



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION IV  
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ARLINGTON, TEXAS 76011-4005

September 27, 2007

J. V. Parrish (Mail Drop 1023)  
Chief Executive Officer  
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P.O. Box 968  
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SUBJECT: COLUMBIA GENERATING STATION - NRC RADIATION SAFETY TEAM  
INSPECTION REPORT 05000397/2007008

Dear Mr. Parrish:

On September 6, 2007, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Columbia Generating Station facility. The enclosed report documents the inspection findings, which were discussed at the conclusion of the inspection with Mr. G. Cullen, Licensing Supervisor, Regulatory Programs, 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 team reviewed selected procedures and records, observed activities, and interviewed personnel. Specifically, the team evaluated the inspection areas within the Radiation Protection Strategic Performance Area that are scheduled for review every two years. These areas are:

- Radiation Monitoring Instrumentation
- Radioactive Gaseous and Liquid Effluent Treatment and Monitoring Systems
- Radioactive Material Processing and Transportation
- Radiological Environmental Monitoring Program and Radioactive Material Control Program

This inspection report documents one NRC-identified violation of very low safety significance. Additionally, one licensee-identified violation which was determined to be of very low safety significance is listed in this report. NRC is treating these violations as non-cited violations consistent with Section VI.A.1 of the NRC Enforcement Policy because of the very low safety significance of the violations and because they are entered into your corrective action program. If you contest any non-cited violation in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington DC 20555-0001; with copies to the Regional Administrator, U.S. Nuclear Regulatory Commission Region IV, 611 Ryan Plaza Drive, Suite 400, Arlington, Texas 76011-4005; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington DC 20555-001; and the NRC Resident Inspector at the Columbia Generating Station facility.

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 made 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/**

Michael P. Shannon, Chief  
Plant Support Branch  
Division of Reactor Safety

Docket: 50-397  
License: NPF-21

Enclosure:  
NRC Inspection Report 05000397/2007008  
w/attachment: Supplemental Information

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SUNSI Review Completed: LTR ADAMS:  Yes  No Initials: LTR  
 Publicly Available  Non-Publicly Available  Sensitive  Non-Sensitive

RIV:PSB\SHP	PSB\HP	PSB\HP	PSB\HP	PSB\SHP
LTRicketson:	BDBaca	GLGuerra	DLStearns	LCCarsonII
/RA/	/RA/	/RA/	/RA/	/RA/
09/07/07	09/18/07	09/17/07	09/17/07	09/17/07
C:PSB	DRP\PBA	C:PSB		
MPShannon	CEJohnson	MPShannon		
JRLarsen for	/RA/	/RA/		
09/19/07	09/25/07	09/27/07		

**U.S. NUCLEAR REGULATORY COMMISSION  
REGION IV**

Docket: 50-397  
License: NPF-21  
Report: 05000397/2007008  
Licensee: Entergy Northwest  
Facility: Columbia Generating Station  
Location: Richland, Washington  
Dates: July 23 through September 6, 2007  
Inspectors: Larry Ricketson, P.E., Senior Health Physicist, Plant Support Branch  
Louis Carson II, Senior Health Physicist, Plant Support Branch  
Bernadette Baca, Health Physicist, Plant Support Branch  
Gilbert Guerra, C.H.P., Health Physicist, Plant Support Branch  
Donald Stearns, Health Physicist, Plant Support Branch  
  
Accompanied By: David C. Graves, Health Physicist, Plant Support Branch  
Approved By: Michael P. Shannon, Chief, Plant Support Branch  
Division of Reactor Safety

## SUMMARY OF FINDINGS

IR 05000397/2007008; 7/23/07 - 9/06/07; Columbia Generating Station; Radioactive Material Processing and Transportation

The report covered a four-day period of inspection on site by a team of five region-based health physics inspectors with additional review of documentation conducted in the regional office. A finding of very low safety significance (Green) was identified. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using IMC 0609, "Significance Determination Process". Findings for which the Significance Determination Process 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 4, dated July 2006.

