



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
SAM NUNN ATLANTA FEDERAL CENTER
61 FORSYTH STREET, SW, SUITE 23T85
ATLANTA, GEORGIA 30303-8931

October 30, 2008

Mr. Christopher L. Burton
Vice President
Carolina Power & Light Company
Shearon Harris Nuclear Plant
P.O. Box 165, Mail Zone 1
New Hill, NC 27562-0165

SUBJECT: SHEARON HARRIS NUCLEAR POWER PLANT - NRC INTEGRATED
INSPECTION REPORT 05000400/2008004

Dear Mr. Burton:

On September 30, 2008, the US Nuclear Regulatory Commission (NRC) completed an inspection at your Shearon Harris reactor facility. The enclosed integrated inspection report documents the inspection results, which were discussed on October 8, 2008, 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.

Based on the results of this inspection, one issue was identified of very low safety significance (Green) which was determined to involve a violation of NRC requirements. However, because of the very low safety significance and because it has been entered into your corrective action program, the NRC is treating this issue as a non-cited violation, in accordance with Section VI.A.1 of the NRC's Enforcement Policy. If you contest this non-cited violation, you should provide a response with the basis for your denial, within 30 days of the date of this inspection report 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 Shearon Harris facility.

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

Sincerely,

/RA/

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

Docket No.: 50-400
License No.: NPF-63

Enclosure: NRC Inspection Report 05000400/2008004
w/Attachment: Supplemental Information

cc w/encl: (See page 3)

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Letter to Christopher L. Burton from Randall A. Musser dated October 30, 2008

SUBJECT: SHEARON HARRIS NUCLEAR POWER PLANT - NRC INTEGRATED
INSPECTION REPORT 05000400/2008004

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U. S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket No: 50-400

License No: NPF-63

Report No: 05000400/2008004

Licensee: Carolina Power and Light Company

Facility: Shearon Harris Nuclear Power Plant, Unit 1

Location: 5413 Shearon Harris Road
New Hill, NC 27562

Dates: July 1, 2008 through September 30, 2008

Inspectors: P. O'Bryan, Senior Resident Inspector
M. Pribish, Acting Senior Resident Inspector
P. Lessard, Resident Inspector
L. Lake, Senior Reactor Inspector (Section 4OA5)
R. Hamilton, Senior Health Physicist (Sections 2PS1, 4OA1 & 4OA5)
H. Gepford, Senior Health Physicist (Section 2OS3)
A. Nielsen, Health Physicist (Section 2PS3)
M. Phalen, Senior Health Physicist (Section 2OS1)

Approved by: R. Musser, Chief
Reactor Projects Branch 4
Division of Reactor Projects

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SUMMARY OF FINDINGS

IR 05000400/2008-004; July 1, 2008 – September 30, 2008; Shearon Harris Nuclear Power Plant, Unit 1; Access Controls to Radiologically Significant Areas

The report covered a three-month period of inspection by resident inspectors and announced inspections by one regional reactor inspector and four regional health physics inspectors. One Green non-cited violation (NCV) was identified. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using IMC 0609, "Significance Determination Process" (SDP). The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 4, dated December 2006.

A. Inspector-Identified and Self-Revealing Findings

Cornerstone: Occupational Radiation Safety

- Green. A self-revealing Green NCV was identified for the failure to maintain control of access to the station's very high radiation areas (VHRA), as required by 10 CFR 20.1602. The inspectors determined that the licensee failed to maintain sufficient controls of access to VHRAs from the fall of 2006 through January 2008, contrary to 10 CFR 20.1602 and station procedural requirements. Licensee corrective actions included the retrieval and disposition of the security guard master keys, and developing more specific procedural guidance for key control and issuance at the station.

The issue was more than minor because it was associated with the Program/Process attribute of the Occupational Radiation Safety Cornerstone and affected the cornerstone objective to ensure worker health and safety from exposure to radiation by providing the security guards with the means of gaining unauthorized or inadvertent access to areas in which radiation levels could be encountered at 500 rads (5 grays) or more in 1 hour at 1 meter from a radiation source or any surface which the radiation penetrates. The finding was determined to be of very low safety significance because the finding did not involve ALARA planning, collective dose was not a factor, it did not involve an overexposure, there was not a substantial potential for a worker overexposure, and the licensee's ability to assess worker dose was not compromised. The cause of the finding was directly related to the risk significant decision making component in the human performance cross-cutting area because of the licensee's decision in the Fall of 2006 to create grand master keys which provided security guards unauthorized means of gaining access into VHRA's. (H.1.a) (Section 2OS1)

B. Licensee-Identified Violations

None.

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REPORT DETAILS

Summary of Plant Status

The unit began the inspection period at rated thermal power, and operated at or near full power until August 11, 2008, when the plant was manually tripped due to indications of degrading main condenser vacuum. The plant was restarted on August 20, 2008, and returned to full power on August 21, 2008, and remained there for the remainder inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

1R01 Adverse Weather Protection

a. Inspection Scope

On August 27, 2008, the inspectors reviewed licensee actions taken in accordance with licensee procedure AP-300, Severe Weather Response, in preparation for impending adverse weather conditions when a tornado watch followed by a tornado warning was issued for the site. The inspectors also toured the plant grounds for loose debris, which could become missiles during a tornado, and ascertained operator staffing and if they could access controls and indications for those systems required for safe control of the plant. This inspection satisfied one inspection sample for the onset of adverse weather.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment

a. Inspection Scope

The inspectors performed a partial walkdown of the following three systems listed below to verify the operability of redundant or diverse trains and components when safety equipment was inoperable. The inspectors attempted to identify any discrepancies that could impact the function of the system, and, therefore, potentially increase risk. The inspectors reviewed applicable operating procedures, walked down system components, and verified that selected breakers, valves, and support equipment were in the correct position to support system operation. The inspectors also verified that the licensee had properly identified and resolved equipment alignment problems that could cause initiating events or impact the capability of mitigating systems or barriers and entered them into the corrective action program. Documents reviewed are listed in the attachment.

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- B-train residual heat removal (RHR) system while the A-train RHR system was out-of service due to maintenance on the A-train component cooling water system train
- A-train emergency service water (ESW) system while the B-train ESW system out-of-service for a component outage
- B-train emergency diesel generator (EDG) during the A-train EDG component outage

b. Findings

No findings of significance were identified.

1R05 Fire Protection

a. Inspection Scope

For the six areas identified below, the inspectors reviewed the licensee's control of transient combustible material and ignition sources, fire detection and suppression capabilities, fire barriers, and any related compensatory measures, to verify that those items were consistent with final safety analysis report (FSAR) Section 9.5.1, Fire Protection System, and FSAR section Appendix 9.5.A, Fire Hazards Analysis. The inspectors walked down accessible portions of each area and reviewed results from related surveillance tests, to verify that conditions in these areas were consistent with descriptions of the applicable sections. Documents reviewed are listed in the Attachment.

- A-train EDG 261' elevation
- A-train EDG 292' elevation
- A-train ESW intake structure
- B-train ESW intake structure
- Battery Room 1A-SA and surrounding areas
- Battery Room 1B-SB and surrounding areas

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification

a. Inspection Scope

On July 30, 2008, the inspectors observed licensed-operator performance during requalification simulator training for crew D, to verify that operator performance was consistent with expectations, as described in Exercise Guide DSS-032 (Revision 7). This training tested the operators' ability to diagnose and respond to a main steam line break. The inspectors focused on clarity and formality of communication, the use of procedures, alarm response, control board manipulations, group dynamics and supervisory oversight. The inspectors observed the post-exercise critique to verify that

the licensee had identified deficiencies and discrepancies that occurred during the simulator training.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness

a. Inspection Scope

The inspectors reviewed two degraded Systems, Structures, and Components (SSC)/ function performance problems or conditions listed below to verify the licensee's handling of these performance problems or conditions in accordance with 10 CFR 50, Appendix B, Criterion XVI, Corrective Action, and 10 CFR 50.65, Maintenance Rule. Documents reviewed are listed in the Attachment.

- Nuclear Condition Report (NCR) 254402, Maintenance Rule (a)(1) performance improvement plan for the containment spray system
- Essential services chilled water system reclassification from Maintenance Rule (a)(1) to (a)(2)

The inspectors focused on the following attributes:

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

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control

a. Inspection Scope

The inspectors reviewed the licensee's risk assessments and the risk management actions for the plant configurations associated with the three activities listed below. The inspectors verified that the licensee performed adequate risk assessments, and implemented appropriate risk management actions when required by 10 CFR 50.65(a)(4). For emergent work, the inspectors also verified that any increase in risk

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was promptly assessed, and that the appropriate risk management actions were promptly implemented. Documents reviewed are listed in the Attachment.

- Risk associated with emergent work on the C-train charging/safety injection pump due to a service water leak on the oil cooler heat exchanger
- Risk associated with emergent replacement of SG-A, Channel II pressure transmitter
- Risk assessment of scheduled maintenance during unexpected severe weather on August 27, 2008

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations

a. Inspection Scope

For the four operability evaluations described in the NCRs listed below, the inspectors evaluated the technical adequacy of the evaluations to ensure that operability was properly justified and the subject component or system remained available such that no unrecognized increase in risk occurred. The inspectors verified that the operability determinations were made as specified by licensee procedure OPS-NGGC-1305, Operability Determinations. The inspectors reviewed the FSAR to verify that the system or component remained available to perform its intended function. In addition, the inspectors reviewed compensatory measures implemented to verify that the compensatory measures worked as stated and the measures were adequately controlled. The inspectors also reviewed a sampling of NCRs to verify that the licensee was identifying and correcting any deficiencies associated with operability evaluations. Documents reviewed are listed in the attachment.

