



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

December 7, 2010

Mr. Michael J. Annacone  
Vice President  
Brunswick Steam Electric Plant  
P.O. Box 10429  
Southport, NC 28461-0429

SUBJECT: BRUNSWICK STEAM ELECTRIC PLANT – NRC NOTIFICATION OF  
INSPECTION AND REQUEST FOR INFORMATION 05000325/2010 AND  
05000324/2010

Dear Mr. Annacone:

During the periods of March 1, 2011, through March 11, 2010, and March 21, 2010, through March 25, 2011, the NRC will conduct baseline radiation safety inspection activities at your Brunswick Steam Electric Plant site. The inspection will evaluate activities in the Public Radiation Safety Inspection cornerstone using NRC Inspection Procedures 71124.01, Radiological Hazard Assessment and Exposure Controls, 71124.02, Occupational ALARA Planning and Controls, 71124.03, In-Plant Airborne Radioactivity Control and Mitigation, 71124.08, Radioactive Solid Waste Processing and Radioactive Material Handling, Storage, and Transportation, 71151, Performance Indicator Verification (Occupational and Public Radiation Safety) and TI 2515/179, Verification of Licensee Responses to NRC Requirement for Inventories of Materials Tracked in the National Source Tracking System Pursuant to Title 10, Code of Federal Regulations, Part 20.2207 (10 CFR 20.2207).

Experience has shown that this inspection is resource intensive both for the NRC inspectors and your staff. In order to minimize the impact to your on-site resources and to conduct a productive inspection, we have enclosed a request for documents needed for this inspection. It is important that all of these documents are up to date and complete, in order to minimize the number of additional documents requested during the preparation and/or the on-site portions of the inspection. The lead inspector has requested that the subject informational material be made available to the NRC staff by February 1, 2011, to allow preparation for the upcoming inspection.

We have discussed the schedule for these inspection activities with your staff and understand that our regulatory contact for this inspection will be Mr. Tom Sherill of your organization. If there are any questions about this inspection or the material requested, please contact the lead inspector, Wade T. Loo at (404) 997-4727.

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 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 /*

Brian Bonser, Chief  
Plant Support Branch 1  
Division of Reactor Safety

Dockets Nos.: 50-325, 324  
License Nos.: DPR-71, 62

Enclosure: Radiation Safety Inspection Document Request

cc w/encl: (See page 3)

Letter to M. Annacone from Brian Bonser dated December 7, 2010.

SUBJECT: BRUNSWICK STEAM ELECTRIC PLANT – NRC NOTIFICATION OF INSPECTION AND REQUEST FOR INFORMATION 05000325/2010 AND 05000324/2010

Dockets Nos.: 50-325, 324,  
License Nos.: DPR-71, 62

Enclosure: Radiation Safety Inspection Document Request

cc w/encl: (See page 3)

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\*See previous concurrence page.

PUBLICLY AVAILABLE       NON-PUBLICLY AVAILABLE       SENSITIVE       NON-SENSITIVE  
ADAMS:  Yes      ACCESSION NUMBER: \_\_\_\_\_       SUNSI REVIEW COMPLETE

OFFICE	RII:DRS	RII:DRS										
SIGNATURE	RA	RA										
NAME	WLo	BBonser										
DATE	12/6/2010	12/6/2010										
E-MAIL COPY?	YES    NO	YES    NO	YES    NO	YES    NO	YES    NO	YES    NO	YES    NO	YES    NO	YES    NO	YES    NO	YES    NO	YES    NO

OFFICIAL RECORD COPY      DOCUMENT NAME: G:\DRS\I\PSBI\INFORMATION REQUEST LETTERS\BRUNSWICK\BRUNSWICK 2011 002 PSB1 RP DOCUMENT REQUEST LTR (REV1).DOCX

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## Pre-Inspection Document Request

Occupational and Public Radiation Safety Cornerstone

Licensee: Brunswick Steam Electric Plant  
Docket Numbers: 50-325, 50-324  
Inspection Dates: March 7 – 11 and 21 - 25, 2011

