UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION III
2443 WARRENVILLE RD. SUITE 210
LISLE, IL 60532-4352

April 4, 2014

Mr. Raymond Lieb
Site Vice President
FirstEnergy Nuclear Operating Company
Davis-Besse Nuclear Power Station
5501 North State Route 2, Mail Stop A-DB-3080
Oak Harbor, OH 43449-9760

SUBJECT: DAVIS-BESSE NUCLEAR POWER STATION – NOTIFICATION OF INSPECTION AND INFORMATION REQUEST – TRIENNIAL HEAT SINK PERFORMANCE INSPECTION

Dear Mr. Lieb:

On June 23, 2014, the U.S. Nuclear Regulatory Commission (NRC) will begin the on-site portion of the Triennial Heat Sink Performance Inspection at your Davis-Besse Nuclear Power Station. This inspection will be performed in accordance with NRC Baseline Inspection Procedure (IP) 71111.07T.

In order to minimize the impact that the inspection has on the site and to ensure a productive inspection, we have enclosed a request for documents needed for the 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 April 28, 2014. By May 9, 2014, the inspector will communicate the initial selected set of approximately 2 – 3 risk significant heat exchangers.

- The second group is needed to support our in-office preparation activities. This set of documents, including the calculations associated with the selected heat exchangers, should be available at the Regional Office no later than June 9, 2014. This information should be separated for each selected component, especially if provided electronically (e.g., folder with component name that includes calculations, condition reports, maintenance history, etc.). During the in-office preparation activities, the inspector may identify additional information needed to support the inspection.

- The last group includes the additional information above, as well as plant specific reference material. This information should be available onsite to the inspector on June 23, 2014. It is also requested that corrective action documents and/or questions developed during the inspection be provided to the inspector as the documents are generated.

All requested documents are to be for the time period from the onsite inspection period back to the documents that were provided in response to the previous heat sink performance inspection. If no activities were accomplished in that time period, then the request applies to the last applicable document in the previous time period. It is important that these documents be as complete as possible, in order to minimize the number of documents requested during the preparation week or during the on-site inspection.

The lead inspector for this inspection is Gerard O'Dwyer. If there are questions about the material requested, or the inspection, please call Gerard O'Dwyer at (630) 829-9624. Please send the information to the following e-mail address Gerard.ODwyer@nrc.gov. A hard-copy with the required information is also an acceptable option.

This letter does not contain new or amended information collection requirements subject to the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.). Existing information collection requirements were approved by the Office of Management and Budget, Control Number 3150-0011. The NRC may not conduct or sponsor, and a person is not required to respond to, a request for information or an information collection requirement unless the requesting document displays a currently valid Office of Management and Budget Control Number."

In accordance with Title 10, *Code of Federal Regulations* (CFR), Section 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 System (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 by C. Tilton for/

Ann Marie Stone, Chief
Engineering Branch 2
Division of Reactor Safety

Docket No. 50-346
License No. NPF-3

Enclosure:
Triennial Heat Sink Performance Inspection Document Request

cc w/encl: Distribution via ListServ™

TRIENNIAL HEAT SINK PERFORMANCE INSPECTION DOCUMENT REQUEST

Inspection Report: 05000346/2014003

Inspection Dates: June 23 – 27, 2014

Inspection Procedure: Inspection Procedure 71111.07, "Heat Sink Performance"

Lead Inspector: G. O'Dwyer
(630) 829-9624
Gerard.ODwyer@nrc.gov

I. Information Requested By April 28, 2014

1. List of the Generic Letter (GL) 89-13, "Service Water System Problems Affecting Safety-Related Equipment," heat exchangers in order of risk significance.

2. Copy of heat exchanger performance trending data tracked for each GL 89-13 heat exchanger.

3. List of Corrective Action Program documents (with a short description) associated with GL 89-13 heat exchangers, heat sinks, silting, corrosion, fouling, or heat exchanger testing, for the previous three years or since the last Corrective Action Program document list was sent to the NRC for the previous heat sink performance inspection. The list should include all Corrective Action Program documents not on the last Corrective Action Program document list.

4. Copy of any self-assessment done on any of GL 89-13 heat exchangers.

5. Last two System Health Report(s) and maintenance rule system notebooks for all the GL 89-13 heat exchangers.

6. List of engineering-related operator workarounds (with a short description) associated with GL 89-13 heat exchangers. The requested documents are to be for the time period from the onsite inspection period back to the documents that were provided in response to the previous Heat Sink Performance Inspection.

7. List of permanent and temporary modifications (with a short description) associated with GL 89-13 heat exchangers. The requested documents are to be for the time period from the onsite inspection period back to the documents that were provided in response to the previous Heat Sink Performance Inspection.

