



GULF STATES UTILITIES COMPANY

RIVER BEND STATION POST OFFICE BOX 220 ST. FRANCISVILLE, LOUISIANA 70775
AREA CODE 504 638-6094 346 8661

March 4 , 1992
RBG- 36584
File No. G9.5, G10.2.7

U.S. Nuclear Regulatory Commission
Document Control Desk
Washington, D.C. 20555

Gentlemen:

River Bend Station - Unit 1
Docket No. 50-458

During the fourth refueling outage for River Bend Station, Gulf States Utilities (GSU) will chemically clean, then passivate the service water system. Once the service water system is cleaned and passivated, GSU will isolate it from the circulating water system. The service water system will thereafter use buffered demineralized water for makeup with a non-oxidizing biocide. The modifications in design and operation eliminate the possibility of an infestation of Asiatic Clams in the service water system. GSU therefore proposes to eliminate the continuous chlorination of the service water system from its Asiatic Clam Control Program. The remainder of that program, as currently implemented, will remain in effect.

The attachment to this letter contains a discussion of the proposed change to GSU's Asiatic Clam Control Program. In accordance with Technical Specification 6.8.4.d, GSU submits this proposed change for NRC Region IV and NRR review and approval prior to implementation. GSU requests approval by May 15, 1992, in order to allow implementation of this change prior to the scheduled restart of the normal service water system as a closed loop system.

If you have any questions or comments, please contact Mr. L. L. Dietrich of my staff at (504) 381-4866.

Sincerely,

W. H. Odell
Manager - Oversight
River Bend Nuclear Group

090105

001

485 [handwritten initials] [handwritten initials]
KES/LAE/LLD/TOB/WJS

Attachments

cc:

U. S. Nuclear Regulatory Commission
611 Ryan Plaza Drive, Suite 400
Arlington, TX 76011

NRC Resident Inspector
P.O. Box 1051
St. Francisville, LA 70775

Mr. D. V. Pickett
U.S. Nuclear Regulatory Commission
11555 Rockville Pike
Rockville, MD 20852

ATTACHMENT 1

ASIATIC CLAM CONTROL PROGRAM

REQUIREMENT

River Bend Station's Technical Specification 6.8.4.d , Biofouling Prevention and Detection requires:

"A program which will include the procedures to prevent biofouling of safety-related equipment, to assure detection of Corbicula in the intake embayment and the clarifier influent, and to monitor and survey safety-related equipment to detect biofouling. Changes to this program will be submitted to and approved by the NRC (both the Region and NRR) prior to implementation."

HISTORY

In April of 1981 the NRC issued Bulletin 81-03, Flow Blockage of Cooling Water to Safety System Components by Corbicula sp. (Asiatic Clams) and Mytilus sp. (Mussel). This bulletin identified to operating plants and plants under construction the discovery of severe Asiatic Clam infestations in safety and nonsafety-related equipment at several nuclear power plants. Because the River Bend Station (RBS) design utilized Mississippi River water as its source of makeup, the potential for infestation existed. The bulletin outlined acceptable methods of control to prevent infestation and outlined actions to be taken to ensure proper control programs were in use where clams were present. River Bend Station performed the actions as requested by the bulletin and determined that Asiatic Clams were present in the Mississippi River. That the presence Mytilus sp. was not identified in any studies. Because River Bend Station was in the construction phase at the time of issuance of this bulletin, Asiatic Clam intrusion of systems had not taken place. In response to the bulletin, GSU developed a program, the Asiatic Clam Control Program (ACCP), utilizing chlorination of the open-cycle service water system which supplied water to various safety-related equipment to eliminate the possibility of infestation. Various procedures were developed specifically to detect the presence of flow blockage as a result of clam infestation and to monitor intake and embayment water for the presence of clam larvae.

The RBS ACCP was submitted for review on June 21, 1985 and approved on September 27, 1985. The program was implemented prior to introduction of Mississippi River water into plant systems and has been effective in preventing biofouling of safety-related equipment. This program included maintaining a continuous residual chlorine concentration in normal service water for control and prevention of biofouling from Corbicula which may be present in the makeup water. The change proposed herein is based on planned significant design changes to the plant service water system that will eliminate the introduction of river water into the plant's service water system. These design changes are expected to enhance both the effectiveness of the ACCP and the overall service water system control. Had River Bend Station not initially used Mississippi River water as a makeup source for the service water system, there would have been no need to chlorinate service water to control Asiatic Clams, as introduction of clams into safety-related components would not have been possible.

DISCUSSION

GSU plans, during the fourth refueling outage beginning on March 15, 1992, to chemically clean the service water piping and modify the system such that it becomes a closed loop system. The chemical cleaning will remove both scaling and corrosion, then provide passivation of the mild steel surfaces. This closed system will allow for the implementation of a water treatment program using higher concentrations of corrosion inhibitors than are presently used in order to significantly reduce system corrosion rates. Chlorine, the present biocide used to prevent Asiatic Clam infestation, is an oxidizing biocide and naturally corrosive, and as such, its continued use would degrade the corrosion inhibiting film created by the chemical cleaning process and maintained by the molybdate nitrite treatment program. In addition, chlorine residual could not be maintained. Chlorine in the system would react with the planned nitrogen-based corrosion inhibitors, converting nitrite to nitrate compounds thereby reducing the corrosion inhibiting properties of the corrosion inhibitor formulation. Therefore, in conjunction with the closure, chemical cleaning and passivation of the system, chlorine injection must be discontinued to prevent certain degradation of the system piping and components. GSU plans to use glutaraldehyde, a non-oxidizing biocide to control bacterial and other biological intrusions into the isolated system. Glutaraldehyde is a broad-spectrum microbiocide. Mississippi River water will no longer be used as the makeup water supply for the closed system. Demineralized well water will be the source of makeup water.

Although isolated, this service water system would still interface with the standby service water system as before. The standby service water system's inventory of cooling water is made up from deep well water. There is no pathway for introduction for Asiatic Clams or their larvae into the service water system via the standby service water system makeup. GSU also plans to use an appropriate non-oxidizing biocide in the standby service water system to prevent the onset of microbiologically induced corrosion and to minimize the chances of biofouling within the isolated service water system from crossties with the standby service water system.

REQUESTED CHANGE

The Asiatic Clam Control Program change being requested is discussed below:

GSU requests that the present requirement to continuously chlorinate the normal service water system to 0.6 ppm in the normal service water return header be deleted. The purpose of the requirement to continuously chlorinate was to prevent any *Corbicula* larvae or juveniles introduced into the system through clarifier makeup from developing into adults and potentially infesting safety-related equipment. The planned modification to isolate the system from Mississippi River water and to use demineralized water as makeup will eliminate the possibility of Asiatic Clam infestation. Therefore, when system modification is complete and the system ready for restart, GSU requests that the requirement to continuously chlorinate be deleted.

The ACCP as modified, will continue to provide a program which will include procedures to prevent biofouling of safety-related equipment, to assure detection of Corbicula in the intake embayment and clarifier influent, and monitor and survey safety-related equipment to detect biofouling. No changes to the RBS Technical Specifications are requested in this submittal. A separate change request to Technical Specifications Section 6.8.4.d will be considered following a period of time used to gather operational experience with the closed system.