform Source Check, Cal Monitors-ARM's, Steam Line Monitors & Post LOCA Monitors, Rev. 0
 RWP 11-2605, ISI & Support Work; N2G Weld Overlay, Rev. 0

RWP 11-2614, Subpile Room Work - Vibration Readings, TIP Tube Work, RPIS, IRMs, SRMs, LPRMs, Elect. Disconn. / Reconn. Repairs and Support Work, Rev. 0

Air Sample Gamma Spectroscopy Analysis Result, Sample ID 17Feb10-002, U1 164' TB Blast Tent

Air Sample Gamma Spectroscopy Analysis Result, Sample ID 17Apr11-001, Cleaning O'Ring Flange – HP Log # 2-11-2204

Air Sample Gamma Spectroscopy Analysis Result, Sample ID 08Apr11-018, U2 Drywell 127 Subpile Part.

Form HPX-0213, Air Sample Calculation Sheet, for the following air sample log numbers:

<u>Log #</u>	<u>Sample Date</u>	<u>Description</u>
1-10-073-1	2/17/10	U1 TB Sand Blast Tent
1-10-082-1	2/17/10	OG Post Treatment Sample Room
2-11-050-2	4/6/11	Clean O-Ring under RPV Head
2-11-051-2	4/6/11	Backup for 2-11-050-2
2-11-063-1	4/8/11	12' Subpile Room
2-11-065-1	4/8/11	Recount of 2-11-063-1 for alpha on Tennelec

2011 Waste Stream Scaling Factor Summary, 1/25/11

Plant Hatch Radiological Information Survey # 52728, U2 Condenser Bay 112

Plant Hatch Radiological Information Survey # 52924, U2 A Shell Hotwell

Plant Hatch Radiological Information Survey # 53002, U2 A Shell Hotwell

Plant Hatch Radiological Information Survey # 53240, U2 Condenser Bay 112

Plant Hatch Radiological Information Survey # 52728, U2 Condenser Bay 112

Plant Hatch Radiological Information Survey # 63399, SFP LHRA Surveillance

Plant Hatch Radiological Information Survey # 76631, U2 A Shell Hotwell

Plant Hatch Radiological Information Survey # 72087, Plant Hatch ISFSI (CYard)

Plant Hatch Radiological Information Survey # 71500, Plant Hatch MPC / Hi-TRAC

Plant Hatch Radiological Information Survey # 71504, Plant Hatch Hi-TRAC Front and Back

Plant Hatch Radiological Information Survey # 71375, Plant Hatch Hi-TRAC Front and Back

Plant Hatch Radiological Information Survey # 73449, Plant Hatch U2 HPCI Room

Plant Hatch Radiological Information Survey # 73506, Plant Hatch U2 HPCI Room

Plant Hatch Radiological Information Survey # 76969, RPV Head

Plant Hatch Radiological Information Survey # 77043, RPV Head

Plant Hatch Radiological Information Survey # 77053, MSIV C (Inboard)

National Source Tracking System, Annual Inventory Reconciliation Report, 1/29/2010 [Hatch Source Serial Numbers 79CS-513 and 0302GY]

National Source Tracking System, Annual Inventory Reconciliation Report, 1/28/2011 [Hatch Source Serial Numbers 79CS-513 and 0302GY]

PowerPoint Slide Presentation Briefing, "Unit Two 2011 Refueling Outage ALARA Briefing", 3/11

Drywell Control Point Turnover Sheet, 3/30/11

HP Management Turnover Sheet, 3/29/11

HP Foreman Turnover Sheet, 3/30/11

HP Daily Exposure Report, 3/30/11

Forms HPX-1191 and HPX-1192, SFP Annual Inventory Sheet, 10/26/10

Hatch Initial Plant Characterization Study, NMP HP-305 (Alpha Monitoring Guidelines), Rev 1, April 2010

Plant Hatch Alpha Levels, Comparing 100 cm² Samples, for the period 4/12/2010 to 4/12/2011

CAP Documents

2010103296, 2010103301, 2010103768, 2010103576, 2010105233, 2010107276, 2010115316, 2010115376, 2010115389, 2011103782, 2011103841, 2011103902, 2011104630, 2011104885, 2011105129,

Other

Fleet Oversight Audit of Health Physics H-HP-2009, Plant E. I. Hatch Health Physics Audit, August 2009

Team Self Assessment – High Rad Controls, July 27-31, 2009

Southern Nuclear Operating Company Fleet Self Assessment, Hatch, Control of Radioactive Contamination and Radioactive Material, February 2007