- NCR 288217, insulation piece found unsecured on the 236' level of the reactor containment building
- NCR 272247, boric acid residue on Snubber RC-H-0037
- NCR 279715, pinhole leak on A-train emergency service water header near 1SW-272
- NCR 295648, erratic indication of 1CT-12, containment spray additive tank outlet valve

b. Findings

No findings of significance were identified.

1R18 Plant Modifications

a. Inspection Scope

The inspectors evaluated the licensee's actions regarding the permanent replacement of two containment spray additive system throttle valves, 1CT-118 and 1CT-119. The

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inspectors reviewed licensee procedures EGR-NGGC-005, Engineering Change and EGR-NGGC-009 Engineering Change Work Management, and observed part of the licensee's activities to implement a design change while the unit was online. The inspectors reviewed the associated 10 CFR 50.59 screening against the system design bases documentation to verify that the modifications had not unexpectedly affected system operability/availability. The inspectors reviewed selected ongoing and completed work activities to verify that installation was consistent with the design control documents. Engineering Change EC #70531, Replace Valves 1CT-118 and 1CT-119, was reviewed. Documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

1R19 Post-Maintenance Testing

a. Inspection Scope

The inspectors reviewed the five post-maintenance tests listed below to verify that procedures and test activities ensured system operability and functional capability. The inspectors reviewed the licensee's test procedure to verify that the procedure adequately tested the safety function(s) that may have been affected by the maintenance activity, that the acceptance criteria in the procedure were consistent with information in the applicable licensing basis and/or design basis documents, and that the procedure had been properly reviewed and approved. The inspectors also witnessed the test or reviewed the test data, to verify that test results adequately demonstrated restoration of the affected safety function(s). Documents reviewed are listed in the attachment.

- Work Order 1379088, OP-139, B-train ESW Booster Pump following scheduled maintenance activities
- Work Order 1363224, Partial performance of OPT-1512, 1B-SB ESCW Chiller following the replacement of the temperature control module
- Work Order 305684, 1B CCW Pump following motor replacement
- Work Order 1364552, Partial performance of OST-1112, Rod Position Indication Test, for rod control regulation card and fuse replacement
- Work Order 875776, A-train EDG component outage including fuel injection nozzle inspection and cleaning

b. Findings

No findings of significance were identified.

1R20 Refueling and Outage Activities

a. Inspection Scope

The licensee began a forced outage on August 11, 2008, after manually tripping the unit due to degraded main condenser vacuum. The inspectors observed portions of the

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shutdown, cooldown, maintenance activities, and startup activities to verify that the licensee maintained defense-in-depth (DID) commensurate with the applicable TS. The inspectors monitored licensee controls over the outage activities listed below. Documents reviewed are listed in the Attachment.

- Licensee configuration management, including daily outage reports, to evaluate DID and compliance with the applicable TS when taking equipment out-of-service
- Controls over the status and configuration of redundant safety systems (diesel generators and standby RHR pump) to ensure risk was minimized
- Decay heat removal processes to verify proper operation and that steam generators, when relied upon, were a viable means of backup cooling
- Heatup and startup activities to verify that TS, license conditions, and other requirements, commitments, and administrative procedure prerequisites for mode changes were met prior to changing modes or plant conditions
- Reactor coolant system (RCS) integrity was verified by reviewing RCS leakage calculations, and containment integrity was verified by reviewing the status of containment penetrations and containment isolation valves
- Containment closure activities, including a detailed containment walkdown, to verify no evidence of leakage and that debris had not been left which could affect the performance of the containment sump
- Licensee identification and resolution of problems related to outage activities

In addition to the above activities, the inspectors reviewed the licensee's trip report to verify operator response was in accordance with procedures and training and that equipment responded to the trip as designed. The inspectors reviewed the initial licensee event notification to verify that it met regulatory requirements.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing

a. Inspection Scope

For the four surveillance tests identified below, the inspectors witnessed testing and/or reviewed test data, to verify that the SSCs involved in these tests satisfied the requirements described in the TS and the FSAR section, and that the tests demonstrated that the SSCs were capable of performing their intended safety functions.

- OST-1011, Auxiliary Feedwater System Operability Test Monthly Interval Modes 1-4, conducted on July 7, 2008
- MST-I0001, Train A Solid State Protection System Actuation Logic and Master Relay Test, performed on July 24, 2008

- OST-1073, 1B-SB EDG Operability Test Monthly Interval Modes 1-6, conducted on July 29, 2008
- OST-1411, Auxiliary Feedwater System Operability Test Monthly Interval, Modes 1-4, performed on September 2, 2008*

*This procedure included inservice testing requirements.

b. Findings

No findings of significance were identified.

1EP6 Drill Evaluation

a. Inspection Scope

The inspectors observed an emergency preparedness drill conducted on September 11, 2008. The drill tested the emergency response organization's ability to respond to a loss of main control room annunciators followed by large break loss of coolant accident which lead to a general emergency declaration. The inspectors verified that the licensee's self-assessment of classification, notification, and protective action recommendation development were in accordance with licensee procedures and 10 CFR 50, Appendix E. The inspectors also attended the licensee critique of the drill to compare any inspector-observed weakness with those identified by the licensee in order to verify whether the licensee was properly identifying failures.

b. Findings

No findings of significance were identified.

2. RADIATION SAFETY

Cornerstone: Occupational Radiation Safety

2OS1 Access Control to Radiologically Significant Areas (71121.01)

a. Inspection Scope

The inspectors reviewed radiation work permits (RWPs) and work packages used to access dose significant areas and other high radiation work areas. The inspectors assessed the work control instructions and control barriers specified by the licensee. Electronic dosimeter alarm set points for both integrated dose and dose rate were evaluated for conformity with survey indications and plant policy. The inspectors interviewed workers to verify that they were aware of the actions required if their electronic dosimeters noticeably malfunctioned or alarmed.

The inspectors walked down and surveyed (using an NRC survey meter) these areas to verify that the prescribed RWP, procedure, and engineering controls were in place; that licensee surveys and postings were complete and accurate; and that air samplers were

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properly located. The inspectors reviewed RWPs for potential airborne radioactivity areas to verify barrier integrity and engineering controls performance (e.g. high-efficiency particulate air ventilation system operation) and to determine if there was a potential for individual worker internal exposures in excess of 50 millirem committed effective dose equivalent. Work areas having a history of, or the potential for, airborne transuranics were evaluated to verify that the licensee had considered the potential for transuranic isotopes and had provided appropriate worker protection. The inspectors assessed the adequacy of the licensee's internal dose assessment process for internal exposures. However, there were no internal exposures greater than 50 millirem committed effective dose equivalent. The inspectors also reviewed the licensee's physical and programmatic controls for highly activated and/or contaminated materials (non-fuel) stored within the spent fuel pool or other storage pools.

The inspectors reviewed a sample of the licensee's self-assessments and audits related to the access control program to verify that identified problems were entered into the CAP for resolution. The inspectors reviewed corrective action reports related to access controls and any high radiation area radiological incidents (issues that did not count as PI occurrences identified by the licensee in high radiation areas in excess of 1R/hr). Plant staff members were interviewed and corrective action documents were reviewed to verify that follow-up activities were being conducted in an effective and timely manner commensurate with their importance to safety and risk.

Physical and administrative barriers for access control were evaluated for failure and to determine if there were any barriers left to prevent personnel access. Unintended exposures exceeding 100 millirem total effective dose equivalent (or 5 rem shallow dose equivalent or 1.5 rem lens dose equivalent) were evaluated to determine if there were any regulatory overexposures or if there was a substantial potential for an overexposure.

The inspectors observed the following jobs that were being performed in radiation areas, airborne radioactivity areas, or high radiation areas for observation of work activities: Spent Fuel Shipping Casks Pressure Tests and Waste Gas Compressor Repairs. The inspectors reviewed radiological job requirements for these activities, including RWP requirements and work procedure requirements. Job performance was observed with respect to the radiological control requirements to assess whether radiological conditions in the work area were adequately communicated to workers through pre-job briefings and postings. The inspectors evaluated the adequacy of radiological controls, including required radiation, contamination, and airborne surveys for system breaches; radiation protection job coverage, and contamination controls.

The inspectors reviewed radiological work packages for high radiation work areas having significant dose rate gradients to evaluate whether the licensee adequately monitored exposure to personnel and to assess the adequacy of licensee controls. The inspectors discussed high dose rate/HRA and VHRA controls and procedures, including procedural changes that had occurred since the last inspection with the RPM. The inspectors discussed with radiation protection supervisors the controls that were in place for special areas of the plant that had the potential to become VHRAs during certain plant operations. The inspectors assessed if plant operations required communication beforehand with the radiation protection group, to allow corresponding timely actions to

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properly post and control the radiation hazards. The inspectors conducted plant walkdowns to assess the posting and locking of entrances to high dose rate high radiation areas and very high radiation areas.

