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

March 9, 2006

EA-06-046

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

SUBJECT: VIRGIL C. SUMMER NUCLEAR STATION - NRC INSPECTION REPORT 05000395/2006009; PRELIMINARY WHITE FINDING

Dear Mr. Archie:

On March 1, 2006, the United States Nuclear Regulatory Commission (NRC) completed an inspection at your Virgil C. Summer Nuclear Station. The enclosed inspection report documents an inspection finding, which was discussed on March 6, 2006, with Mr. Ken Nettles and other members of your staff.

The inspectors 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 preliminary finding of low to moderate safety significance (White) was identified. As described in Section 2PS2 of the enclosed inspection report, V.C. Summer Nuclear Station failed to properly prepare a shipment of radioactive material such that, under conditions normally incident to transportation, the radiation levels on the external surfaces of the package would not exceed applicable regulatory requirements. When the shipment of radioactive material arrived at the waste processing facility on May 27, 2005, the radiation dose rates measured on the external surfaces of the package were as high as 600 millirem per hour (mR/hr). This exceeded the Department of Transportation (DOT) limit of 200 mR/hr which is specified in 49 CFR 173.441(a). NRC licensees are required by 10 CFR 71.5 to comply with DOT regulations in 49 CFR Parts 171 through 189 for transportation of licensed material outside site boundaries.

This finding was assessed using the Public Radiation Safety Significance Determination Process (SDP) and was preliminarily determined to be of low to moderate safety significance. This preliminary determination was based on our assessment that the radiation dose rates on the external surface of the package, which was accessible to members of the public, exceeded the applicable DOT regulatory requirements but were less than five times the regulatory limit. Additional details associated with this determination are discussed in Section 2PS2 of the enclosed inspection report.

Your staff took immediate corrective measures to evaluate this condition and initiated actions to preclude recurrence. These actions included initiating an apparent cause evaluation, dispatching personnel to the vendor facility to inspect the container, quarantining and evaluating the radiation survey instruments used to survey this particular shipment, validating the calibration of both the instruments used to ship the package, and obtaining calibration documentation on those used by the waste processing vendor.

An apparent violation (AV) of 10 CFR 71.5, Transportation of Licensed Material, was identified regarding this finding and is designated as AV0500395/2006009-01, Failure to Properly Prepare a Radioactive Material Package for Shipment. This apparent violation is being considered for escalated enforcement action in accordance with the NRC Enforcement Policy. The current Enforcement Policy is included on the NRC's website at http://www.nrc.gov/what-we-do/regulatory/enforcement/enforce-pol.html.

Before we make a final decision on this matter, we are providing you an opportunity to (1) present to the NRC your perspectives on the facts and assumptions, used by the NRC to arrive at the finding and its significance, at a Regulatory Conference or (2) submit your position on the finding to the NRC in writing. If you request a Regulatory Conference, it should be held within 30 days of the receipt of this letter and we encourage you to submit supporting documentation at least one week prior to the conference in an effort to make the conference more efficient and effective. If a Regulatory Conference is held, it will be open for public observation and the NRC will issue a press release to announce the conference. If you decide to submit only a written response, such submittal should be sent to the NRC within 30 days of the receipt of this letter.

Please contact Mr. Robert Haag, Chief, Plant Support Branch 1, Division of Reactor Safety, at 404-562-4607, within 10 business days of the date of receipt of this letter to notify the NRC of your intentions. If we have not heard from you within 10 days, we will continue with our significance determination and enforcement decision and you will be advised by separate correspondence of the results of our deliberations on this matter.

Since the NRC has not made a final determination in this matter, a Notice of Violation is not being issued for this inspection finding at this time. In addition, please be advised that the number and characterization of the apparent violation described in the enclosed inspection report may change as a result of further NRC review.

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

If you have any questions regarding this letter, please contact me at (404) 562-4600.

Sincerely,

/RA: Original signed H. Christensen for/

Victor M. McCree, Director
Division of Reactor Safety

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

Enclosure: NRC Inspection Report 05000395/2006009
w/Attachment: Supplemental Information

cc w/encl:
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C. Evans (Part 72 Only)
L. Slack, RII EICS
RIDSNRRDIPMLIPB
PUBLIC
OEMail
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: PUBLICLY AVAILABLE ☐ NON-PUBLICLY AVAILABLE ☐ SENSITIVE : NON-SENSITIVE

ADAMS: : Yes ACCESSION NUMBER:_____

OFFICE	RII:DRS	RII:DRS	RII:DRS	RII:DRS	RII:DRP	RII:EICS	
SIGNATURE	***RA***	***RA***	***RA***	***RA***	***RA***	***RA***	
NAME	Wloo	HGepford	RHamilton	RHaag	KLandis	SSparks	
DATE	03/7/2006	03/7/2006	03/6/2006	03/7/2006	03/7/2006	03/7/2006	
E-MAIL COPY?	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO

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U. S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket No.:	50-395
License No.:	NPF-12
Report No.:	05000395/2006009
Licensee:	South Carolina Electric & Gas (SCE&G) Company
Facility:	Virgil C. Summer Nuclear Station
Location:	P. O. Box 88 Jenkinsville, South Carolina 29065
Dates:	January 9, 2006 - March 1, 2006
Inspectors:	Ruben Hamilton, Senior Health Physicist Wade Loo, Senior Health Physicist Heather Gepford, Health Physicist
Approved by:	Robert C. Haag, Chief Plant Support Branch 1 Division of Reactor Safety

Enclosure

SUMMARY OF FINDINGS

IR 05000395/2006009; 1/9/2006 - 3/1/2006; Virgil C. Summer Nuclear Station; Radioactive Material Processing and Transportation

The report covered a one week onsite inspection and subsequent in-office followup inspection by two regional senior health physicists and a health physicist. The inspection identified a preliminary white finding, which is an apparent violation. The significance of most findings is indicated by their color (green, white, yellow, or red) using IMC 0609, "Significance Determination Process," (SDP). Findings for which the SDP does not apply may be "green" or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, " Reactor Oversight Process," Revision 3, dated July 2000.

