



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

October 29, 2009

Mr. Jeffrey B. Archie  
Vice President  
South Carolina Electric & Gas Company  
Virgil C. Summer Nuclear Station  
P.O. Box 88  
Jenkinsville, SC 29065

SUBJECT: VIRGIL C. SUMMER NUCLEAR STATION - NRC INTEGRATED INSPECTION  
REPORT 05000395/2009004

Dear Mr. Archie:

On September 30, 2009, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Virgil C. Summer Nuclear Station. The enclosed integrated inspection report documents the inspection results, which were discussed on October 13, 2009, 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, no findings of significance were identified.

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

Gerald J. McCoy, Chief  
Reactor Projects Branch 5  
Division of Reactor Projects

Docket No.: 50-395  
License No.: NPF-12

Enclosure: Inspection Report 05000395/2009004  
w/Attachment: Supplemental Information

cc w/encl: (See page 2)

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Letter to Jeffrey B. Archie from Gerald J. McCoy, dated October 29, 2009

SUBJECT: VIRGIL C. SUMMER NUCLEAR STATION - NRC INTEGRATED INSPECTION  
REPORT 05000395/2009004

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**U. S. NUCLEAR REGULATORY COMMISSION**

**REGION II**

Docket No.: 50-395

License No.: NPF-12

Report No.: 05000395/2009004

Licensee: South Carolina Electric & Gas (SCE&G) Company

Facility: Virgil C. Summer Nuclear Station

Location: P.O. Box 88  
Jenkinsville, SC 29065

Dates: July 1, 2009 through September 30, 2009

Inspectors: J. Zeiler, Senior Resident Inspector  
J. Polickoski, Resident Inspector  
D. Arnett, RII Project Engineer (Section 1R06)  
R. Hamilton, Senior Health Physicist (Sections 2OS3, 2PS1, 2PS3,  
4OA1, and 4OA5.2)  
L. Mahlahla, Health Physics Inspector (Section 2PS3)

Approved by: Gerald J. McCoy, Chief  
Reactor Projects Branch 5  
Division of Reactor Projects

Enclosure

## SUMMARY OF FINDINGS

IR 05000395/2009-004; 07/01/2009 - 09/30/2009; Virgil C. Summer Nuclear Station; Routine Integrated Inspection Report.

The report covered a 3-month period of inspection by resident inspectors, a project engineer, and two health physics inspectors. No findings of significance were identified by the NRC. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter 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. NRC-Identified and Self-Revealing Findings

No findings of significance were identified

B. Licensee-Identified Violations

None

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## REPORT DETAILS

### Summary of Plant Status

The unit began the inspection period at full Rated Thermal Power (RTP). The unit operated at or near RTP for the entire inspection period.

#### 1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

#### 1R01 Adverse Weather Protection

##### Offsite and Alternate Alternating Current (AC) Power

##### a. Inspection Scope

The inspectors evaluated the readiness of the offsite and alternate AC power systems by reviewing the licensee's procedures that address measures to monitor and maintain the availability and reliability of the offsite and alternate AC power systems. The procedures reviewed included those involved with the communication protocols between the plant and transmission system operator to verify that the appropriate information was being exchanged when issues arose that could impact the offsite power system. In addition, the inspectors performed a walkdown of the plant switchyard, including the alternate AC power transformer and related switchgear room, to ensure any degradations or adverse material conditions were identified in the licensee's corrective action program (CAP) and were being appropriately addressed in a manner commensurate with their significance. The documents reviewed during this inspection are listed in the attachment.

##### b. Findings

No findings of significance were identified.

#### 1R04 Equipment Alignment

##### a. Inspection Scope

The inspectors conducted three partial equipment alignment walkdowns which are listed below, to evaluate the operability of selected redundant trains or backup systems with the other train or system inoperable or out of service (OOS). Correct alignment and operating conditions were determined from the applicable portions of drawings, system operating procedures (SOPs), final safety analysis report (FSAR), and technical specifications (TS). The inspections included review of outstanding maintenance work orders (WOs) and related condition reports (CRs) to verify that the licensee had properly identified and resolved equipment alignment problems that could lead to the initiation of an event or impact mitigating system availability. Documents reviewed are listed in the Attachment.

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- 'A' and 'C' centrifugal charging pumps (CCPs) while 'B' CCP was OOS for scheduled preventive maintenance
- 'A' and 'C' service water (SW) pumps while 'B' SW pump was OOS for scheduled preventive maintenance
- 'B' residual heat removal (RHR) pump and heat exchanger while 'A' RHR pump was OOS for scheduled maintenance

b. Findings

No findings of significance were identified.

1R05 Fire Protection

.1 Fire Protection Tours

a. Inspection Scope

The inspectors reviewed recent CRs, WOs, and impairments associated with the fire protection system. The inspectors reviewed surveillance activities to determine whether they supported the operability and availability of the fire protection system. The inspectors assessed the material condition of the active and passive fire protection systems and features and observed the control of transient combustibles and ignition sources. The inspectors conducted routine inspections of the following six areas (respective fire zones also noted):

- 'A,' 'B,' and 'C' CCP rooms (fire zones AB-1.5, -1.6, and -1.7)
- 1DB safeguards switchgear and associated ventilation rooms (fire zones IB-16, IB-17, and IB-22.2)
- Service water pump house (SWPH) (fire zones SWPH-1, -3, -4, -5.1 and -5.2)
- Emergency diesel generator (EDG) rooms 'A' and 'B' (fire zones DG-1.1/1.2 and DG-2.1/2.2)
- 'B' RHR and reactor building spray pump rooms (fire zone AB-1.3)
- 'B' RHR heat exchanger room (fire zone AB-1.16)

b. Findings

No findings of significance were identified.