Inspection Procedures to be performed:

71124.01 Radiological Hazard Assessment and Exposure Controls  
71124.02 Occupational ALARA Planning and Controls  
71124.03 In-Plant Airborne Radioactivity Control and Mitigation  
71124.08 Radioactive Solid Waste Processing and Radioactive Material Handling, Storage, and Transportation  
71151 Performance Indicator Verification  
TI 2515/179 Verification of Licensee Responses to NRC Requirement for Inventories of Materials Tracked in the National Source Tracking System Pursuant to Title 10, Code of Federal Regulations, Part 20.2207 (10 CFR 20.2207)

Documentation is requested from March, 2009, to the present for IPs 71124.02, 71124.03, and 71124.08 and from March, 2010, to the present for IPs 71124.01 and 71151.

We would prefer as much of the information as possible in electronic form. An index to the CD or shared drive contents is also helpful. For those items requesting a list of documents/areas, the inspectors will select documents/areas from the list for on-site review. If any of the requested information is too burdensome to provide electronically or as hard copies, simply indicate that the requested material is available for onsite review by the inspectors.

If you have any questions, please call Wade Loo at 404-997-4727. Thank you in advance for all of your efforts in putting together this material.

### Assistance Requested During On-Site Inspection

- Identification of work activities during the inspection for inspector observations, including notification of pre-job briefings, notification of diving activities, audio/visual surveillance for remote job coverage.
- Health physics assistance in plant walk-downs assessing access controls, e.g. verifying the posting and locking of entrances to HDR-HRA and VHRA, and spent fuel pool controls.
- Health physics assistance in plant walk-downs/job coverage of ongoing outage activities to assess access controls and ALARA practices.
- Discussions with appropriate individuals regarding access controls and ALARA planning.

Enclosure

## General Information Request

- Telephone numbers of contacts.
- Plant and Radiation Protection organizational charts, including personnel involved in solid radwaste processing and transportation of radwaste/radioactive materials.
- Electronic copy of applicable chapters of UFSAR (e.g. radiation protection program, liquid and solid radioactive waste program, etc.).
- Outage schedule, including work activities to be conducted during the week(s) of the inspection.
- List of active radiation work permits, including those specific to outage activities, with their administrative limits, electronic dosimeter dose rate limit, and dose limit.
- List of radiation protection procedures.
- Most recent DAW 10 CFR Part 61 analytical results.
- Corrective Action Program procedures.
- Procedure(s) for identifying, notification, tracking, and correcting PI occurrences.
- List of all Performance Indicators (PIs) and copies of associated corrective action reports for Occupational Exposure Control Effectiveness and RETS/ODCM Radiological Effluent Occurrences.
- Audits and self-assessments performed since the last inspection that encompass the areas of (1) access controls, (2) the ALARA program and implementation, (3) liquid and solid radwaste processing, and (4) transportation of radioactive material/radwaste.
- Procedures associated with the ISFSI facility. Procedures should include:
  - Radiological surveys, postings, and radiation control barricades
  - Environmental monitoring (including TLDs)
  - Loading of casks
  - Routine activities
- Radiation surveys of the ISFSI since the last inspection.
- ALARA reviews and planning and associated RWPs for cask loading activities.
- Environmental monitoring results (e.g. TLDs).
- Radiological records for the loading of casks since the last inspection.
- Records of contamination incidents since the last inspection.
- List of corrective action reports related to the ISFSI with respect to radiation protection (i.e. access controls, ALARA, contamination, radiation levels, etc.) since the last inspection.