A. NRC-Identified and Self Revealing Findings

Cornerstone: Public Radiation Safety

- Preliminary White. The inspectors identified an apparent self-revealing finding of low to moderate safety significance. The licensee failed to prepare a shipment of radioactive material to a waste processing facility in a manner such that, under conditions normally incident to transportation, the radiation level at any point on the external surface of the package would not exceed 200 millirem per hour (mR/hr), as specified by the Department of Transportation (DOT) Regulation 49 CFR 173.441(a). When the shipment arrived at the processing facility on May 27, 2005, the radiation dose rates, measured on portions of the external surface of the package, were as high as 600 mR/hr, which is in excess of the limits specified by the regulatory requirement.

  The failure to properly prepare the shipment in a manner to assure conformance with the requirements of 49 CFR 173.441(a) was determined to have low to moderate safety significance, using the Public Radiation Safety Significance Determination Process. The finding involved the transportation of radioactive material in which the external radiation that was accessible to members of the public exceeded DOT limits but was less than five times the regulatory limit (Section 2PS2).

B. Licensee Identified Violations

None.

Report Details

2. RADIATION SAFETY

Cornerstones: Occupational and Public Radiation Safety

2OS3 Radiation Monitoring Instrumentation and Protective Equipment

a. Inspection Scope

Area Radiation Monitoring Systems The operability, availability, and reliability of selected direct area radiation monitors (ARM) and continuous air monitoring equipment used for routine and accident monitoring activities were reviewed and evaluated. The inspectors directly observed selected ARM equipment material condition, installed configurations, and the conduct of and/or results of performance checks for those selected monitors. Procedurally established alarm set-points were corroborated and performance check details were reviewed for selected ARM equipment through discussions and direct observation of Control Room instrumentation panel operations, settings, and monitor response readouts. Current calibration data for selected radiation monitoring equipment listed in Section 2OS3 of the report attachment were reviewed and discussed with cognizant licensee representatives.

Program guidance, performance activities, and equipment material condition for the direct radiation detection instrumentation and continuous air sampling equipment were reviewed against details documented in Technical Specification (TS) 3/4.3.3, 10 CFR Parts 20 and 50, Updated Final Safety Analysis Report (UFSAR) Section 11, and associated procedures. Licensee guidance documents, records, and data reviewed within this inspection area are listed in Section 2OS3 of the report Attachment.

Personnel Survey Instrumentation Current program guidance, including calibration and operation procedures, and its implementation to maintain operability and accuracy of selected portable survey instruments were reviewed and evaluated. The inspectors reviewed current calibration data for selected personnel survey instruments and assessed operability of various portable survey instruments staged or in use by the Health Physics staff. The inspectors observed the calibrations of a W. B. Johnson and Associates Extender 2000W survey meter, Dosimeter Corporation of America area monitor, Eberline RM-14, self-reading pocket dosimeters and electronic dosimeters. The observations included daily source checks for friskers, Personnel Contamination Monitors (PCMs) located in various areas of the facility and comparison of the results to specified tolerances. Responsible staff's knowledge and proficiency regarding portable survey instrumentation calibration activities were evaluated through observation, interviews, and records review. The accuracy and operability determinations for instrumentation used to perform surveys in high radiation or greater areas were assessed.

Operability and analysis capabilities of the whole body counting (WBC) equipment for monitoring internally deposited radionuclides and PCM and Portal Monitoring (PM) equipment utilized for surveys of individuals exiting the radiologically controlled area and protected area were evaluated. For both PCM and PM equipment, the inspectors examined current calibrations and selected performance check data, and directly observed demonstrations of PCM and PM daily source checks. The sensitivity of PCM

equipment and alarm set points were evaluated. The WBC library, calibrations, daily source checks and cross-check analysis results were reviewed by the inspectors and discussed with cognizant licensee personnel.

Licensee activities associated with personnel radiation monitoring instrumentation were reviewed against UFSAR Section 12, 10 CFR 20.1204 and 20.1501, and applicable licensee procedures listed in Section 2OS3 in the report Attachment.

Respiratory Protection - Self-Contained Breathing Apparatus (SCBA) The licensee's respiratory protection program guidance and implementation for SCBA equipment were evaluated. The number of staged SCBA units, including spare bottles, and their general material and operating condition were observed during tours of the Control Room, the Technical Support Center, the Auxiliary Building and the 412' Control Building hallway. The inspectors reviewed and evaluated current records associated with supplied air quality and maintenance of staged SCBA equipment. Proficiency and knowledge of staff responsible for maintaining SCBA equipment were evaluated through discussions and demonstration of an SCBA monthly functional test on selected units. The inspectors reviewed records and evaluated status of medical qualification determinations, fit test results, and training status for SCBA qualified individuals. In addition, the inspectors observed SCBA training for selected security staff. Also, the licensee's capability for refilling and transporting air bottles to and from the control room during emergency situations was discussed with cognizant licensee personnel.