8. Copy of the Updated Final Safety Analysis Report (UFSAR) supplement applicable to License Renewal.

II. Information Requested By June 9, 2014

1. Copies of the GL 89-13 responses.

2. Copy of the Updated Final Safety Analysis Report (UFSAR) section applicable to the GL 89-13 Heat Exchanger Program.

3. Copies of procedures developed to implement the recommendations of GL 89-13 (e.g., the GL 89-13 Heat Exchanger Program description).

4. Copies of the selected Corrective Action Program documents.

    a. For the specific heat exchangers selected:

    b. Copies of the UFSAR sections applicable for each heat exchanger.

    c. Copy of system description and design basis document for the heat exchangers (as applicable).

    d. Provide a list of calculations (with a short description), which currently apply to each heat exchanger.

        i. establish the limiting design basis heat load required to be removed by each of these heat exchangers;

        ii. demonstrate the heat exchangers capacity to remove the limiting heat load;

        iii. correlate surveillance testing and/or inspection results from these heat exchangers with design basis heat removal capability (e.g., basis for surveillance test and/or inspection acceptance criteria);

        iv. evaluate the potential for water hammer in each heat exchanger or associated piping; and

        v. evaluate excessive tube vibration in each heat exchanger.

    e. Copy of any operability determinations or other documentation of degradation associated with the heat exchangers or the systems that support the operation for the selected heat exchangers.

    f. Copy of the construction code, Design Specification, heat exchanger data sheets, and vendor documents including component drawings applicable for the heat exchangers.

    g. Copies of normal, abnormal, and emergency operating procedures associated with the selected heat exchangers.

5. For the ultimate heat sink (UHS):

   a. Copies of the applicable Updated Final Safety Analysis Report (UFSAR) sections.

   b. Copy of system description and design basis document (as applicable).

   c. Copy of any operability determinations or other documentation of degradation associated with the UHS.

   d. Copy of the document (e.g., UFSAR or Technical Requirements Manual) that states the maximum cooling water system inlet temperature limit that still allows full licensed power operation of the nuclear reactor.

   e. Copy of system description and design basis document (as applicable).

   f. Copy of the construction code and Design Specification.

   g. Copies of normal, abnormal, and emergency operating procedures associated with the UHS.

   h. Current copies of Corrective Action Documents 11-0422, “Intake Canal Does Not Meet Design Configuration Requirements”; CR-2011-01055, “Intake Canal Silt Depth”; and all associated Operability Assessments (e.g., POD 2011-03) including SRO notes, etc.

   i. Copy of latest UFSAR supplement for License Renewal.

   j. If available, provide an electronic copy of UHS drawings and the including the intake structure.

   k. Provide a list of calculations (with a short description), which currently apply to UHS.

   l. Provide a list of instruments (with a short description) associated with automatic or alarm functions for the safety-related UHS.

   m. Provide a list of any design change (with a short description) performed on the UHS since the last heat sink performance inspection.

6. A schedule of all inspections, cleanings, maintenance, or testing of <u>any</u> safety-related plant heat exchanger to be performed during the on-site portion of the inspection.

III. Information Requested to be Available on First Day of Inspection, June 23, 2014

1. For the specific heat exchangers selected.

   a. Copy of the calculation which correlates surveillance testing results from these heat exchangers with design basis heat removal capability (e.g., basis for surveillance test acceptance criteria).

   b. Copies of the two most recent completed tests and evaluation data confirming thermal performance for those heat exchangers which are performance tested.

   c. Documentation and procedures that identify the types, accuracy, and location of any special instrumentation used for the two most recently completed thermal performance tests for the heat exchangers (e.g., high accuracy ultrasonic flow instruments or temperature instruments). Include calibration records for the instruments used during these tests.

   d. Information regarding any alarms which monitor on-line performance.

   e. Copy of the document describing the inspection results of each heat exchanger. The requested documents are to be for the time period from the onsite inspection period back to the documents that were provided in response to the previous heat sink performance inspection.

   f. The cleaning and inspection maintenance schedule for each heat exchanger for the next five years.

   g. Copy of the design specification and heat exchanger data sheets for each heat exchanger.

   h. Copy of the vendor manuals including component drawings for each heat exchanger.

   i. Copy of the calculation which establishes the limiting (maximum) design basis heat load which is required to be removed by each of these heat exchangers.

   j. Copy of the operating procedure that ensures that the maximum cooling water system inlet temperature limit is not exceeded.

   k. Copy of the calculations or documents which evaluate the potential for water hammer in each heat exchanger or associated piping.