.2 Annual Fire Brigade Drill Observation

a. Inspection Scope

The inspectors observed the performance of the licensee's fire drill on August 19, 2009. This unannounced fire drill was conducted for the 'B' operating shift crew and involved an oil fire on the 'B' CCP. The inspectors evaluated the readiness of licensee personnel to prevent and fight fires including the following aspects:

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- Observe whether turnout clothing and self-contained breathing apparatus (SCBA) equipment were properly worn
- Determine whether fire hose lines were properly laid out and nozzle pattern simulated being tested prior to entering the fire area of concern
- Verify that the fire area was entered in a controlled manner
- Review if sufficient firefighting equipment was brought to the scene by the fire brigade to properly perform their firefighting duties
- Verify that the fire brigade leader's fire fighting directions were thorough, clear and effective, and that, if necessary, offsite fire team assistance was requested
- Verify that radio communications with plant operators and between fire brigade members were efficient and effective
- Confirm that fire brigade members checked for fire victims and fire propagation into applicable plant areas
- Observe if effective smoke removal operations were simulated
- Verify that the fire fighting pre-plans were properly utilized and were effective
- Verify that the licensee pre-planned drill scenario was followed, drill objectives met the acceptance criteria, and deficiencies were captured in post drill critiques

b. Findings

No findings of significance were identified.

1R06 Flood Protection Measures

.1 Annual Review of Internal Flood Protection Features

a. Inspection Scope

The inspectors reviewed and walked down one area (412 ft. elevation east and west penetration rooms) regarding internal flood protection features and equipment to determine consistency with design requirements, FSAR, and flood analysis documents. The inspectors reviewed the licensee's CAP database to verify that internal flood protection problems were being identified at the appropriate level, entered into the CAP, and appropriately resolved.

b. Findings

No findings of significance were identified.

.2 Annual Review of Electrical Manholes

a. Inspection Scope

The inspectors reviewed and observed licensee periodic inspection of three electrical manholes (i.e., EMH-001, EMH-002, and EMH-011) to assess the condition of safety related or risk significant electrical cables located inside the underground manholes. The inspectors verified by direct observation that the cables, splices, support structures, and sump pumps located within the manholes appeared intact and the cables were not

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submerged in water. In addition, the inspectors reviewed the past six monthly periodic licensee inspection results for each of the three manholes to ensure that any degraded conditions identified were appropriately resolved.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification Program

a. Inspection Scope

On August 18, 2009, the inspectors observed the performance of senior reactor operators and reactor operators on the plant simulator during licensed operator requalification training. The scenario (LOR-SA-011R) involved a failure of the pressurizer master controller, grid instability, main turbine vibration, pressurizer safety valve open failure, and main steam line break on loop 'A'. The inspectors assessed overall crew performance, communications, oversight of supervision, and the evaluators' critique. The inspectors verified that any significant training issues were appropriately captured in the licensee's CAP.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness

a. Inspection Scope

The inspectors evaluated two equipment issues described in the CRs listed below to verify the licensee's effectiveness with the corresponding preventive or corrective maintenance associated with structures, systems, and components (SSCs). The inspectors reviewed Maintenance Rule (MR) implementation to verify that component and equipment failures were identified, entered, and scoped within the MR program. Selected SSCs were reviewed to verify proper categorization and classification in accordance with 10 CFR 50.65. The inspectors examined the licensee's 10 CFR 50.65(a)(1) corrective action plans to determine if the licensee was identifying issues related to the MR at an appropriate threshold and that corrective actions were established and effective. The inspectors' review also evaluated if maintenance preventable functional failures (MPFFs) or other MR findings existed that the licensee had not identified.

The inspectors reviewed the licensee's controlling procedures, i.e., engineering services procedure (ES)-514, Revision 4, "Maintenance Rule Implementation," and the Virgil C. Summer Important To Maintenance Rule System Function and Performance Criteria Analysis," to verify consistency with the MR requirements.

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- CR-08-01526, safety relief valve XVS02806K-MS on task sheet 0707021-002 lifted high (1190.8) out of specification
- CR-08-01797, safeguards bus 1DB loss of voltage relay failed to operate during surveillance test procedure (STP)-506.004B

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control

a. Inspection Scope

The inspectors evaluated, as appropriate, for the five selected work activities listed below: (1) the effectiveness of the risk assessments performed before maintenance activities were conducted; (2) the management of risk; (3) that, upon identification of an unforeseen situation, necessary steps were taken to plan and control the resulting emergent work activities; and, (4) that emergent work problems were adequately identified and resolved. The inspectors evaluated the licensee's work prioritization and risk characterization to determine, as appropriate, whether necessary steps were properly planned, controlled, and executed for the planned and emergent work activities.

- Work Week 2009-29: risk assessment for scheduled maintenance and testing on turbine driven emergency feedwater (TDEFW) pump, switchyard electrical manhole inspections, main feedwater regulating valve positioner inspections, 'B' CCP, and emergent 'B' EDG room ventilation fan damper repair (yellow risk)
- Work Week 2009-30: risk assessment for scheduled maintenance and testing on diesel fire pump, 'B' emergency feedwater pump, 'B' SW pump (yellow risk), 'B' SW booster pump, 'B' reactor building spray pump, and emergent 'B' EDG fuel rack shutdown cylinder solenoid valve air leak (yellow risk)
- Work Week 2009-31: risk assessment for scheduled maintenance and testing on switchyard substation battery charger, 'A' chiller, 'A' control room emergency ventilation and associated pressure boundary breach, 'A' component cooling water pump (CCW), and 'A' solid state protection system testing
- Work Week 2009-32: risk assessment for scheduled maintenance and testing on 'A' motor driven emergency feedwater pump, 'A' SW pump (Yellow Risk), 'A' SW booster pump, and generator/Alterex inspections
- Work Week 2009-37: risk assessment for scheduled maintenance and testing on the 'B' EDG air start compressors (XAC-8 C/D), 'B' EDG related snubbers, 'B' EDG room scaffolding in support of the snubber inspections, and 'B' CCW pump and CCW non-essential header cross-connect isolation valves

b. Findings

No findings of significance were identified.

## 1R15 Operability Evaluations

### a. Inspection Scope

The inspectors reviewed five operability evaluations listed below, affecting risk significant mitigating systems to assess, as appropriate: (1) the technical adequacy of the evaluations; (2) whether operability was properly justified and the subject component or system remained available, such that no unrecognized increase in risk occurred; (3) whether other existing degraded conditions were considered; (4) that the licensee considered other degraded conditions and their impact on compensatory measures for the condition being evaluated; and, (5) the impact on TS limiting conditions for operations and the risk significance in accordance with the significance determination process. Also, the inspectors verified that the operability evaluations were performed in accordance with station administrative procedure (SAP)-209, Revision 0E, "Operability Determination Process," and SAP-999, Revision 4C, "Corrective Action Program."