During job performance observations, the inspectors evaluated radiation worker performance with respect to stated radiation safety work requirements. The inspectors evaluated whether workers were aware of any significant radiological conditions in their workplace; of the RWP controls and limits in place; and of the level of radiological hazards present. The inspectors also observed worker performance to determine if workers accounted for these radiological hazards. The inspectors reviewed radiological problem reports for which the cause of the event was due to radiation worker errors to determine if there was an observable pattern traceable to a similar cause and to determine if this perspective matched the corrective action approach taken by the licensee to resolve the reported problems.

During job performance observations, the inspectors evaluated radiation protection technician performance with respect to radiation safety work requirements. The inspectors evaluated whether technicians were aware of the radiological conditions in their workplace; the RWP controls and limits in place; and if their performance was consistent with their training and qualifications with respect to the radiological hazards and work activities. The inspectors reviewed radiological problem reports for which the cause of the event was RPT error to determine if there was an observable pattern traceable to a similar cause and to determine if this perspective matched the corrective action approach taken by the licensee to resolve the reported problems.

Problem Identification and Resolution

The inspectors evaluated the licensee's process for problem identification, characterization, and prioritization and verified that problems were entered into the CAP and resolved. For repetitive deficiencies and/or significant individual deficiencies in problem identification and resolution, the inspectors verified that the licensee's self-assessment activities were capable of identifying and addressing these deficiencies.

The inspectors completed 21 of the 21 required line-item samples detailed in IP 71121.01.

b. Findings:

Introduction: A self-revealing Green NCV was identified for the failure to maintain control of access to the station's very high radiation areas (VHRA), as required by 10 CFR 20.1602.

Description: On January 08, 2008, it was discovered while accessing the containment personnel airlock (PAL) door that the station's security guard force was in possession of master keys that unlocked all of the station's VHRAs.

In the fall of 2006, the station security department undertook an effort to minimize duty gear for the convenience of the security officers, which included reducing keys on the

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officer's key ring. This initiative included creating a security grand master key that was then carried by the security officers and allowed access to all non-security locks on the plant site, including the locks controlled for radiation protection purposes. In addition to accessing the VHRAs, the security grand master key also permitted access to the station's locked high radiation areas (LHRAs). The creation and distribution of the security grand master key effectively placed the entire guard force in possession of the means to access the station's VHRAs and LHRAs, and without the knowledge of the station's radiation protection department or senior station management.

Analysis: The licensee's failure to maintain sufficient controls over access to VHRAs from the fall of 2006 through January 2008 is contrary to 10 CFR 20.1602 and station procedural requirements, which represents a performance deficiency and a finding as described in Manual Chapter 0612, Appendix B, Issue Screening. The issue was more than minor because it was associated with the Program/Process attribute of the Occupational Radiation Safety Cornerstone and affected the cornerstone objective to ensure worker health and safety from exposure to radiation. The finding does not involve the application of traditional enforcement, because it did not result in actual safety consequences or the potential to impact the NRC's regulatory function, and was not the result of willful actions. The finding was evaluated using the SDP in accordance with Inspection Manual Chapter (IMC) 0609, Appendix C, for the Occupational Radiation Safety cornerstone. The finding was determined to be of very low safety significance because the finding did not involve ALARA planning, collective dose was not a factor, it did not involve an overexposure, there was not a substantial potential for a worker overexposure, and the licensee's ability to assess worker dose was not compromised. The cause of the finding was directly related to the risk significant decision making component in the human performance cross-cutting area because of the licensee's decision in the Fall of 2006 to create grand master keys which provided security guards unauthorized means of gaining access into VHRA's. (H.1.a)

Licensee corrective actions included the retrieval and disposition of the security guard master keys, and developing more specific procedural guidance for key control and issuance at the station.

Enforcement: 10 CFR 20.1602 for control of access to very high radiation areas requires in part, that the licensee shall institute measures to ensure that an individual is not able to gain unauthorized or inadvertent access to areas in which radiation levels could be encountered at 500 rads (5 grays) or more in 1 hour at 1 meter from a radiation source or any surface through which the radiation penetrates.

Contrary to the above, from the Fall of 2006 to the Fall of 2008, the security department created security grand master keys that unlocked all of the VHRAs on site and then distributed these keys to the security guard force. This action effectively placed the entire station guard force in possession of the means to access the VHRAs, and without the knowledge of station radiation safety management. Because the finding is of very low safety significance and has been entered into the corrective action system as NCR 261182, consistent with Section VI.A of the NRC Enforcement Policy, this violation is being treated as a non-cited violation, and is designated as NCV 05000400/2008004-01, "Failure to Maintain Control of the Stations' Very High Radiation Areas."

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2OS3 Radiation Monitoring Instrumentation and Protective Equipment

a. Inspection Scope

Radiation Monitoring Instrumentation

During tours of the Unit 1 reactor auxiliary building, waste processing building, and fuel handling building, the inspectors observed installed radiation detection equipment including the following instrument types: area radiation monitors (ARMs), continuous air monitors, personnel contamination monitors (PCMs), and portal monitors. The inspectors observed the physical location of the components, noted the material condition, and compared sensitivity ranges with Updated Final Safety Analysis Report (UFSAR) requirements. In addition, the inspectors discussed maintenance and performance history of the radiation monitoring system with the system engineer.

In addition to equipment walk-downs, the inspectors observed functional checks and alarm setpoint testing of various fixed and portable detection instruments. These observations included source checks of PCMs and portal monitors at the Radiologically Controlled Area exit. The inspectors observed the calibration of a Ludlum L-177 frisker and discussed calibration of other portable instruments using the gamma calibration range, the Shephard calibrator, and the neutron calibration range. The inspectors observed the calibration facilities and reviewed calibration source validation records for the Shephard calibration sources and neutron source. The most recent 10 CFR Part 61 analysis for dry active waste was reviewed to determine if calibration and check sources are representative of the plant source term.

The inspectors reviewed calibration records for selected PCMs, portal monitors, ARMs, and CAMs. Calibration stickers on portable survey instruments were noted during inspection of storage areas for "ready-to-use" equipment and currency of daily/weekly source checks of instruments staged for use were confirmed. Records of quality assurance checks and calibration for the whole body counter were also reviewed.

Operability and reliability of selected radiation detection instruments were reviewed against details documented in the following: 10 CFR Part 20; NUREG-0737, Clarification of TMI Action Plan Requirements; Technical Specifications (TS) Section 3; UFSAR Chapter 12; and applicable licensee procedures. Documents reviewed during the inspection are listed in Sections 2OS3 of the report Attachment.

Self-Contained Breathing Apparatus (SCBA) and Protective Equipment

Selected SCBA units staged for emergency use in the control room, technical support center, operations support center, and other locations, were inspected for material condition, breathing air cylinder pressure, and number of units available. The inspectors also reviewed monthly inspection records for selected SCBA units, hydrostatic testing dates for tanks, and certification records associated with supplied air quality. Vital component maintenance and repair is performed by a qualified vender. The ability to fill and transport bottles during emergency conditions was also evaluated.

Qualifications for individuals responsible for inspecting SCBA and filling air tanks were evaluated through review of training records. In addition, control room operators were interviewed to determine their knowledge of available SCBA equipment locations, including corrective lens inserts if needed, and their training on bottle change-out during a period of extended SCBA use. Respirator qualification records were reviewed for selected control room operators.

Licensee activities associated with maintenance and use of respiratory protection equipment were reviewed against 10 CFR Part 20; Regulatory Guide (RG) 8.15, Acceptable Programs for Respiratory Protection; and applicable licensee procedures. Documents reviewed during the inspection are listed in Section 2OS3 of the report Attachment.

Problem Identification and Resolution

Select licensee condition action program documents associated with instrumentation and protective equipment were reviewed and assessed. The inspectors evaluated the licensee's ability to identify, characterize, prioritize, and resolve the identified issues in accordance with procedure CAP-NGGC-0200, Corrective Action Program, Rev. 22. The inspectors also evaluated the scope of the licensee's internal audit program and reviewed recent assessment results. Documents reviewed are listed in Section 2OS3 of the report Attachment.

The inspectors completed 9 of the 9 required line-item samples detailed in IP 71121.03.

b. Findings

No findings of significance were identified.

Cornerstone: Public Radiation Safety

2PS1 Radioactive Gaseous and Liquid Effluent Treatment and Monitoring Systems

a. Inspection Scope

Effluent Monitoring and Radwaste Equipment

During inspector walk-downs, accessible sections of the liquid radioactive waste (radwaste) system including liquid waste processing tanks and associated system piping and valves, and selected gaseous and effluent monitors were assessed for material condition and conformance with current system design diagrams. Inspected components of the gaseous effluent process and release system included sample line configurations for the plant vent and waste processing building air particulate/ noble gas/iodine monitor skids. Particular attention was paid to the configuration of the isokinetic sampling skid and the length and diameters of sample lines from the sample points to the particulate and iodine monitors. The inspectors also performed walk-down of components associated with liquid isolation valves. The inspectors interviewed chemistry and system engineering staff regarding radwaste equipment configuration,

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effluent monitor operation, and system modifications.

