



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

November 29, 2012

Mr. Kelvin Henderson  
Site Vice President  
Duke Energy Corporation  
Catawba Nuclear Station  
4800 Concord Road  
York, SC 29745-9635

**SUBJECT: CATAWBA NUCLEAR STATION - NOTIFICATION OF INSPECTION AND  
REQUEST FOR INFORMATION**

Dear Mr. Henderson:

The NRC will perform the baseline heat sink (HS) inspection at your Catawba Nuclear Station from January 14 – 18, 2013. 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 facilitate the selection of inspection samples and ensure that the inspectors are adequately prepared. The second group (Section B of the enclosure) identifies additional information needed during the onsite inspection week for the selected inspection samples. 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 onsite portions of the inspection.

We have discussed the schedule for these inspection activities with your staff on November 26, 2012 and understand that our regulatory contact for this inspection will be Mr. Paul Simbrat of your organization. If there are any questions about this inspection or the material requested, please contact the lead inspector Joel Rivera-Ortiz at 404-997-4825 (Joel.Rivera-Ortiz@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 Nos. 50-413, 50-414  
License Nos. NPF-35, NPF-52

Enclosure:  
Document Request for Heat Sink Performance Inspection

cc: (See page 3)

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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	RII:DRS				
SIGNATURE	RA	RA	RA				
NAME	JRivera-Ortiz	CFletcher	SVias				
DATE	11/29/2012	1129/2012	11/29/2012				
E-MAIL COPY?	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO

OFFICIAL RECORD COPY      DOCUMENT NAME: S:\DRS\ENG BRANCH 3\INSPECTIONS\WORKING DOCUMENTS\HS REQUEST FOR INFORMATION LETTERS\2012\CATAWBA HEAT SINK RFI LETTER 2013-002.DOCX

cc:

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(cc cont'd – See page 4)

(cc cont'd)  
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Letter to Kelvin Henderson from Steven J. Vias dated November 29, 2012

SUBJECT: CATAWBA NUCLEAR STATION - NOTIFICATION OF INSPECTION AND  
REQUEST FOR INFORMATION

Distribution:

RIDSNRRDIRS

PUBLIC

A. Adams, NRR

RidsNrrPMCatawba Resource

## **DOCUMENT REQUEST FOR HEAT SINK PERFORMANCE INSPECTION**

Inspection Dates: January 14 – 18, 2013

Inspection Procedures: IP 71111.07, "Heat Sink Performance," Triennial Review

Inspectors: J. Rivera-Ortiz, Senior Reactor Inspector (Lead Inspector)

### **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 (preferred), in care of Joel Rivera-Ortiz, by January 4, 2013 to facilitate the selection of specific items that will be reviewed during the onsite inspection week. The inspector will select specific items from the information provided for section A.1 below and then request additional documents needed during the onsite inspection week as discussed in section B.1 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 in electronic format if possible. If requested documents are large and only hard copy formats are available, please inform the inspector(s), and provide subject documentation during the first day of the onsite inspection. If you have any questions regarding this information request, please call the inspector as soon as possible.

#### **A.1 Heat Exchangers and Service Water Equipment**

- a) List of heat exchangers and equipment cooled by service water (SW) directly or indirectly.
- b) For the heat exchangers listed in item (a) above, provide the program documents that govern the performance monitoring of these heat exchangers including testing methods and frequency, inspection methods and frequency, maintenance, monitoring of biotic fouling and macro-fouling, and chemistry control, as applicable.
- c) As applicable, provide a list of risk-significant components in the service water system and UHS with their respective risk ranking, including the heat exchangers listed for item (a) above.
- d) List of risk-significant non-safety related functions supported by the service water system.
- e) Response to NRC Generic Letter 89-13, including any regulatory commitments made to the NRC in response to this Generic Letter or other regulatory commitments associated with service water system and UHS performance.
- f) Design Basis Documents associated with the SW system and the Ultimate Heat Sink (UHS). Please include a description of the UHS design for the site. Particularly whether the UHS is above ground encapsulated by embankments, weirs or excavated side slopes, underwater weir or excavation, forced draft cooling tower or spray pond.

