

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

'84 SEP 17 P4:42

Before the Atomic Safety and Licensing Board

In the Matter of )  
 )  
Gulf States Utilities Company, ) Docket No. 50-458  
 et al. )  
 )  
(River Bend Station) )

TESTIMONY OF WILLIAM J. CAHILL, JR.,  
GULF STATES UTILITIES, AND  
BRIAN G. SCHULTZ, STONE AND WEBSTER  
ENGINEERING CORPORATION,  
RELATING TO CONTENTION 2  
(OLD RIVER CONTROL STRUCTURE)

Contention 2 as admitted by the Atomic Safety and  
Licensing Board states:

The probability of failure of the Old River Control Structure is sufficiently high that the consequences of operating the River Bend Station following such failure must be considered. Applicants have not considered the public health, safety, and environmental impacts of further facility operation under altered river flow and salinity conditions in the event of failure.

1. My name is William J. Cahill, Jr. I am the Senior Vice President-River Bend Nuclear Group for Gulf States Utilities Company. In that capacity I am responsible for all activities related to the River Bend Station. A statement of my professional qualifications is attached hereto and incorporated herein by reference for all purposes.

2. My name is Brian G. Schultz. I am the Project Manager-River Bend Station for Stone and Webster Engineering Corporation. In my capacity I am responsible for, among other things, the development of cost estimates associated with the engineering, design, and construction of River Bend Station. A statement of my professional qualifications is attached hereto and incorporated herein by reference for all purposes.

3. This testimony addresses the impact of the hypothetical failure of the Old River Control Structure during the course of the approximately 40-year operating life for the River Bend Station. Based upon the evaluation discussed below, following such a hypothetical event, the River Bend Station could be operated without causing undue risk to the health and safety of the public and without significant adverse effects on the environment. For purposes of responding to the contention, this testimony assumes a failure of the Old River Control Structure; however, GSU believes that such failure is extremely unlikely.

4. For purposes of analysis, it is assumed that the Old River Control Structure has completely failed and that the Atchafalaya River has completely captured the flow of the Mississippi River. This testimony does not consider the time necessary for the Atchafalaya River to completely capture the flow of the Mississippi River. If this were taken into account, the effect on the operation of the River Bend Station could be substantially less. During this

period, estimated to be years by the Corps of Engineers, there still would be flow in the Mississippi River. Thus, the salt line might not reach the Station for a substantial period. If the Corps of Engineers were able to effect a repair such that there was some control over the flow of the rivers, the situation again would not approach the limiting one used for evaluation purposes.

5. Were there to be any extended salt water intrusion into the area of the River Bend Station, Gulf States Utilities Company would shut down the facility if operational conditions required until a safety and environmental evaluation demonstrated that the plant should be restarted. An economic evaluation would, of course, be conducted to determine whether this course was warranted.

6. For the extreme limiting case, an evaluation has been conducted of some possible alternatives to accomplish the goal of continued operation of the facility. The purpose was not to select one of the alternatives, or even suggest that those examined comprise all that are available. It was to demonstrate that they do exist.

7. The river water intake suction line is located below mean sea level such that even if there were no flow in the Mississippi River, makeup water for the heat dissipation system could still be withdrawn. Of course, as recognized by the Board in its Memorandum of August 26, 1983 (slip op. at 16-17), the water necessary for safe shutdown and maintenance of that condition is not provided by the Mississippi

River and would not be contaminated or affected by failure of the Old River Control Structure.

8. Given a reduced flow of freshwater in the Mississippi River channel or a threat of such reduced flow sufficient to raise the possibility that the salt line would reach the River Bend Station, some of the alternatives that GSU would consider are:

a. Extend the makeup water pipeline from its present point of suction in the Mississippi River channel westward approximately 25 miles to the Atchafalaya River channel. The cost to do this would be in the order of \$150,000,000 in 1984 dollars.

b. Extend the makeup water pipeline north westward approximately 30 miles to the Mississippi River above the point of the Old River Control Structure. This alternative would avoid a Mississippi River channel crossing. The cost to do this would be in the order of \$170,000,000 in 1984 dollars.

c. Install a reverse osmosis system to treat saline water for use as cooling tower makeup. A system to produce the required quantity of desalinated water including filtration and auxiliary equipment would cost in the order of \$160,000,000 in 1984 dollars.

d. Replace the components and piping systems carrying river water, where necessary, with materials compatible with salt water. These systems include the makeup water system, circulating water system and the service water system. The

cost to accomplish this would be in the order of \$250,000,000 in 1984 dollars.

e. Separate the service water system, which provides cooling to safety related components, from the circulating water system. A cooling tower would be added for heat dissipation from this system and makeup water would be supplied from groundwater wells. The circulating water system (condenser) would be modified using salt water-compatible materials. Water would be supplied from the river channel as makeup. The cost to do this would be in the order of \$40,000,000 in 1984 dollars.

9. It must be recognized that these cost estimates are based on conceptual design and should be considered as only approximate. Considering the present investment in the facility, they show that there are available alternatives should the need arise. Before proceeding with any of these or other alternatives, a detailed feasibility and cost analysis would be conducted after consultation with governmental authorities. An environmental assessment of the selected changes would be submitted to the NRC. Compliance with all NRC safety and environmental regulations, and the acquisition of all necessary permits and environmental approvals would have to be assured in the implementation.

