



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
1600 EAST LAMAR BOULEVARD
ARLINGTON, TEXAS 76011-4511

June 8, 2021

Mr. John Ferrick, Site Vice President
Entergy Operations, Inc.
17265 River Road
Killona, LA 70057

SUBJECT: WATERFORD STEAM ELECTRIC STATION, UNIT 3 - NOTIFICATION OF NRC
TRIENNIAL HEAT EXCHANGER/HEAT SINK PERFORMANCE INSPECTION
05000382/2021003 AND REQUEST FOR INFORMATION

Dear Mr. Ferrick:

The purpose of this letter is to notify you that U.S. Nuclear Regulatory Commission (NRC) staff will conduct the triennial portion of the heat exchanger/heat sink performance inspection at Waterford Steam Electric Station, Unit 3 from August 16 – 20, 2021. The onsite phase of the inspection will consist of one reactor inspector from the NRC's Region IV office for one week. The inspection will be conducted in accordance with NRC Inspection Procedure (IP) 71111, Attachment 07, "Heat Exchanger/Heat Sink Performance," dated January 1, 2021.

The objectives of the inspection are to verify that: 1) any potential heat exchanger deficiencies which could mask degraded performance are identified, 2) any potential common-cause heat sink performance problems that have the potential to increase risk are identified, and 3) the licensee has adequately identified and resolved heat sink performance problems that could result in initiating events or affect multiple heat exchangers in mitigating systems and thereby increase risk.

To minimize the impact the inspection has on the site and to ensure an efficient inspection, we have enclosed a request for documents needed for the inspection. It is important that these requests are fulfilled as completely and accurately as possible to minimize any additional requests during the preparation week or during the onsite inspection. The documents have been divided into three groups.

- The first group lists information necessary for our initial inspection scoping activities. This information should be available to the lead inspector no later than July 5, 2021. By July 12, 2021, the lead inspector will communicate the initial selected set of 2-4 risk significant or safety-related heat exchangers and/or heat sinks.
- The second group of documents requested includes those items needed to support our in-office preparation activities. This set of documents, including the calculations associated with the selected heat exchangers and/or heat sinks, should be available no later than August 2, 2021. This information should be separated for each selected

component, especially if provided electronically. Note that the inspector(s) may identify additional information needed to support the inspection during this week and will communicate those requests as soon as practicable.

- The third group of documents requested includes the additional documentation identified during in-office preparation activities as well as other resource requests necessary to support our onsite inspection activities. The additional information or resources should be available throughout the week of onsite inspection activities beginning on August 16, 2021.

All requested documents are to be for the time period from the onsite inspection period back to the last triennial heat exchanger/heat sink performance inspection. If nothing addressing a request was done in that time period, then the request applies to the last applicable document. If a request does not apply for any heat exchanger/heat sink sample, no response is necessary. Include all attachments to the requests, especially corrective action program documents.

We have discussed the schedule for this inspection with your staff and understand that our regulatory contact for this inspection will be Mr. Remy Devoe of your Licensing Organization. If there are any questions about this inspection or the documents requested, please contact the lead inspector, Wayne Sifre, by telephone at 817-200-1193 or by e-mail at Wayne.Sifre@nrc.gov.

PAPERWORK REDUCTION ACT STATEMENT

This letter contains mandatory information collections that are subject to the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.). The Office of Management and Budget (OMB) approved these information collections (approval number 3150-0011). Send comments regarding this information collection to the Information Services Branch, Office of the Chief Information Officer, Mail Stop: T6 A10M, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by e-mail to Infocollects.Resource@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0011) Office of Management and Budget, Washington, DC 20503.

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In accordance with Title 10 of the *Code of Federal Regulations* (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,

David Proulx, Acting Chief
Engineering Branch 1
Division of Reactor Safety

Docket No. 50-382
License No. NPF-38

Enclosure:
Triennial Heat Exchanger/Heat Sink
Performance Inspection Request
for Information

cc w/ encl: Distribution via LISTSERV®

WATERFORD STEAM ELECTRIC STATION, UNIT 3 – NOTIFICATION OF NRC TRIENNIAL HEAT EXCHANGER/HEAT SINK PERFORMANCE INSPECTION 05000382/2021003 AND REQUEST FOR INFORMATION – DATED JUNE 8, 2021

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**Request for Information
Triennial Heat Exchanger/Heat Sink Performance Inspection
Waterford Steam Electric Station, Unit 3**

Inspection Report: 05000382/2021003
Inspection Dates: August 16 – 20, 2021
Inspection Procedure: IP 71111.07, Triennial “Heat Exchanger/Heat Sink Performance”
Inspector: Wayne C. Sifre, Senior Reactor Inspector