The operability, availability, and reliability of selected effluent process sampling and detection equipment used for routine and accident monitoring activities were reviewed and evaluated. The inspectors reviewed results of calibrations and/or performance surveillances for selected effluent monitors including the Condenser Off-Gas Monitor, Secondary Waste Sampling Tank Pump Discharge Monitor, Service Water Waste Monitoring Tank Discharge and Plant Vent Stack Monitors. The two most recent surveillances on the reactor auxiliary building normal exhaust ventilation High Efficiency Particulate Air (HEPA)/charcoal air treatment systems were also reviewed. Technical bases for effluent monitoring in the Off-site Dose Calculation Manual (ODCM) and/or system design related changes were reviewed and discussed.

Installed configuration, material condition, operability, and reliability of selected effluent sampling and monitoring equipment were reviewed against details documented in the following: 10 CFR Part 20; RG 1.21, Measuring, Evaluating and Reporting Radioactivity in Solid Wastes and Releases of Radioactive Materials In Liquid and Gaseous Effluents from Light-Water Cooled Nuclear Power Plants, June 1974; ANSI-N13.1-1969, Guide to Sampling Airborne Radioactive Materials in Nuclear Facilities; RG 4.15, Quality Assurance for Radiological Monitoring Programs (Normal Operations - Effluent Streams and the Environment, Rev. 1; the ODCM, Rev. 19; and FSAR, Chapters 11 and 12. Procedures and records reviewed during the inspection are listed in Section 2PS1 of the report Attachment.

Effluent Release Processing and Quality Control (QC) Activities

Inspectors reviewed the monthly summaries of QC activities for four HPGe Gamma Spectroscopy Systems, two gas proportional alpha and beta detector systems, and a liquid scintillation system for the period of August 2007 through June 2008.

Additionally, the inspectors reviewed the quarterly gamma spectroscopy interlaboratory cross checks for first, second and fourth quarter of 2007 to assess the quality of radioactive effluent analyses performed. Selected procedures for effluent sampling, processing, and release were evaluated for consistency with licensee actions. Liquid and gaseous release permits were reviewed against ODCM specifications for pre-release sampling and establishment of effluent monitor set-points. The ODCM was reviewed and discussed with responsible licensee representatives to identify and evaluate any changes made since August 5, 2007. The inspectors also reviewed CY 2006 and CY 2007 annual effluent reports for effluent release data trends and anomalous releases.

Changes to licensee programs for monitoring, tracking, documenting, and reporting the results of both routine and abnormal liquid releases to onsite and offsite surface and groundwater environs were reviewed and discussed in detail. The data reviewed and discussed included bases for changes to ODCM groundwater monitoring wells, groundwater flow patterns, and initial results of surface and groundwater samples both on and offsite. Tritium analysis results for groundwater monitoring wells and surface waters were compared to ODCM voluntary reporting requirements. The inspectors

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discussed the long term impacts expected from the addition of new units on the lake and the drinking water tritium concentration additionally, the inspectors discussed the tritium concentrations in the lake and the contributions that evaporation from the surface of the lake might make in effluent doses.

Reviewed samples of release permits along with the dose calculations used for their close out. The review was for consistency with the following regulatory and guidance documents: 10 CFR Part 20 and Appendix I to 10 CFR Part 50; ODCM; RGs 1.21 and 4.15; RG 1.109, Calculation of Annual Doses to Man from Routine Releases of Reactor Effluents for the Purpose of Evaluating Compliance with 10 CFR Part 50 Appendix I, October 1977; and TS 6.8. Procedures and records reviewed during the inspection are listed in Section 2PS1 of the report Attachment.

Problem Identification and Resolution.

Selected licensee CAP issues and audits associated with effluent release activities were reviewed and assessed. The inspectors evaluated the licensee's ability to identify, characterize, prioritize, and resolve selected issues in accordance with CAP-0200, Corrective Action Program, Rev. 22. Reviewed documents are listed in Sections 2PS1 of the report Attachment.

b. Findings

No findings of significance were identified.

2PS3 Radiological Environmental Monitoring Program (REMP) and Radioactive Material Control Program

a. Inspection Scope

REMP Implementation

The inspectors observed routine sample collection and surveillance activities as required by the licensee's environmental monitoring program. The inspectors noted the material condition and operability of airborne particulate filter and iodine cartridge sample stations and observed collection of weekly air samples at selected monitoring locations. Environmental thermoluminescent dosimeters at selected sites were checked for material condition. In addition, automatic water samplers were inspected for material condition and operability at various sample locations.

The inspectors determined the current location of selected sample points using NRC global positioning system instrumentation. Land use census results, changes to the ODCM, and sample collection/processing activities were discussed with environmental technicians and licensee staff.

The inspectors reviewed the last two calibration records for selected environmental air samplers. The inspectors also reviewed the 2006 and 2007 Radiological Environmental Operating Reports, results of the 2006 and 2007 interlaboratory crosscheck program,

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and procedural guidance for environmental sample collection and processing. Selected environmental measurements were reviewed for consistency with licensee effluent data, evaluated for radionuclide concentration trends, and compared with detection level sensitivity requirements.

Procedural guidance, program implementation, and environmental monitoring results were reviewed against: 10 CFR Part 20; Appendix I to 10 CFR Part 50; ODCM; RG 4.15, Quality Assurance for Radiological Monitoring Programs (Normal Operation) - Effluent Streams and the Environment; and the Branch Technical Position, An Acceptable Radiological Environmental Monitoring Program - 1979. Documents reviewed are listed in Section 2PS3 of the report Attachment.

Meteorological Monitoring Program

During tours of the meteorological tower and local data collection equipment, the inspectors observed the physical condition of the tower and its instruments and discussed equipment operability and maintenance history with a technician. The inspectors evaluated transmission of locally generated meteorological data to other licensee groups such as main control room operators and offsite meteorology contractors.

For the meteorological measurements of wind speed, wind direction, and temperature, the inspectors reviewed calibration records for applicable tower instrumentation and evaluated measurement data recovery for 2006 and 2007.

Licensee procedures and activities related to meteorological monitoring were evaluated against: ODCM; UFSAR Chapter 2; ANSI/ANS-2.5-1984, Standard for Determining Meteorological Information at Nuclear Power Sites; and Safety Guide 23, Onsite Meteorological Programs. Documents reviewed are listed in Section 2PS3 of the report Attachment.

Unrestricted Release of Materials from the Radiologically Controlled Area (RCA)

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 also observed daily source checks of these instruments and discussed equipment sensitivity and release program guidance with licensee staff. The inspectors evaluated the appropriateness and accuracy of release survey instrumentation for radionuclides identified in recent 10 CFR 61 waste stream analyses. The inspectors also reviewed the last two calibration records for selected release point survey instruments.

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 2PS3 of the report Attachment.

Problem Identification and Resolution

The inspectors reviewed selected ARs in the areas of environmental monitoring, meteorological monitoring, and release of materials. The inspectors evaluated the licensee's ability to identify, characterize, prioritize, and resolve the identified issues in accordance with CAP-NGGC-0200, Corrective Action Program, Rev. 22. The inspectors also evaluated the scope of the licensee's internal audit program and reviewed recent assessment results. Documents reviewed are listed in section 2PS3 in the Attachment to this report.

The inspectors completed 10 of the specified line-item samples detailed in IP 71122.03.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification (PI) Verification

a. Inspection Scope

Cornerstone: Mitigating Systems

The inspectors verified the accuracy of the data for the five mitigating system performance indicators (MSPIs), listed below, which was reported to the NRC. The inspectors reviewed data from October 1, 2007, through June 30, 2008. The inspectors compared the licensee's basis in reporting each data element to the PI definitions and guidance contained in NEI 99-02, Regulatory Assessment Indicator Guideline. Documents reviewed are listed in the Attachment.

- Mitigating System Performance Index, Emergency AC Power
- Mitigating System Performance Index, High Pressure Safety Injection
- Mitigating System Performance Index, Residual Heat Removal
- Mitigating System Performance Index, Cooling Water Systems
- Mitigating System Performance Index, Heat Removal Systems

The inspectors reviewed Licensee Event Reports (LERs), records of inoperable equipment, and Maintenance Rule records, to verify that the licensee had adequately accounted for unavailability hours that the subject systems had experienced. The inspectors also reviewed the number of hours those systems were required to be available and the licensee's basis for identifying unavailability hours. In addition, the inspectors interviewed licensee personnel associated with the PI data collection, evaluation, and distribution.

Cornerstone: Occupational Radiation Safety

- Occupational Exposure Control Effectiveness

The inspectors reviewed the PI results for the Occupational Radiation Safety Cornerstone from January 2008 through June 2008. For the assessment period, the inspectors reviewed monthly PI reports and selected ARs related to controls for exposure significant areas. The inspectors also reviewed licensee procedural guidance for collecting and documenting PI data. Report section 2OS1 contains additional details regarding the inspection of controls for exposure significant areas. Documents reviewed are listed in sections 2OS1 and 4OA1 of the report Attachment.

Cornerstone: Public Radiation Safety

- RETS/ODCM Radiological Control Effluent Release Occurrences

The inspectors reviewed the PI results for the Public Radiation Safety Cornerstone from January 2008 through June 2008. For the review period, the inspectors assessed cumulative and projected doses to the public and out-of-service effluent radiation monitors and implementation of compensatory sampling and subsequent results. The inspectors also reviewed licensee procedural guidance for collecting and documenting PI data. Documents reviewed are listed in sections 2PS1 and 4OA1 of the report Attachment.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA2 Identification and Resolution of Problems

.1 Routine Review of NCRs

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 screening of all items entered into the licensee's corrective action program. This was accomplished by reviewing the description of each new NCR and attending daily management review meetings.