Licensee activities associated with maintenance and use of SCBA equipment were reviewed against 10 CFR Part 20.1703; UFSAR Section 12; RG 8.15, Acceptable Programs for Respiratory Protection, Revision (Rev.) 1; ANSI-Z88.2-1992, American National Standard Practices for Respiratory Protection; and applicable procedures as listed in Section 2OS3 of the report Attachment.

Problem Identification and Resolution The inspectors reviewed internal assessments of radiation protection (RP) activities, focusing on findings related to radiation monitoring instrumentation and protective equipment. Selected licensee Condition Evaluation Reports (CER) associated with area radiation monitoring equipment, portable radiation detection instrumentation, and respiratory protective program activities 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-1131, "Corrective Action Program," Rev. 4. Specific corrective action program documents reviewed and evaluated are listed in Section 2OS3 of the report Attachment.

The inspectors completed 9 of the required 9 samples for Inspection Procedure (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) processing and effluent systems were assessed for material condition and conformance with system design diagrams. The inspection included floor drain tanks, recycle holdup tanks, waste holdup tanks, laundry and hot shower tank, liquid waste system pumps, valves, and piping, radwaste demineralizer, Liquid Waste Effluent Monitors (RM-L5 and RM-L9), waste gas decay tanks (WGT), Main Plant Vent Exhaust Monitor (RM-A3), Reactor Building Purge Exhaust Monitor (RM-A4), Waste Gas Discharge Monitor (RM-A10), and associated airborne effluent sample lines. The waste evaporator and boron recycle evaporator equipment was also observed. The inspectors interviewed chemistry supervision and operations personnel 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 monitors RM-L5, RM-L9, RM-A3, RM-A4, and RM-A10, the inspectors reviewed the two most recent calibration records. The inspectors also observed operator performance of an operability test on RM-L9. The last two surveillances on the "A" and "B" Train Control Room Ventilation systems and the AB Exhaust air filtration and treatment system were also reviewed. Performance of the systems was reviewed and discussed with maintenance department personnel.

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; ANSI - N13.1-1969, Guide to Sampling Airborne Radioactive Materials in Nuclear Facilities; TS Section 5; the Offsite Dose Calculation Manual (ODCM), Rev. 21; and UFSAR, Chapter 11. Procedures and records reviewed during the inspection are listed in Section 2PS1 of the report Attachment.

Effluent Release Processing and Quality Control (QC) Activities The inspectors directly observed the collection of waste gas samples from WGT-A, liquid effluent samples from waste monitor tank A, and service water effluent composite samples. Chemistry technician proficiency in collecting, processing, and counting the samples, as well as preparing the applicable release permits was evaluated.

QC activities regarding gamma spectroscopy were discussed with count room technicians and chemistry supervision. The inspectors reviewed daily QC data logs from January 1 - 10, 2006, for High Purity Germanium (HPGe) detectors Nos. 1, 2, 3, 4, and 5, and reviewed licensee procedural guidance for count room QC activities. The inspectors also reviewed calibration records for HPGe detectors, including various counting geometries. In addition, results of the radiochemistry cross-check program for

1st quarter 2004 through 1st quarter 2005 were reviewed and discussed with cognizant licensee individuals.

Selected parts of three procedures for effluent sampling, processing, and release were evaluated for consistency with licensee actions. Four liquid and three gaseous release permits were reviewed against ODCM specifications for pre-release sampling and effluent monitor setpoints. For one of the liquid releases, the inspectors observed performance of the release including pre-release sampling and analysis, release permit generation, radiation monitor setpoint adjustment, release initiation, and release permit closure. The inspectors also reviewed the 2004 Annual Effluent Report to evaluate reported doses to the public and to review ODCM changes. Public dose calculations were reviewed and discussed with cognizant licensee personnel. In addition, the validation and verification of the dose calculation software was 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; RG 1.33, Quality Assurance Program Requirements (Operation); and TS Section 5. Procedures and records reviewed during the inspection are listed in Section 2PS1 of the report Attachment.

Problem Identification and Resolution **Five CERs and two self-assessments 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-1131, "Corrective Action Program," Rev. 4. **Reviewed documents are listed in Section 2PS1 of the report Attachment.**

The inspectors completed 10 of 10 required samples for Inspection Procedure 71122.01.

b. Findings

No findings of significance were identified.

2PS2 Radioactive Material Processing and Transportation

a. Inspection Scope

The inspectors reviewed the details of a shipment of radioactive materials that was made on May 26, 2005, (Shipment No.05-061) from V. C. Summer Nuclear Station to a waste processing vendor facility in Oak Ridge, Tennessee. The review included examination of the licensee actions in the preparation of the shipment and followup actions after the licensee was informed that dose measurements on the external surfaces of the shipping package taken upon arrival at the vendor facility exceeded regulatory limits. The documents reviewed are listed in Section 2PS2 of the attachment to this report.

The inspectors performed one of six required samples for Inspection Procedure 71122.02.

b. Findings

Introduction. The inspectors reviewed a self-revealing finding for a shipment of radioactive material that exceeded the regulatory dose limits upon arrival at the waste processing facility. An apparent violation of 10 CFR 71.5, "Transportation of Licensed Materials," was identified for the licensee's failure to properly package the material such that, under conditions normally incident to transportation, the radiation levels the external surface of the package would not exceed applicable Department of Transportation (DOT) limits.

