

March 15, 1983

In reply, please
refer to LAC-8940

DOCKET NO. 50-409

Mr. Edward L. Jordan, Director
Division of Engineering and Quality Assurance
Office of Inspection and Enforcement
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

SUBJECT: DAIRYLAND POWER COOPERATIVE
LA CROSSE BOILING WATER REACTOR (LACBWR)
PROVISIONAL OPERATING LICENSE NO. DPR-45
IE BULLETIN NO. 81-03, FLOW BLOCKAGE OF COOLING WATER TO SAFETY
COMPONENTS BY CORBICULA SP. (ASIATIC CLAM) AND MYTILUS SP. (MUSSEL)

REFERENCES: (1) NRC Letter, Jordan to Linder,
dated January 21, 1983
(2) DPC Letter, Linder to Keppler, LAC-7549
dated May 18, 1981
(3) NRC Letter, Keppler to Gentlemen,
dated April 10, 1981, IE Bulletin No. 81-03

Dear Mr. Jordan:

Your letter requested the following additional information with respect to the subject bulletin.

NRC Request

Since Corbicula is present in the source-water, provisions to provide early detection of intrusion into plant systems would be advisable. Please provide additional justification that the annual HPSW surveillance test and the periodic cleaning the main condenser will provide adequate early warning of intrusion of clams. An alternative would be to include Corbicula in LACBWR's Environmental Monitoring Program.

DPC Response

Corbicula is a bivalve mollusk. It is monoecious, incubates the veligers (larvae) and the veligers are planktonic when discharged. The veliger larvae are discharged from July to November and are only about 220µ.

The veliger develops a muscular adhesive foot within the first 48 hours and attaches itself to a suitable substrate. This suitable substrate may be in the internal piping of the power plant. They grow rapidly (7.5mm - 13.5mm) and may be mature in a year. In 2 years they may be 18.5mm in length.

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Detection can be accomplished by several methods.

- (1) Plankton samples upstream from the intake can be collected and analyzed.
- (2) Benthos samples in the vicinity of the site can be collected and analyzed.
- (3) Piping in the plant can be periodically inspected.

Methods 1 and 2 will establish the presence of the clam in the area. Only method 3 will detect a fouling problem in the plant. We already know of the possibility of a population downstream. This population could continue to expand and invade the plant. However, the population appears to be small at this time.

The power plant at Lansing, Iowa (18 miles downstream from the Genoa site) presently has a population of Corbicula in the effluent canal which numbers up to 200 individuals per square meter. They have had some minor problems with water systems which are not periodically inspected and cleaned. There have been several years between problems and no remedial action has been needed. There are no known Corbicula populations upstream from the Genoa site and the population between Genoa and Lansing, Iowa is quite sparse.

The aim of the program is to detect intrusion of Corbicula into plant systems, especially the High Pressure Service Water System (HPSW), which is the only river-water system which performs a safety function. Therefore, DPC feels that inspection and testing of plant systems is the appropriate detection method.

The bottom of the inlet to the circulating water pumps is approximately two feet below the bottom of the HPSW intake (elevation 610'7" vs. 612'7"). therefore the circulating water pumps are more likely to pick up Corbicula. In addition, a circulating pump(s) runs continuously during plant operation, while the HPSW diesel pumps run infrequently. The intrusion of Corbicula into the circulating water system would be a forewarning of possible intrusion into the HPSW line. Historically, the condenser tubes and water boxes have been cleaned approximately twice a year. Since the original publication of the bulletin, all muck removed from the condenser has been closely examined for Corbicula and Corbicula shell fragments. None have been found. Since Corbicula have not been observed in any quantity in the Mississippi River near the plant; the examination of debris removed from the condenser when the condenser is cleaned should be an adequate detection method. The condenser is generally cleaned when it demonstrates plugging, which is an appropriate time from the standpoint of Corbicula detection.

The HPSW system surveillance test which is performed approximately annually would provide detection of Corbicula intrusion into the piping of concern. During this test, a required flow rate must be achieved at a designated pressure. If Corbicula were blocking the HPSW piping, the required flow rate would not be achieved and corrective action would have to be taken.

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In addition to the HPSW system surveillance test, a semi-annual flush is performed on the fire suppression system, which the HPSW system supplies. This test would detect pipe blockage in the areas flushed, including the HPSW strainers.

The DPC Environmental Department will be noting any occurrence of Corbicula in their routine monitoring in the vicinity of the plant. If the population significantly increases and includes the plant site, the need for a more stringent inspection process will be evaluated.

It is believed that the information presented here has provided the additional justification requested. If there are any other questions, please contact us.

Yours truly,

DAIRYLAND POWER COOPERATIVE

Frank Linder
Frank Linder, General Manager

FL:LSG/GJ:eme

cc: NRC Resident Inspector

STATE OF WISCONSIN)
)
COUNTY OF LA CROSSE)

Personally came before me this 16th day of March, 1983, the above named Frank Linder, to me known to be the person who executed the foregoing instrument and acknowledged the same.

Ann J. Malosi
Notary Public, La Crosse County
Wisconsin
My Commission Expires February 26, 1984