Section 2RS2: ALARAProcedures and Guidance Documents

60AC-HPX-009-0, “ALARA Program”, Ver. 18.1

62RP-RAD-012-0, “Selection and Use of Temporary Shielding”, Ver. 1.5

2R21 Refueling Outage Drywell Shielding Plan

NMP-GM-002, “Corrective Action Program”, Ver. 11.0

Records and Data Reviewed

RWP 11-2009, U2 RX Bldg G31 RWCU & G41 HX/Valve/Pump Inspection, Repair

RWP 11-2612, Drywell Snubbers Removal/Replacement/Repair, Rev. 0

RWP 11-2605, ISI&N2G Weld Overlay, Rev. 0

Radiological Survey 76910, U2 RWCU HX

Radiological Survey 77122, U2 RWCU HX

ALARA Review Package, RWP 11-2205, Reactor Vessel Disassembly/Reassembly

ALARA Review Package, RWP 11-2603, Insulation, Shield Door Activities, Temp Ventilation

ALARA Review Package, RWP 11-2605, ISI & Support Work, N2G Weld Overlay

ALARA Review Package, RWP 11-2609, SRV Replacement Project

ALARA Review Package, RWP 11-2620, Install/Remove Shielding

Plant ALARA Review Committee Meeting Minutes, 4/11/11

BRAC Point Trending, U1 Recirculation System, 1991 – 2010

BRAC Point Trending, U2 Recirculation System, 1991 – 2009

Plant E. I. Hatch Annual Exposure, 1976 - 2009

2011 Year-to-Date Doses by RWP, 3/29/11, 3/30/11, 4/11/11, 4/12/11, and 4/14/11

Temporary Shielding Log, 3/29/11

Condition Reports

2009104261, 2010102096, 2010104877,

Other

H-HP-2009, Fleet Oversight Audit of Health Physics

Section 2RS3: In-Plant Airborne Radioactivity Control and MitigationProcedures, Guidance Documents, and Manuals

10AC-MGR-026-0, “Respiratory Protection Program”, Rev./Ver. 1.0

60AC-HPX-006-0, “Respirator Radiological Protection Program”, Ver. 10.11

62HI-OCB-002-0, "Portable HEPA Filtration Units and Vacuum Maintenance and Operation", Ver. 9.3
 62HI-OCB-062-0, "SCBA Charging System Operation", Ver. 2.5
 62HI-OCB-076-0, "Respirator Fit Testing", Ver. 8.13
 62HI-OCB-092-0, "AMS-4 Operation and Calibration", Ver. 2.14
 62RP-RAD-003-0, "Use and Care of Respirators", Ver. 9.18
 62RP-RAD-007-0, "Radioactive Sources", Ver. 5.6
 62RP-RAD-009-0, "Air Sampling and Concentration Determination", Ver. 5.5
 62RP-RAD-058-0, "Operation of the 3M Air-Mate Hood and PAPR Blower Unit", Ver. 2.4
 E. I. Hatch Nuclear Plant Emergency Response Position Matrix, March 22, 2011
 HPX-1002, "Respiratory Protection / Emergency Equipment Monthly / Yearly Schedule", Ver. 11.0
 HPX-1230, "SCBA Pre-Operational Checks", rev 2.0
 NMP-GM-002, "Corrective Action Program", Ver. 9
 NMP-HP-305, "Alpha Radiation Monitoring", Ver. 2.0
 NMP-HP-710, "Operation and Calibration of Canberra iSolo Alpha/Beta Counting System", Ver. 4.0
 Southern Nuclear Plant E. I. Hatch System Master Plan, "Emergency Preparedness Training", Rev 10

Records and Data

Respiratory Protection Review Packages for the following 2R21 outage RWP's:

- 11-2005 (Rx Vessel and dryer separator disassembly/reassembly, and cavity work)
- 11-2603 (Shield door activities, insulation, temp. ventilation and support including Subpile room)
- 11-2605 (ISI and N2G weld overlay work)
- 11-2609 (B21-F013, Safety Relief valve replacement, inspection, PM, and support work)
- 11-2620 (Drywell / Steam Chase shielding, tent, scaffold install/removal)

Form HPX-0213, Air Sample Calculation Sheet, for the following air sample log numbers:

<u>Log #</u>	<u>Sample Date</u>
1-10-010	1/15/10
2-10-112	12/9/10
2-10-115	12/13/10
2-10-116	12/15/10
2-10-117	12/15/10
2-11-021	3/26/11
2-11-022	3/28/11
2-11-023	3/28/11
2-11-024	3/29/11
2-11-028	3/30/11