- CR-09-02765, 'B' EDG room cooling ventilation damper XDP0175 failed open
- CR-09-02852, 'B' EDG fuel rack shutdown cylinder solenoid valve air leak
- CR-09-02878, 'A' SW traveling screen stalled
- CR-09-03318, scaffold built around 'A' EDG is potentially impacting safety-related equipment and is potentially not built per the scaffold program
- CR-09-03525, 'B' EDG cooler, fire service supply header check valve (XVC03120B-SW) failed back leakage test acceptance criteria

### b. Findings

No findings of significance were identified.

## 1R18 Plant Modifications

### a. Inspection Scope

For the equipment change listed below that was considered a temporary modification, the inspectors evaluated the changes for adverse effects on system availability, reliability, and functional capability. Documents reviewed, as applicable, included associated 10 CFR 50.59 reviews, engineering calculations, WOs and implementation packages, plant electrical and construction drawings, corrective action documents, applicable sections of the FSAR, supporting analyses, TS, and design basis information.

- Bypass Authorization Request (BAR) 09-01: Lifted leads for turbine closed cycle cooling system cooling tower fan 'D' (XFN0168D) lube oil level switch

### b. Findings

No findings of significance were identified.

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## 1R19 Post Maintenance Testing

### a. Inspection Scope

For the six maintenance activities listed below, the inspectors reviewed the associated post-maintenance testing (PMT) procedures and either witnessed the testing and/or reviewed test records to assess whether: (1) the effect of testing on the plant had been adequately addressed by control room and/or engineering personnel; (2) testing was adequate for the maintenance performed; (3) test acceptance criteria were clear and adequately demonstrated operational readiness consistent with design and licensing basis documents; (4) test instrumentation had current calibrations, range, and accuracy consistent with the application; (5) tests were performed as written with applicable prerequisites satisfied; (6) jumpers installed or leads lifted were properly controlled; (7) test equipment was removed following testing; and, (8) equipment was returned to the status required to perform its safety function. The inspectors verified that these activities were performed in accordance with general test procedure (GTP)-214, Revision 5A, "Post Maintenance Testing Guideline."

- WOs 0808738, 0810313, 0812498, and 0806333, PMT for scheduled preventive maintenance on 'B' SW pump and valves
- WO 0909588, PMT for corrective maintenance to repair failed control room atmospheric radiation monitor RM-A1
- WO 0909167, PMT for corrective maintenance to repair 'B' EDG room ventilation damper XDP0175 failure to close
- WOs 0806327, 0903531 and 0907343, PMT for scheduled preventive maintenance on 'B' reactor building spray suction valve XVG03001B-SP
- WOs 0714517 and 0811057, PMT for scheduled preventive and corrective maintenance on the diesel driven fire service pump engine (XPP0134B-E)
- WO 0909587, PMT for corrective maintenance on the 'B' EDG fuel rack shutdown cylinder solenoid valve

### b. Findings

No findings of significance were identified.

## 1R22 Surveillance Testing

### a. Inspection Scope

The inspectors observed and/or reviewed the six surveillance test procedures (STPs) listed below to verify that TS surveillance requirements were followed and that test acceptance criteria were properly specified to ensure that the equipment could perform its intended safety function.

The inspectors verified that proper test conditions were established as specified in the procedures, that no equipment preconditioning activities occurred, and that acceptance criteria were met.

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In-Service Tests:

- STP-225.001C, Revision 1, Diesel Generator Support Systems Comprehensive Pump and Valve Test

Other Surveillance Tests:

- STP-228.001, Revision 5, Fire Protection System Fire Pumps Test (for XPP0134B, Diesel Driven Fire Service Pump)
- STP-125.013B, Revision 0C, Diesel Generator B Semi-Annual Operability Test
- STP-125.009, Revision 8D, Diesel Generator B 24 Hour Load Test
- STP-222.002, Revision 9A, Component Cooling Water Pump Test
- STP-125.013A, Revision OE, Diesel Generator A Semiannual Operability Test

b. Findings

No findings of significance were identified.

Cornerstone: Emergency Preparedness

1EP6 Drill Evaluationa. Inspection Scope

On September 2, 2009, the inspectors reviewed and observed the performance of an emergency planning simulator drill that involved a simulated loss of offsite AC power followed by a loss of all onsite emergency AC power and reactor coolant pump seal leakage (scenario EPP-09-02A, "V. C. Summer Nuclear Station D ERO Training Drill"). The inspectors assessed the emergency procedure usage, emergency plan classifications, notifications, and protective action recommendation development. The inspectors evaluated the adequacy of the licensee's conduct of the drill and critique performance. The inspectors verified that the drill critique identified drill performance weaknesses and entered these items into the licensee's CAP.

b. Findings

No findings of significance were identified.

## 2. RADIATION SAFETY

Cornerstones: Occupational Radiation Safety (OS) and Public Radiation Safety (PS)

2OS3 Radiation Monitoring Instrumentation and Protective Equipmenta. Inspection Scope

Radiation Monitoring Instrumentation: During tours of the auxiliary building and spent fuel pool areas, the inspectors observed installed radiation detection equipment including the following instrument types: Area Radiation Monitors (ARMs); Continuous Air Monitors (CAMs); Personnel Contamination Monitors (PCMs); and Portal Monitors

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(PMs) at the Radiologically Controlled Area (RCA) and protected area exits. The inspectors observed the physical location of the components, noted the material condition, and compared sensitivity ranges with FSAR details.

In addition to equipment walk-downs, the inspectors observed functional checks and alarm set-point testing of various fixed and portable detection instruments. The most recent 10 CFR Part 61 analysis for Dry Active Waste (DAW) was reviewed to determine if calibration and check sources were representative of the plant source term. The inspectors reviewed calibration records for selected PM-7 Portal Monitors, RTM860TS Personnel Monitors, and SAM-11 Small Article Monitors located at the RCA exit. Historical calibration records were also reviewed for Control Room Supplied Air Monitor RMA-0001, ARM channels RMG-0007 and RMG-0018 (Containment High-Range detectors), RML-0001 (Letdown Liquid Radiation Monitor), and RMG-0008 Fuel Handling Bridge Area Radiation Monitor. Calibration stickers on portable survey instruments were noted during inspection of storage areas for "ready-to-use" equipment. The records for the last two calibrations of a cross sampling of handheld instruments was reviewed, specifically; an ASP-2e "rem-ball", a RO-20 ion chamber, a Telepole and a Teletector.

