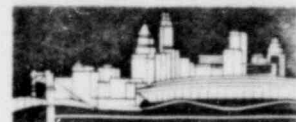


DMB 50-358

THE CINCINNATI GAS & ELECTRIC COMPANY



CINCINNATI, OHIO 45201

June 17, 1981

E. A. BORGMANN
SENIOR VICE PRESIDENT

U. S. Nuclear Regulatory Commission
Office of Inspection and Enforcement
Region III
799 Roosevelt Road
Glen Ellyn, Illinois 60137



Attn: Mr. James G. Keppler, Regional Director

Re: WM. H. ZIMMER NUCLEAR POWER STATION - UNIT 1
RESPONSES TO IE BULLETIN 81-03, FLOW BLOCKAGE OF
COOLING WATER TO SAFETY SYSTEMS COMPONENTS BY
CORBICULA SP. (ASIATIC CLAM) AND MYTILUS SP. (MUSSEL)
W.O. 57300, JOB E-5590, FILE #957

Gentlemen:

The following information is being furnished in response to IE Bulletin 81-03, regarding flow blockage of cooling water to safety systems components by Corbicula sp. (Asiatic Clam) and Mytilus sp. (Mussel).

This information covers the three (3) items of inquiry pertaining to IE Bulletin 81-03 for holders of construction permits, dated April 10, 1981. The Cincinnati Gas & Electric Co. response consists of the following:

1. Determine whether Corbicula sp. or Mytilus sp. is present the vicinity of the station by completing items 1 and 4 above that apply to operating licenses (OL).

Item 1 as referenced above consists of the following question:

1. Determine whether Corbicula sp. or Mytilus sp. is present in the vicinity of the station (local environment) in either the source or receiving water body. If the results of current field monitoring programs provide reasonable evidence that neither of these species is present in the local environment, no further action is necessary except for items 4 and 5 in this section for holders of operating licenses.

Item 4 as referenced above consists of the following question:

4. Describe methods either in use or planned (including implementation date) for preventing and detecting future flow blockage or degradation due to clams or mussels or shell debris. Include the following information in this description:

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- a. Evaluation of the potential for intrusion of the organisms into these systems due to low water level and high velocities in the intake structure expected during worst case conditions.
- b. Evaluation of effectiveness of prevention and detection methods used in the past or present or planned for future use.

RESPONSE:

1. Review of the Environmental Report, page 2.7-15, determined that Corbicula sp. is present in the Ohio River in the vicinity of Zimmer Station. Specifically, "the Asiatic Clam, the most common mollusk in the area, was collected on every trip except November. Though commonly found, it was not abundant." Mytilus sp. has not been encountered in the Ohio River in the vicinity of Zimmer Station.
4. The present method of detecting flow blockage or degradation due to clams or shell debris consists of a thorough inspection of the emergency diesel generator cooling system. On June 9, 1981, four (4) diesel generator heat exchangers were dismantled and visually inspected for clam infestation by the Electric Production Department (EPD). These components of the service water system were chosen for inspection because they are currently fully operational and therefore most indicative of present and future infestations. The investigation revealed no clam infestation in the heat exchanger, and negligible evidence of shell debris (3 shells of $\frac{1}{2}$ " diameter removed from 4 heat exchangers). It is inferred that all other potentially affected components are likewise uninfested.

The planned method of preventing and detecting future flow blockages or degradation due to clams or shell debris shall consist of dismantling and visually inspecting at least one heat exchanger in each service water subsystem. If clams and debris are present, the remaining heat exchangers will be inspected and hand cleaned as necessary. This plan will be implemented just prior to fuel loading and will continue during each refueling outage.

The Fire Protection System is presently being monitored for blockages by flushing various lines approximately every six (6) months. To this date, no evidence of clam infestation or debris has been present during flushing cycles.

Prior to fuel loading, the NRC's comprehensive plan for routine surveillance of Fire Protection Systems according to the Tech. Specs. will be implemented. This routine flushing plan should detect clam infestation and prevent future clogging. If clogging does occur during the six (6) month flushing interval, the affected pipes will be mechanically cleaned and closer monitoring may be required.