### A. NRC-Identified and Self-Revealing Findings

Cornerstone: Public Radiation Safety

- Green. The team identified a noncited violation of 10 CFR 71.5 because the licensee failed to provide required recurring training to hazmat employees involved in the shipment of radioactive material. Specifically, the licensee did not provide recurring, function-specific training of applicable sections of the shipping regulations to health physics technicians performing surveys of the shipment. As immediate corrective action, the licensee suspended shipments and documented the finding in the corrective action program. Additional corrective action is still being evaluated.

The finding is greater than minor because it is associated with the Public Radiation Safety Cornerstone attribute of program and process and affects the cornerstone objective in that improper performance of radiation and contamination surveys has a direct impact on public dose and has the potential to impact the licensee's ability to safely package and transport radioactive material on public roadways. The violation involved an occurrence in the licensee's radioactive material transportation program that is contrary to NRC or Department of Transportation regulations. When processed through the Public Radiation Safety Significance Determination Process, the finding was determined to be of very low safety significance because it: (1) was associated with radioactive material control, (2) involved the licensee's program for radioactive material packaging and transportation, (3) did not cause radiation limits to be exceeded, (4) did not result in a breach of package during transit, (5) did not involve a certificate of compliance issue, (6) did not involve a non-compliance with low level burial ground, and (7) did not involve a failure to make notifications or to provide emergency information. In addition, this finding had cross-cutting aspects in the area of human performance and the component of resources because the licensee did not ensure recurring training of individuals involved in the shipment of radioactive material was available and adequate. (H.2.b) (Section 2PS2)

B. Licensee Identified Violations

A violation of very low safety significance, which was identified by the licensee has been reviewed by the team. Corrective actions taken or planned by the licensee have been entered into the licensee's corrective action program. This violation and corrective actions are listed in Section 4OA7 of this report.

## REPORT DETAILS

### 2. RADIATION SAFETY

**Cornerstones: Occupational Radiation Safety [OS] and Public Radiation Safety [PS]**

#### 2OS3 Radiation Monitoring Instrumentation and Protective Equipment (71121.03)

##### a. Inspection Scope

This area was inspected to determine the accuracy and operability of radiation monitoring instruments that are used for the protection of occupational workers and the adequacy of the program to provide self-contained breathing apparatus (SCBA) to workers. The team used the requirements in 10 CFR Part 20 and the licensee's procedures required by technical specifications as criteria for determining compliance. The team interviewed licensee personnel and reviewed:

- Calibration of area radiation monitors associated with transient high and very high radiation areas and post-accident monitors used for remote emergency assessment
- Calibration of portable radiation detection instrumentation, electronic alarming dosimetry, and continuous air monitors used for job coverage
- Calibration of whole body counting equipment and radiation detection instruments utilized for personnel and material release from the radiologically controlled area
- Self-assessments, audits, and Licensee Event Reports
- Corrective action program reports since the last inspection
- Licensee action in cases of repetitive deficiencies or significant individual deficiencies
- Calibration expiration and source response check currency on radiation detection instruments staged for use
- The licensee's capability for refilling and transporting SCBA air bottles to and from the control room and operations support center during emergency conditions, status of SCBA staged and ready for use in the plant and associated surveillance records, and personnel qualification and training
- Qualification documentation for onsite personnel designated to perform maintenance on the vendor-designated vital components, and the vital component maintenance records for SCBA units

The team completed nine of the required nine samples.

b. Findings

No findings of significance were identified.

2PS1 Radioactive Gaseous and Liquid Effluent Treatment and Monitoring Systems (71122.01)

a. Inspection Scope

This area was inspected to ensure that the gaseous and liquid effluent processing systems are maintained so that radiological releases are properly mitigated, monitored, and evaluated with respect to public exposure. The team used the requirements in 10 CFR Part 20, 10 CFR Part 50 Appendices A and I, the Offsite Dose Calculation Manual, and the licensee's procedures required by technical specifications as criteria for determining compliance. The team interviewed licensee personnel and reviewed:

