



## **GULF STATES UTILITIES COMPANY**

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U.S. Nuclear Regulatory Commission  
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Gentlemen:

River Bend Station - Unit 1  
Docket No. 50-458  
NRC Generic Letter 89-13

This letter provides Gulf States Utilities Company's (GSU) initial response to Generic Letter 89-13, "Service Water System Problems Affecting Safety-Related Equipment". This generic letter requested that licensees perform the actions specified below to ensure that their service water system is in compliance and will be maintained in compliance with applicable codes and criteria. This response is formatted according to the generic letter outline; in that each action item is stated followed by the GSU response.

- I. For open-cycle service water systems, implement and maintain an ongoing program of surveillance and control techniques to significantly reduce the incidence of flow blockage problems as a result of biofouling.

As a facility with recognized potential for biofouling problems due to Corbicula sp., River Bend Station developed an Asiatic Clam Control Program (ACCP) which was implemented at the time of initial introduction of Mississippi River water to plant systems (November, 1985). The ACCP and revisions were approved by the NRC prior to implementation, as is required of any future changes.

The ACCP incorporates continuous, low-level chlorination of normal service water (NSW); monthly performance trending of safety-related heat exchangers supplied by NSW; sampling and/or inspection of each safety-related heat exchanger supplied by NSW at least once per operating cycle; and biological monitoring for clams in source water and plant systems. Although intended to specifically address Asiatic clams, the ACCP provides for equally effective detection and prevention of macrofouling by other potential agents (e.g., zebra mussels).

The fire protection system at River Bend Station is supplied by well water, thus offering no potential for intrusion by macrofouling agents and no need for treatment with biocides. There is a remote possibility for cross connection of service water with limited portions of the fire protection system, in which case the ACCP requires inspection of the affected sections and flushing with demineralized water to restore acceptable water quality. Because of the ACCP requirement for continuous chlorination of NSW, any service water cooling loop would automatically be filled with treated water when isolated for layup.

Inspections by divers of the outside of the makeup water intake screens can be performed during normal operation at any time there is concern about possible blockage. Sediment accumulation in the immediate vicinity of the screens is monitored monthly by fathometry and complete surveys of the intake embayment are performed approximately annually as required and as limited by river conditions.

Service water supply and return lines to the normally closed reactor plant component cooling water (CCP) and ventilation chilled water (HVN) systems are redundant and infrequently used cooling loops. Flow in these lines will be evaluated prior to startup from refueling outage 3 (RF-3) scheduled to begin September 15, 1990, by indirect methods (e.g., pressure drop calculations, partial flow tests) or by system flow testing.

- II. Conduct a test program to verify the heat transfer capability of all safety-related heat exchangers cooled by service water. The total test program should consist of an initial test program and a periodic retest program. Both the initial test program and the periodic retest program should include heat exchangers connected to or cooled by one or more open-cycle systems.

GSU is developing a Heat Exchanger Performance Monitoring Test Program (PEP-046) prior to RF-3 which meets the recommended actions of this part of the generic letter. The following heat exchangers will be tested per this program:

<u>HEAT EXCHANGER</u>	<u>SCHEDULE FOR INITIAL TEST</u>
Diesel/Generator Jacket Water Coolers	RF-3
Control Building Chiller Condensers	RF-3
Auxiliary Building Unit Coolers	RF-3
RHR Heat Exchangers	RF-3
PVLCS Compressor Aftercoolers	RF-3
RHR Heat Exchangers Radiation Monitor Coolers	RF-4

Periodic retesting on a sampling basis will be performed at least once per fuel cycle with the frequency being evaluated after three tests to ensure that testing is providing assurances that equipment is performing its intended function.