Operability and reliability of selected radiation detection instruments were reviewed against details documented in the following: 10 CFR Part 20; NUREG-0737, Clarification of TMI Action Plan Requirements; TS Sections 3 and 5; FSAR Chapter 12; and applicable licensee procedures. Documents reviewed during the inspection are listed in Section 2OS3 of the Attachment.

SCBA and Protective Equipment: Selected SCBA units staged for emergency use at the auxiliary building RCA entrance were inspected for material condition, air pressure, and number of units available. The inspectors also reviewed maintenance records for selected SCBA regulators for the past five years and certification records associated with supplied air quality.

Qualifications for individuals responsible for testing and repairing SCBA vital components were evaluated through review of training records. Respirator qualification records were reviewed for several Control Room operators and emergency responder personnel.

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 Attachment.

Problem Identification and Resolution: Selected licensee CR 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 SAP-999. 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 Attachment.

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

b. Findings

No findings of significance were identified.

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 and gaseous radioactive waste (radwaste) and effluent systems were assessed for material condition and conformance with system design diagrams. The inspection included floor drain tanks, liquid waste system piping, waste gas decay tanks, monitor tanks, liquid radwaste monitors, plant stack effluent monitors, and associated airborne effluent sample lines. The inspectors interviewed licensee staff regarding radwaste equipment configuration and effluent monitor operation.

The inspectors reviewed performance records and calibration results for selected radiation monitors, flowmeters, and air filtration systems. For effluent monitors RMA-03 (main plant stack), RMA-4 (reactor building purge exhaust), RMA-6 (fuel handling building exhaust) RML-5 (liquid waste) and RML-8 (turbine building sump) the inspectors reviewed the last two calibration records. The last two surveillances on the HEPA/Charcoal air treatment systems also were reviewed. The inspectors evaluated out-of-service effluent monitors and compensatory action data for the period January 2008 - August 2009.

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; American Nuclear Standards Institute (ANSI)-N13.1-1969, Guide to Sampling Airborne Radioactive Materials in Nuclear Facilities; TS Section 5; the Offsite Dose Calculation Manual (ODCM); and FSAR, Chapter 12. Procedures and records reviewed during the inspection are listed in Section 2PS1 of the report Attachment.

Effluent Release Processing and Quality Control Activities: The inspectors observed the weekly collection of liquid effluent samples from 'B' monitor tank and effluent samples from the turbine building (condensate polisher discharge). Chemistry technician proficiency in collecting, processing, and counting the samples, as well as preparing the applicable release permits were evaluated. The inspectors reviewed recent liquid and gaseous release permits including pre-release sampling results, effluent monitor set-points, and resultant doses to the public. The inspectors also reviewed the 2007 and 2008 annual effluent reports to evaluate reported doses to the public and to review ODCM changes. The inspectors reviewed daily Quality Control data logs and calibration records for instruments used to quantify effluent sample activity including High Purity

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Germanium detectors and liquid scintillation counters. In addition, results of the 2007, 2008, and first quarter 2009 inter-laboratory cross-check program were reviewed.

Observed task evolutions, count room activities, and offsite dose results were evaluated against details and guidance documented in the following: 10 CFR Part 20 and Appendix I to 10 CFR Part 50; ODCM; RG 1.21; RG 1.109, Calculation of Annual Doses to Man from Routine Releases of Reactor Effluents for the Purpose of Evaluating Compliance with 10 CFR Part 50 Appendix I; and TS Section 6. Procedures and records reviewed during the inspection are listed in Section 2PS1 of the Attachment.

Problem Identification and Resolution: Selected CRs associated with effluent release activities were reviewed and assessed. The inspectors evaluated the licensee's ability to identify, characterize, prioritize, and resolve selected issues in accordance with procedure SAP-999. The inspectors also evaluated the scope of the licensee's internal audit program and reviewed recent assessment results. Reviewed documents are listed in Section 2PS1 of the Attachment.

The inspectors completed all three specified line-item samples detailed in IP 71122.01.

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 in the ODCM. The inspectors evaluated the location and the material condition of five air sampling stations and eight environmental thermoluminescent dosimeters. The operability of air sampling stations was verified during the observation of the weekly airborne particulate filter and iodine cartridge changes. The inspectors directly observed the collection of a surface water sample at Parr Reservoir approximately 2.7 miles from the site.

Land use census results, changes to the ODCM, and sample collection/processing activities were discussed with environmental technicians and licensee staff. The inspectors reviewed calendar year, and current procedural guidance for environmental sample collection and processing.

Procedural guidance, program implementation, and environmental monitoring results were reviewed against: 10 CFR Part 20; Appendix I to 10 CFR Part 50; TS Section 6.13 and 6.14, 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 Attachment.

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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 the responsible radiation protection supervisor. 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.

Licensee procedures and activities related to meteorological monitoring were evaluated against: ODCM; FSAR; 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 Attachment.

Unrestricted Release of Materials from the 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 source check testing of these instruments and discussed equipment sensitivity, alarm set-points, and release program guidance with licensee staff. The inspectors compared recent 10 CFR Part 61 results for the DAW waste stream with radionuclides used in calibration and check sources to evaluate the appropriateness and accuracy of release survey instrumentation. 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 Sections 2OS3 and 2PS3 of the Attachment.

Problem Identification and Resolution: The inspectors reviewed selected CRs 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 SAP-999. 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 of the Attachment.

The inspectors completed all ten specified line-item samples detailed in IP 71122.03.

b. Findings

No findings of significance were identified.

4OA1 Performance Indicator (PI) Verification

a. Inspection Scope

The inspectors sampled licensee records to verify the accuracy of reported Performance Indicator (PI) data for the periods listed below. To verify the accuracy of the reported PI elements, the reviewed data were assessed against guidance contained in Nuclear Energy Institute (NEI) 99-02, Revision 5, "Regulatory Assessment Indicator Guideline."

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Cornerstone Occupational Radiation Safety: The inspectors reviewed PI data collected from January 1, 2008, through August 17, 2009, for the Occupational Exposure Control Effectiveness PI. For the reviewed period, the inspectors assessed CAP records to determine whether high radiation area, very high radiation area, or unplanned exposures, resulting in TS or 10 CFR 20 non-conformances, had occurred during the review period. In addition, the inspectors reviewed selected personnel contamination event data, internal dose assessment results, and electronic dosimeter alarms for cumulative doses and/or dose rates exceeding established set-points. The reviewed documents relative to this PI are listed in Sections 2OS3 and 4OA1 of the Attachment.