I. Information Requested by July 5, 2021:

1. Heat exchanger/heat sink program documents, including Generic Letter (GL) 89-13 or aging management programs
2. Responses to GL 89-13
3. Different requirements and/or commitments related to GL 89-13 or aging management programs
4. Heat exchanger/heat sink program self-assessments
5. Updated final safety analysis report (UFSAR), technical specifications (TSs), and TS bases
6. List of heat exchangers in order of risk significance
7. List of corrective action program documents related to heat exchangers/heat sinks

II. Information Requested by August 2, 2021:

1. For the selected heat exchangers that are directly cooled by the service water system:
 - a. Performance testing (or equivalent method) documentation, including procedure
 - b. Periodic flow testing and/or balancing documentation, including procedure
 - c. Inspection (visual, eddy-current, etc.) and cleaning documentation, including procedure
 - d. Tube plugging map
 - e. Biotic fouling and macrofouling treatment documentation, including procedure
 - f. Relevant design basis calculation

Enclosure

- g. Applicable system health report and design basis document
 - h. Relevant system piping and instrumentation diagrams
 - i. Heat exchanger design specification and heat exchanger data sheet
 - j. Heat exchanger preventive maintenance schedule
2. For the selected heat exchangers that are directly cooled by a closed loop cooling water system:
- a. Periodic flow testing and/or balancing documentation, including procedure
 - b. Inspection (visual, eddy-current, etc.) and cleaning documentation, including procedure
 - c. Tube plugging map
 - d. Evaluation of potential for water hammer
 - e. Chemical treatment documentation, including procedure
 - f. Relevant design basis calculations
 - g. Applicable system health report and design basis document
 - h. Relevant system piping and instrumentation diagrams
 - i. Heat exchanger design specification and heat exchanger data sheet
 - j. Heat exchanger preventive maintenance schedule
3. For the selected ultimate heat sink (UHS):
- a. Forced draft cooling tower or spray pond UHS:
 - i. Calculations demonstrating sufficient reservoir capacity
 - ii. Documentation of periodic monitoring and trending of sediment, including procedures
 - iii. Performance monitoring documentation of heat transfer capability, including procedures
 - iv. Performance monitoring documentation of UHS structural integrity, including procedures
 - b. Operation of the service water system (SWS) and UHS:
 - i. List of modifications to the SWS and UHS

- ii. Procedures for a loss of SWS or UHS
 - iii. Biotic fouling and macrofouling treatment documentation, including procedures
 - iv. Chemistry monitoring documentation, including procedures
 - v. Evaluation of strong-pump to weak-pump interactions
- c. Performance testing of the SWS and UHS:
- i. Inservice testing documentation of SWS/UHS pumps, valves, and fans, including procedures
 - ii. Service water flow balance test documentation, including procedures
 - iii. Diagnostic testing documentation for valves that interface with safety-related service water and nonsafety-related or nonseismic piping systems
 - iv. Performance testing documentation of risk-significant nonsafety-related functions (or alignments), including procedures
- d. Component cooling water system:
- i. Inaccessible pipe testing, inspection (visual, ultrasonic, etc.), and/or monitoring documentation, including procedure
 - ii. Evaluations of active thru wall pipe leaks
 - iii. Corrective action documents related to thru wall pipe leakage, including trend evaluations
 - iv. For closed cooling water systems, trend data on make-up to the system
 - v. Protective coatings inspection documentation, including procedure
 - vi. For deep draft vertical pumps, diagnostic testing (or equivalent method) documentation, including procedures
- e. Service water intake structure (SWIS):
- i. Preventive maintenance schedule for traveling screens and strainers
 - ii. Corrective action documents related to traveling screens, strainers, trash racks, etc.
 - iii. SWS/UHS normal and abnormal operating procedures
 - iv. SWIS inspection documentation regarding structural integrity and silting, including procedure

- v. Service water pump bay water level instrument documentation related to setpoints and calibration, including procedures
- vi. SWS/UHS water temperature instrumentation documentation related to setpoints and calibration, including procedures
- vii. Evaluations of potential for frazil ice formation
- viii. For underwater weir walls, evaluations of potential silt introduction

III. Additional Requests During Onsite Inspection Activities

1. Supplemental requests identified during in-office preparation activities
2. Additional requests identified during onsite inspection activities
3. Discussions with relevant subject matter experts
4. Walkdowns of selected heat exchanger/heat sink samples
5. Corrective action program documents generated as a result of this inspection

If the information requested above will not be available, please contact Wayne Sifre as soon as possible.

Inspector Contact Information:

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