Portions of the following systems are considered safety-related closed-cycle systems at River Bend:

- Reactor Plant Component Cooling Water (CCP)
- Spent Fuel Pool Cooling and Cleanup (SFC)
- Turbine Building Chilled Water (HVN)
- Control Building Chilled Water (HVK)
- Diesel Generator Jacket Cooling Water (EGT)

Complete flushing and flow testing of these normally closed loops is unnecessary, since plant chemistry records document acceptable water quality throughout most of the operating history. To further confirm this position, GSU will perform a one-time heat exchanger performance test on a containment unit cooler (cooled by HVN) and will clean the control building chiller evaporators (HVK) prior to startup from RF-3. Evaluations of the results of this testing and cleaning will determine if further actions are required. These actions, combined with current improved water chemistry, assure adequate closed cycle system performance.

III. Ensure, by establishing a routine inspection and maintenance program for open-cycle service water system piping and components; that corrosion, erosion, protective coating failure, silting, and biofouling cannot degrade the performance of the safety-related systems supplied by service water. The maintenance program should have at least the following purposes:

- A. To remove excessive accumulations of biofouling agents, corrosion products, and silt;
- B. To repair defective protective coatings and corroded service water system piping and components that could adversely affect performance of their intended safety functions.

The ACCP described above includes requirements to inspect and take corrective action in the event of degradation of heat exchanger performance due to biofouling, corrosion products or silt.

Local leak rate testing, inservice inspections and inservice testing of safety-related components as well as system surveillance testing helps ensure that such components are capable of performing their intended function. Failures of such tests and inspections are investigated and components are repaired. Nondestructive examinations of service water piping have been performed to establish baseline data. These examinations are repeated on a periodic basis to monitor specific piping sections for erosion/corrosion. Observations of the service water systems during daily rounds serve to identify leaks or other discrepancies. Any deficiencies identified would be investigated and reworked in accordance with existing site procedures.

GSU has developed inspection criteria and requirements which provide for scheduled inspections and specific instructions for maintenance of service water heat exchangers and unit coolers. The draft corrective maintenance procedure, which implements this program, is currently under review and will be in place prior to start up from RF-3.

IV. Confirm that the service water system will perform its intended function in accordance with the licensing basis for the plant. This confirmation should include a review of the ability to perform required safety functions in the event of failure of a single active component. To ensure that the as-built system is in accordance with the appropriate licensing basis documentation, this confirmation should include recent system walkdown inspections.

Gulf States Utilities' confirmation that the service water system, as defined in Generic Letter 89-13, will be able to perform its function in

the event of the failure of a single active component will rely primarily on the analysis being performed for Generic Letter 88-20, Individual Plant Examination (IPE) for Severe Accident Vulnerabilities. GSU's methodology to perform the IPE is described in GSU's response to GL 88-20 dated October 27, 1989 (RBG-31692). The analysis performed for GL 89-13 will address those service water systems, or portions thereof, that serve safety-related components and will be performed in a manner consistent with that of the original design basis for those systems as described in the USAR. This analysis will be completed prior to plant startup following RF-3. If any single active failure is identified which could prevent the service water system from performing its intended function, evaluation of the potential safety impact will be performed as part of the IPE analysis in accordance with the IPE schedule as stated in RBG-31692.

To confirm the service water system licensing basis configuration and system condition, GSU is performing a service water system walkdown to verify flow path and system status. This walkdown excludes pipe supports, electrical and electrical supports, instrument supports and instrumentation. These portions of the service water system were verified at the end of the construction phase of River Bend Station, and changes are tightly controlled by design control procedures. This walkdown will be completed prior to startup from RF-3.

- V. Confirm that maintenance practices, operating and emergency procedures, and training that involves the service water system are adequate to ensure that safety-related equipment cooled by the service water system will function as intended and that operators of this equipment will perform effectively. This confirmation should include recent reviews of practices, procedures, and training modules.