.2 Annual Sample: Operator Work-Arounds

a. Inspection Scope

The inspectors reviewed the cumulative effects of deficiencies that constituted operator work-arounds (OWAs) to determine whether or not they could affect the reliability, availability, and potential for misoperation of a mitigating system; affect multiple

mitigating systems; or affect the ability of operators to respond in a correct and timely manner to plant transients and accidents. The inspectors also assessed whether OWAs were being identified and entered into the licensee's corrective action program at an appropriate threshold. Documents reviewed are listed in the attachment.

b. Observations and Findings

No findings of significance were identified. However, OWA-307 is a Level 1 operator work-around associated with intermittent thermal overload actuation on the 2 and 3B Spent Fuel Pool Cooling Pump when the pump is secured from the Main Control Room. This deficiency was designated for online repair in the OWA program. NCR 244299 was written on August 27, 2007, to document this issue with a corrective action due date of April 2, 2009. However, this is inconsistent with the licensee's goal that OWAs identified for online repair should be rolled into the 12 week work schedule. NCR 296879 was initiated to document and track this discrepancy.

.3 Annual Sample: Licensee Program for Monitoring and Control of Emergency Control Cooling System Leakage Outside Containment

a. Inspection Scope

The inspectors reviewed the licensee's program for the monitoring and control of the emergency control cooling system (ECCS) leakage outside containment for portions of the system that are both inside and outside the reactor auxiliary building emergency exhaust system (RABEES) boundary. The actions associated with the 1995 engineering services request (ESR) 95-00687 were selected for detailed review. This ESR was associated with the licensee's discovery that portions of the emergency core cooling system (ECCS) piping were located outside the boundary of RABEES; the safety-related filtration system. The inspectors reviewed this report to verify that the licensee identified the full extent of the issue, performed an appropriate evaluation, and specified and prioritized appropriate corrective actions. Documents reviewed are listed in the Attachment.

b. Observations and Findings

No findings of significance were identified. To resolve the issue, the licensee reanalyzed and revised the dose assessments to account for untreated leakage from the ECCS system during the recirculation phase following a loss-of-coolant accident (LOCA). To ensure the assumptions of the revised dose assessment, the licensee instituted an administrative limit on external leakage that may occur from ECCS components outside the RABEES boundary. In addition, the licensee revised the FSAR to document the potential for ECCS leakage outside the RABEES boundary. Total ECCS leakage outside containment is monitored and trended per licensee procedure OST-1814, TMI III D.1.1 Inservice Liquid Systems Leak Test Refueling Outage Interval At All Times. ECCS piping outside the RABEES boundary is monitored for leakage every 72 hours per licensee procedure. Documents reviewed are included in the attachment to this report.

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 reviews and inspection activities.

b. Findings

No findings of significance were identified.

.2 (Open) Temporary Instruction (TI) 2515/176, Emergency Diesel Generator Technical Specification Surveillance Requirements Regarding Endurance and Margin Testing.a. Inspection Scope

The objective of this TI was to gather information to assess the adequacy of nuclear power plant emergency diesel generator (EDG) endurance and margin testing as prescribed by plant-specific technical specifications (TS). The inspector interfaced with the appropriate station staff to obtain the information specified in Attachment 1 of the TI, Worksheet. The TI applies to all operating nuclear power reactor licensees that use EDGs as the onsite standby power supply. The inspector verified the accuracy of the information by review of TS, EDG Design Basis Event (DBE) loading calculations, EDG endurance run test procedures, test data from the last three endurance tests performed on each EDG, EDG ratings, and EDG operating history. The information gathered will be forwarded to Nuclear Reactor Regulation/Division of Engineering/Electrical Engineering Branch (NRR/DE/EEEEB) for further review to assess the adequacy and consistency of EDG testing at nuclear stations.

b. Findings and Observations

The TI is presently scheduled to be open until August 31, 2009, pending completion of the NRR/DE/EEEEB review.

.3 (Open) Temporary Instruction (TI) 2515/172

NRC Temporary Instruction (TI) 2515/172, Reactor Coolant System Dissimilar Metal Butt Welds (DMBW)

a. Inspection Scope

From August 11 to 15, 2008, the inspectors reviewed the licensee's activities related to the inspection and mitigation of dissimilar metal butt welds in the reactor coolant system (RCS). The inspections objective is to ensure that the licensee activities were consistent with the industry requirements established in the Materials and Reliability Program (MRP) document MRP-139, "Primary System Piping Butt Weld Inspection and Evaluation Guidelines," July 2005. The inspection activities took place in two stages; 1) during a refueling outage (RFO14) in the fall of 2007 (see NRC Inspection Report No. 05000339/2007005), and 2) during a second week after the outage, from August 11 – 15, 2008, the results of which are presented in this report. The inspections covered the following: a) implementation of actions required as part of Confirmatory Action Letter (CAL) No. NRR-07-005, b) documentation and direct observation of the weld overlay process on the pressurizer surge line nozzle N6, c) documentation review and direct observation of the volumetric examination on pressurizer safety nozzle N2 after completion of the full structural weld overlay (FSWOL), and d) a review of the MRP-139 program.

b. Findings and Observations

No findings of significance were identified.

MRP-139 Baseline Inspections

The following inspection results are from the inspections conducted from August 11 – 15, 2008. For inspections consisting of direct observation of the installation and UT examinations of FSWOL see NRC Inspection Report 05000400/2007005.

- 1) Have the baseline inspections been performed or are they scheduled to be performed in accordance with MRP-139 guidance?

Yes, all baseline volumetric inspection activities required to be completed per MRP-139 Section 1.2 at the time of this report have been completed.

In addition, all baseline exams required to be completed through December 31, 2010, have been completed. Note that those examinations conducted on April 18, 2006, on the hot and cold leg piping to reactor pressure vessel safe-end welds, are being used as baseline examinations until or if mitigating actions are taken. These examinations were conducted with performance demonstration initiative qualified UT procedures and examination personnel.

All Alloy 82/182 butt welds associated with the pressurizer and exposed to pressurizer-like temperatures had FSWOLs completed in the Fall 2007 outage. The six welds receiving a FSWOL were the surge line, spray line, one relief, and three safety line nozzles.

Alloy 82/182 butt welds greater than 14" nominal pipe size exposed to temperatures equivalent to the hot leg were inspected during the fall 2007 outage

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with PDI qualified 10-year American Society of Mechanical Engineers (ASME) code exams. The welds within this grouping are all three hot leg reactor vessel nozzles.

Alloy 82/182 butt welds exposed to temperatures equivalent to the cold leg were inspected during the fall 2007 outage with PDI qualified 10-year American Society of Mechanical Engineers (ASME) code exams. The welds within this grouping are all three cold leg reactor vessel nozzles.

- 2) Is the licensee planning to take any deviations from MRP-139 requirements?
No, the licensee has not submitted any requests for deviation from MRP-139 requirements.

Volumetric Examinations

- 1) For each examination inspected, was the activity performed in accordance with the examination guidelines in MRP-139, Section 5.1, for unmitigated welds or mechanical stress improved welds and consistent with NRC staff relief request authorization for overlaid welds?

Unit 1 Pressurizer Safety Valve 123 Nozzle Dissimilar Metal Butt Weld (DMBW) PZR-NS-EW-19WOL after Mitigation by Full Structural Weld Overlay (FSWOL)

Yes, the volumetric examination of the PZR Safety Nozzle was performed in accordance with a qualified procedure for UT examination, consistent with MRP-139 requirements and NRC approved HNP ISI Relief Request No. 1 (TAC No. MD5535).

The procedure was qualified in accordance with ASME Section XI, Appendix VIII, as implemented through the Electrical Power Research Institute (EPRI) Performance Demonstration Initiative (PDI) Program. Prior to the examination, the licensee verified the FSWOL surface flatness to ensure it permitted volumetric examination as well as the surface roughness to ensure it was 250 μ -inches RMS or better. The licensee conducted the examination 48 hours after the third weld layer was completed. The licensee utilized phased array manual UT technology to perform the examination using procedure SI-UT-126, "Procedure for Phased Array Ultrasonic Examination of Weld Overlaid Similar and Dissimilar Metal Welds," Revision 3. The UT examiners scanned the FSWOL to the maximum extent practicable in two axial and two circumferential directions. For the pre-service (PSI) examination of the new volume above the dissimilar metal weld, the licensee obtained 100% coverage in the circumferential and axial beam directions.

- 2) For each examination inspected, was the activity performed by qualified personnel?

Unit 1 Pressurizer Safety Valve 123 Nozzle Dissimilar Metal Butt Weld (DMBW)
PZR-NS-EW-19WOL after Mitigation by Full Structural Weld Overlay (FSWOL)

Yes, the personnel involved in the UT examinations of the PRZ Safety Nozzle "N2" FSWOL were qualified in accordance with MRP-139 requirements and the licensee's proposed alternative. The examiners were qualified Level II in the UT method as required by the UT procedure and in accordance with the vendor's written practice for NDE personnel. The UT examiners were also PDI qualified for the specific UT procedure they implemented. The final examination report was reviewed by a vendor's Level II in the UT method and a licensee's Level III in the UT method.