Description. On May 26, 2005, the licensee shipped a container (package) of radioactive waste materials from its V. C. Summer facility to a vendor facility in Oak Ridge, Tennessee for processing. The shipment (05-061) consisted of non-compacted bags of radioactive waste, and was shipped as exclusive use, low specific activity. The total activity was 1.88 curies of solid/metal mixed oxides. The licensee's radiation survey performed prior to shipping indicated that the maximum radiation level on any external surface of the package was 100 mR/hr. When the shipment arrived at the vendor's facility on May 27, 2005, a receipt radiation survey performed by the vendor indicated that contact radiation dose rates on an external surface of the package exceeded 200 mR/hr. The vendor surveyed the area with two independent radiation survey instruments having a maximum range of only 200 mR/hr; and both indicated off-scale readings, i.e., radiation dose rates greater than 200 mR/hr on contact. The vendor then surveyed the area with an extensible Geiger Muller (GM) radiation survey meter and found a radiation contact dose rate of 600 mR/hr. This dose measurement was only at one small location on an external vertical surface of the package approximately ten feet off the ground. The vendor obtained a one inch dose rate of 130 mR/hr using an ion chamber instrument that is appropriate for cases where the radiation source is equal to or larger than the detector size. All of the instruments used by the vendor were within their calibration due dates. The vendor informed the licensee of this condition on May 27, 2005.

On June 6, 2005, a representative from V.C. Summer performed confirmatory surveys on the shipment using two independent extensible GM survey meters and obtained contact dose rates of 350 and 400 mR/hr. The 350 mR/hr reading was taken with the same instrument that was used for the pre-shipping radiation survey. The source of the elevated dose rate was determined to be a particle that was visually estimated to be 2 millimeters across. The particle was in a bag that had been loaded near the container side wall. A contact dose measurement of 1,000 mR/hr was taken on the actual particle. The inspectors performed dose calculations using the amount of activity for the particle. Based on the assumption that the particle was near the inner wall of the package, the calculation indicated that the measured dose rate (600 mR/hr) was accurate. While the cause of the difference between the vendor's measurement (600 mR/hr) and the licensee's measurement (350 and 400 mR/hr) could not be explained with certainty, the inspectors noted possible movement of the particle from May 27 to June 6, 2005 could have affected the dose measurements. Based on the small particle

size and relative strong activity level, a small change in distance to the instrument can have a large impact on dose measurements.

Analysis. The licensee's failure to ensure radiation levels did not exceed applicable DOT dose rate limits under conditions normally incident to transportation is a performance deficiency because compliance with the requirement was reasonable and within the licensee's ability to achieve. This finding is more than minor because it is associated with the Plant Facilities/Equipment and Instrumentation attribute of the Public Radiation Safety cornerstone and it affected the cornerstone objective in that the improper transportation packaging resulted in a shipping container with external dose levels exceeding regulatory requirements. The significance of this finding was evaluated using the flowchart in IMC 0609, Appendix D, Public Radiation Safety Significance Determination Process, page D-14. The finding was preliminarily determined to have low to moderate safety significance (White) based on the shipping container being transported on public roads, therefore, falling under DOT regulations, DOT radiation limits being exceeded, the portion of the container with elevated radiation levels was accessible to the public, and the radiation levels were less than five times the DOT limit.

Enforcement. 10 CFR 71.5 requires each licensee who transports licensed materials on public highways to comply with the requirements of the DOT regulations in 49 CFR Parts 170 through 189. 49 CFR 173.441(a), "Radiation Level Limitations," requires that each package of radioactive material offered for transportation be designed and prepared for shipment so that, under conditions normally incident to transportation, the radiation level does not exceed 200 mR/hr at any point on the external surface of the package.

On May 26, 2005, V. C. Summer Nuclear Station shipped radioactive waste material to a vendor processing facility in Oak Ridge, Tennessee, but failed to properly prepare the shipment for transport. On the following day, May 27, 2005, when the shipment arrived at the processing facility, the vendor measured radiation levels of 600 mR/hr on a portion of the external surface of the package which exceeded the DOT regulatory limit. This apparent violation is identified as AV 0500395/2006009-01, Failure to Properly Prepare a Radioactive Material Package for Shipment, and is being considered for escalated enforcement consistent with the NRC Enforcement Policy. The licensee initiated corrective actions which included quarantining and evaluating the instruments that were used for the radiation surveys of this particular shipment, dispatching personnel to the vendor facility to inspect the container and gather information, and the initiation of a root cause evaluation.

2PS3 Radiological Environmental Monitoring Program (REMP)

a. Inspection Scope

REMP Implementation The licensee's Annual Radiological Environmental Operating Report for Calender Year (CY) 2004 was reviewed and discussed with cognizant licensee representatives. The inspectors discussed and evaluated the reported data for trends in radionuclide concentrations, anomalous/missing data, and land-use census information. QC activities and data for selected sample types listed in the reports were

reviewed and evaluated, including inter-laboratory comparison results, semiannual self-assessments by the vendor laboratory, lower limit of detection (LLD) determinations, and semiannual air sample pump air flow calibration data.

Equipment operational status and staff proficiency for implementing REMP activities were assessed through a review of records, observations of equipment material condition and operating characteristics, assessment of selected sample collection activities, and discussion of collection techniques for sample matrices not directly observed. Collection of weekly air particulate filters/charcoal cartridges and air flow rate determinations were observed at sampling station #2,#6, #7,and #8 locations. The positioning and condition of co-located TLDs were evaluated the accompaniment. During observations of air sample collection, the inspectors evaluated the proficiency of collection staff and assessed the adequacy and implementation of selected collection techniques.

REMP guidance, implementation, and results were reviewed against ODCM details and applicable procedures listed in Section 2PS3 of the report Attachment.

Meteorological Monitoring Program The inspectors toured the meteorological tower and supporting instrumentation observing the physical condition of the equipment. The inspectors were unable to compare the system generated data with the data from the control room instrumentation because the replacement tower design eliminated the need for an instrument building and local readout capability; and all data is digitally sent from the instrumentation to the plant computer eliminating the potential for analog line loses.