#### 71124.01: Radiological Hazard Assessment and Exposure Controls

- Site and corporate procedures associated with the access control program. Procedures should include:
  - Radiological surveys, postings, and radiation control barricades
  - Security and control of high radiation sources/objects stored in pools
  - Radiation Work Permits
  - Radiological Job-Coverage
  - Controlling access to High Radiation Areas (HRAs), High Dose Rate High Radiation Areas (HDR-HRAs), and Very High Radiation Areas (VHRAs)
  - Key controls for all high radiation areas
  - Radioactive material control, including contamination and hot particles
- List of the 10 most exposure significant work areas within radiation areas, high radiation areas (<1R/hr), or airborne radioactivity areas in the plant. This may include areas with low dose rates but high collective dose. Identify any high radiation areas with significant dose gradients (factor of five or more), including underwater diving activities.
- List of LHRAs, HDR-HRAs (>25 rem in one hour @ 30 cm), and VHRAs. Include areas with the potential to become a LHRA during routine operations or outages.
- List of corrective action reports generated since the last inspection related to access controls, including the following:
  - Access controls, including high radiation area radiological incidents
  - Radiological events caused by radiation worker errors
  - Radiological events caused by radiation protection technician errors
- Available for onsite review during inspection:
  - Elevation maps with most recent operating and outage radiation survey levels.
  - RWPs for the top five dose rate areas or tasks.

#### 71124.02: ALARA Planning and Controls

- Site and corporate procedures associated with maintaining site dose ALARA, including those involving ALARA work activities. These procedures should include:
  - ALARA program implementation, including ALARA committee activities and ALARA planning, briefing, and reviews
  - Radiation work permit preparation and worker compliance
  - Processes used to estimate and track work activity specific exposures
  - Making changes to dose estimates during task performance
  - Work controls
  - Engineering controls
  - Exposure mitigation requirements
- Most recent annual ALARA report and most recent refueling outage report.



- Annual ALARA goals for 2009, 2010, and 2011, and the methodology utilized to make the projections.
- Historic trends and current status of plant source term.
- List approximately 10-15 work activities planned during the inspection likely to result in the highest personnel collective exposures and those which present the greatest radiological risk to workers (e.g. work in HRAs, diving, potentially changing radiological conditions). Include the dose projections and ALARA package numbers.
- ALARA Committee activity summaries (e.g. meeting minutes) for three months or 3 meetings after the last refueling outage and the three months or 3 meetings prior to the upcoming refueling outage.
- Completed ALARA packages (including post-job reviews) for the five work activities that were completed during the last outage which had the greatest collective dose and/or presented significant radiological risk.
- List of five activities (including ALARA package number) from the previous outage in which the work scope changed or was extended and alternative ALARA measures were taken to respond to the emergent conditions.
- List of five activities from the previous outage in which the estimated work hours were significantly different than the actual hours expended. List five activities in which the estimated and actual hours expended were accurate.
- Outline of the source term reduction strategy. Information should include:
  - Historic trends and current status of plant source term
  - Factors that affect the source term
  - Activities employed to reduce the source term
  - Specific sources identified for reduction actions
  - Source term reduction evaluation
  - Results achieved since last inspection
- List of activities since that last inspection that were reviewed for ALARA problems and actions taken to prevent recurrence. Include corrective action report number(s) if applicable.
- List of corrective action reports generated since the last inspection related to the ALARA program, including the following:
  - ALARA planning
  - Post-job review identified problems
  - Radiation worker practices
  - Occurrences where the collective exposure was greater than intended dose determined to be ALARA for the individual work activities

- Available for onsite review during the inspection:
  - ALARA planning packages for jobs being performed during the outage
  - Temporary shielding requests generated for the outage.
  - Records of personnel monitored for radiation exposure that show the total TEDE to date for each person. If possible, sort individuals by work group.