- 3) For each examination inspected, was the activity performed such that deficiencies were identified, dispositioned, and resolved?

Unit 1 Pressurizer Safety Valve 123 Nozzle Dissimilar Metal Butt Weld (DMBW)
PZR-NS-EW-19WOL after Mitigation by Full Structural Weld Overlay (FSWOL)

Yes, the inspectors reviewed documentation to verify that deficiencies were identified, dispositioned, and resolved. Based on the inspection activities, the inspectors determined that the examination was conducted in a manner such that deficiencies would be identified, dispositioned, and resolved.

Weld Overlays

- 1) For each weld overlay inspected, was the activity performed in accordance with ASME Code welding requirements and consistent with NRC staff relief requests authorizations? Has the licensee submitted a relief request and obtained NRR staff authorization to install weld overlays?

Yes, the licensee installed FSWOL in accordance with the HNP ISI Relief Request No.1 and applicable sections of the ASME Boiler and Pressure Vessel Code (ASME Code). The inspectors reviewed welding procedure specifications, procedure qualification records, weld wire certifications, and the in-process welding process control sheets for compliance to ASME Section IX requirements and adherence to the safety evaluation report.

- 2) For each weld overlay inspected, was the activity performed by qualified personnel?

Yes, welding personnel were qualified in accordance with the requirements identified in ASME Code Section IX. The inspectors reviewed the welder performance qualification test records and compared them with the requirements of QW-300. The in-process welding process control sheets were reviewed for

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compliance with the proposed alternative and ASME Code Section IX requirements.

- 3) For each weld overlay inspected, was the activity performed such that deficiencies were identified, dispositioned, and resolved?

Yes, the inspectors reviewed documentation to verify that deficiencies were identified, dispositioned, and resolved. Based on inspection activities, the inspectors determined that the installation of the FSWOL was conducted in a manner such that deficiencies were identified, dispositioned, and resolved.

Mechanical Stress Improvement (Not Applicable)

The licensee has not implemented Mechanical Stress Improvement as a mitigation method for DMBWs.

In-service Inspection Program

- 1) Has licensee prepared an MRP-139 in-service inspection program?

No, the licensee did not have a stand alone MRP-139 in-service inspection program document. The licensee's MRP-139 inspection program consisted of the documents listed below and the inclusion of MRP-139 requirements as augmented inspections in the ASME Section XI In-service Inspection Program (ISI Program). The inspectors reviewed the following documents and held discussions with licensee representatives.

- Progress Energy "Nuclear generation Group Alloy 600 Strategic Plan", Revision 0, Dated June 21, 2006
- Harris Unit 1 ISI Plan

- 2) Are welds appropriately categorized?

The inspectors reviewed all welds categorized at the time of the inspection for appropriate categorization in accordance with MRP-139, Section 6. Yes. The pressurizer nozzle welds were categorized as Category H in their pre-FSWOL condition and Category B welds in their post-FSWOL condition. These welds were ultrasonically examined prior (in 2006) to FSWOL using PDI qualified UT procedures and personnel.

- 3) Are inspection frequencies consistent with the requirements of MRP-139?

Yes, planned inspection frequencies for welds in the MRP-139 program are consistent with the requirements of MRP-139.

- 4) What is the licensees' basis for categorizing welds as H or I and plans for addressing potential PWSCC?

No welds were categorized as Categories H or I.

- 5) What deviations has the licensee incorporated and what approval process was used?

No deviations to MRP-139 have been incorporated by the licensee.

4OA6 Meetings, Including Exit

On October 8, 2008, the resident inspectors presented the inspection results to Mr. Burton and other members of his staff. The inspectors confirmed that proprietary information was not provided or examined during the inspection.

4OA7 Licensee-Identified Violations

None

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee personnel

C. Burton, Vice President Harris Plant
D. Corlett, Supervisor, Licensing/Regulatory Programs
J. Dills, Manager, Outage and Scheduling
J. Dufner, Manager, Maintenance
M. Findlay, Superintendent, Security
K. Harshaw, Manager, Site Support Services
K. Henderson, Plant General Manager
G. Kilpatrick, Training Manager
S. O'Connor, Manager, Engineering
J. Pierce, Manager, Nuclear Assessment Section
J. Robinson, Superintendent, Environmental and Chemistry
G. Simmons, Superintendent, Radiation Control
J. Warner, Manager, Operations
M. Wallace, Licensing
S. Volk, Alloy 600 Site Coordinator

NRC personnel

R. Musser, Chief, Reactor Projects Branch 4

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened & Closed

05000400/2008004-01 NCV Failure to Maintain Control Over the Station's Very High Radiation Areas (Section 2OS1)

Opened

2515/176 TI Emergency Diesel Generator Technical Specification Surveillance Requirements Regarding Endurance and Margin Testing (Section 4OA5.2)

Closed

None.

LIST OF DOCUMENTS REVIEWED

Section 1R04: Equipment Alignment

Partial System Walkdown

Residual heat removal system:

- Procedure OP-111 Residual Heat Removal
- Drawing 2165-S-1324, Simplified Flow Diagram Residual Heat Removal System

Emergency service water system:

- Procedure OP-139, Service Water System,
- Drawings 2165-S-0547 and 2165-S-0548, Simplified Flow Diagram Circulating & Service Water Systems

Section 1R05: Fire Protection

- FPP-012-04-DBG, Diesel Generator Building Fire Pre-Plan
- FPP-012-08-SEC, Out Building Fire Pre-Plans
- FPP-012-02-RAB286, Reactor Auxiliary Building Elevation 286 Fire Pre-Plan

Section 1R12: Maintenance Effectiveness

- NUMARC 93-01, Industry Guideline for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants
- ADM-NGGC-0101, Maintenance Rule Program

Section 1R13: Maintenance Risk Assessments and Emergent Work Evaluation

- OMP-003, Outage Shutdown Risk Management
- WCM-001, On-line Maintenance
- AP-300, Severe Weather
- AP-301, Seasonal Weather Preparations and Monitoring

Section 1R15: Operability Evaluations

- OPS-NGGC-1305, Operability Determinations
- NSSS-28, Highest Containment Water Level After a LOCA

Section 1R18: Plant Modifications

- EGR-NGGC-005, Engineering Change
- EGR-NGGC-009 Engineering Change Work Management
- Final Safety Analysis Report Section 6.2.2, Containment Systems
- Drawing 2165-S-0550, Simplified Flow Diagram Containment Spray System
- EGR-NGG C-005, Engineering Change
- NCR 254402, OST-1118, Containment Spray Eductor Flow Required Adjustment
- Engineering Change EC #70531, Replace Valves 1CT-118 and 1CT-119
- REG-NGGC-0010, Attachment 1 – 50.59 Screen

Section 1R19: Post Maintenance Testing

- Drawing 5-S-0547
- Drawing 5-S-0548
- FSAR 9.2.1 Service Water System
- Drawing 5-S-0998 S02, Essential Services Chill Water
- FSAR 9.2.8 Essential Services Chill Water System
- FSAR 9.2.2 Component Cooling Water

Section 2OS1: Access Controls To Radiologically Significant Areas

AP-504; Administrative Controls for Locked and Very High Radiation Areas; Revision 28
 AP-535; Performing Work in Radiological Control Areas; Revision 23
 AP-545; Containment Entries; Revision 39
 DOS-NGGC-0007; Internal Dose Calculations; Revision 09
 HPP-010; Steam Generator Entry; Revision 23
 HPP-509; Underwater Filter / Vacuum Operations; Revision 31
 HPP-517; Decontamination of the Upper and Lower Refueling Cavities; Revision 05
 HPP-625; Performance of Radiological Surveys; Revision 23
 HPP-627; Radiological Controls for Diving Operations; Revision 08
 HPP-628; Radiation Control Actions for Operating With Fuel Cladding Defects; Revision 01
 HPP-800; Handling Radioactive Material; Revision 52
 HPS-NGGC-003; Radiological Posting, Labeling and Surveys; Revisions 11 and 12
 NGGM-PM-0002; Radiation Control and Protection Manual; Revision 36
 NGGM-PM-0012; NGG Change Management Program; Revision 04

PLP-511; Radiation Control and Protection program; Revision 18
 Radiation Protection Technical Report – Alpha Monitoring; Revision 00
 SP-013; Administrative / Support Key and Lock Control; Revision 10
 Technical Specifications 6.12
 AR 00239994; Radiological Posting / Barrier Adhesive Failures; dated July 18, 2007
 AR 00249992; Unposted Radiation Area; dated October 09, 2007
 AR 00261182; Security Key Opens RP Locks; dated January 08, 2008
 AR 00266780; Unsecured HRA Boundary Found; dated February 19, 2008
 AR 00266967; Missing RCA Boundary Sign; dated February 20, 2008
 AR 00270725; Missing RCA Boundary Sign; dated March 17, 2008

Section 2OS3: Radiation Monitoring Instrumentation and Protective Equipment

Procedures and Guidance Documents

HPP-630, Respiratory Protection, Rev. 22
 HPP-631, Certification and Operation of Breathing Air Supplies, Rev. 22
 SIC-700, Operation and Certification of Calibration Standards, Rev. 10
 SIC-725, Calibration of Whole Body Friskers and Portal Monitors, Rev. 14
 PEP-420,
 HPS-NGGC-0005, Calibration of Portable Radiation/Contamination Survey Instruments, Rev. 8
 QCC RC 06.60H, Disassemble, Inspect, Repair, and Test Respiratory Equipment, Rev. 13