The inspectors also assessed system reliability and data recovery. Meteorological tower siting was evaluated based on near-field obstructions, ground cover, proximity to the plant, and distance from terrain that could affect the representativeness of the measurements. The meteorological tower data recovery for CY 2005 was greater than 90 percent as described in Section 2.3.3.2.4 of the UFSAR.

Licensee procedures and activities related to meteorological monitoring were evaluated for consistency with TS, ODCM, UFSAR Section 2.3, "Meteorology," and ANS/ANSI 3.11-2000, "Determining Meteorological Information at Nuclear Facilities." Licensee's meteorological monitoring related procedures, reports and records reviewed during the inspection are listed in Section 2PS3 of the report Attachment.

Unrestricted Release of Materials from the Radiologically Controlled Area (RCA)
RP program activities associated with the unconditional release of potentially contaminated materials from RCA egress points were evaluated. The evaluation included a review of calibration records associated with the Small Article Monitor (SAM) equipment located at the RCA exit portal. The inspectors observed source checking of SAM equipment. Source activity and radionuclides used for checks and equipment minimum detectable activities were discussed with an instrument technician. Provisions for monitoring hard-to-detect nuclides were also discussed.

The inspectors verified that radiation detection sensitivities were consistent with NRC guidance in IE Circular 81-07, Control of Radioactively Contaminated Material, May 14, 1981, IE Information Notice 85-92, and the ODCM. Documents reviewed are listed in Section 2PS3 of the report Attachment.

Problem Identification and Resolution Audits, self-assessments and selected licensee CERs associated with meteorological monitoring activities and unrestricted release of materials from the RCA were reviewed and discussed with responsible licensee representatives. In addition, licensee quality assurance audits and vendor self-assessments associated with REMP activities were reviewed and discussed with cognizant licensee personnel. The inspectors assessed the licensee's ability to identify, characterize, prioritize, and resolve the identified issues. Corrective action program documents were reviewed and evaluated for effective corrective actions. These documents are identified in Section 2PS3 of the report Attachment.

The inspectors completed 10 of 10 required samples for Inspection Procedure 71122.03.

b. Findings

There were no findings of significance.

OTHER ACTIVITIES

4OA1 Performance Indicator (PI) Verification

a. Inspection Scope

The inspectors sampled licensee submittals for the PIs indicated below for the period of January 2004 through December 2005. To verify the accuracy of the PI data reported during that period, PI definitions and guidance contained in NEI 99-02, Regulatory Assessment Performance Indicator Guideline, Rev. 3, were used to verify the basis in reporting for each data element.

Occupational Radiation Safety Cornerstone

- Occupational Exposure Control Effectiveness

The inspectors reviewed CER records generated from January 2004 through December 2005 to ensure that radiological occurrences were properly classified per NEI 99-02. The inspectors also reviewed electronic dosimeter alarm logs, radioactive material intake records, and monthly PI reports for CY 2005. In addition, licensee procedural guidance for classifying and reporting PI events was evaluated. Reviewed documents are listed in Section 4OA1 of the report Attachment.

Public Radiation Safety Cornerstone

- RETS/ODCM Radiological Effluents Occurrence

The inspectors reviewed records used by the licensee to identify occurrences of quarterly doses from liquid and gaseous effluents in excess of the values specified in NEI 99-02 guidance. Those records included monthly effluent dose calculations for CY 2005. The inspectors also interviewed licensee personnel that were responsible for collecting and reporting the PI data. In addition, licensee procedural guidance for classifying and reporting PI events was evaluated. Reviewed documents are listed in Section 4OA1 of the report Attachment.

The inspectors completed 2 samples.

b. Findings

No findings of significance were identified.

4OA6 Meetings

On January 13, 2006, the inspectors presented the inspection results to plant management and other members of the staff who acknowledged the findings. A subsequent phone call was held on March 6, 2006, with Mr. Ken Nettles and other members of V. C. Summer staff to discuss the preliminary White finding. The inspectors confirmed that proprietary information was not provided or examined during the inspection.

SUPPLEMENTAL INFORMATION

PARTIAL LIST OF PERSONS CONTACTED

Licensee Personnel
J. Archie, Vice President- Nuclear Operations
F. Bacon, Chemistry Manager
M. Coleman, Supervisor- Health Physics
G. Lippard, Manager Operations
P. Mothena, Radiation Protection Manager
D. Perez, Supervisor-Health Physics
M. Roberts, Supervisor, HP- Count Room and Environmental
J. Schafer, Supervisor, HP Rad Waste
W. Stuart, Manager- Plant Support Engineering
R. Sweet, Manager Nuclear Licensing

NRC Personnel
J. Zeiler, Senior Resident Inspector- V. C. Summer Nuclear Station

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed

05000395/2006009-01	AV	Failure to Properly Prepare a Radioactive Material Package for Shipment (Section 2PS2)