- Radiological effluent release reports since the last inspection, changes to the Offsite Dose Calculation Manual, radiation monitor setpoint calculation methodology, anomalous sampling results, effluent radiological occurrence performance indicator incidents, program for identifying contaminated spills and leakage and the licensee's process for control and assessment, self-assessments, audits, and licensee event reports
- Gaseous and liquid release system component configurations
- Routine processing, sample collection, sample analysis, and release of radioactive liquid and gaseous effluent
- Abnormal releases
- The licensee's understanding of the location and construction of underground pipes and tanks and storage pools that contain radioactive contaminated liquids; the technical bases for onsite monitoring, the licensee's capabilities of detecting spills or leaks and identifying groundwater radiological contamination both on site and beyond the owner-controlled area
- Changes made by the licensee to the Offsite Dose Calculation Manual, the liquid or gaseous radioactive waste system design, procedures, or operation since the last inspection
- Monthly, quarterly, and annual dose calculations
- Surveillance test results involving air cleaning systems and stack or vent flow rates
- Instrument calibrations of discharge effluent radiation monitors and flow measurement devices, effluent monitoring system modifications, effluent radiation monitor alarm setpoint values, and counting room instrumentation calibration and quality control
- Interlaboratory comparison program results

- Licensee event reports, special reports, audits, self-assessments and corrective action reports performed since the last inspection

The team completed 11 of the required 11 samples.

b. Findings

No findings of significance were identified.

2PS2 Radioactive Material Processing and Transportation (71122.02)

a. Inspection Scope

This area was inspected to verify that the licensee's radioactive material processing and transportation program complies with the requirements of 10 CFR Parts 20, 61, and 71 and Department of Transportation regulations contained in 49 CFR Parts 171-180. The team interviewed licensee personnel and reviewed:

- The radioactive waste system description, recent radiological effluent release reports, and the scope of the licensee's audit program
- Liquid and solid radioactive waste processing systems configurations, the status and control of any radioactive waste process equipment that is not operational or is abandoned in place, changes made to the radioactive waste processing systems since the last inspection, and current processes for transferring radioactive waste resin and sludge discharges
- Radio-chemical sample analysis results for radioactive waste streams and use of scaling factors and calculations to account for difficult-to-measure radionuclides
- Shipment packaging, surveying, labeling, marking, placarding, vehicle checking, driver instructing, and disposal manifesting
- Shipping records for non-excepted package shipments
- Licensee event reports, special reports, audits, state agency reports, self-assessments and corrective action reports performed since the last inspection

The team completed six of the required six samples.

b. Findings

Introduction. The team identified a Green non-cited violation (NCV) of 10 CFR 71.5 in which the licensee failed to provide required recurring training to hazmat employees involved in the shipment of radioactive material. The violation had very low safety significance.

Description. On July 24, 2007, the licensee prepared a shipment of low specific activity radioactive material for delivery to a waste burial site. After observing the shipment preparation, the inspection team asked the licensee to provide training records for the individuals involved. During a review of the training documentation, it was noted that the hazardous material shippers and fork lift operators had received the training required by 49 CFR 172.704(a) within the past three years. However, the two health physics technicians performing radiation and contamination surveys of the transport vehicle and packages had received the required function-specific training in 1996 and 1999 respectively, but had not received the required recurring training every three years per the regulations.

Analysis. The team concluded the health physics technicians are considered hazmat employees because the tasks have a direct impact on the safe transportation of hazardous materials, and that they were required to have recurring training per the regulations. The failure to provide required recurring training is a performance deficiency. The finding is greater than minor because it is associated with the Public Radiation Safety Cornerstone attribute of program and process and affects the cornerstone objective and has the potential to impact the licensee's ability to safely package and transport radioactive material on public roadways. Also, the potential of improperly performing radiation and contamination surveys decreases assurance that the public will not receive unnecessary dose. The violation involved an occurrence in the licensee's radioactive material transportation program that is contrary to NRC or Department of Transportation regulations. When processed through the Public Radiation Safety Significance Determination Process, the finding was determined to be of very low safety significance because it: (1) was associated with radioactive material control, (2) involved the licensee's program for radioactive material packaging and transportation, (3) did not cause radiation limits to be exceeded, (4) did not result in a breach of package during transit, (5) did not involve a certificate of compliance issue, (6) did not involve a non-compliance with low level burial ground, and (7) did not involve a failure to make notifications or to provide emergency information. In addition, this finding had cross-cutting aspects in the area of human performance and the component of resources because the licensee did not ensure recurring training of individuals involved in the shipment of radioactive material was available and adequate. (H.2.b)