Reports, Records and Data

Shepard Model 89 Recertification Spreadsheet, 4/1/08
 Shepard Model 28 Source Recertification, 4/2/08
 Gulf Nuclear 71-1 Source Recertification, 6/13/07
 WO 766591-01, Perform PIC-I900 Inspect and Calibrate Area Radiation Monitor RM-01RR-3599B, 9/26/06
 WO 99918-01, Perform PIC-I900 Inspect and Calibrate Area Radiation Monitor RM-01RR-3599B, 1/25/01
 WO 858969-01, Perform MST-I0403 Containment High Range Accident Monitor Calibration (RM-01CR-3590SB), 10/23/07
 WO 637139-01, Perform MST-I0403 Containment High Range Accident Monitor Calibration (RM-01CR-3590SB), 4/27/06
 WO 769334-01, Perform MST-I0389 RM-1FR-3565ASA Spent Fuel Pool South Channel Calibration, 6/21/07
 WO 543749-01, Perform MST-I0389 RM-1FR-3565ASA Spent Fuel Pool South Channel Calibration, 12/12/05
 WO 615611-01, Perform MST-I0407 RM-01MS-3592SB Main Steam Line Monitor Calibration, 4/27/06
 WO 831230-01, Perform MST-I0407 RM-01MS-3592SB Main Steam Line Monitor Calibration, 10/17/07
 WO 628716-01, Perform MST-I0347 RM-01-CF3561ASA Containment Ventilation Isolation Monitor Calibration, 5/7/06
 WO 850004-01, Perform MST-I0347 RM-01-CF3561ASA Containment Ventilation Isolation Monitor Calibration, 10/15/07
 Whole Body Counter Calibration 02-06-09-06, 9/6/06
 Whole Body Counter Calibration 03-07-08-30, 8/30/07

Calibration Record: Eberline 6112B, s/n 58632, 8/14/08; Eberline RO-2, s/n 2547, 1/3/08; LMC-19, s/n 34893, 8/16/08; IPM-8, s/n 145, 8/1/08; SPM-904C, s/n 90437, 7/16/08; SPM-904C, s/n 90435, 7/16/08; ARGOS 5WBAB, s/n 0510-014, 1/23/08; ARGOS 5WBAB, s/n 0510-013, 1/24/08

System Health Report, Radiation Monitoring, 2nd Quarter 2008

SCBA Fill System Operating History Log (7/24/07, 9/14/07, 2/5/08, 2/25/08)

CO Monitor Calibration/Test (7/24/07, 9/14/07, 2/5/08)

Respiratory Equipment Inspection Record (1/15/08 – 7/8/08)

Grade D Air Certification: Eagle Air Compressor (3/10/08, 8/8/07, 2/13/07); Blast Yard Compressor (3/10/08, 9/13/07, 2/13/07); Service Air Compressor (3/10/08, 8/8/07, 2/13/07)

Corrective Action Program Documents

Self-assessment 263005, Central Calibration Facility Activities, 7/10/08

Benchmark 263039, Identify improvements and cost savings opportunities for the Central Calibration Facility, 4/7/08

Audit H-RP-07-01, Harris Radiation Protection Assessment, 9/25/07

AR 276019, SCBA fill compressor carbon monoxide monitor failure

AR 284597, Air sampler fail out of 10% tolerance limit

AR 277828, Determine operable inventory of portable instrumentation utilized by fleet

AR 277829, Reduce instrument repair backlog

AR 285479, Malfunctioning RMS equipment

AR 258913, Electronic neutron dosimeters

AR 250657, Power loss to RP remote monitoring

AR 248464, Rad monitor problems following Rx startup transformer loss

AR 244200, Whole body counter detector deficiency

AR 267710, Investigate differences in AV2000 Scott masks

Section 2PS1: Radioactive Gaseous and Liquid Effluent Treatment and Monitoring Systems

Procedures, Guidance Documents, and Manuals

AP-523, Preparation of the Annual Radioactive Effluent Release Report, Rev.10

AP-556, Effluent Management Program, Rev.3

CRC-240, Plant Vent Stack 1 Effluent Sampling, Rev.11

CRC-242, Waste Processing Building Vent Stack 5 Effluent Sampling, Rev.15

CRC-243, Waste Processing Building Vent Stack 5a Effluent Sampling, Rev.12

CRC-244, Containment Air And Condenser Vacuum Pump Effluent Sampling, Rev.11

CRC-245, Particulate And Iodine Grab Sampling On Wide Range Gas Monitors, Rev.7

CRC-290, Radiological Sample Compositing, Rev.12

CRC-854, Reporting Radioactive Liquid Releases, Rev.17

EVC-NGGC-0007, The Reporting Of Anomalous Results, LLD Requirements, A Priori Calculations, And Interlaboratory Comparison Program Acceptance Criteria Evaluation For Radiological Environmental Samples, Rev.4

RCP-660, Sample Preparation For Determination Of Radioactivity, Rev.16

RST-210, Liquid Effluent Radiochemistry Surveillance, Rev.20

RST-211, Gaseous Effluent Radiochemistry Surveillance, Rev.19

SHNPP Off-Site Dose Calculation Manual (ODCM), Rev. 19

Records and Data

SHNPP Annual Radioactive Effluent Release Report-2006
 SHNPP Annual Radioactive Effluent Release Report-2007
 Gaseous Radioactive Waste Release Permit 70158.042.001.G (WGDT), 8/29/07
 Gaseous Radioactive Waste Release Permit 80123.031.029.G (Waste processing bldg stack)
 7/15/08
 Liquid Radioactive Waste Release Permit 80021.001.009.L (Laundry and Shower Water),
 6/21/08
 ERC-08-002, Evaluation of the Use of Area Samplers as Supplemental Information for Effluent
 Monitoring, Rev.0
 Summary of Troubleshooting Plan for Sampling Fuel Handling Building Ventilation
 Radiation Safety & Control Services Inc. TSD#07-007, Evaluation of the Particulate and Iodine
 Primary Vent Stack Sampling System at the Shearon Harris Nuclear Power Plant, Rev.0
 SHNPP UFSAR Section 6.5 Fission Product Removal and Control Systems
 SHNPP UFSAR Section 9.4 Air Conditioning, heating cooling ventilation system
 SHNPP UFSAR Section 11.3, Gaseous Waste Systems
 SHNPP UFSAR Section 11.5, Process Effluent Radiation Monitoring
 Particulate Size Study of Plant Vent Stacks, 9/10/08
 WO 00384112, Perform PIC-1915, Radiation Monitor Calibration (Condenser Off Gas), 1/19/05
 WO 00733210, Perform PIC-1915, Radiation Monitor Calibration (Condenser Off Gas), 1/22/07
 WO 01125148, Perform MST-I0330 – Secondary Waste Sampling Tank Pump Discharge
 Radiation Monitor REM-21-WS-3542 Operational Test, 3/31/08
 WO 01173986, Perform MST-I0330 – Secondary Waste Sampling Tank Pump Discharge
 Radiation Monitor REM-21WS-3542 Operational Test, 6/12/08
 WO 01121716, Perform MST-I0336 – Service Water (WPB) Radiation Monitor REM-01SW-
 3500A Operational Test, 2/25/08
 WO 01170612, Perform MST-I0336 – Service Water (WPB) Radiation Monitor REM-01SW-
 3500A Operational Test, 6/12/08
 WO 01163604, Perform MST-I0338 – Waste Monitor Tanks Discharge Radiation Monitor REM-
 21WL-3501 Operational Test, 5/21/08
 WO 01115375, Perform MST-I0338 – Waste Monitor Tanks Discharge Radiation Monitor REM-
 21WL-3501 Operational Test, 2/12/08
 WO 01096747, Perform MST- I0378 Plant Vent Stack Accident Monitor RM-21AV-3509-1SA
 Operational Test, 1/8/08

CAP Documents

Report No.: H-EC-08-01, Harris Nuclear Plant Environmental And Chemistry Assessment
 Report, 4/ 9/08
 HNAS 08-003 Rev. 1, Results of Environmental and Chemistry Focus Review H-FR-07-03,
 1/28/08
 AR 231941-02, Vendor determined that sampling results were indeterminate in that without
 knowing the particle size the amount of line losses could not be estimated.
 10 CFR 50.59 Screening to Support Clearance Orders 17395 and 42072 which tagged out the
 isokinetic skids for the plant vent stack in 1998 and the waste processing stack in 2003,
 5/19/05