Cornerstone Public Radiation Safety: The inspectors reviewed the Radiological Control Effluent Release Occurrences PI results for the Public Radiation Safety Cornerstone from January 1, 2008, through August 17, 2009. For the assessment period, the inspectors reviewed cumulative and projected doses to the public, out-of-service effluent radiation monitors and compensatory sampling data, and selected CRs related to Radiological Effluent Technical Specifications/ODCM issues. The inspectors also reviewed licensee procedural guidance for collecting and documenting PI data. Documents reviewed are listed in sections 2PS1 and 4OA1 of the Attachment.

Cornerstone Mitigating Systems: The inspectors verified the accuracy of the licensee's PI submittals listed below for the period July 2008 through June 2009. The inspectors used the performance indicator definitions and guidance contained in NEI 99-02, Revision 5, "Regulatory Assessment Performance Indicator Guideline," and licensee procedure SAP-1360, Revision 1, "NRC and INPO/WANO Performance Indicators," to check the reporting of each data element. The inspectors sampled licensee event reports (LERs), operator logs, plant status reports, CRs, and performance indicator data sheets to verify that the licensee had properly reported the PI data. Also, the inspectors discussed the PI data with the licensee personnel associated with the performance indicator data collection and evaluation.

- Mitigating System Performance Index (MSPI) - Emergency AC Power System
- MSPI - High Pressure Injection System
- MSPI - Residual Heat Removal System

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems

.1 Review of Items Entered into the Corrective Action Program

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.

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## .2 Annual Sample Review

### a. Inspection Scope

The inspectors reviewed one issue listed below in detail to evaluate the effectiveness of the licensee's corrective actions for important safety issues documented in CR-08-02622, 'A' main steam isolation valve (MSIV) stroke test failure. This CR documented the June 9, 2008 failed stroke test of the 'A' MSIV (XVM02801A-MS) following hot gap adjustments of the valve yoke rods were performed as part of routine maintenance following heatup of the valve during plant restart from refueling outage 17.

The inspectors assessed whether the issues were appropriately identified; documented accurately and completely; properly classified and prioritized; adequately considered extent of condition, generic implications, common cause, and previous occurrences; adequately identified root causes/apparent causes; and identified appropriate corrective actions. Also, the inspectors verified the issues were processed in accordance with procedure SAP-999.

### b. Findings and Observations

The inspectors identified several weaknesses and areas for improvement as listed below with the licensee's documentation of the details of the problem, problem evaluation, and corrective actions associated with CR-08-02622. To address the inspectors' comments, the licensee either re-opened the original CR with updates or initiated new CRs.

- The CR did not thoroughly describe details of the stroke time failure which was locally observed by plant personnel. The inspectors learned from subsequent interviews with maintenance and engineering personnel involved with the actual repair activities that the valve stroked close to within  $\frac{1}{4}$  to  $\frac{1}{2}$  inch of the full closed position. With a slight mechanical agitation, the valve would fully close. (CR reopened to address comment)
- The evaluation was poorly documented and did not thoroughly address the basis for the cause determination. The evaluation only stated that the failure was found to be friction in the packing and that the packing was lubricated and the problem was fixed. The CR evaluation did not discuss other immediate repair actions that were taken and were documented in the associated maintenance repair WO (0706501), including the relaxation of the packing gland torque from 20 to 17 foot-pounds. In addition, the CR did not describe the manner in which the valve packing was lubricated. The inspectors learned that the packing leak-off line was detached and lubrication was injected into the packing gland area through this leak-off line. The inspectors were unable to identify any controlling procedure or evaluation to conduct this method of lubrication, albeit, the actions were developed with engineering personnel involvement. (CR reopened to address comments)
- The CR did not address whether any maintenance personnel training or procedural enhancements were needed to the maintenance procedure for adjusting the valve packing (i.e., MMP-445.001) since it was determined that greater than expected valve packing frictional forces caused the stroke issue and the valve had been

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repacked using the procedure during the refueling outage. (CR reopened to address comment)

- The CR did not address actions to update the Valve Packing Manual with the new packing gland torque values that were calculated as a result of the original problem and formed the basis for the packing relaxation from 20 to 17 foot-pounds. The inspectors reviewed the Valve Packing Manual which still had 20 versus 17 foot-pounds for the 'A' MSIV. In addition, the inspectors noted that there were missing torque values for the 'B' and 'C' MSIVs. (New CR-09-03805 was initiated to address this item)

#### 4OA5 Other Activities

##### .1 Quarterly Resident Inspector Observations of Security Personnel and Activities

###### a. 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 of significance were identified.

##### .2 (Closed) NRC Temporary Instruction (TI) 2515/173 Review of the Implementation of the Industry Ground Water Protection Voluntary Initiative

###### a. Inspection Scope

The inspectors reviewed elements of the licensee's environmental monitoring program to evaluate compliance with the voluntary Groundwater Protection Initiative (GPI) as described in Nuclear Energy Institute (NEI) 07-07, Industry Ground Water Protection Initiative – Final Guidance Document, August 2007 (ADAMS Accession Number ML072610036). Inspectors interviewed personnel, performed walk-downs of selected areas, and reviewed the following items:

- Records of the site characterization of geology and hydrology
- Evaluations of systems, structures, and or components that contain or could contain licensed material and evaluations of work practices that involved licensed material for which there is a credible mechanism for the licensed material to reach the groundwater

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- Implementation of an onsite groundwater monitoring program to monitor for potential licensed radioactive leakage into groundwater
- Procedures for the decision making process for potential remediation of leaks and spills, including consideration of the long term decommissioning impacts
- Records of leaks and spills recorded, if any, in the licensee's decommissioning files in accordance with 10 CFR 50.75(g)
- Licensee briefings of local and state officials on the licensee's groundwater protection initiative
- Protocols for notification to the local and state officials, and to the NRC regarding detection of leaks and spills
- Protocols and/or procedures for thirty-day reports if an onsite groundwater sample exceeds the criteria in the radiological environmental monitoring program
- Groundwater monitoring results as reported in the annual effluent and/or environmental monitoring report
- Licensee and industry assessments of implementation of the groundwater protection initiative. (Note the NEI audit of GPI implementation was in-progress at the time of the inspection but unavailable for NRC review).

b. Findings

No findings of significance were identified.

