



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

October 4, 2012

Mr. David A. Heacock  
President and Chief Nuclear Officer  
Virginia Electric and Power Company  
Dominion Nuclear  
Innsbrook Technical Center  
5000 Dominion Boulevard  
Glen Allen, VA 23060-6711

**SUBJECT: SURRY NUCLEAR PLANT, UNIT 2 - NOTIFICATION OF INSPECTION AND  
REQUEST FOR INFORMATION**

Dear Mr. Heacock:

From November 5 to November 16, 2012, the Nuclear Regulatory Commission (NRC) will perform the baseline in-service inspection (ISI) at the Surry Nuclear Plant, Unit 2. Experience has shown that this inspection is resource intensive for both the NRC inspectors and your staff. In order to minimize the impact to your on-site resources and to ensure a productive inspection, we have enclosed a request for documents needed for this inspection. These documents have been divided into two groups. The first group (Section A of the Enclosure) identifies information to be provided prior to the inspection to ensure that the inspectors are adequately prepared. The second group (Section B of the Enclosure) identifies the information the inspectors will need upon arrival at the site. 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.

We have discussed the schedule for these inspection activities with your staff and understand that our regulatory contact for this inspection will be Jerry Ashley of your organization. Our inspection dates are subject to change based on your updated schedule of outage activities. If there are any questions about this inspection or the material requested, please contact the lead inspector, Louis Lake at 404-997-4643 (Louis.Lake@nrc.gov).

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/*

Steven J. Vias, Chief  
Engineering Branch 3  
Division of Reactor Safety

Docket No. 50-281  
License No. DPR-37

Enclosure:  
In-service Inspection Document Request

cc: (See pages 3)

(ADAMS). ADAMS is accessible from the NRC Web site at [http://www.nrc.gov/ reading-rm/adams.html](http://www.nrc.gov/reading-rm/adams.html) (the Public Electronic Reading Room).

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PUBLICLY AVAILABLE       NON-PUBLICLY AVAILABLE       SENSITIVE       NON-SENSITIVE  
ADAMS:  Yes      ACCESSION NUMBER: \_\_\_\_\_       SUNSI REVIEW COMPLETE       FORM 665 ATTACHED

OFFICE	RII:DRS	RII:DRS					
SIGNATURE	RA	RA					
NAME	L. Lake	S. VIAS					
DATE	10/ 3 /2012	10/ 4 /2012					
E-MAIL COPY?	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO

cc:

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Letter to David A. Heacock from Steven J. Vias dated October 4, 2012.

SUBJECT: SURRY NUCLEAR PLANT, UNIT 2 - NOTIFICATION OF INSPECTION AND  
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Distribution:

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## INSERVICE INSPECTION DOCUMENT REQUEST

Inspection Dates: November 5 – November 16, 2012

Inspection Procedures: IP 71111.08, "Inservice Inspection (ISI) Activities"

Inspectors: Louis Lake, Senior Reactor Inspector (Lead Inspector)  
Abhijit Sengupta, Reactor Inspector (Training)

### A. Information Requested for the In-Office Preparation Week

The following information should be sent to the Region II office in hard copy or electronic format (CD preferred), in care of Louis Lake by October 29, 2012, to facilitate the selection of specific items that will be reviewed during the on-site inspection week. The inspectors will select specific items from the information requested below and then request from your staff additional documents needed during the on-site inspection week (Section B of this Enclosure). We ask that the specific items selected from the lists be available and ready for review on the first day of inspection. Please provide requested documentation electronically if possible. If requested documents are large and only hard copy formats are available, please inform the inspector, and provide subject documentation during the first day of the on-site inspection. If you have any questions regarding this information request, please call the inspector as soon as possible.

#### A.1 ISI / Welding Programs and Schedule Information

- a) A detailed schedule (including preliminary dates) of:
- i) Nondestructive examinations (NDEs) planned for Class 1, 2, and 3 systems and containment, performed as part of your American Society for Mechanical Engineers (ASME) Section XI, Risk Informed (if applicable), and augmented ISI Programs during the upcoming outage.  
  