71124.03: In-Plant Airborne Radioactivity Control and Mitigation

- Site and corporate procedures/manuals associated with airborne radiation monitoring instrumentation and respiratory protection. Procedures/manuals should include:
  - Operation, calibration, and maintenance of air sampling instrumentation, including set-point determination (e.g., low-vols, high vols, goosenecks, AMS 4s, etc.)
  - Calibration and maintenance of portable instruments
  - Actions to be taken when air sampling instrumentation is found to be significantly out of tolerance/calibration
  - Issuance and use of respiratory protective equipment (emphasis on SCBA and air-supplied equipment)
  - Training, including fit-testing, for use of SCBA and supplied-air systems
  - SCBA maintenance activities, including vital components (i.e. regulators)
  - Determination/verification of Grade D air for SCBA
- Two most recent calibrations for the following CAM equipment:
  - Control Room Ventilation
  - Spent Fuel Pool
  - Radioactive Waste Processing
- Records of certification of air quality for equipment used to provide breathing air for air-supplied respirators and SCBA bottles since the last inspection.
- List of corrective action reports generated since the last inspection involving radiation monitoring and protective equipment deficiencies, including the following:
  - Continuous air monitors
  - Respiratory protection equipment and program implementation
- Available for onsite review by inspector during inspection:
  - Inventory, inspection, and maintenance records for SCBA equipment
  - Training records, including fit-testing, for SCBA-qualified individuals
  - Training records/certification for individuals qualified to perform maintenance on vital components (e.g. regulators) on SCBA

71124.08: Radioactive Solid Waste Processing and Radioactive Material Handling, Storage, and Transportation

- Site and corporate procedures/manuals describing licensee compliance with 10 CFR Parts 20, 61, and 71 and 49 CFR Parts 170-189. Procedures/manuals should include:

- Solid and liquid radwaste processing procedures
  - Procedure(s) for transferring radioactive waste resin and sludge discharges into shipping/disposal containers.
  - Waste stream mixing and/or sampling procedures, including (1) waste concentration averaging, (2) use of scaling factors and calculations used to account for difficult-to-measure radionuclides, and (3) ensuring waste stream composition data accounts for changing operational parameters.
  - Shipping/transportation procedures
  - Cask loading and closure procedures (licensee and vendor) applicable to last three cask transports
  - Process Control Program (PCP).
- Most recent Annual Radioactive Effluents Release Report.
  - Most recent radio-chemical sample analysis results (i.e., "10 CFR Part 61" analysis) for each of the radioactive waste streams (e.g., dry active waste (DAW), ion exchange resins, mechanical filters, and sludges and activated materials, etc.).
  - List and documentation of any changes made to the radioactive waste processing systems (liquid and solid) and/or the PCP since the last inspection and associated 10 CFR 50.59 documentation, as appropriate.
  - Copies of applicable transport cask Certificate of Compliance for the last three transport cask shipments.
  - Training and qualification records for personnel responsible for radioactive waste processing and radioactive material shipment preparation activities.
  - Copy of the Radioactive Shipping Log for the last 12 months (The inspector will select transportation shipping packages for review during the inspection).
  - List of corrective action reports generated since the last inspection involving radioactive waste and radioactive material/waste transportation.
  - Available for onsite review during the inspection:
    - Site drawing(s) showing the location of all stored radioactive materials and all stored radioactive waste.
    - Plant drawings sufficient to permit the inspector to walk-down the liquid and solid radioactive waste processing systems to verify current system configuration/operation agree with the descriptions contained in the UFSAR and in the PCP.
    - Documentation describing the status of any radioactive waste process equipment that is not operational and/or is abandoned in place.
    - Information concerning the site's waste disposal volume and waste reduction program.
    - Training curriculum and primary lesson plans for qualifying persons, including vendors, for radwaste processing, packaging, and making shipments of radioactive materials and radioactive waste as specified by 49 CFR 172.

71151: Performance Indicator (PI) Verification

- Monthly PI reports since March, 2010, and copies of associated condition reports for any RETS/ODCM Radiological Effluent occurrences.
- Liquid and gaseous effluent release permits which specify the monthly, quarterly, and annual curies released by isotope and associated public dose assessments since March 2010.
- List of all corrective action documents since March, 2010, using keywords such as: HRA, LHRA, VHRA, unintended dose, unlocked door, etc.
- List of all electronic dosimeter (ED) dose rate alarms > 1 R/hr and all ED dose alarms since March, 2010.