There were no outstanding issues with the licensee's implementation of NEI 07-07. This completes the Region II inspection requirements.

.3 World Association of Nuclear Operators (WANO) Biennial Plant Evaluation - Interim Report Review

The inspectors reviewed the June 23, 2009, interim report of the World Association of Nuclear Operators (WANO) biennial evaluation of site activities conducted April – May 2009. The inspectors reviewed the report to ensure that issues identified were consistent with the NRC perspectives of licensee performance and if any significant safety issues were identified that needed further NRC follow-up. No findings of significance were identified.

4OA6 Meetings, Including Exit

Exit Meeting Summary

On August 21, 2009, and October 9, 2009, the inspectors discussed results of the onsite radiation protection inspections with Mr. Jeffrey Archie and other responsible staff. The inspectors noted that no proprietary information was reviewed during the course of the inspection.

The inspectors presented the integrated inspection results to Mr. Jeffrey Archie and other members of the licensee staff on October 13, 2009. The licensee acknowledged the results of these inspections. The inspectors confirmed that inspection activities discussed in this report did not contain proprietary material.

ATTACHMENT: SUPPLEMENTAL INFORMATION

Enclosure

## **SUPPLEMENTAL INFORMATION**

### **KEY POINTS OF CONTACT**

#### **Licensee Personnel**

J. Archie, Vice President, Nuclear Operations  
L. Bennett, Manager, Plant Support Engineering  
L. Blue, Manager, Nuclear Training  
M. Browne, Manager, Quality Systems  
M. Coleman, Supervisor Radiation Protection  
A. Cribb, Supervisor, Nuclear Licensing  
G. Douglass, Manager, Nuclear Protection Services  
T. Ellison, HP Supervisor-Instruments  
M. Fowlkes, General Manager, Engineering Services  
D. Gatlin, General Manager, Nuclear Plant Operations  
G. Gowdy, Plant Health Physicist  
R. Haselden, Manager OD&P  
M. Jordan, HP Supervisor- Rad Waste  
R. Justice, Manager, Maintenance Services  
D. Lavigne, General Manager, Organizational / Development Effectiveness  
G. Lippard, Manager, Operations  
M. Mosley, Manager, Chemistry Services  
P. Mothena, Manager, Health Physics and Safety Services  
J. Nesbitt, Manager, Materials and Procurement  
M. Roberts, HP Supervisor -Count Room  
D. Shue, Manager, Planning / Outage  
W. Stuart, Manager, Design Engineering  
B. Thompson, Manager, Nuclear Licensing  
R. Williamson, Manager, Emergency Planning  
S. Zarandi, General Manager, Nuclear Support Services

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

#### **Opened**

None

#### **Closed**

05000395/2515/173	TI	Review of the Implementation of the Industry Ground Water Protection Voluntary Initiative (Section 4OA5.2)
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#### **Discussed**

None

Attachment

## LIST OF DOCUMENTS REVIEWED

### **Section 1R01: Adverse Weather Protection**

#### **Procedures and Documents**

AOP-301.1, Revision 0B, Response to Electrical Grid issues  
EOP-6.0, Revision 22, Loss of All ESF AC Power  
OAP-100.4, Revision 2D, Communication  
OAP-102.1, Revision 6G, Conduct of Operations Scheduling Unit  
SAP-703, Revision 1B, Control of Switchyard/Transformer Yard Activities  
SOP-301, Revision 13E, Main Generator System  
SOP-304, Revision 12, 115KV/7.2KV Operations  
SO 08-10, Revision 0, Economic Restrictions  
South Carolina Electric and Gas Company Nuclear-Electric Transmission Interface Agreement, Revision 1, dated January 29, 2008  
Virgil C. Summer Nuclear Power Station AAC Power Source Interface Agreement, dated August 8, 2008

### **Section 1R04: Partial Equipment Alignment**

#### **Procedures and Drawings**

E-302-691, Revision 13, Safety Injection  
E-302-693, Revision 21, Safety Injection  
E-302-641, Revision 19, Residual Heat Removal  
SOP-115, Revision 20C, Residual Heat Removal  
SOP-117, Revision 20L, Service Water System

### **Section 2OS3: Radiation Monitoring Instrumentation and Protective Equipment**

#### **Procedures, Guidance Documents and Manuals**

UFSAR Chapter 12, Radiation Protection  
HPP-163, Qualification Process for the Use of Respiratory Protection Equipment, Rev. 10  
HPP-6-2, Fit Testing, Rev. 14  
HPP-0520, Set-Up, Calibration, and Generation of Quality Control Bands for the Stand-Up Whole Body Counter, Rev. 7  
HPP-0521, Daily Quality Control And Whole Body Counting With The ND People Mover Whole Body Counter, Revision 7  
ICP-360.014, Reactor Coolant Liquid Radiation Monitor RML0001 Calibration for both High and Low Ranges. Rev.5  
STP-360.001, Fuel Handling Building Bridge Area Radiation Monitor (RMG0008) Calibration, Rev.7  
STP-360.005, Reactor Building Area Radiation Monitor RMG0007, Calibration Rev. 6  
STP-360.007, Reactor Building Area Radiation Monitor RMG0018, Calibration, Rev. 9  
STP-360.031, Control Room Supply Air Atmospheric Radiation Monitor RMA0001 Calibration, Rev. 9

#### **Records and Data Reviewed**

Calibration Certificates, ASP-2e, SN 667, Dated 2/9/09, 8/29/09  
Calibration Certificates, RO-2, SN 3137, Dated 10/15/08, 4/2/09  
Calibration Certificates, RO-20, SN 0193, Dated 10/8/08, 4/2/09  
Calibration Certificates, Telepole, SN 6699-030, Dated 1/23/09, 7/23/09  
Calibration Certificates, Teletector, SN 41760, Dated 10/31/08, 5/20/09