Attachment

LIST OF DOCUMENTS/DATA REVIEWED

2OS3 Radiation Monitoring Instrumentation and Protective Equipment

Procedures, Guidance Documents, and Manuals

General Employee Training, Radiological Respiratory Protection Program, GET-05-01-09, Lesson Plan, Revision (Rev.) 7
HPP-154, Issuance and Control of Respiratory Protection Equipment, Rev. 12
HPP-202, Interlaboratory Intercomparison Program, Rev. 2
HPP-509, Leak Test and Calibration of Self-Reading Dosimetry, Rev. 10
HPP-520, Set-up, Calibration, and Quality Control for the WBC-8000 Stand-up Whole Body Counter, Rev. 6
HPP-521, Performing Personnel Whole Body Counting Using the WBC-6000 and WBC-8000 Whole Body Counters, Rev. 6
HPP-522, Set-up, Calibration, and Quality Control for the WBC-6000 Whole Body Counter, Rev. 8
HPP-611, Calibration of Station Survey Instruments, Rev. 14
HPP-633, Inspection, Maintenance and Storage of Respiratory Protective Devices, Rev. 4
HPP-642, Certification and Operation of the CDM-21 Electronic Dosimeter Calibrator and the Calibration of Merlin Gerin Electronic Dosimeters, Rev. 4
HPP-646, Calibration of the Eberline PCM-2 Personnel Contamination Monitor, Rev. 2
HPP-648, Operation and Calibration of the Eberline PM-7 Personnel Monitor, Rev. 2
HPP-649, Calibration and Operation of the NE SAM Tool and Bag Monitor, Rev. 3
HPP-904, Use of the Radiation Monitoring System (RMS), Rev. 10
HPP-924, Operation and Maintenance of High Pressure SCBA Compressor, Rev. 1
SAP-501, Administrative Controls for Calibration of Health Physics Instrumentation, Rev. 6
SAP-504, Respiratory Protection Program, Rev. 1
SAP-1131, “Corrective Action Program,” Rev. 4.

Records, Data, and Drawings

Biosystems PosiCheck3 Test Results, Complete SCBA Test for SCBA Unit S27 Dated 05/11/05
Database Summary for Waste Types Dated 12/12/05 for Dry Active Waste, Duratek Resin, Filters, NB Resin, and Primary Resin
HPP-509, Attachment I, Self Reading Pocket Dosimeter Calibration and Leak Test, Dated 01/12/06
HPP-611, Attachment II, Calibration Certificates for Eberline Model RM-14, Serial Number (S/N) 2493 Dated 01/10/06; and Johnson Model 2000W, S/N 2827 Dated 01/10/06
HPP-633, Attachment IV, Respiratory Equipment History Log for SCBA Units OP12038, S27, S72, S105, S107 and SCO194807
HPP-633, Attachment IX, SCBA Inspection Log, 4th Quarter 2005
HPP-633, Attachment X, Monthly Breathing Air Cylinder Inspection Log, December 2005
HPP-646, Attachment I, Calibration Data Sheet for the PCM-2, PCM-2 S/N 101 Dated 06/30/04, 01/04/05, and 06/17/05; PCM-2 S/N 126 Dated 09/24/04, 11/10/04, 03/28/05, and 09/08/05; PCM-2 S/N 148 Dated 09/10/04, 03/10/05, and 09/02/05
Hydrostatic Retest Data Sheet, ID No. D279, Dated 04/15/05
Laboratory Report, Compressed Air/Gas Quality Testing, Report Nos. 12718-1, High Pressure Compressor, Grade E Certification, Dated 03/26/04; 17812-1, High Pressure Compressor, Grade E Certification, Date 07/21/04; 21716-1, High Pressure Compressor, Grade E

Certification, Dated 10/13/04; and 30948-0, High Pressure Compressor, Grade D Certification, Dated 05/06/05
MGP Instruments Calibration Certificate, Test No. 2006/01/11
MSA MMR Certified C.A.R.E. Technician Training Certificate for Four Summer Employees, Dated 02/01/03
MSA ProCheck3 Test Results, Complete SCBA Test for SCBA Unit S105 Dated 06/11/04 and 05/13/05
PM-7 Calibration, S/Ns 550 Dated 11/10/04, 04/24/050, and 8/25/05; and 551 Dated 09/01/04, 02/24/05, 08/15/05
SAP-501, Attachment IX, Frisker Source Check Sheet, Dated 01/11/06
SAP-501, Attachment X, Source Check Sheet, Dated 01/11/06
SCBA Qual Status
Scott AIR-PAK 2.2/3.0/4.5/Fifty SCBA Maintenance and Overhaul Training Certificate for One Summer Employee, 12/09/04
Scott PosiCheck3 Visual/Functional Test Results for SCBA Unit S27 Dated 04/29/03 and SCBA Unit S72 Dated 04/25/05
V. C. Summer Nuclear Station Preventative Task Sheet for Equipment IDs RMG0002 Dated 12/03/03; RMG0003 Dated 07/19/04; RMG0004 Dated 07/25/05; RMG0007 Dated 05/11/05; RMG0009 Dated 01/17/05; RMG0011 Dated 10/07/04; RMG0013 Dated 06/08/05; and RMG0014 Dated 05/21/05
V. C. Summer Nuclear Station Surveillance Test Task Sheet, Equipment IDs IFT09287 Dated 05/23/05; IFT09697 Dated 06/17/04; RMA0002 Dated 02/21/05; RMA0013 Dated 07/06/04; RMA0014 Dated 11/05/04; RMG0008 Dated 11/03/04; and RMG0018 Dated 05/11/05
VMS Calibration Report V1.5, Efficiency Calibration Reports for People Mover Dated 02/07/05 and 08/24/05; and WBC Chair Dated 02/10/05
VMS Peak Search Report V1.9, WBC-8000 (Lower) Dated 01/12/06
VMS Quality Assurance Report V1.3 for Upper and Lower Detectors Dated 01/12/06

