TEXAS UTILITIES GENERATING COMPANY
2001 BRYAN TOWER · DALLAS, TEXAS 75201

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R. J. GARY
EXECUTIVE VICE PRESIDENT
AND GENERAL MANAGER

June 26, 1981

Mr. Karl V. Seyfrit, Director
U. S. Nuclear Regulatory Commission
Region IV
611 Ryan Plaza Drive, Suite 1000
Arlington, Texas 76012

RIV
Docket Nos. 50-445/IE Bulletin 81-03
50-446/IE Bulletin 81-03

SUBJECT: COMANCHE PEAK STEAM ELECTRIC STATION
1981-83 2300 MW INSTALLATION
IE BULLETIN 81-03

Dear Mr. Seyfrit:

In reference to IE Bulletin 81-03, dated April 10, 1981 we provide the enclosed response.

Sincerely,

R. J. Gary

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RJG:tls
Enclosure:
Response to IE Bulletin 81-03
cc: U. S. Nuclear Regulatory Commission
Office of Inspection and Enforcement
Division of Reactor Operations Inspection
Washington, D.C. 20555

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Response to IE Bulletin 81-03
"Flow Blockage of Cooling Water to
Safety System Components by Corbicula
(Asiatic Clam) and Mytilas (Mussel)"

Response to Action Items for holders of Construction Permits.

Inspection Results

Squaw Creek Reservoir and the Safe Shutdown Impoundment at CPSES are considered fresh water bodies for the purpose of this bulletin, therefore, the inspection conducted as a result of bulletin 81-03 was for Corcibula or Asian Clam. This inspection was conducted as a supplemental non-routine effort, since it is not required as part of the current environmental monitoring program.

The inspection began by selecting several areas considered to have a likely habitat for the clams. Areas in both Squaw Creek Reservoir and the Safe Shutdown Impoundment were sampled. Areas sampled contained shallow bottom sediments. The inspection was performed by an independent consultant under contract to TUGCo during the period of May 12, 1981 to May 15, 1981. The inspection performed found no clams present in any of the areas sampled. This would indicate that if Corbicula are present in either Squaw Creek Reservoir (SCR) or the Safe Shutdown Impoundment (SSI), their population is currently too small for detection and therefore do not constitute any problems at this time.

TUGCo does consider, however that the Corbicula population could at some time in the future grow to possibly significant numbers which could create potential problems. Based on previous experience with cooling reservoirs within the North Central Texas area, the period required for Corbicula to establish a significant population may take as long as ten years after impoundment of the reservoir. As an example, the Texas Power and Light DeCordova Bend Station on Lake Granbury, which was impounded in 1968, has only recently (within the past 2 years) experienced any Corbicula infestations. We fully expect this phenomena to exist in SCR and the SSI as well. This will allow ample time for more research and the development of more effective treatment methods. For this reason TUGCo feels it inappropriate to commit to a specific treatment method at this time. TUGCo has, however, discussed possible alternatives currently available, and which will be evaluated for application at CPSFS on a selective basis. This discussion is included in the treatment/prevention section of our response.

As stated above, TUGCo has concluded that Corbicula are not present in detectable numbers, and are therefore not a problem at this time. As a result, inspections of systems and components supplied water from the SSI and currently filled were not required to be inspected. The safety related systems and components supplied water from the SSI are listed below.

Affected Systems

1. Service Water System

   Individual Components

   a. Component Cooling Water Heat Exchangers

   b. Emergency Diesel Generator Heat Exchangers

   c. Safety Injection Pump Lube Oil Coolers

   d. Centrifugal Charging Pump Lube Oil Coolers

   e. Containment Spray Pump Bearing Coolers

2. Fire Protection System

Planned Inspection/Detection Methods:

To ensure against Corbicula infestations TUGCo will monitor for their growth and spreading. On a semi-annual basis both SCR and the SSI will be sampled in areas with likely Corbicula habitats. The SSI sampling areas will be chosen on the basis of habitats within close proximity to the intake for the Service Water/Fire Protection systems. This will inform us as to not only the presence of Corbicula in the SSI but also whether they are in a position to enter the Service Water or Fire Protection systems. The semi-annual inspections will begin with the past inspection in May. Once Corbicula have been identified in potentially problem causing numbers, this sampling may be discontinued.

As the Service Water system components are placed in service, TUGCo will begin monitoring of individual component flow rates. All components supplied cooling water from the Service Water system are equipped with flow measuring devices. Using base line data from the initial flow balancing will provide an easy reference for future comparison and detection of flow degradation. In addition, small strainers on the suction side of the Service Water screen wash pumps can be periodically inspected for clam infestations. This would provide an early warning of clam presence in the system since the strainers filter comparitively small particles. The Fire Protection system will be monitored by inspecting the discharged water from the periodic flush required by the Technical Specification for clam shells. These inspection/detection programs will be implemented by procedure.

The above outlined programs will provide positive means of detection of Corbicula since it is a two-fold program. That is, both the source water to the SSI (SCR) and the SSI itself will be inspected for clam presence. As previously stated, past experience with cooling reservoirs in this area shows a considerable amount of time is required for establishment of significant Corbicula populations. This will provide further assurance that Corbicula will be discovered prior to any flow blockage problems occuring. Once a significant population does become established, flow monitoring of individual components in the Service Water system will provide reasonable assurance for intrusion detection. Since tube size in the supplied heat exchangers varies from ½" to 3/4" flow blockage would be detected in the smaller heat exchangers prior to a massive blockage occuring. In addition, the strainers at the Service Water screen wash pump suction will trap the smallest clam shell. Blockage of this strainer would provide the earliest warning possible of clam intrusion.

Intrusion of clams of sufficient size to block ½" or larger diameter tubes would require a growing population to have established itself within the SSI intake structure since the service water screen mesh size is 3/8". Although the exact velocity of water required to transport a given size clam was not determined, it is expected that the normal velocities in the intake bay to the Service Water and Fire Protection systems would be sufficient to transport a clam of 3/8" to ½" in size (largest single dimension). This would mean that if the clams existed in the intake bay they would be drawn into the system. Reduction of the SSI water level would only add to the likelihood. Normal level fluctuations from elevation 775 to approximately 770 is a 30% reduction in water level at the intake bay resulting in a corresponding 30% increase in velocity, assuming the same flow rate.

Treatment/Prevention Methods

As previously stated in the inspection portion of this response, TUGCo feels it inappropriate to commit to a specific treatment/prevention method(s) at this time. Corbicula have been observed to require a significant period of time to establish themselves in a new reservoir. TUGCo will use this interim period to research the best method or methods for implementation at CPSES. The sampling of SCR and the SSI for Corbicula growth will provide an ample warning period so that appropriate actions can be implemented. Secondly, chlorination of the Service Water and Fire Protection intake bay will be conducted as a routine prevention against any form of biofouling. Although shock chlorination has a limited effect on adult clams, it is effective on clam larvae. This would prevent the development of Corbicula within systems which are periodically idle. Flowing systems would flush out any larvae or, for that matter, any shells if present less than 1/2" in size since Corbicula are not capable of attaching to surfaces.

Some of the treatment/prevention methods which may be selected for evaluation include the following:

1. Elimination of sand and silt deposits, if present, from the intake bay. These sand deposits are necessary for clam development, and would prevent a large population from becoming established.

2. Extended chlorination of idle trains, up to a 1 week duration.

3. Use of other proprietary biocides.

4. Heat Treatment.