Enforcement. Part 71.5 of Title 10 of the Code of Federal Regulations states that each licensee who transports licensed material shall comply with the applicable Department of Transportation (DOT) regulations in 49 CFR parts 107, and 171 through 180. Part 171.8 of Title 49 of the Code of Federal Regulations defines a hazmat employee as a person who is employed by a hazmat employer and who in the course of employment directly affects hazardous materials transportation safety. Part 172.704(a) of Title 49 of the Code of Federal Regulations states that a hazmat employee must have function-specific training concerning requirements of Subchapter C which are specifically applicable to the functions the employee performs. Contrary to the above, the licensee did not provide recurring function-specific training of applicable sections of the shipping regulations to health physics technicians performing radiation and contamination surveys of the shipment. As immediate corrective action, the licensee suspended shipments and documented the finding in the corrective action program. Additional corrective action is still being evaluated.

The violation was entered into the licensee's Corrective Action Program as Condition Report CR-2-07-07274. Because the failure to train hazmat workers was determined to be of very low safety significance and was entered into the licensee's corrective action program, this violation is being treated as a noncited violation, consistent with Section VI.A of the NRC Enforcement Policy: NCV 05000397/2007008-01, Failure to provide recurring training to hazmat employees.

2PS3 Radiological Environmental Monitoring Program (REMP) and Radioactive Material Control Program (71122.03)

a. Inspection Scope

This area was inspected to ensure that the REMP verifies the impact of radioactive effluent releases to the environment and sufficiently validates the integrity of the radioactive gaseous and liquid effluent release program; and that the licensee's surveys and controls are adequate to prevent the inadvertent release of licensed materials into the public domain. The team used the requirements in 10 CFR Part 20, Appendix I of 10 CFR Part 50, the Offsite Dose Calculation Manual, and the licensee's procedures required by technical specifications as criteria for determining compliance. The team interviewed licensee personnel and reviewed

- Annual environmental monitoring reports and licensee event reports
- Selected air sampling and thermoluminescence dosimeter monitoring stations
- Collection and preparation of environmental samples
- Operability, calibration, and maintenance of meteorological instruments
- Each event documented in the Annual Environmental Monitoring Report which involved a missed sample, inoperable sampler, lost thermoluminescence dosimeter, or anomalous measurement
- Significant changes made by the licensee to the Offsite Dose Calculation Manual as the result of changes to the land census or sampler station modifications since the last inspection
- Calibration and maintenance records for air samplers, composite water samplers, and environmental sample radiation measurement instrumentation, quality control program, interlaboratory comparison program results, and vendor audits
- Locations where the licensee monitors potentially contaminated material leaving the radiological controlled area and the methods used for control, survey, and release from these areas
- Type of radiation monitoring instrumentation used to monitor items released, survey and release criteria of potentially contaminated material, radiation detection sensitivities, procedural guidance, and material release records

- Licensee event reports, special reports, audits, self-assessments and corrective action reports performed since the last inspection

The team completed 10 of the required 10 samples.

b. Findings

No findings of significance were identified.

**4. OTHER ACTIVITIES**

4OA2 Problem Identification and Resolution

a. Inspection Scope

The team evaluated the effectiveness of the licensee's problem identification and resolution process with respect to the following inspection areas:

- Radiation Monitoring Instrumentation (Section 2OS3)
- Radioactive Gaseous and Liquid Effluent Treatment and Monitoring Systems (Section 2PS1)
- Radioactive Material Processing and Transportation (Section 2PS2)
- Radiological Environmental Monitoring Program and Radioactive Material Control Program (Section 2PS3)

b. Findings and Observations

The licensee missed multiple opportunities to identify and resolve a problem before it was identified by the team. During a review of the environmental services group calibration records, the team determined the licensee had failed to calibrate two gamma spectroscopy detectors on an annual frequency, as required by Standard Operating Procedure 05.15, "Operation and Calibration of Gamma Assay Systems," Revisions 0 and 1. One detector was last calibrated in May 2005; the other was last calibrated in June 2005. The licensee's opportunities to identify the expired calibrations included a 2006 quality assurance audit (AU-CH-06), a 2006 self-assessment (SA-2006-0206), and self/peer checking prior to using the equipment. (The team determined the failure to calibrate the environmental counting equipment according to procedural requirements was a violation of Technical Specification 5.4.1. However, when the calibrations were conducted following the team's finding, both detectors were found to be within the calibration tolerance. Therefore, the violation was minor, in accordance with Manual Chapter 0612, Appendix E, Example 3.e.)

