

APPENDIX C

U. S. NUCLEAR REGULATORY COMMISSION
REGION IV

NRC Inspection Report: 50-458/85-81

License: NPF-47

Docket: 50-458

Licensee: Gulf States Utilities Company (GSU)
P. O. Box 2951
Beaumont, Texas 77704

Facility Name: River Bend Station (RBS)

Inspection At: River Bend Station, St. Francisville, Louisiana

Inspection Conducted: December 1 through December 31, 1985

Inspectors: *Dwight D. Chamberlain* 1-15-86
D. D. Chamberlain, Senior Resident Inspector Date
(pars. 1, 2, 3, 4, 5, 6, 7, and 8)

W. B. Jones 1/15/86
W. B. Jones, Resident Inspector Date
(pars. 2, 3, 4, 5, 6, 7, and 8)

Approved: *J. B. Jaudon* 1/22/86
J. B. Jaudon, Chief, Project Section A Date
Reactor Projects Branch

Inspection Summary

Inspection Conducted December 1 through December 31, 1985 (Report 50-458/85-81)

Areas Inspected: Routine, unannounced inspection of licensee event report (LER) review, startup test procedure review, startup test witnessing, startup test program quality assurance review, operational safety verification, and site tours. The inspection involved 208 inspection-hours onsite by two NRC inspectors.

Results: Within the areas inspected, two violations were issued in the areas of startup test witnessing and operational safety verification (failure of document control program and inadequate retest following modifications or repair, paragraphs 4.A and 6, respectively). In addition one deviation was issued in the area of startup test procedure review (failure to require verification of proper diesel generator load sequencing, paragraph 3).

DETAILS

1. Persons Contacted

Principal Licensee Employees

- *R. E. Bailey, Supervisor, Quality Concern
- *C. L. Ballard, Projects Supervisor
- *C. Banks, Security
- *W. H. Cahill, Jr., Senior Vice President, River Bend Nuclear Group
- E. M. Cargill, Superintendent, Radiological Programs
- *R. P. Carter, Security
- *T. C. Crouse, Manager, Quality Assurance (QA)
- *D. L. Davenport, Supervisor, Plant Security
- *J. C. Deddens, Vice President River Bend Nuclear Group
- *Jan Evans, Stenographer
- *C. E. Foster, Assistant Plant Security Supervisor
- P. E. Freehill, Superintendent, Startup and Test
- A. D. Fredieu, Assistant Operations Supervisor
- D. R. Gipson, Assistant Plant Manager, Operations
- *P. D. Graham, Assistant Plant Manager, Services
- *E. R. Grant, Supervisor, Nuclear Licensing
- R. W. Helmick, Director, Projects
- B. D. Hey, Licensing Engineer
- *K. C. Hodges, Supervisor, Quality Systems
- R. Jackson, Shift Supervisor, Operations
- D. Jernigan, Engineer, Startup and Test
- G. R. Kimmell, Supervisor, Operations QA
- *R. King, Engineer, Licensing
- A. D. Kowalczyk, Assistant Plant Manager, Maintenance
- T. Lacy, Shift Supervisor, Operations
- *W. H. Odell, Manager, Administrative
- *T. L. Plunkett, Plant Manager
- W. J. Reed, Director Nuclear Licensing
- D. Reynerson, Director, Nuclear Plant Engineering
- *F. L. Richter, Operations, QA
- *C. G. Sprangers, Engineer, QA
- R. B. Stafford, Director, Quality Services
- *K. E. Suhrke, Manager, Projects
- *P. F. Tomlinson, Director, Operation QA
- C. Warren, Shift Supervisor, Operations

Stone and Webster

- *B. R. Hall, Assistant Superintendent, Field Quality Control
- R. L. Spence, Superintendent, Field Quality Control

The NRC senior resident inspector (SRI) and resident inspector (RI) also interviewed additional licensee, Stone and Webster (S&W), and other contractor personnel during the inspection period.

*Denotes those persons that attended the exit interview conducted on January 10, 1985. NRC resident inspector, W. B. Jones, and NRC security inspector, R. A. Caldwell, also attended the exit interview.

2. Licensee Event Report Review

(Closed) License Event Report (LER) 458/85-08: Reactor Pressure Vessel (RPV) Level Transient.

The NRC inspector reviewed the corrective actions taken by the licensee to avoid future recurrence of the RPV level transient caused by opening RHR "A" suppression pool valve (1E12*MOVFO04A) before RHR "A" shutdown cooling suction valve (1E12*MOVFO06A) was completely closed.

