



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

January 16, 2015

Mr. Steven D. Capps
Duke Energy Carolinas, LLC
McGuire Nuclear Station
12700 Hagers Ferry Road
Huntersville, NC 28078-8985

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

Dear Mr. Capps:

The U. S. Nuclear Regulatory Commission (NRC) will perform the baseline heat sink (HS) inspection at your McGuire Nuclear Station from March 9 – 13, 2015. In order to minimize the impact to your onsite 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, and understand that our regulatory contact for this inspection will be Mr. George Murphy at 980-875-5715 of your organization. If there are any questions about this inspection or the material requested, please contact the lead inspector Al Butcavage via e-mail at Alexander.Butcavage@nrc.gov.

In accordance with Title 10 of the *Code of Federal Regulations* (10 CFR) 2.390, “Public inspections, exemptions, requests for withholding,” 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) Room, or from the

Publicly Available Records (PARS) component of NRC's Agencywide Documents Access and Management System (ADAMS); accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

/RA/

Shakur A. Walker, Chief
Engineering Branch 3
Division of Reactor Safety

Docket Nos. 50-369 and 50-370
License Nos. NPF 9 and NPF 17

Enclosure:
Pre-Inspection Document Request

cc: Distribution via Listserv

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ADAMS: Yes ACCESSION NUMBER: ML15016A406 SUNSI REVIEW COMPLETE FORM 665 ATTACHED

| | | | | | | | |
|-------------|---------------|---------------|--|--|--|--|--|
| OFFICE | RII:DRS/EB3 | RII:DRS/EB3 | | | | | |
| SIGNATURE | AJB1 | SAW4 | | | | | |
| NAME | A. Butcavage | S. Walker | | | | | |
| DATE | 1/ 15 /2015 | 1/ 16 /2015 | | | | | |
| E-MAIL COPY | YES NO | YES NO | | | | | |

Official Record Copy

HEAT SINK PERFORMANCE INSPECTION DOCUMENT REQUEST

Inspection Dates: March 9 – 13, 2015

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

Inspectors: AI Butcavage, Reactor 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 AI Butcavage by February 27, 2015, 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 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 SW system and ultimate heat sink (UHS) with their respective risk ranking, including the heat exchangers listed for item (a) above.
- (d) List of risk-significant nonsafety-related functions supported by the SW system.
- (e) Response to NRC Generic Letter (GL) 89-13, including any regulatory commitments made to the NRC in response to this GL, or other regulatory commitments associated with SW system and UHS performance.
- (f) Design Basis documents associated with the SW system and the 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.

- (g) Latest version of the Updated Final Safety Analysis Report (UFSAR) Chapters addressing SW system design.
- (h) Basic SW system flow diagrams.
- (i) System Health Reports for the last 3 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 3 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 (CAP).
- (l) Industry operating experience (OE) events in the last 3 years related to SW system that have been evaluated through the site's operating experience or CAP.
- (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 SW system and UHS.
- (q) Program documents governing the inspection, testing, and monitoring of buried piping in the SW system and UHS.
- (r) List of safety-related and nonsafety-related valve interfaces between safety-related SW and nonsafety-related, or non-seismic piping systems.
- (s) List of design changes to the SW system and the UHS in the last 3 years.
- (t) As applicable, provide a list of historical through-wall leaks in SW piping for the last 3 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 onsite to the inspector at the entrance meeting (March 9, 2015):

B.1 Heat Exchangers and Service Water Equipment

The inspector will select a sample of heat exchangers and/or UHS 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 inspector 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 OE events.
- (d) For the selected heat exchangers or equipment cooled by SW directly or indirectly, provide documentation associated with:
 - Performance testing methodology and results for the last 3 years.
 - Inspection/cleaning methods and results of performance inspections for the last 3 years, including eddy current test (ECT) inspections to determine the structural integrity of the heat exchanger. For ECT 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 3 years.
- (e) For selected above-ground UHS encapsulated by embankments, weirs, or excavated side slopes, provide documentation for the last 3 years associated with:
 - Licensee, or third party, dam inspections for monitoring the integrity of the HS sink.
 - Monitoring results for verification of sufficient reservoir capacity.
 - For selected underwater UHS weirs or excavations, provide documentation for the last 3 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.

- (f) For selected UHS such as a forced-draft cooling tower or spray pond, provide documentation for the last 3 years associated with the methods and results to verify:
- Reservoir capacity.
 - Periodic monitoring and trending of sediment buildup.
 - Periodic performance monitoring of heat transfer capability.
 - Performance monitoring of the UHS structural integrity.
- (g) For selected operational samples of the SW system and UHS, provide documentation for the last 3 years associated with:
- Selected design changes to the SW system and the UHS.
 - Licensee procedures for a loss of the SW 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 that adequate pH, calcium hardness, etc., are maintained.
 - Results of pump performance monitoring for potential strong-pump weak-pump interaction in the SW system.
- (h) For selected performance testing samples of the SW system and UHS, provide documentation for the last 3 years associated with:
- Performance tests, such as American Society of Mechanical Engineers (ASME) inservice tests, of selected components.
 - Performance testing of isolation capabilities for interface valves between safety-related SW and nonsafety-related or non-seismic piping systems.
 - SW flow balance test results.
 - Performance of selected risk-significant nonsafety-related functions.
- (i) Please have knowledgeable staff available during the onsite inspection to support walkdowns of selected plant structures, systems, and components associated with the SW system and UHS.

Inspector Contact Information:

Al Butcavage
Reactor Inspector
404-997-4640
Alexander.Butcavage@nrc.gov

Mailing Address:

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