Corrective Action Program Documents
Condition Evaluation Report (CER) 0-C-04-0938, Health Physics Counting Instrument (PIC-1) Failed the Daily Source Check on the Alpha Channel
CER 0-C-04-3809, Acceptance Criteria in Calibration Procedures For RML-8 and 11 Does Not Match Acceptance Criteria in Generic Procedure for RM Test Sources
CER 0-C-05-0121, HP Dose Rate Instrument Failed the Daily Performance Check Following Its Use For Radioactive Shipment Surveys
CER 0-C-05-0379, Electronic Dosimeter in Alarm Dose and Dose Rate at ED Rack
CER 0-C-05-0911, Upon Exiting the RCA, A Worker's ED Stopped Working and the Screen Went Blank
CER 0-C-05-1732, Worker's Extremity Self-Reading Pocket Dosimeter Went Off Scale While Wearing Multiple-Badge Dosimetry
CER 0-C-05-4297, SA05-HP-2, Self-Assessment of the HP Dosimetry Program
QA-AUD-200502, Station Radiation Control Dated 01/18/05
SAP-1350, Attachment 1, Self Assessment Plan Notification Letter, HP Dosimetry Department, Assessment No. SA05-HP-02

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

Procedures, Guidance Documents, and Reports

Annual Effluent and Waste Disposal Report for the Operating Period January 1, 2004 - December 31, 2004
Offsite Dose Calculation Manual, Rev. 23
STP-360.069, Liquid Waste Effluent Liquid Radiation Monitor RML0009 Calibration, Rev. 10
STP-360.063, Liquid Waste Effluent Liquid Radiation Monitor RML0005 Calibration, Rev. 7
STP-360.037, Reactor Building Purge Atmospheric Radiation Monitor RMA0004 Calibration, Rev. 7
STP-360.035, Main Plant Exhaust Atmospheric Radiation Monitor RMA0003 Calibration, Rev. 7
HPP-202, Interlaboratory Intercomparison Program, Rev. 2
HPP-709, Sampling and Release of Radioactive Gaseous Effluents, Rev. 10
HPP-710, Sampling and Release of Radioactive Liquid Effluents, Rev. 11
SOP-108, Liquid Waste Processing System, Rev. 22
SOP-119, Waste Gas Processing, Rev. 16
CP-902, Chemistry Sampling Point List, Rev. 11

Records, Data, and Drawings

Calibration of RMA-3, Main Plant Vent Gaseous Exhaust Radiation Monitor (3/12/05, 9/10/03)
Calibration of RMA-4, Reactor Building Purge Exhaust Radiation Monitor (11/19/04, 2/19/03)
Calibration of RMA-10, Waste Gas Discharge Radiation Monitor (7/26/03, 1/10/05)
Calibration of RML-5, Liquid Waste Effluent Monitor (5/8/03. 11/12/04)
Calibration of RML-9, Liquid Waste Effluent Monitor (4/16/03, 10/13/04)
"A" Train Control Room Emergency Air Cleanup Performance Test (9/11/03, 3/25/05, 4/12/05)
"B" Train Control Room Emergency Air Cleanup Performance Test (3/30/05, 9/18/03)
AB Exhaust HEPA and HECA Test (8/24/05, 9/21/05)
Control Building Containment Access Area In Place Leak Test of Filter (7/18/02, 4/7/04)
Spent Fuel Pool Ventilation Sample (4/14/05)
HPGe Detector #3 Calibration (charcoal, 5/21/05;
HPGe Detector #2 Calibration (1 liter marinelli gas, 6/2/04; 1 liter marinelli liquid, 6/23/04)
HPGe Detector #4 Calibration (47mm filter, 11/15/05; silver zeolite, 11/14/05)
QC Control Charts, HPGe Detectors #1-5 (January 1-10, 2006)
Count Room Software Periodic Test Plant (11/15/04, 12/20/05)
Results of Radiochemistry Cross Check Program: 1st Quarter 2004, 3rd Quarter 2004, 1st Quarter 2005
Gaseous Waste Release Permit (GWRP) # MPV-05-92, Main Plant Vent, 11/30/05
GWRP # WG-04-05, G Tank, 12/16/04
GWRP # WG-04-04, H Tank, 12/15/04
Liquid Waste Release Permit (LWRP) # WM-05-215, Waste Monitor Tank B, 11/30/05
LWRP # TB-05-55, Turbine Building Sump, 12/29/05
LWRP # WM-05-223, Waste Monitor Tank B, 12/2805
LWRP # WM-06-3, Waste Monitor Tank A, 1/11/06

CAP Documents/Audits
SA04-HP-03, Countroom Self-Assessment, September 13 - October 11, 2004
SA04-HP-02, Radwaste Self-Assessment, June 21, 2004 - July 1, 2004
CER 0-C-05-3110, Exceeded annual goal for mCi discharge in liquid effluent, 8/8/05
CER 0-C-05-0525, Activity of test source used to calibrate various RM system detectors has been determined to be greater than what vendor stated, 2/17/05
CER 0-C-04-3475, Disagreement between VC Summer Count Room and vendor results were found for two intercomparison samples
CER 0-C-05-0558, Due to modifications to Fairfield Pump Hydro Units 5 and 6, STP-507.002 could not be performed as written, 2/22/05
CER 0-C-04-3233, SA04-HP-03 Self Assessment of HP Count Room, 12/12/04

2PS2 Radioactive Material Processing and Transportation

Procedures
Health Physics Procedure, (HPP)-159, General Requirements For Receipt And Shipping Of Radioactive Material, Rev. 5
HPP-703, Shipping Radioactive Material, Rev. 13

Shipment Documentation
VC Summer Condition Evaluation Report (CER) 0-C-05-2289
Rad waste and Transportation Supervisors Trip Report for 6/6/05
Shipper outgoing full vehicle survey- initial and verification (shipment No. 05-061)
Vendor incoming full vehicle survey No. 05-1460, dated 5/27/05 12:00
Vendor Condition report CP-05-046 detailing discrepancy in does rates.
Followup Email from vendor Radiation Safety Officer to the State of Tennessee dated June 6, 2005 forwarding documents.
VC Summer Shipping documentation for shipment 05-061
Calibration documentation for various instruments used by both vendor and shipper.