Bounding Calculations for Non-Isokinetic Sampling (Bounds doses due to spent fuel pool filter pneumatic backwash tank releases into plant vent stack), 8/28/08
 Engineering Service Request 9500073, Deletion of RMS Channels/ Equipment
 Engineering Service Request 00-00326, Abandonment of Unnecessary Radiation Monitors, 10/12/2001
 Operability Determination for AR 231941 on Non-Isokinetic Sampling Configuration
 Particle Size Distribution for Non-Filtered Exhaust to Plant Vent Stack 1 Sampling Plan. (Part of Operability Determination for AR 231941 on Non-Isokinetic Sampling Configuration)
 Task Completion Plan for Isokinetic Sampling Skids Restoration
 AR 00254863, Incorporate Well And Additional Hydrology Information Into AP-556.
 AR 00259167, HNP Vulnerability To BNP Groundwater Observations
 AR 00265786, Liquid Effluent Goal Not At Top Quartile
 AR 00266706, Liquid and Gaseous Tritium Goals Not At Top Quartile
 AR 00277565, Evaluate Addition Of Supplemental Sampling Equipment For Bounding Effluent Samples Due To Loss Of Isokinetic Sampling.
 AR 00282602, Gaseous Effluent Activity (Part/I2) Internal Performance Indicator Turned Red. Supplemental Samples in Fuel Handling Building, Taken to Compensate for Iso-Kinetic Sampling Skid Out of Service has Resulted In Greater Sensitivity.
 AR 00285343, Error in the Monthly Discharge Monitoring Report (DMR)

Section 2PS3: Radiological Environmental Monitoring Program (REMP) and Radioactive Material Control Program

Procedures and Guidance Documents

EVC-NGGC-0007, The Reporting of Anomalous Results, LLD Requirements, A Priori Calculations, and Interlaboratory Comparison Program Acceptance Criteria Evaluation for Radiological Environmental Samples, Rev. 4
 HPP-800, Handling Radioactive Material, Rev. 52
 CAP-NGGC-0200, Corrective Action Program, Rev. 22

Records and Data

Annual Radiological Environmental Operating Report, 2006 and 2007
 Annual Radiological Effluent Report, 2006
 Environmental Air Sampler Calibration Records, Serial Nos. 2758, 2759, 2760, 2761, 2762, 2763, 2234 (8/16/07) and Serial Nos. 2225, 2226, 2229, 2230, 2231, 2232, 2233 (3/29/07 and 4/18/08)
 Harris Energy & Environmental Center, Interlaboratory Crosscheck Results, 4th quarter 2005 – 3rd quarter 2007
 Meteorological Data Recovery Evaluations, Wind speed, Wind direction, Delta temperature, 2006 and 2007
 Meteorological Tower Sensor Calibration/Replacement Packages, Work Order 01044361 (9/20/07) and Work Order 01128677 (3/28/08)
 10 CFR Part 61 Analysis, Dry Active Waste Stream, 1/29/07
 SAM Calibration Records, Serial Nos. 154 (7/26/07 and 7/7/08) and 143 (7/30/07 and 7/30/08)
 Portal Monitor Calibration Records, Serial No. 906084, 4/17/07 and 4/16/08
 Personnel Contamination Monitor Calibration Records, ARGOS Serial No. 0510016, 3/6/07 and 2/4/08

CAP Documents

HNAS-08-037, Harris Nuclear Plant Environmental and Chemistry Assessment, 4/9/08

AR 00293777, Evaluate recent meteorological data to determine if changes are needed to the REMP, 8/27/08

AR 00252022, RCA tool room surveillance yields contaminated equipment, 10/24/07

AR 00249756, Purple painted utility knife found outside RCA, 10/8/07

AR 00264424, Low-level Iodine-131 found in composite water sample taken at Lillington water treatment plant. No Iodine found in composite samples taken from Harris Lake, 2/14/08

AR 00239466, Evaluate alternative sample media when broadleaf vegetation is unavailable, 7/13/07

AR 00245296, Composite sampler 40 found with the sample container full, 9/4/07

Section 1R20: Refueling and Outage Activities

- AOP-020, Loss of [Reactor Coolant System] Inventory or Residual Heat Removal While Shutdown
- ESR 9500808, Removable Equipment Hatch Cover Bolting Requirements
- ESR 9800297, Containment Closure Procedure
- HNP-C/CONT-1009, Containment Building Removable Equipment Hatch
- OMP-003, Outage Shutdown Risk Management

Section 4OA1: Performance Indicator Verification

- NEI 99-02, Regulatory Assessment Performance Indicator Guideline
- Calculation HNP-F/PSA-0068, NRC Mitigating System Performance Index Basis Document for Harris Nuclear Plant
- REG-NGGC-0009, NRC Performance Indicators and Monthly Operating Report Data, Rev. 8
- Monthly PI Reports Occupational Exposure Control Effectiveness, January 2008 - July 2008
- RETS/ODCM Radiological Effluent Occurrence Data Sheets and Supporting Information for January- July 2008

Section 4OA2: Identification and Resolution of Problems

- CAP-NGGC-0200, Corrective Action Program
- OMM-022 Operator Work-Around Program
- Operator Work-Around Cumulative Effect Review
- Operator Work-Around Program Binder
- Compensatory Action Program Binder
- PLP-621, Leak Reduction Program
- OST-1021, Daily Surveillance Requirements Daily Interval Modes 1, 2
- OST-1022, Daily Surveillance Requirements Daily Interval Modes 3, 4

4OA5 Other Activities

Procedures

- OST-1823, 1A-SA Emergency Diesel Generator Operability Test, 18 Month Interval Modes 1 through 6 and Defueled
- OST-1824, 1B-SB Emergency Diesel Generator Operability Test, 18 Month Interval Modes 1 through 6 and Defueled
- OST-1013, 1A-SA Emergency Diesel Generator Operability Test, Monthly Interval Modes 1 through 6
- OST-1073, 1B-SB Emergency Diesel Generator Operability Test, Monthly Interval Modes 1 through 6
- OST-1085, 1A-SA Emergency Diesel Generator Operability Test, Semiannual Interval Modes 1 through 6
- OST-1086, 1B-SB Emergency Diesel Generator Operability Test, Semiannual Interval Modes 1 through 6
- EPT-829, Train A Loop Logic Integrated Test
- OP-155, Operating Procedure, Emergency Diesel Generating System

Calculations

- E-6000, Diesel Generator Load Study, Rev. 9

Other

- OST-1824, 1B-SB Emergency Diesel Generator Operability Test, 2/13/08
- OST-1086, 1B-SB Emergency Diesel Generator Operability Test, 4/10/08
- OST-1073, 1B-SB Emergency Diesel Generator Operability Test, 5/10/08
- OST-1073, 1B-SB Emergency Diesel Generator Operability Test, 6/6/08
- OST-1085, 1A-SA Emergency Diesel Generator Operability Test, 5/22/08
- OST-1823, 1A-SA Emergency Diesel Generator Operability Test, 1/3/08
- OST-1013, 1A-SA Emergency Diesel Generator Operability Test, 3/26/08
- OST-1013, 1A-SA Emergency Diesel Generator Operability Test, 4/24/08
- White paper titled "Frequency Effects on Emergency Diesel Generator Loading Calculations," by Kevin Riley, Progress Energy

Temporary Instruction (TI) 2515/172, Reactor Coolant System Dissimilar Metal Butt Welds (DMBW)

Procedures

Progress Energy "Nuclear generation Group Alloy 600 Strategic Plan", Revision 0, dated June 21, 2006.

SI-UT-126, Rev.3 dated April 2007, Procedure for Phased Array Ultrasonic Examination of Weld Overlaid Similar and Dissimilar Metal Welds

SI-NDE-08, Rev. 1 dated November 2005, Qualification and Certification of NDE Personnel for Nuclear Applications

Corrective Action Documents

AR No. 00170903, NEI 03-08 Mandatory Butt Weld Inspection Guidelines MRP-139

Other Records

Plant Matrix for MRP-139 Examinations

NRC Letter dated October 10, 2007, Inservice Inspection Relief Request No. 1 Regarding Proposed Alternative for Pressurizer Nozzle Weld Overlay Repairs

LIST OF ACRONYMS

ANS	American National Standard
ANSI	American National Standards Institute
AOP	Abnormal Operating Procedure
ARM	area radiation monitor
CAM	continuous air monitor
CAP	Corrective Action Program
CEDE	Committed Effective Dose Equivalent
CFM	Cubic Feet Per Minute
CFR	Code of Federal Regulations
CY	calendar year
ED	electronic dosimeter
FHP	Fuel Handling Building
FSAR	Final Safety Evaluation Report
HEEC	Harris Energy and Environmental Center
HP	Health Physics Procedure
HPS	Health Physics Society
HPT	Health Physics Technician
HRA	high radiation area
HEPA	high efficiency particulate air
IP	Inspection Procedure
LHRA	Locked High Radiation Area
LLD	lower limit of detection
NCR	Nuclear Condition Report
NCV	non-cited violation
No.	Number
OA	Other Activities
ODCM	Offsite Dose Calculation Manual
OOS	Out-of-Service
OS	Occupational Radiation Safety
PASS	Post-Accident Sampling System
PM	Periodic Maintenance
PS	Public Radiation Safety
QC	quality control
RAB	reactor auxiliary building
radwaste	radioactive waste
RCA	Radiologically Controlled Area
REMP	Radiological Environmental Monitoring Program
Rev.	Revision
RG	Regulatory Guide
RP	radiation protection
RWP	radiation work permit
SAM	Small Article Monitor
SCBA	Self-contained Breathing Apparatus
SDP	Significance Determination Process
SFP	Spent Fuel Pool
TLD	thermoluminescent dosimeter

TS	Technical Specification
UFSAR	Updated Final Safety Analysis Report
VHRA	Very High Radiation Area
WBC	whole-body count
WPB	Waste Processing Building