PM-7 Calibration Report, SN 264, Dated 1/13/09, 7/8/09  
 RTM860TS Portal Monitor Calibration Certificate, SN 835, Dated 10/1/08, 4/1/09  
 Work Order 0716191-001, Loop Calibration of RMA0001, 2/12/08  
 Work Order 0904995-001, Loop Calibration of RMA0001, 8/20/09  
 Work Order 0714624-001, Loop Calibration of RMG0008, 11/16/07  
 Work Order 0903170-001, Loop Calibration of RMG0008, 8/12/08  
 Preventative Task Sheet, Calibration of RML0001, 7/6/06  
 Whole Body Counter Calibration ND People Mover Stand- Up Counter, 5/15/09  
 Whole Body Counter Cross Checks 1<sup>st</sup> and 3<sup>rd</sup> quarters 2007 and 1<sup>st</sup> quarter 2008  
 Individual SCBA Training qualifications for 13 personnel  
 Manufactures certification to repair Scott SCBA equipment for 3 individuals  
 Manufactures certification to repair MSA SCBA equipment for 2 individuals (3<sup>rd</sup> person had not yet received her certificate)  
 Lesson Plan: GET-05-01-09, General Employee Training Radiological Respiratory Protection Training Handout, Rev. 7  
 Lesson Plan: PRAC-SCBA Self Contained Breathing Apparatus Practical, Rev. 0

#### Corrective Action Program (CAP) Documents

CR 08-01469, CENTS cannot calculate the appropriate DAC-hour value.  
 CR 08-01965, Worker identified that his ED was not working upon exiting reactor building.  
 CR 08-02020, Electronic dosimeter malfunction while individual tried to log in at the RCA access  
 CR 08-02450, XFL-0009 RCS filter was changed out on high dose rate due to inaccurate dose rates presented by a faulty AMP-100  
 CR 09-02096, An airborne radiation area was created while performing decon activities in the Decon Tent. The decon of tools and equipment resulted in an air sample >0.25 DAC. Inspector performed additional followup on this event.  
 CR 09-02307, ED malfunctioned while logging into the RCA. While logging in the worker received both a dose and dose rate alarm.  
 CR 09-03519 Some historical HP instrument calibration records cannot be retrieved from the plant records system. All current records are retrievable.

#### **Section: 2PS1 Radioactive Gases and Liquid Effluent Treatment and Monitoring Systems**

##### Procedures, Guidance Documents, and Manuals

HPP-709, Sampling and Release of Radioactive Gaseous Effluents, Rev. 11  
 HPP-710, Sampling and Release of Radioactive Liquid Effluents, Rev. 11  
 HPP-808, Sample Analysis, Rev.13  
 HPP-818, Operation, Calibration and QC of the LS-6500 Liquid Scintillation Counter, Rev. 7  
 HPP-827, Setup, Calibration, Quality Control, and Operation Of Germanium Detector Spectroscopy Systems, Rev. 3  
 HPP-831, Operation of the PIC WPC-9550 Alpha/Beta Counter, Rev. 0  
 STP-360.035, Main Plant Exhaust Atmospheric Radiation Monitor RMA0003 Calibration, Rev. 8  
 STP-360.037, Reactor Building Purge Atmospheric Radiation Monitor RMA0004 Calibration, Rev. 8  
 STP-360.039, Fuel Handling Building Exhaust Atmospheric Radiation Monitor RMA0006 Calibration, Rev. 7  
 STP-360.063, Liquid Waste Effluent Liquid Radiation Monitor RML0005 Calibration, Rev. 7  
 STP-360.067, Turbine Room Sump Liquid Radiation Monitor (RML0008) Calibration, Rev. 8

STP-454.003, Auxiliary Building HEPA Exhaust Plenum Filter Test, Rev. 4

STP-454.004, Auxiliary Building Exhaust HEPA and HECA Filter Test Plenums, Rev. 3

#### Records and Data Reviewed

Annual Effluent Radioactive Release Report for the Operating Period 1/1/07- 12/31/07, April 2008

Annual Effluent Radioactive Release Report for the Operating Period 1/1/08- 12/31/08, April 2009

Main Plant Vent Gaseous Effluent Permit 90048.011.045.G, Effective 8/28/09

Liquid Waste Release Permit 09-094 Waste Monitor Tank 'B', 8/28/09

Reactor Building Purge Permit, CP-09-02, 3/29/09

Work Order 0716626-001, Loop Calibration RMA0003, 1/14/08

Work Order 0906005-001, Loop Calibration RMA0003, 7/28/09

Work Order 0710679-001, Loop Calibration RMA0004, 9/20/07

Work Order 0900058-001, Loop Calibration RMA0004, 3/17/09

Work Order 0714627-001, Loop Calibration RML0005, 2/26/08

Work Order 0903172-001, Loop Calibration RML0005, 4/29/09

Work Order 0805059-001, Loop Calibration RMA0006, 8/19/08

Work Order 0714629-001, Loop Calibration RML0008, 1/16/08

Work Order 0903174-001, Loop Calibration RML0008, 7/27/09

Results of Radiochemistry Crosscheck Program, 1st and 3<sup>rd</sup> quarter 2007, 1<sup>st</sup>, 2<sup>nd</sup>, and 3<sup>rd</sup> quarter 2008 and 1<sup>st</sup> quarter 2009

Record of Actions Required for Inoperable Tech Spec Radiation Monitors RM-A2, 3/31/08, 10/16/08, and 1/14/09

Record of Actions Required for Inoperable Tech Spec Radiation Monitors RM-A3, 1/1/08, 10/31/08, and 3/17/09

Record of Actions Required for Inoperable Tech Spec Radiation Monitors RM-A6, 4/16/09

Record of Actions Required for Inoperable Tech Spec Radiation Monitors RM-A13, 7/7/08

Record of Actions Required for Inoperable Tech Spec Radiation Monitors RM-G8, 11/16/07, 2/3/08, 11/18/08, and 3/7/09

Record of Actions Required for Inoperable Tech Spec Radiation Monitors RM-G19A, 6/23/08

Record of Actions Required for Inoperable Tech Spec Radiation Monitors RM-G19C, 8/2 through 10/2/08

10CFR61 Analysis of DAW 2008, 12/14/08

#### CAP Documents

CR 07-00597 Waste Monitor Tanks Had Higher Activity Than Expected

CR 08-00216 Unexpected groundwater sample result at new construction location

CR 08-2194 Yellow glove found on road

CR 09-00646 Disparity in Alpha Analysis between Vendor Analytical Laboratory and Vendor Cross Check Laboratory

