

May 22, 1981

Mr. Boyce H. Grier, Director  
United States Nuclear Regulatory Commission  
Region I  
631 Park Avenue  
King of Prussia, PA. 19406

RE: Docket No. 50-220  
I.E. Bulletin 81-03



Dear Mr. Grier:

The following response concerns I.E. Bulletin 81-03, "Flow Blockage of Cooling Water to Safety System Components by Corbicula sp. (Asiatic Clam) and Mytilus sp. (Mussel)".

Response to Item #1

Inspections for the presence of Corbicula sp. were undertaken in the source cooling water for Nine Mile Point Unit #1. Mytilus sp. was not reviewed since this genus is associated with salt water environments. An ecological consulting firm was hired by Niagara Mohawk to perform an ecological assessment as to the presence of Corbicula sp. This assessment entailed benthic surveys to the east and west of the Site, near the inlet structures, near the discharge structures and in the inlet forebay of Unit #1. Results indicate that Corbicula sp. does not pose a biofouling problem.

Although further action was not required pursuant to the findings of the above investigation, several other station inspections were made as follows. The debris from the inlet canal travelling screens and service water filters were inspected by biological consulting personnel on thirty-four (34), twenty-four (24) hour samples from January 1 to May 10, 1981. As part of a regular inspection program, the pump strainers of various safety related systems were checked between March 11 and March 14, 1981. These systems included: emergency service water, diesel generator cooling, raw water containment spray, and electric and diesel driven fire pump strainers were inspected. In conjunction, condenser water box inspections were made by station environmental personnel on April 4, 1981. The results of previous Aquatic Ecology Studies Reports for Nine Mile Point Unit #1 were reviewed and inspection of the benthic survey data (species inventory) was made for the years 1973-1978.

No evidence of Corbicula sp. was noted in any of these inspections or surveys.

1E11  
5/10

Response to Item #2 and Item #3

Not applicable.

Response to Item #4

Presently, the station's fire protection system, safety systems, service water system, and main condenser cooling systems are inspected on a periodic basis. The results of these inspections would indicate whether debris or organisms, such as Corbicula sp. are present in the source cooling water or inplant cooling systems that would effect the design operating criteria.

The fire protection system is checked for pump operability and the change in pressure across the pump strainers (discharge side of the pumps) on a weekly basis. The strainers are visually inspected every refueling outage. If Corbicula sp. was in the cooling water source, increases in the strainer  $\Delta P$  would be noted followed by inspection and cleaning of the strainers. The presence of clam shells in the strainers would alert station personnel to the possible presence of Corbicula sp.

Safety related systems, such as the emergency service water and raw water containment spray systems are inspected quarterly for adequate flow. Pump strainers related to these various systems are inspected during every refueling outage. The diesel generator cooling systems are operated in conjunction with the monthly 1-hour diesel generator surveillance and the associated pump strainers are checked every refueling outage. The presence of Corbicula sp. in these safety systems would significantly reduce the flow through such systems, and would cause motor or diesel overheating, therefore, prompting an investigation. In addition, during pump strainer inspections, the presence of mollusk shells would alert station personnel to possible infestations by Corbicula sp.

Flow from the main circulating water pumps and service water pumps is checked frequently. Records are kept by station personnel of daily flow rates for the circulating and service water pumps. A significant reduction in flow rates (as 25% for example), would be brought to the attention of supervisory operations personnel. An investigation would follow. In addition, screenings from the intake tunnels (3/8 inch mesh travelling screens) and from the service water system (Adams Strainers) empty into the fish collection basket. The collection basket is put in a sampling position on a regular frequency (78 days per year) for twenty-four (24) hour time intervals by ecological consultant personnel. Fish, as well as invertebrates (as mollusks), are identified. The presence of Corbicula sp. in the cooling water source would be indicated by the shells of these mollusks in samples taken from the cooling water screenings via the fish collection basket.

Finally, during station shutdowns lasting more than five (5) days, main condenser inspections are usually made by station environmental personnel when the water boxes are drained and opened. The presence of Corbicula sp. would be indicated by the growth of these mollusks on the inlet side of the main water boxes. Station supervisory personnel would immediately be notified.

Response to Item #4 (continued)

The inspections and checks of various systems detailed above are part of the station's normal routine inspection/surveillance program or environmental program. It is felt that through these methods, the presence of Corbicula sp., both in the cooling water source and in inplant systems, would be detected.

The potential for Corbicula sp., if present in the cooling water source, for intruding into fire and cooling water systems is possible at the station. Several system components exhibit areas of low flow velocity where larval or adult forms may attach.

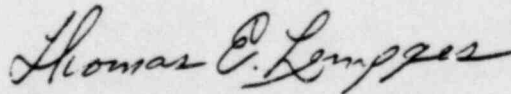
In the event that Corbicula sp. presents itself as a safety hazard concerning fire and safety related components at Nine Mile Point Unit #1, possible prevention and clean up procedures will be formulated. At the present, biocides such as chlorine seem to be relatively ineffective against the mollusk adult and larval forms. Only high chlorine concentrations seem to have limited success against Corbicula sp. infestations. The use of residual chlorine treatments in once through cooling water systems at high chloride concentrations is not permitted in New York State. Methods to prevent entry of this species into cooling systems in light of the fact the larval forms may attach and develop within systems, is impractical. The size of first stage larval forms is approximately 220 microns long. Since adult and larval forms are not resistant to heated environments, heated water flow through cooling systems following by hydro blasting may be necessary during refueling outage.

Response to Item #5

The preceding item responses include the information for this item.

The amount of time expended concerning investigation and report preparation for both licensee and consultant personnel is estimated at approximately 95 manhours.

Cordially,



Thomas E. Lempges  
Vice President -  
Nuclear Generation