#### 4OA6 Management Meetings

##### Exit Meeting Summary

On July 26, 2007, the team conducted an interim briefing with Mr. D. Atkinson, Vice President, Nuclear Generation, and other members of the staff. On September 6, 2007, the team conducted an exit meeting by telephone with G. Cullen, Licensing Supervisor, Regulatory Programs, and other members of the staff who acknowledged the findings. The team confirmed that proprietary information was not provided or examined during the inspection.

#### 4OA7 Licensee Identified Violations

The following findings of very low significance were identified by the licensee and are violations of NRC requirements which meet the criteria of Section VI of the NRC Enforcement Policy, NUREG-1600 for being dispositioned as Non-Cited Violations.

Part 71.5 of Title 10 of the Code of Federal Regulations requires that each licensee who delivers licensed material to a carrier for transport shall comply with the applicable requirements of the Department of Transportation regulations in 49 CFR parts 171 through 180. Part 171.2(a) of Title 49 of the Code of Federal Regulations states, in part, that no person may offer a hazardous material for transportation unless the hazardous material is properly classed, described, packaged, marked and labeled as required by this subchapter. Contrary to these requirements, on April 13, 2007, the licensee shipped two explosive monitors containing nickel-63 sources to another licensee without classifying the shipment as radioactive material. The radioactive shipment should have been classified as an "excepted package-instruments and articles."

The finding is greater than minor because it was associated with a Public Radiation Safety cornerstone attribute (human performance) and it affected the associated cornerstone objective because the failure to correctly ship radioactive material decreases the licensee's assurance that the public will not receive unnecessary dose. However, this finding cannot be evaluated by the Public Radiation Safety Significance Determination Process because it did not involve radioactive shipments classified as Schedule 5 through 11, as described in NUREG-1660, and it did not fit traditional enforcement. Therefore, the finding was reviewed by NRC management and determined to be of very low safety significance because radiation levels accessible by the public would not have been greater than one millirem/hr (two times the limit for radiation levels on the external surface of the package). The finding was placed into the licensee's corrective action program as Condition Report CR-2-07-07085.

ATTACHMENT: SUPPLEMENTAL INFORMATION

## SUPPLEMENTAL INFORMATION

### KEY POINTS OF CONTACT

#### Licensee

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E. Dumlao, Engineer, Systems Engineering  
G. Ebert, Specialist, Radiological Support  
J. Emery, Lead Metrologist, Calibration Services  
D. Kania, Senior Radwaste and Transportation Specialist, Chemistry  
M. Kinemark, Radiological Instrumentation Supervisor  
M. Laudisio, Radiological Operations Supervisor, Radiation Protection  
C. Madden, Effluents Specialist, Chemistry  
L. Mayne, Radwaste Specialist, Chemistry  
D. Mee, Senior Environmental Scientist, Environmental Services  
T. Northstrom, Environmental Laboratory Supervisor, Environmental Services  
L. Schleder, Environmental Scientist II, Environmental Services  
R. Schott, Senior Radwaste and Transportation Specialist, Chemistry  
M. Shymanski, Radiation Protection Manager  
L. Woods, Engineer, Systems Engineering  
D. Worthington, Technician, Chemistry

#### NRC

R. Cohen, Resident Inspector  
Z. Dunham, Senior Resident Inspector

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

#### Opened

NONE

#### Opened and Closed During this Inspection

05000397/2007008-01	NCV	Failure to Provide Recurring Training to Hazmat Employees (Section 2PS2)
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### LIST OF DOCUMENTS REVIEWED

#### **Section 20S3: Radiation Monitoring Instrumentation and Protective Equipment**

##### Instrument Procedures

HPI-0.16	Radiation Protection Portable Instrumentation Use and Calibration Guidelines, Revision 2
HPI 11.2.4.5	Whole Body Counts and Daily Checks Using the Renaissance Fastscan, Revision 8
HPI 0.16	Radiation Protection Portable Instrument Use & Calibration Guidelines, Revision 2