H-BT-RRT (HNP Ultra View, Twin Respirator User) - Qualification Data, 7/3/02

H-BT-PAPR (Power Air Purifying Respirator User) - Qualification Data, 3/25/09

S-GE-SCBA MMR (SCBA Ultra Elite Mask Mounted Regulator User) - Qualification Data, 10/17/05

Respirator/Device Issuance/Return Report, for the period 1/1/11 to 3/31/11

Compressed Air/Gas Quality Testing Analysis Results, 1/23/08, 1/26/09, 1/14/10, 1/5/11, 4/24/08, 4/23/09, 4/14/10, 7/17/09, 7/13/10, 8/26/08, 9/24/08, 10/29/08, 10/15/09, and 11/13/10

Form HPX-0416, Monthly Isotopic Analysis of Plant Service Air (P-51 System), 8/24/04 and 10/14/10

Form HPX-0123, SCBA Monthly Inspection Report, December 2010

Document # 42SV-Z41-003-0, Control Room Filter Train Flow and DP Measurement, WO 1092707001, 3/22/11

Document # 42SV-Z41-002-0, Testing of Control Room Habitability Filter Trains, WO 1092126901, 1082436203, 1101216601, 3/17/11

S-GE-SCBA MMR, SCBA Ultra Elite Mask Mounted Regulator User, Training Status, 3/3/11
MSA MMR Maintenance Certification, 11/8/2007

SCBA Functional Tests, Unit 271, 3/31/11; Unit 242, 3/31/11, Unit 288, 4/13/11, Unit 201, 4/13/11

CAP Documents

AI 2009201672, Effectiveness Review for CR 2009102825

CR 2008111980, SCBAs #, 262, 290, 287, 259 ICM alarms malfunctioned during the Announced Fire Brigade Drill

CR 2008112341, Annual calibration of pressure gauges used on the MSA air supply manifold boxes.

CR 2009100813, Respirator Fit Testing Deficiency. A modified respirator assembly is used for fit testing.

CR 2009101783, Plateau Qualification S-BT-RRT Radiological Respirator User Requires FIT Item, S-BT-3102.

CR 2009102825, Training of site personnel for use of PAPR does not meet the intent of Regulatory Guide 8.15.

CR 2009112191, Weaknesses in Oversight of Non-radiological Respirator Program

CR 2010105544, Personnel Qualifications are based on the fact that personnel check qualifications in Plateau to ensure they are qualified prior to performing a task

CR 2010113674, Potential error in calculating air sample concentrations when using Procedure NMP-HP-710 (Op and Cal of Canberra ISOLO Alpha/Beta Counter).

CR 2010114413, Review new (to be released November 2010) NANTEL Generic Respiratory Protection Training course for impact on the SNC Respiratory Protection training material.

CR 2011104306, Worker donned a PAPR while performing work in the U2 Drywell Subpile Room without complete qualifications.

Section 2RS4: Occupational Dose Assessment

Procedures and Guidance Documents

60AC-HPX-003-0, "Bioassay Program", Revision 6.8

62RP-RAD-013-0, "Indirect Bioassay Sampling", Revision 3.2

62RP-RAD-022-0, "Diving Procedure", Revision 12.4

60AC-HPX-002-0, "Personnel Dosimetry Program", Revision 12.10

62RP-RAD-001-0, "Dosimetry issuance and tracking", Version 16.2

62RP-RAD-004-0, "Monitor Alarm Response and Personnel Decontamination", Version 14.4

NMP-GM-002, "Corrective Action Program", Version 11

Records and Data Reviewed

NVLAP Scope of Accreditation to ISO/IEC, 4/2010-4/2011 & 4/2011-4/2010

NVLAP Personnel Dosimetry Performance Testing, 3rd Quarter 2009, Pacific Northwest National Lab, Richland, VA

Fleet Oversight Audit of Health Physics, H-HP-2009, August 07, 2009.