Enclosure

- g) Latest version of the Final Safety Analysis Report chapters addressing SW system design.
- h) Basic service water system flow diagrams.
- i) System Health Reports for the last three years associated with the SW system and systems that are cooled by SW.
- j) List of components or systems in Maintenance Rule a(1) status due to SW system interaction.
- k) List of corrective action documents (with a brief description) in the last three years for SW related issues, including conditions adverse to quality that have received a Root Cause Analysis or an elevated severity level in the site's Corrective Action Program.
- l) Industry Operating Experience events in the last three years related to SW system that have been evaluated through the site's Operating Experience or Corrective Action Program.
- m) List of applicable Codes and Industry Guidelines currently used for the performance monitoring of heat exchangers and UHS.
- n) List of redundant or infrequently used heat exchangers
- o) Provide the program documents that govern the performance monitoring of the UHS and its subcomponents like piping, intake screens, pumps, and valves, including testing methods and frequency, inspection methods and frequency, maintenance, monitoring of fouling, and chemistry control, as applicable.
- p) Provide flow diagrams indicating buried or inaccessible piping in the service water system and UHS.
- q) Program documents governing the inspection, testing, and monitoring of buried piping in the service water system and UHS.
- r) List of safety-related and non-safety related valve interfaces between safety-related service water and non-safety related or non-seismic piping systems.
- s) List of design changes to the service water system and the UHS in the last three years.
- t) As applicable, provide a list of historical through-wall leaks in service water piping for the last three years. Please include the location of the leak(s) and corrective actions taken.
- u) Contact information for licensing and engineering staff supporting the inspection.



**B. Information to be provided on-site to the inspector at the entrance meeting (January 14, 2013):**

**B.1 Heat Exchangers and Service Water Equipment**

The inspector will select a sample of heat exchangers and/or ultimate heat sink samples from the information provided for section A.1 above, as required by inspection procedure IP 71111.07, during in-office preparation. For the samples selected, the inspectors will request the items listed below, as applicable.

- a) Updated list of technical and licensing point of contacts.
- b) Copies of selected corrective action documents including supporting documents such as cause evaluations, corrective action plans, work orders, etc.
- c) Copies of evaluations and associated corrective actions for selected Operating Experience Events.
- d) For the selected heat exchangers or equipment cooled by service water (SW) directly or indirectly, provide documentation associated with:
  - Performance testing methodology and results for the last three years
  - Inspection/cleaning methods and results of performance inspections for the last three years, including eddy current test inspections to determine the structural integrity of the heat exchanger. For eddy current testing results, please include eddy current examination reports, examiner qualification records, and associated corrective action documents.
  - Operating data demonstrating that the heat exchanger's condition and operation is consistent with design assumptions in heat transfer calculations and as described in the UFSAR
  - Periodic flow test results at/or near maximum design flow
  - Engineering evaluations addressing heat exchanger susceptibility to water hammer and measures in place to address potential water hammer concerns
  - Plant operating procedures showing the controls and operational limits in-place to prevent heat exchanger degradation due to excessive flow induced vibration during operation
  - Current number of plugged tubes relative to the pre-established plugging limits in design calculations
  - Results of chemistry control program for the last three years
- e) For selected above-ground UHS encapsulated by embankments, weirs or excavated side slopes, provide documentation for the last three years associated with:
  - Licensee or third party dam inspections for monitoring the integrity of the heat sink
  - Monitoring results for verification of sufficient reservoir capacity
- f) For selected underwater UHS weirs or excavations, provide documentation for the last three years associated with:

- Results of visual or other inspections performed to check for any possible settlement or movement indicating loss of structural integrity and/or capacity, including sediment intrusion that may reduce capacity
- g) For selected UHS such as a forced draft cooling tower or spray pond, provide documentation for the last three years associated with the methods and results to verify:
- Reservoir capacity
  - Periodic monitoring and trending of sediment build-up
  - Periodic performance monitoring of heat transfer capability
  - Performance monitoring of the UHS structural integrity
- h) For selected operational samples of the service water system and UHS, provide documentation for the last three years associated with:
- Selected design changes to the service water system and the UHS
  - Licensee procedures for a loss of the service water system or UHS
  - Licensee controls to prevent clogging due to macro-fouling through monitoring and trending
  - Results of biocide treatments for biotic control
  - For fixed volume UHS, provide results of chemistry monitoring to ensure adequate pH, calcium hardness, etc. are maintained
  - Results of pump performance monitoring for potential strong-pump weak-pump interaction in the service water system
- i) For selected performance testing samples of the service water system and UHS, provide documentation for the last three years associated with:
- Performance tests, such as ASME inservice tests, of selected components
  - Performance testing of isolation capabilities for interface valves between safety-related service water and non-safety related or non-seismic piping systems
  - Service water flow balance test results
  - Performance of selected risk significant non-safety related functions
- j) Please have knowledgeable staff available during the onsite inspection to support walkdowns of selected plant structures, systems, and components associated with the service water system and UHS.

Inspector Contact Information:

Joel Rivera-Ortiz  
 Senior Reactor Inspector  
 404-997-4825  
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