GSU has reviewed maintenance practices affecting the service water system. Maintenance of equipment at RBS is identified, controlled, and documented through the implementation of Maintenance Work Orders. The work package supplies job steps for performing the required work as well as identifying applicable procedures and plant documentation that should be adhered to during job performance. Material and spare parts needed to accomplish the task are identified and ASME Section XI repair/replacement plans are provided when required. Maintenance personnel perform the specified repairs or rework in accordance with the job plan and general or corrective maintenance procedures that may be applicable to that particular piece of equipment. Quality Control hold points for work steps within the package require documented inspection to ensure that work is performed correctly and in accordance with specified instructions and procedures. Functional testing ensures that the repaired component will perform its intended function.

General and corrective maintenance procedures have been developed to provide specific work instructions for the repair and rework of generic and specific equipment and components. The use of these procedures, in conjunction with vendor documentation as specified in the job plan, allows the maintenance personnel to perform repair/rework of equipment in a reliable, safe and efficient manner to ensure proper functioning of the equipment. These procedures are periodically reviewed for accuracy. Moreover, revisions are made any time a discrepancy is found to ensure that they are current, correct and workable documents.

Plant maintenance personnel are trained to ensure that they possess and maintain the skills and understanding required to perform certain tasks. The training involves classroom as well as on the job training. A qualification matrix is also maintained to ensure that maintenance personnel are qualified to perform the particular job to which they are assigned.

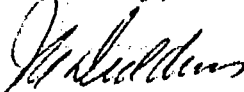
GSU has reviewed Plant System Operating Procedures, Abnormal Operating Procedures, Alarm Response Procedures, and Emergency Operating Procedures. Valve lineups in System Operating Procedures assure adequate cooling using normal means. In case of abnormal conditions, Alarm Response Procedures and Abnormal Operating Procedures delineate operator actions to either restore normal cooling or verify that standby systems have actuated properly. Emergency Operating Procedures provide guidance for mitigating plant emergencies as indicated by plant symptoms. Operations review of the emergency procedures indicated there are no specified operator actions which will have an adverse impact on the cooling of safety-related equipment. GSU design control procedures require review of system modifications by Maintenance and Operations to ensure that procedure revisions or additional training requirements are identified. Also, NUREG 1275 was reviewed against applicable operating procedures with no deficiencies identified.

GSU has reviewed all of the training materials associated with the service water system. Through this review, it was determined that the existing training modules are adequate to ensure that operators will perform effectively and that they will recognize when safety-related equipment cooled by service water is functioning as intended. Existing training procedures require that procedure changes and modifications are reviewed for incorporation into existing training modules. This requirement will ensure that all service water related training material remains current.

GSU will provide a final response to this letter 30 days after completion of refueling outage 3 which is scheduled to begin September 15, 1990. At that time all initial tests or activities described above will have been completed and all continuing programs will have been established.

If you have any questions concerning this response please contact Mr. L. L. Dietrich at (504) 381-4866.

Sincerely,



J. C. Deddens  
Senior Vice President  
River Bend Nuclear Group

   
JCD/TFP/WJO/LAE/ELD/WJS/ns

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UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

STATE OF LOUISIANA )

PARISH OF WEST FELICIANA )

In the Matter of )

GULF STATES UTILITIES COMPANY )

Docket No. 50-458

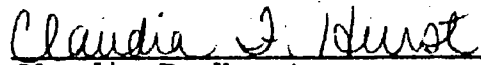
(River Bend Station - Unit 1)

AFFIDAVIT

J. C. Deddens, being duly sworn, states that he is a Senior Vice President of Gulf States Utilities Company; that he is authorized on the part of said company to sign and file with the Nuclear Regulatory Commission the documents attached hereto; and that all such documents are true and correct to the best of his knowledge, information and belief.

  
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J. C. Deddens

Subscribed and sworn to before me, a Notary Public in and for the State and Parish above named, this 2nd day of February, 1990. My Commission expires with Life.

  
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Claudia F. Hurst  
Notary Public in and for  
West Feliciana Parish, Louisiana