   l. Copy of the calculations that evaluate excessive tube vibration in each heat exchanger and the documents that describe the controls that prevent heat exchanger degradation due to excessive flow induced vibration during operation.

   m. Copy of the periodic flow testing at or near maximum design flow and the associated results. The requested documents are to be for the time period from the onsite inspection period back to the documents that were provided in response to the previous heat sink performance inspection.

n. Copy of the document which identifies the current number of tubes in service for each heat exchanger and the supporting calculation which establishes the maximum number of tubes which can be plugged in each heat exchanger.

o. Copy of the document establishing the repair criteria (plugging limit) for degraded tubes which are identified in each heat exchanger.

p. Copies of the documents that verify the structural integrity of the heat exchanger (e.g., eddy current summary sheets, ultrasonic testing results, and visual inspection results).

q. Copies of those documents that describe the methods taken to control water chemistry in the heat exchangers.

2. For the UHS:

a. Copies of the toe of the weir or embankment inspection procedures and the associated results. The requested documents are to be for the time period from the onsite inspection period back to the documents that were provided in response to the previous heat sink performance inspection.

b. Copies of the inspection procedures of the rip rap protection placed on excavated side slopes and the associated results. The requested documents are to be for the time period from the onsite inspection period back to the documents that were provided in response to the previous heat sink performance inspection.

c. Copies of calculations and surveillances that determine the UHS reservoir capacity and heat transfer capability if the intake canal is disconnected from the lake.

d. Copies of surveillance procedures and testing results performed on the instrumentation relied upon to determine UHS reservoir capability. The requested documents are to be for the time period from the onsite inspection period back to the documents that were provided in response to the previous heat sink performance inspection.

e. Copies of the inspection procedures for the verification of the structural integrity of underwater UHS and the associated results. The requested documents are to be for the time period from the onsite inspection period back to the documents that were provided in response to the previous heat sink performance inspection.

f. Copies of the maintenance and/or inspection procedures for underwater UHS sediment intrusion and the associated results including underwater diving inspections and/or sediment removal activities. The requested documents are to be for the time period from the onsite inspection period back to the documents that were provided in response to the previous heat sink performance inspection.

g. Copies of surveillance procedures and testing results performed on the instrumentation relied upon to determine UHS reservoir capability. The requested documents are to be for the time period from the onsite inspection period back to the documents that were provided in response to the previous heat sink performance inspection.

h. Copies of documents associated with the periodic monitoring and trending of sediment built-up.

i. Copies of the procedures used for verifying that adjacent non-seismic or non-safety related structures cannot degrade or block safety-related flow paths during severe weather or seismic events.

3. For the review associated with the system walkdown of the service water intake structure:

a. Copies of corrective maintenance for the last six years associated with service water strainers, traveling screens and trash racks.

b. Copies of the last two inspections and/or surveillances associated with service water strainers, traveling screens and trash racks.

c. List of preventive maintenance, including frequency, associated with service water strainers, traveling screens and trash racks.

d. Copies of abnormal procedures for the traveling screens and service water strainers.

e. Copies of the last two inspections and/or surveillances documenting that component mounts have not excessively degraded (i.e., due to corrosion). For example, inspections for the mounts for the, Service water pumps, service water strainers, traveling screens and trash racks.

f. Copies of the documents associated with the monitoring, trending, and remediation of silt accumulation at the service water pump bay.

g. Copies of surveillance procedures and testing results performed on the service water pump bay water level instruments. The requested documents are to be for the time period from the onsite inspection period back to the documents that were provided in response to the previous heat sink performance inspection.

h. Copies of procedures associated with operating during adverse weather conditions (e.g., icing, high temperatures, or low level).

i. Copy of the evaluation for the potential effects of low flow/level on underwater weir walls intended to limit silt or sand intake, if applicable.

If the information requested above will not be available, please contact Gerard O'Dwyer as soon as possible at (630) 829-9624 or email Gerard.ODwyer@nrc.gov.

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Sincerely,

/RA by C. Tilton for/

Ann Marie Stone, Chief
Engineering Branch 2
Division of Reactor Safety

Docket No. 50-346
License No. NPF-3

Enclosure:
TRIENNIAL HEAT SINK PERFORMANCE INSPECTION DOCUMENT REQUEST

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Letter to Raymond Lieb from Ann Marie Stone dated April 4, 2014.

SUBJECT: DAVIS-BESSE NUCLEAR POWER STATION – NOTIFICATION OF INSPECTION AND INFORMATION REQUEST – TRIENNIAL HEAT SINK PERFORMANCE INSPECTION

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