Provide a status summary of the NDE inspection activities vs. the required inspection period percentages for this Interval by category per ASME Section XI, IWX-2400. Do not provide separately if other documentation requested contains this information.
  - ii) Reactor pressure vessel head (RPVH) examinations planned for the upcoming outage.
  - iii) Examinations planned for Alloy 82/182/600 components that are required by Code Case 770-1.
  - iv) Examinations planned as part of your Boric Acid Corrosion Control Program. (Mode 3 walkdowns, bolted connection walkdowns, etc.)
  - v) Welding activities that are scheduled to be completed during the upcoming outage for ASME Class 1, 2, or 3 structures, systems, or components (SSCs).

- b) A copy of ASME Section XI Code Relief Requests and associated NRC Safety Evaluations applicable to the examinations identified above.
- c) A list of NDE reports (ultrasonic, radiography, magnetic particle, and dye penetrant) which have identified surface or volumetric indications that were analytically evaluated and accepted for continued service on Code Class 1 and 2 systems since the beginning of the last refueling outage. This should include the previous Section XI pressure test(s) conducted during start up and any evaluations associated with the results of the pressure tests.
- d) A list with a brief description (e.g., system, material, pipe size, weld number, and NDE performed) of the welds in Code Class 1, 2, and 3 systems that have been fabricated due to component repair/replacement activities since the beginning of the last refueling outage, or are planned to be fabricated this refueling outage. Also, please indicate which of those welds are risk significant.
- e) If reactor vessel shell weld examinations required by the ASME Code are scheduled to occur during the upcoming outage, provide a detailed description of the welds to be examined, and the extent of the planned examination. Please also provide reference numbers for applicable procedures that will be used to conduct these examinations.
- f) Copy of any 10 CFR Part 21 reports applicable to your SSCs within the scope of Section XI of the ASME Code that have been identified since the beginning of the last refueling outage.
- g) A list of any temporary non-code repairs in service (e.g. pinhole leaks).
- h) Please provide copies of the most recent self-assessments for the ISI, Welding, and Alloy 600 Programs.

#### A.2 Reactor Pressure Vessel Head (RPVH)

- a) Provide the detailed scope of the planned NDE of the reactor vessel head that identifies the types of NDE methods to be used on each specific part of the vessel head to meet the augmented inspection requirements of 10CFR50.55a(g)(6)(ii)(D).
- b) Also, include in the list the NDE reports with identified surface or volumetric indications in the RPVH penetration nozzles that have been analytically evaluated and accepted for continued service. The list of NDE reports should include a brief description of the SSC where the recordable indication was identified.

#### A.3 Boric Acid Corrosion Control Program (BACCP)

- a) Copy of the procedures that govern the scope, equipment, and implementation of the inspections required to identify boric acid leakage and the procedures for boric acid leakage/corrosion evaluation.

- b) Please provide a list of leaks (including code class of the components) that have been identified since the last refueling outage and associated corrective action documentation. If during the last cycle, the Unit was shut down, please provide documentation of containment walkdown inspections performed as part of the BACCP.
- c) Please provide a copy of the most recent self-assessment performed for the BACCP.