HPI 5.6 Calibration of the Renaissance Fastscan Whole Body Counting System, Revision 4  
HPI 7.33 Eberline RO-7 Calibration, Revision 6  
HPI 12.92 Calibration of the Canberra GEM-5 Gamma Sensitive Portal, Revision 0  
HPI 12.23 Out of Tolerance Reporting, Revision 6  
SWP-RPP-01 Radiation Protection Program, Revision 6

Condition Reports (CRs)

2-05-06128, 2-05-08524, 2-07-04680

Audit and Assessments

SA-2006-0012, Radiation Protection Instruments & Equipment, July 20, 2006

Calibration Records

Fastscan Calibration DIC 1515.2; June 20, 2005  
Merlin Gerin Dosimeter Calibration, August 4, 2006  
Calibration of Eberline Model 1000 Multi Source Gamma Calibrator, October 23, 2006  
Canberra GEM-5 Calibration No. 42737, December 15, 2006  
Canberra GEM-5 Calibration No. 42738, December 15, 2006  
Canberra GEM-5 Calibration No. 42777, May 8, 2007  
Calibration of Shepard Series 28 Calibrator, July 10, 2007  
Calibration of Shepard Series 149 Neutron Irradiator, July 10, 2007

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

Process and Effluent Procedures

CSP-INST-M201 Chemistry Monthly Source and Channel Checks, Revision 14  
6.2.5 New Channel Preparation, Inspection, & Installation on New Fuel, Revision 23  
8.3.286 Reactor Building Stack Effluent Radiation Monitoring System Preoperational Test, Revision 0  
10.24.18 Area Radiation Monitor Maintenance, Revision 10  
11.2.10.5 Area Radiation Monitor Calibration Checks, Revision 14  
16.1.7 REA Building Exhaust Flow Rate - CC/CFT, Revision 11  
16.2.1 CC/RC - TEA Low Range Noble Gas Monitor, Revision 6  
16.3.1 WEA Low Range Noble Gas Monitor - CC/RC, Revision 7  
16.3.7 WEA Building Exhaust Flow Rate - CC, Revision 4  
16.6.1 CC/RC - TSW Radiation Monitor, Revision 7

Condition Reports (CRs)

2-05-07429, 2-05-08552, 2-05-08743, 2-05-08819, 2-05-08884, 2-05-09420, 2-06-00813.  
2-06-01851, 2-06-03146, 2-06-05301, 2-06-05623, 2-06-08293 2-07-07252

Audit and Assessments

SA-2005-0046, Records Retention & Retrieval, June 5, 2005  
SA-2007-0034, Radioactive Effluents Software, May 17, 2007

## Calibration Records

ARM-RIS-33, February 9, 2005  
SW-RITS-605; March 24, 2005  
WRA-RIS-1, October 13, 2005  
OG-RIS-612, November 2, 2005  
PRM-RE-1A, January 6, 2006  
ARM-RIS-27, April 18, 2006  
ARM-RIS-28, April 18, 2006  
ARM-RIS-33, June 28, 2006  
OG-RIS-601A; March 19, 2007  
OG-RIS-601B; March 19, 2007  
MS-RIS-610D, July 19, 2007

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

### Procedures

12.1.1 Laboratory Quality Assurance, Revision 15  
12.5.4 Particulate and Charcoal Filter Analysis, Revision 17  
12.5.8 Gaseous Effluent Discharge Sampling, Revision 18  
12.11.1A Radiological Effluent Calculations - Gaseous, Revision 8  
12.11.1B Radiological Effluent Monitoring - Liquid, Revision 5  
16.11.1 Monthly Grab Gas Samples, Revision 9  
16.11.3 Primary Containment Purge Sampling and Analysis, Revision 9  
16.11.6 Weekly Iodine, Particulate and Tritium Analysis Results, Revision 9  
16.12.2 Monthly Gaseous Release Dose Assessment, Revision 10  
16.12.3 Noble Gas, Particulate, and Iodine Sample Collection and Analysis, Revision 2