2PS3 Radiological Environmental Monitoring Program and Radioactive Material Control Program

Procedures, Guidance Documents, and Manuals
Offsite Dose Calculation Manual, Rev. 23
Final Safety Analysis Report, Amendment 02-01
HPP-1000, Conduct of Environmental, Rev. 6, 06/25/01
HPP-1001, Radiation Protection Program for Maintenance of South Carolina Radioactive Material License 181-02, Rev. 4, 05/22/00
HPP-1002, Environmental Chemical Control, Rev. 2, 04/17/00
HPP-1011, Annual Census, Rev. 3, 04/22/98
HPP-1012, Radiological Analytical Services Intra-Comparison Program, Rev. 2, 04/14/98
HPP-1020, Environmental Sample Collection, Rev. 3, 01/31/96
HPP-1021, Environmental Sample Preparation, Rev. 2, 05/13/98
HPP-1022, Environmental Sampling and Analytical Requirements, Rev. 4, 04/02/97
HPP-1023, Environmental Sample Control and Tracking, Rev. 4, 04/17/00

HPP-1024, Ground Water Monitoring and Well Sampling, Rev. 2, 08/27/98
HPP-1032, Maintenance, Operation, and Use of the Environmental Gamma Spectroscopy System, Rev. 2, 04/22/98
HPP-1041, Environmental TLD Management, Rev. 4, 08/08/02
HPP-1051, Environmental Air Sampler Calibration and Maintenance, Rev. 4, 02/27/97
HPP-1060, Meteorological Data Verification and Correction, Rev. 5, 11/01/05
HPP-1061, Meteorological Checks, Rev. 3, 09/18/00
STP-393.004, Surveillance Test Procedure, Meteorological Tower Calibration, Rev. 7, 11/30/04

Records, Data, and Drawings
Environmental Count room cross-checks for 1st and 3rd Quarter 2004 and 1st Quarter 2005
V.C. Summer Annual Radiological Environmental Operating Report, 4/30/2004
Calibration Check HPGe Detector 1, 12/20/05, 12/22/05, 12/28/05
Calibration Check HPGe Detector 2, 12/19/05, 12/22/05, 12/28/05
Calibration Check HPGe Detector 4, 12/19/05, 12/22/05, 12/28/05
Tennelec QC and Sample Results for Weekly air particulates, 10/5/05
HPGe Efficiency Calibration Detector #3, Charcoal Cartridge, 5/21/05
HPGe Efficiency Calibration Detector #4, 47mm Filter, 11/15/05
HPGe Efficiency Calibration Detector #2, 1 liter gas Marinelli, 6/2/2004
HPGe Efficiency Calibration Detector #2, 1 liter liquid Marinelli, 6/23/04

Corrective Action Documentation
Self Assessment Report, SA04-HP-03, Countroom Assessment, 10/14/2004
Quality Assurance Audit, QA-AUD-200512, Environmental Monitoring, 10/5/2005
CER 0-C-05-1118, Environmental TLDs at site-9 (Ball Park) and site-41(Trestle) were missing during 1st / 2nd quarter change out.
CER 0-C-05-2141, Flow meter at outfall 14 not collecting data.
CER 0-C-05-2666, Environmental Air Sampler at Site 30 tripped.
CER 0-C-05-2809, Environmental Air sample site #2 did not collect 90% of sample.
CER 0-C-05-3000, Air Sampler at Site 2 tripped.
CER 0-C-05-3306, Loss of electrical power to NTC/ Environmental Lab.
CER 0-C-05-3423, Run timer failed on environmental air sampler at site #6. (No impact on sample)
CER 0-C-05-3489, Environmental Air Sampler at Site#2 found tripped during routine change out.
CER 0-C-05-3322, Environmental site #6 air sampler was not running due to breaker trip.
CER 0-C-05-4176, Activation/ fission product activity was identified during analysis of site No. 39 drinking water resin sample due to cross contamination of lab equipment.

4OA1 Performance Indicator Verification

Procedures, Guidance Documents, and Manuals
HPP-242, Reporting NRC Performance Indicators, Rev. 0
Station Administrative Procedure (SAP)-1131, Corrective Action Program, Rev. 4

Records, Data, and Drawings

Listings of Corrective Action Reports (CER's) Covering Radiation Protection Related Corrective Action Documents for January 1, 2004 through December 31, 2005.

Monthly Performance Indicator Reports for January 2004-December 2005

CENTS Query Individual Doses > 100 mrem single entry.

Monthly radioactive waste release permit summary: Cumulative maximum individual exposure At controlling location, January 2005 - December 2005

LIST OF ACRONYMS & ABBREVIATIONS

ANSI	American National Standards Institute
CAP	Corrective Action Program
CER	Condition Evaluation Report
CY	Calendar Year
DOT	Department of Transportation
HPGe	High Purity Germanium
mR/hr	millirem per hour
Nos.	Numbers
ODCM	Offsite Dose Calculation Manual
QC	Quality Control
RP	radiation protection
radwaste	radioactive waste
Rev.	Revision
RG	Regulatory Guide
TS	Technical Specification
UFSAR	Updated Final Safety Analysis Report
WGT	Waste Gas Decay Tank