10. These alternatives were examined solely on the basis of their ability to continue operation of the River Bend Station. Several of these alternatives, e.g., pipelines, may be amenable to joint action by users of



Mississippi River water. For such alternatives, the pro rata share of costs for River Bend would be expected to be less than discussed above.

11. Considering the Corps' assessment that the probability of failure of the Old River Control Structure is almost nil, and the availability of reasonable actions which could be taken to continue operation, Contention 2 raises no issue which is an obstacle to the licensing of River Bend Station.

RESPONSIBILITIES OF WITNESSES FOR TESTIMONY  
CONCERNING CONTENTION 2 (OLD RIVER CONTROL STRUCTURE)

William J. Cahill, Jr.

Paragraphs 1, 3-11

Brian G. Schultz

Paragraphs 2, 6, 8, and 9

## PROFESSIONAL QUALIFICATIONS

William J. Cahill, Jr.  
Senior Vice President  
River Bend Nuclear Group  
Gulf States Utilities Company

My name is William J. Cahill, Jr. My business address is River Bend Station, St. Francisville, Louisiana 70775. I am the Senior Vice President of the River Bend Nuclear Group for Gulf States Utilities Company. As Senior Vice President, I am responsible for all aspects of the construction and operation of River Bend Station.

I attended Polytechnic Institute in Brooklyn, New York and received a Bachelor of Science degree in 1949. I also performed graduate work at Polytechnic Institute from 1949 to 1953. I joined Consolidated Edison Company in 1949. From 1949 to 1954, I worked on design engineering of steam power plants. In 1954, I was loaned to Knolls Atomic Power Laboratory to participate in the design and operation of the prototype nuclear power plants for the submarines Seawolf and Triton. From 1956 to 1957, I resumed duties with Consolidated Edison in preliminary engineering for the 275 MW Indian Point nuclear demonstration unit. During 1957 I was employed by Nuclear Development Associates in the design of the BR-3 test reactor for Belgium, and the development program for a reactor proposed for Alaska. From 1957 to 1980 I held various technical and managerial positions with



Consolidated Edison associated with Indian Point No. 1, the proposed Ravenswood Nuclear Plant, Indian Point No. 2 and 3, as well as several conventional steam power plants. In 1980 I retired from Consolidated Edison as Vice President in charge of licensing of nuclear plants, Quality Assurance Department, Research and Development Department, and Computer Applications Engineering. From 1980 to the present, I have been in my present position with Gulf States Utilities Company. I am currently in charge of design, engineering, construction, and operation of River Bend Station.

I am a member of the National Society of Professional Engineers, the National Society of Quality Control, and the American Society of Mechanical Engineers. I am a Professional Engineer licensed in Louisiana, Texas and New York. I have been the director of the American Nuclear Society, the chairman of the Louisiana Nuclear Society, and the chairman of the Electric Power Research Institute (EPRI) Nuclear Safety and Analysis Task Force.

## PROFESSIONAL QUALIFICATIONS

Brian G. Schultz  
River Bend Station - Project Manager  
Project Management Department  
Stone and Webster Engineering Corporation

My name is Brian G. Schultz. My business address is 3 Executive Campus, Cherry Hill, NJ 08034. I am the River Bend Station Project Manager at Stone and Webster Engineering Corporation. As Project Manager, among other responsibilities, I am responsible for the development of cost estimates associated with the engineering, design, and construction of the River Bend Station.

I attended the United States Military Academy from 1957 to 1961 and received a Bachelor of Science Degree in Arts, Sciences, and Literature in 1961. I continued my education at the Massachusetts Institute of Technology from 1964 to 1966 and received Master of Science Degrees in Nuclear Engineering and Civil Engineering in 1966. I additionally completed the Management Development Program from Northeastern University in 1983.

I served in the U.S. Army Corps of Engineers from 1961 to 1971 after graduating from the U.S. Military Academy, including graduate studies at the Massachusetts Institute of Technology while on active duty. My assignments in the service included both command and staff positions with engineer troop units, student in the Army Engineer School,

researcher in the Army Nuclear Power Field office, and Assistant Professor of Physics at the U.S. Military Academy. I resigned from the Army in 1971 to work with Stone and Webster Engineering Corporation. Since joining Stone and Webster I have been assigned to progressively higher levels of responsibility. From 1971 to 1974, I served as Assistant Project Engineer on two 1,100 MW and one 800 MW boiling water reactor plant projects. As assistant Project Engineer, I provided support to the Project Engineer on all plant conceptual engineering and design activities, on licensing activities, and for coordinating several engineering disciplines. From 1974 to 1979, I served as Project Engineer on two 3250 MW and a 1300 MW pressurized water reactor plant projects. In this capacity, I was directly responsible for all plant engineering and licensing activities. In 1979, I was appointed Project Manager of the River Bend Station Project. As Project Manager, I have been responsible for the engineering, design, and construction of the River Bend Station 940 MW boiling water reactor unit.

I am a Professional Engineer registered in Louisiana, Massachusetts, New Jersey, and New York. I am a member of the American Society for Testing and Materials, the National Society of Professional Engineers, the New York State Society of Professional Engineers, the American Nuclear Society, and the American Nuclear Subcommittee ANS 2.12, and chairman of the American Nuclear Society Working Group ANS 58.9.