### Columbia Generating Station Corrective Action Documents

2-05-00076	2-05-02642	2-05-03129	2-05-05052	2-05-05154	2-05-06526
2-05-06727	2-05-07475	2-05-08789	2-05-08790	2-06-00347	2-06-00392
2-06-02339	2-06-03682	2-06-04079	2-06-04466	2-06-04809	2-06-07590
2-07-00020					

### Self Assessments

SA-2005-0046 - Record Retention and Retrieval  
SA-2006-0078 - Radiochemistry Program Compliance with EPRI Recommended Practices  
SA-2007-0034 - Assessment of the Radioactive Effluent Calculation Software QA

### In-Place Filter Testing of Air Cleaning Systems

Control Room Emergency Filtration, Division A  
11/18/05, 12/31/03

Control Room Emergency Filtration, Division B  
8/10/05, 10/25/03

Standby Gas Treatment, Unit A, HEPA  
10/25/05, 09/04/03

Standby Gas Treatment, Unit B, HEPA  
2/08/07, 7/19/05

Standby Gas Treatment, Unit A,  
Carbon - Laboratory  
sampled-tested: 9/26/05-9/30/05

MSP-SGT-B103 Standby Gas Treatment Filtration System - Unit A, Carbon Adsorber Test,  
Revision 4 (9/26/05,

MSP-SGT-B104 Standby Gas Treatment Filtration System - Unit B, Carbon Adsorber Test,  
Revision 4 (4/17/05, 1/18/07)

MSP-SGT-B101 Standby Gas Treatment, Unit A, HEPA, Revision 3  
9-27-05

MSP-SGT-B102 Standby Gas Treatment, Unit B, HEPA, Revision 3  
1/18/07

MSP-WMA-B101 Control Room Div-A Emergency Filtration System HEPA Filter Test,  
Revision 4 (11/022/05

MSP-WMA-B102 Control Room Div-B Emergency Filtration System HEPA Filter Test,  
Revision 4 (7/28/05)

MSP-WMA-B103 Control Room Div-A Filtration System - Carbon Adsorber Test, Revision 6  
8/08/05

MSP-WMA-B104 Control Room Div-B Filtration System - Carbon Adsorber Test, Revision 5  
4/08/05

#### Miscellaneous

Radiochemistry Cross Check Program for 1st quarter 2005 and 2006

Environmental Cross Check Program for 1st quarter 2005 and 2006

Groundwater Protection Action Plan dated 7/31/06

Problem Evaluation Request 205-0544

Problem Evaluation Request 205-0324

Problem Evaluation Request 206-0164

Columbia Generating Station Offsite Dose Calculation Manual

Radioactive Effluent Release Report 2005 and 2006

## **Section 2PS2: Radioactive Material Processing and Transportation**

### Condition Reports (CR)

2-05-08027 2-05-08030 2-05-09515 2-06-00408 2-06-01594 2-06-01765  
2-06-02253 2-06-03012 2-06-07905 2-07-07274

### Procedures

SWP-RMP-01 Radioactive Waste Management Program, Revision 1  
SWP-RMP-02 Radioactive Waste Process Control Program, Revision 3  
SWP-RMP-03 Hazardous Materials Transportation Security Plan, Revision 1  
11.2.23.1 Shipping Radioactive Materials and Waste, Revision 6  
11.2.23.2 Computerized Radioactive Waste and Material Characterization, Revision 17  
11.2.23.3 Manual Radioactive Waste and Material Characterization, Revision 12  
11.2.23.4 Preparing Radioactive Waste and Material Packages, Revision 18  
11.2.23.14 Sampling of Radioactive Waste Streams, Revision 10  
11.2.23.28 Transferring Possession of Radioactive Material to Another Entity, Revision 4  
11.2.23.14 Sampling of Radioactive Waste Streams, Revision 10  
2.11.1 Solid Waste Processing System, Revision 21

### Audits, Assessments, and Surveys

Self Assessment SA-2005-0018, Rad Material Container Control  
Self Assessment SA-2005-0070, Mixed Waste Management at CGS  
Self Assessment SA-2007-0035, Assessment of the US Ecology License Amendment