RWP 11-0000, RCA Access for Visitors without TLDs. No entry into CA/ARA, HRA or VHRA
Selected Whole Body Count Records, 2/2009-3/2011

Corrective Action Program (CAP) Documents

CR 2009101722, Personnel contamination report (PCR) CRD tech was found to be contaminated upon exit from the drywell

CR 2010102409, Three carpenters alarmed the PM-7 and PCM-1B while exiting the RCA.
PCRs

CR 2009102903 I&C Tech became contaminated with 20K on back of head

CR 2009100979 Sheetmetal worker logged into the RCA for greater than 14hrs

CR2010103000 Employee left sight without performing an exit WBC

CR 2010101776 Operator failed to log off and took dosimeter home

2RS8: Radioactive Material Processing and TransportationProcedures, Instructions, and Reports

NMP-GM-002-001, "Corrective Action Program Instructions", Ver. 21.0

62RP-RAD-042-0, "Solid Radwaste Scaling Factor Determination and Implementation", Ver. 6.1

62RP-RAD-042-OS, "2010 Scaling Factor Analysis/U1 CUPS, U1/U2 CPS, U1/U2 Spent Resin and Dry Active Waste", Rev. 2

"Data Base Update Comparison Report" for 2009 U2 CUPS Scaling Factors

62RP-RAD-050-0, "Operation of the Waste Separation and Temporary Storage Facility and Sealand Storage Facility", Ver. 1.4

G11-RW-LP-02901, "Radwaste Systems", Ver. 2.0

62RP-RAD-023-0, "Resin Packaging and Classification", Ver. 7.3

Annual Radioactive Effluent Release Reports for 2009

Solid Radioactive Waste Process Control Program (PCP)

HNP-2-FSAR-11, Radioactive Waste Management (FSAR for Radwaste)

Shipping Records

Shipment 10-5015, Resin, Low Specific Activity

Shipment 09-4056, DAW, Low Specific Activity

Shipment 09-5012, Dewatered Resin, Low Specific Activity

Shipment 10-4041, Filters, Low Specific Activity

Shipment 09-5015, Resin, Type B

Shipment 11-4007, DAW, Low Specific Activity

CAP Documents

NMP-GM-003-F04, "Self-Assessment Final Report (Focused Self Assessment)", Ver.1.0

CR 2009101397, Labeling

CR 2010108814, Instrumentation

CR 2010104172, 10 CFR Part 61 Analyses

CR 2009110732, Procedures

CR 2009103917, Mixed Wastes
 CR 2009101430, Radioactive material control

Section 40A1: Performance Indicator Verification

Procedures, Guidance Documents and Manuals

00AC-REG-005-0, Preparation and Reporting of NRC PI Data, Ver. 6.1
 DI-HCH-05-0407, Generation of Performance Indicators, Ver. 1.0
 34SV-SUV-019-1, Surveillance Checks, Ver. 34.0
 34SV-SUV-019-2, Surveillance Checks, Ver. 35.1

Records and Data Reviewed

2010 Annual Radioactive Effluent Release Report
 Liquid Effluents: Discharge Permits L-20100917-173-B and L-20100919-175-B
 Gas Permit Post-Release Data G-20110201-017-C, G-20110201-018-C, G-20110201-019-C,
 and G-20110201-020-C
 Access Control Alarms Report for the period January 1, 2010 to April 10, 2011

Corrective Action Program

CR 2010105995, Incorrect procedure version used for liquid discharge
 CR 2009111239, ED malfunction caused rate and dose alarms.
 CR 2010101455, LHRA deposing deficiencies
 CR 2010102298, Dose alarm and dose rate alarm
 CR 2010103135, Dose rate alarm
 CR 2010108485, On 7-1-10, an entry was made into the U2 RWCU Hx by two System
 operators to perform an independent verification for the RHR system vent and fill.
 CR 2010111133, Dose rate alarm
 CR 2010114932, Temporary Locked High Radiation Area missed on weekly surveillance.
 CR 2011101472, Dose rate alarm
 CR 2011103293, Dose rate alarm
 CR 2011105137, Changes needed to procedure 62RP-RAD-016-0

Section 40A2: Identification and Resolution of Problems

Procedures

NMP-GM-002, Corrective Action Program, Ver. 12.0

Condition Reports

2010116039, 2010100239, 2005110047, 2010112788, 2011100347, 2010113110

Action Items

2010205514, 2010205515, 2010205516, 2010205517, 2010205518, 2010205519, 2010205520

Other

Part 21 report 2005-37-00, Existence of a possible defect in Bussmann KWN-R fuses, dated
 9/27/2005
 Condition Report Trending 2011 CRs 1 – 6970, dated 5/20/11
 Condition Report 2011 Specific Trending data
 Corrective Action Program Trend Summary Report Nov 2010 through Jan 2011

Section 40A5: Other Activities

Procedures

31EO-TSG-001-0, Technical Support Guidelines, Ver. 2.16

31EO-EOP-101-1, Emergency Containment Venting, Ver. 3.4

Condition Reports

2011105966, 2011106007, 2011106008

Other

NEI 06-12, B.5.b Phase 2 & 3 Submittal Guideline, Rev. 2

Order EA-02-026, dated February 25, 2002