- a. Potential for intrusion of Corbicula sp. due to low water level and high velocities is considered minimal due to the design of the intake structure. According to the Environmental Report, page 3.4-1, the maximum water withdrawal rate is 52,500 gpm and would occur only at a 100% plant load factor. This water withdrawal rate will result in an approach velocity to the traveling screens of less than 0.5 ft/sec. The bottom of the intake flume is located approximately 18 ft. below the normal river elevation of 455 msl, and low water levels are not expected to increase flow rate above 0.5 ft/sec, even for worst case conditions.
 - b. These programs of routinely inspecting the service water and Fire Protection Systems for intrusion of clams and shell debris have thus far been effective. Revisions to the plan may become necessary when the plant becomes operational and the extent of intrusion becomes more evident.
2. If these organisms are present in the local environment and potentially affected systems have been filled from the station source or receiving water body, determine whether infestation has occurred.

RESPONSE:

On June 9, 1981, four (4) diesel generator heat exchangers were dismantled and visually inspected by EPD of The Cincinnati Gas & Electric Company (CG&E). No evidence of fouling due to clams and negligible evidence of shell debris were discovered at this time. These components of the service water system should experience infestation first since they are currently fully operational and water temperatures are conducive to Corbicula sp. growth. CG&E is therefore confident that the remainder of the system is unfouled.

Detection and prevention of future blockages will begin prior to fuel loading. At this time one (1) heat exchanger in each service water subsystem will be dismantled and visually inspected for the presence of clams or shell debris. This procedure will be repeated during each fueling outage.

The Fire Protection System is presently flushed approximately semi-annually at various hose connections, and has shown no signs of blockage or degradation.

3. Describe the actions taken in items 1 and 2 above for construction permit holders and include the following information:
- a. Applicable portions of the environment monitoring program including last sample date and results.
 - b. Components and systems affected.

- c. Extent of fouling if any existed.
- d. How and when fouling was discovered.
- e. Corrective and preventive actions.

RESPONSE:

- a. During 1973 Wapora, Inc. conducted the biological baseline study at Wm. H. Zimmer Power Station. This report was published in early 1974.

During 1975-1976 Applied Biology, Inc. and the Department of Biological Sciences of the University of Cincinnati (ABI-UC) conducted the Construction Phase Monitoring Program at Zimmer Station. This report was published in July, 1977.

Both studies collected Corbicula sp. from the processed river bottom samples taken from the vicinity of Zimmer Station. The ABI-UC report shows Corbicula sp. to be especially prevalent during the summer months.

- b. The components and systems potentially affected include the following:
 - 1. Intake Flume
 - 2. Intake Structure
 - 3. Service Water Piping System - Water Boxes, Coolers, etc.
 - 4. Cooling Tower Basin and Condenser
 - 5. Fire Water System
 - 6. Emergency Diesel Generator Cooling System.

Of the above listed items, (1) Intake Flume, (2) Intake Structure, and (4) Cooling Tower Basin and Condenser are considered unlikely areas for infestation due to design and/or location in the water system. The remaining items will be the basis for monitoring clam infestation until future conditions warrant more extensive examination.

- c. Of these components and systems listed above, the Fire Water System and Emergency Diesel Generator Cooling System are deemed indicative of current infestation and have been monitored thus far. Tests of these systems show no evidence of fouling.
- d. Thus far fouling of any of the systems has not been discovered. Further investigation of heat exchangers in each service water subsystem will begin prior to fuel loading and continue during each refueling outage.

Mr. James G. Keppler, Director
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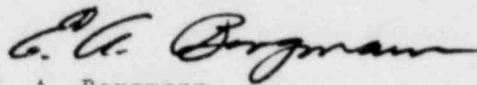
- e. If fouling of the service water system becomes a problem, the clams and/or debris will be removed from the heat exchangers by hand. All heat exchangers in a subsystem will be examined if the routine inspection indicates infestation. It is believed that routine inspection and cleaning will prevent flow levels from falling below minimum acceptable levels.

If fouling of the Fire Protection System is detected, the system will require cleaning by means of mechanical cleaners, such as pipe snakes. It is believed that routine flushing of the system will prevent clogging. All prevention/detection plans are subject to upgrading if current practices prove inadequate for operational plant conditions.

Very truly yours,

THE CINCINNATI GAS & ELECTRIC COMPANY

BY


E. A. Borgmann

PEB/jb

Enclosure

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