### Shipment Packages

06-08, 06-40, 07-21, 07-22, 07-46, 07-77

### Miscellaneous

Columbia Generating Station Scaling Factors dated 4/01/05  
Columbia Generating Station Scaling Factors dated 8/17/06  
Lesson Plan RW000118, Burial Site Disposal Requirements, Revision 0  
Lesson Plan RW000117, DOT Packaging and Shipping Regulations, Revision 0  
Lesson Plan RW000116, NRC Packaging and Shipping Regulations, Revision 0  
Lesson Plan HP000264-LP, Shipping and Receiving Radioactive Materials, Revision 4  
OJT Guide HP001593, Shipping Radioactive Materials, Revision 3

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

### Audits and Self Assessments

Quality Activity Report A- 5223  
Quality Services Audit AU-CH-06  
Self Assessments: SA-2005-0014 and SA-2006-0206

## Condition Reports

2-05-7105, 2-06-0948, 2-06-1196, 2-06-3682, 2-06-4015, 2-06-4016, 2-06-4161,  
2-06-4323, 2-06-6920, 2-06-7383, 2-07-2941, 2-07-4292, 2-07-5619

## Procedures

PPM 1.11.1 Radiological Environmental Monitoring Program (REMP) Implementation Procedure, Revision 11  
PPM 11.2.14.7 Leak Testing of Radioactive Sources and Devices, Revision 10  
PPM 16.13.1 Annual 5-mile Land Use Census, Revision 2  
PPM 16.13.2 Annual Radiological Environmental Operating Report, Revision 1  
SALI RC03 Sample Preparation for Gamma Analysis, Revision 0  
SALI RC04 Low-Level Radioiodine in Liquid Samples, Revision 0  
SLI 24-6 Calibration of RADECO Model HD-28, HD-29, AND SAIC Model AVS-28A, Revision 8  
  
SOP 01.01 Required and Recommended Standard Operating Procedures, Revision 1  
SOP 02.05 Planning and scheduling REMP activities, Revision 1  
SOP 04.08 Preparation of Radioactivity Standard Solutions and Sources, Revision 0  
SOP 05.12 Use and maintenance of the American Sigma composite water samplers, Revision 3  
  
SOP 05.13 Operation and Calibration of the Packard Tri-Carb 2200CA, Revision 0  
SOP 05.14 Operation and Calibration of Alpha/Beta Counters, Revision 0  
SOP 05.15 Operation and Calibration of Gamma Assay Systems, Revision 0 and 1  
SOP 08.06 REMP sample collection, tracking and shipping, Revision 3  
SOP 11.25 REMP Sample Collection, Revision 2  
SOP 12.04 REMP Quality Assurance and Quality Control, Revision 4  
SOP 12.06 Quality Assurance for the Radiological Laboratory, Revision 0  
SOP 12.07 Radiological Laboratory Measurement Assurance Program, Revision 0  
SOP 12.08 Measurement Control Program for the Radiological Laboratory, Revision 0

## Meteorological Monitoring Instrumentation Calibration

WO 01127025 01 Wind Speed/Direction Channel Calibration 33' and 245', (ICP-MET-S301 Revision 12) - conducted 4/21/07  
  
WO 01114409 01 Wind Speed/Direction Channel Calibration 33' and 245', (ICP-MET-S301, Revision 12) - Conducted 9/11/06  
  
WO 01119026 01 Meteorology Temperature Monitoring Instrumentation Channel Calibration, (ICP-MET-S302, Revision 14) - conducted 9/28/06  
  
WO 01127026 01 Meteorology Temperature Monitoring Instrumentation Channel Calibration, (ICP-MET-S302, Revision 14) - conducted 4/02/07

Miscellaneous

2005 and 2006 Annual Land Use Census

2005 and 2006 Annual Radiological Environmental Operating Reports

2005 to 2007 Calibration and verification records for the environmental high purity germanium detectors, liquid scintillation, gas flow proportional counter, water samplers, and air samplers

Commercial Grade Survey Report 06-CG-02

Offsite Dose Calculation Manual, Amendment 46

Quality Control records for environmental counting equipment

REMP Air Sample Collection Log and Chain of Custody Form for July, 24, 2007

Selected 2006 environmental sediment sample results

Wind Rose data - 2006 and historical