#### A.4 Steam Generator (SG) Inspections

- a) Please provide a detailed schedule of:
  - i) SG tube inspection, data analyses, and repair activities for the upcoming outage. (If occurring)
  - ii) SG secondary side inspection activities for the upcoming outage. (If occurring)
- b) Please provide a copy of your SG ISI Inspection Program and Plan. Please include a copy of the Operational Assessment from last outage, and a copy of the following documents as they become available:
  - i) Degradation Assessment
  - ii) Condition Monitoring Assessment
- c) If you are planning to modify your Standard Technical Specifications (STS) as such that they are consistent with TSTF-449, please provide copies of your correspondence with the NRC regarding deviations from the STS.
- d) Please provide a copy of SG history documentation given to vendors performing eddy current (ET) testing of the SGs during the upcoming outage.
- e) Please provide a copy of SG Eddy Current Data Analyst Guidelines, and Site Validated Eddy Current Technique. Additionally, please provide a copy of EPRI Appendix H Eddy Current Technique Qualification Records.
- f) Please identify, and quantify, any SG tube leakage experienced during the previous operating cycle. Also, provide documentation identifying which SG was leaking and corrective actions completed, or planned for this condition. (If applicable)
- g) Please provide past history of the condition and issues pertaining to the secondary side of the steam generators (including items such as loose parts, fouling, top of tube sheet condition, and crud removal amounts, etc)
- h) Please provide copies of your most recent self-assessments of the SG monitoring, loose parts monitoring, and secondary side water chemistry control programs.



- i) Please also indicate where the primary, secondary, and resolution analyses are scheduled to take place.
- j) Please provide a summary of the scope of the SG ISI examinations, including examination methods such as Bobbin, Rotating Pancake, or Plus Points, and the percentage of tubes to be examined. *\*Do not provide these documents separately if already included in other information requested.*

A.5 Additional information related to all ISI activities

- a) A list with a brief description of ISI, BACCP, and SG ISI related issues (e.g., condition reports) entered into your corrective action program since the beginning of the last refueling outage. For example, a list based upon database searches using key words related to piping or SG tube degradation such as: ISI, ASME Code, Section XI, NDE, cracks, wear, thinning, leakage, rust, corrosion, boric acid, or errors in piping/SG tube examinations.
- b) Please provide names and phone numbers for the following program leads:
  - i) ISI contacts (Examination, planning)
  - ii) Containment Exams
  - iii) Alloy 600/MRP-139/Code Case 770-1
  - iv) RPVH Exams
  - v) Snubbers and Supports
  - vi) Repair and Replacement Program Manager
  - vii) Licensing Contact
  - viii) Site Welding Engineer
  - ix) Boric Acid Corrosion Control Program
  - x) SG Inspection Activities (site lead and vendor contact)

**B. Information to be provided on-site to the inspector at the entrance meeting (November 5, 2012):**

**B.1 ISI / Welding Programs and Schedule Information**

- a) Updated schedules for ISI/NDE activities, planned welding activities, and schedule showing contingency repair plans, if available.
- b) For ASME Class 1, 2, and 3 welds selected by the inspector from the lists provided from Section A of this Enclosure, please provide copies of the following documentation for each subject weld:
  - i) Weld data sheet (traveler)
  - ii) Weld configuration and system location
  - iii) Applicable Code Edition and Addenda for weldments
  - iv) Applicable Code Edition and Addenda for Welding Procedures
  - v) Applicable Weld Procedures (WPS) used to fabricate the welds
  - vi) Copies of procedure qualification records (PQRs) supporting the WPS from Item B.1.b.v of this letter
  - vii) Copies of mechanical test reports identified in the PQRs above.
  - viii) Copies of the nonconformance reports for the selected welds (If Applicable)
  - ix) Radiographs of the selected welds and access to equipment to allow viewing radiographs (If RT was performed)
  - x) Copies of the pre-service examination records for the selected welds.
  - xi) Copies of welder performance qualifications records applicable to WPS, including documentation that welder maintained proficiency in the applicable welding processes specified in the WPS
  - xii) Copies of NDE personnel qualifications (VT, PT, UT, RT) *As applicable*
- c) For the ISI related corrective action issues selected by the inspector from Section A of this Enclosure, provide a copy of the corrective actions and supporting documentation.
- d) For the NDE reports selected by the inspector from Section A above with relevant indications that were analytically evaluated on Code Class 1 and 2 systems, provide a copy of the examination records, examiner qualification records, and associated corrective action documents.
- e) A copy of (or ready access to) most current revision of the ISI Program Manual and Plan for the current Interval.
- f) For the NDEs selected by the inspector from Section A of this Enclosure, provide copy of the NDE procedures used to perform the examinations (including calibration and flaw characterization/sizing procedures). For ultrasonic examination procedures qualified in accordance with ASME Code, Section XI,