CR 09-03472 Vendor returned DAW bags that had hexavalent chromium danger tags

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

##### Procedures and Guidance Documents

Offsite Dose Calculation Manual for V.C. Summer Station, Rev. 26

HPP-202, Interlaboratory Intercomparison Program, Rev. 2  
 HPP-801, Counting Statistics and QC Testing for Health Physics Counting Systems, Rev. 8  
 HPP-1000, Conduct of Environmental, Rev. 7  
 HPP-1011, Annual Census, Rev.3  
 HPP-1012, Radiological Analytical Services Intracomparison Program, Rev.2  
 HPP-1020, Environmental Sample Collection, Rev. 4  
 HPP-1021, Environmental Sample Preparation, Rev. 2  
 HPP-1022, Environmental Sampling and Analytical Requirements, Rev. 5  
 HPP-1051, Environmental Air Sample Calibration and Maintenance, Rev.4  
 HPP-1052, Setup, Operation and Maintenance of the ISCO 3700 and 3710 Portable Water Sample, Rev. 3  
 HPP-1060, Meteorological Data Checks, Verification and Correction, Rev. 5  
 STP-393.005, Met Tower Instrumentation Calibration, Rev. 2

#### Records and Data Reviewed

V.C. Summer Station Annual Radiological Environmental Operating Report 2007  
 V.C. Summer Station Annual Radiological Environmental Operating Report 2008  
 SA-08-HP-05S, Ground Water Protection Initiative, 12/8-15/2008  
 Terracon Consultants, Inc., Hydrogeologic Summary: V.C. Summer Nuclear Station, 3/26/07  
 2007 Land Use Census, 3/17/08  
 2008 Land Use Census, 3/25/09

#### CAP Documents

09-02930, Combined Waste Water Flow Meter OOS  
 09-02144, Environmental Air Sampler Inoperable (#30)  
 09-00547, Environmental Grass Sample Unavailable (#2)  
 09-01014, Environmental Air Sample Motor Failure (#17)  
 09-00054, Unable to Collect Environmental Ground Water Sample (#107)  
 09-01277, Unable to Collect Environmental Ground Water Sample (#107)  
 09-00803, Unable to Collect Environmental Ground Water Sample (#15)  
 09-02007, Unable to Collect Environmental Ground Water Sample (#15)  
 09-00583, Tritium Intercomparison between site and environmental labs  
 09-00077, Environmental Drinking Water Sample Missed (#39)  
 09-01451, Environmental TLD Missing (#30)  
 09-02764, Environmental TLD Missing (#44)

#### **40A1: Performance Indicator (PI) Verification**

##### Documents Reviewed

Summary List of Condition Reports from 1/1/2007 to 8/28/2009  
 Main Plant Vent Gaseous Effluent Permit 90048.011.045.G, Effective 8/28/09  
 Liquid Waste Release Permit 09-094 Waste Monitor Tank 'B', 8/28/09

#### **Condition Reports Initiated for NRC Identified Issues**

CR-09-02910, Diesel driven fire pump post maintenance testing performance weaknesses  
 CR-09-02914, Oil residue found on 'A' service water pump exhaust outlet  
 CR-09-02966, Indicating spring on actuator, XDP-21A, found broken

CR-09-02986, Filenet for Technical Specification 3/4.7.6 on control room ventilation found incomplete

CR-09-03024, Failure to write condition report for valve IPV-2231-20A-EX tubing error

CR-09-03306, Fire brigade drill performance weaknesses

CR-09-03318, 'A' EDG room scaffold construction did not meet all procedural requirements

CR-09-03329, Licensee review of MSIV preconditioning of MSIV Inservice testing due to routine outage maintenance conducted each Refueling Outage

CR-09-03331, Tubing of new 'A' EDG crankcase pressurizer switch installed with contact on return line

CR-09-03360, Security to review unescorted access to Central and Secondary Alarm Stations

CR-09-03479, Excess debris/trash in switchyard substation relay building ventilation room

CR-09-03525, Fire service supply header check valve (XVC03120B-SW) failed back leakage test to 'B' EDG

CR-09-03580, Plant support engineering evaluation not identified in civil maintenance procedure (CMP)-700.013

CR-09-03671, Issues noted with abnormal condition/completion action tracking in operations

CR-09-03805, Valve Packing Manual incorrect values for MSIVs

## LIST OF ACRONYMS

AB	Auxiliary Building
AC	Alternating-Current
ADAMS	Agency Document Access and Management System
ANSI	American National Standards Institute
ARM	Area Radiation Monitor
BAR	Bypass Authorization Request
CAM	Continuous Air Monitor
CAP	Corrective Action Program
CCP	Centrifugal Charging Pump
CCW	Component Cooling Water
CFR	Code of Federal Regulations
CR	Condition Report
DAW	Dry Active Waste
DG	Diesel Generator
EDG	Emergency Diesel Generator
ES	Engineering Services Procedure
FSAR	Final Safety Analysis Report
GPI	Groundwater Protection Initiative
GTP	General Test Procedure
IB	Intermediate Building
INPO	Institute of Nuclear Power Operations
IP	Inspection Procedure
IR	Inspection Report
LER	Licensee Event Report
MPFF	Maintenance Preventable Functional Failure
MR	Maintenance Rule
MSPI	Mitigating Systems Performance Index
MSIV	Main Steam Isolation Valve
NEI	Nuclear Energy Institute
NRC	Nuclear Regulatory Commission
NUREG	NRC Technical Report Designation
ODCM	Offsite Dose Calculation Manual
OOS	Out of Service
OS	Occupational Radiation Safety
PARS	Publicly Available Records
PCM	Personnel Contamination Monitor
PI	Performance Indicator
PM	Portal Monitor
PMT	Post-Maintenance Testing
PS	Public Radiation Safety
RCA	Radiation Control Area
REMP	Radiological Environmental Monitoring Program
RG	Regulatory Guide
RHR	Residual Heat Removal
RM	Radiation Monitor
RTP	Rated Thermal Power
SAP	Station Administrative Procedure
SCBA	Self-Contained Breathing Apparatus
SCE&G	South Carolina Electric and Gas
SDP	Significance Determination Process
SOP	System Operating Procedure

SSC	Structures, Systems, and Components
STP	Surveillance Test Procedure
SW	Service Water
SWPH	Service Water Pump House
TDEFW	Turbine Driven Emergency Feedwater
TI	Temporary Instruction
TS	Technical Specification
WANO	World Association of Nuclear Operators
WO	Work Order