Appendix VIII, provide documentation supporting the procedure qualification (e.g., the EPRI performance demonstration qualification summary sheets). Also, include documentation of the specific equipment to be used (e.g., ultrasonic unit, cables, and transducers including serial numbers) and NDE personnel qualification records.

## B.2 Reactor Pressure Vessel Head

- a) Provide the NDE personnel qualification records for the examiners who will perform examinations of the RPVH.
- b) Provide drawings showing the following: (If a visual examination is planned for the upcoming refueling outage)
  - i) RPVH and CRDM nozzle configurations
  - ii) RPVH insulation configuration.

The drawings listed above should include fabrication drawings for the nozzle attachment welds as applicable.

- c) Copy of NDE reports from the last RPVH examination.
- d) Copy of evaluation or calculation demonstrating that the scope of the visual examination of the upper head will meet the 95% minimum coverage required by ASME Code Case N-729-1 (If a visual examination is planned for the upcoming refueling outage).
- e) Provide a copy of the procedures that will be used to identify the source of any boric acid deposits identified on the RPVH. If no explicit procedures exist which govern this activity, provide a description of the process to be followed including personnel responsibilities and expectations.
- f) Provide a copy of the updated calculation of effective degradation years (EDY) and re-inspection years (RIY) for the RPVH crack initiation and propagation susceptibility parameters.
- g) Provide copy of the vendor qualification report(s) that demonstrates the detection capability of the NDE equipment used for the RPVH examinations. Also, identify any changes in equipment configurations used for the RPVH examinations that differ from that used in the vendor qualification or demonstration report(s).

## B.3 Boric Acid Corrosion Control Program

- a) Provide boric acid walkdown inspection results, an updated list of boric acid leaks identified so far this outage, associated corrective action documentation, and overall status of planned boric acid inspections.

- b) Provide any engineering evaluations completed for boric acid leaks identified since the end of the last refueling outage. Please include a status of corrective actions to repair and/or clean these boric acid leaks. Please specify which known leaks, if any, have remained in-service, or will remain in-service as active leaks.
- c) In accordance with NRC inspection procedure 71111.08, the inspector would like to conduct an independent boric acid walkdown of the Reactor Building during the inspection week. Please have knowledgeable BACCP staff available to accompany the inspector during the walkdown.

#### B.4 Steam Generator Inspections

- a) Please provide copies of the Examination Technique Specification Sheets (ETSS) and associated justification for any revisions.
- b) Please provide a copy of the guidance to be followed if a loose part or foreign material is identified in the steam generators (SGs).
- c) Please provide a copy of the ET procedures used to perform the SG ISI (specifically calibration and flaw characterization/sizing procedures, etc.). Also, include documentation for the specific equipment to be used.
- d) Please provide copies of your responses to NRC and industry operating experience communications such as; Generic Letters, Information Notices, etc. (As applicable to SG inspections.) *\*Do not provide these documents separately if already included in other information requested such as the degradation assessment.*
- e) Please provide a list of corrective action documents generated by the vendor and/or site with respect to SG inspection activities.

#### B.5 Codes and Standards

- a) Ready access to: (i.e., copies provided to the inspector to use for the duration of the inspection at the on-site inspection location, or room number and location where available)
  - i) Applicable editions of the ASME Code (Sections V, IX, and XI) for the in-service inspection program and the repair/replacement program.

#### Inspector Contact Information:

Louis Lake  
Reactor Inspector  
404-997-4683  
[Louis.Lake@nrc.gov](mailto:Louis.Lake@nrc.gov)

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