The following corrective actions are complete:

- . Station Operating Procedures (SOPs) contain the necessary cautions for the operator.
- . A caution statement has been added to Surveillance Test Procedure (STP) STP-309-601 instructing the operator to ensure that the shutdown cooling suction valve F006A is fully shut prior to opening suppression pool suction valve F004A.
- . All plant operators have been informed of the incident as well as the above procedural change.
- . A yellow caution sign having the same warning as that added to STP-309-601 was mounted on the control panel near the RHR system suction valve switches as an aid to the operators.
- . STP-309-601 has been revised to restore isolation valve (1E12*MOVFO08 and 1E12*MOVFO09) motor breakers to the closed position prior to restoration of valves F006A and F004A.
- . Operations has completed their review of STPs involving the RHR system having the potential to cause a level transient. This review revealed that appropriate precautions or detailed instructions exist that would preclude the simultaneous opening of the F004A and F006A valves.

In addition, the licensee is presently performing an engineering evaluation to determine if an interlock between the F004A and F006A valves is feasible to prevent the F004A valve from opening before the F006A valve has closed. The RI will monitor this engineering evaluation as an open item (458/8581-04).

This LER is closed.

3. Startup Test Procedure Review

The SRI reviewed STP 1-ST-31, "Loss of Offsite Power," Revision 0, and a draft Revision 1. Several comments were generated during this review and the comments were discussed with startup test personnel. One comment revealed that the procedure failed to implement a FSAR Chapter 14 commitment to verify proper sequencing of diesel generator loads during a loss of offsite power. This failure to implement a FSAR commitment was identified by the SRI as a deviation (458/8581-03). The licensee took immediate corrective action to add the verification of proper load sequencing in Revision 1 to 1-ST-31 and to initiate a 100% review of other STPs to assure implementation of regulatory requirements and commitments. This review has been completed by plant staff compliance with an overview by operations QA. All questions generated from the review are being addressed by startup and no acceptance criteria changes have resulted nor are any anticipated. All questions will be resolved prior to performance of the respective startup test. All required actions are being taken to respond to the identified deviation and this deviation is closed with no further response from the licensee required.

Except for the one deviation noted, procedure 1-ST-31 appeared to meet all applicable regulatory requirements and commitments.

4. Startup Test Witness

During this inspection period the SRI and RI witnessed startup testing activities conducted under the startup testing program. The NRC inspectors observed that: (a) personnel conducting the test were cognizant of the test acceptance criteria, precautions and prerequisites prior to beginning the test; (b) the test was being conducted in accordance with an approved procedure and the test procedure was being used and signed off by the personnel conducting the test; and (c) data was being collected and recorded as required. The NRC inspectors witnessed the following startup tests:

1-ST-14 Reactor Core Isolation Cooling (RCIC)
1-ST-26 Safety Relief Valves (SRV)
1-ST-27 Turbine Trip and Generator Load
Rejection
1-ST-31 Loss of Offsite Power

The following observations were made during the performances of the above startup tests.

a. 1-ST-14 Reactor Core Isolation Cooling:

The NRC inspectors witnessed the performance of the RCIC system run in the condensate storage tank (CST) to reactor vessel mode and RCIC pump cold start at rated pressure on December 2 and 5, 1985, respectively. Prior to beginning the RCIC system run on December 2, 1985, the NRC inspectors reviewed SOP-0035, "Reactor Core Isolation Cooling," Revision 0, located in the main control room, which was being used in conjunction with ST-14. The review revealed that "laters" located in the procedure had been removed by Temporary Change Notice (TCN) 85-1287, however, this TCN was not posted at the beginning of SOP-0035 as required by Administrative Procedure ADM-003, "Development, Control and Use of Procedures," Revision 7. Further review of SOP-0035 revealed that TCN-1287 also corrected a mistake in the electrical line-up and added eight valves to the valve line-up sheet. This matter was brought to the attention of the nuclear control operator (NCO) stationed at the 601 control panel. On December 3, 1985, the NRC inspectors again reviewed SOP-0035 and noted that TCN-1287 was not posted in front of the procedure. This document control problem was identified by the NRC inspectors as an apparent violation (458/8581-01). The NRC inspectors then brought this condition to the attention of the shift supervisor who immediately initiated actions to review all the procedures in the control room for similar problems.

b. 1-ST-26 Safety Relief Valves:

The SRI and RI witnessed the performance of 1-ST-26, "Safety Relief Valves," during this inspection period. This startup test has been completed and the established acceptance criteria appears to have been met. The completed test package will be reviewed during a future NRC inspection.

No violations or deviations were identified in this area of inspection.

c. 1-ST-27 Turbine Trip and Generator Load Rejection:

The SRI observed a turbine trip performed on December 23, 1985, for startup test 1-ST-27 "Turbine Trip and Generator Load Rejection." Reactor power was at approximately 9% when the trip was initiated and when the turbine stop valves closed, both turbine bypass valves opened to control reactor pressure. No reactor scram occurred and reactor pressure was controlled as required.

No violations or deviations were identified in this area of inspection.

d. 1-ST-31 Loss of Offsite Power:

The SRI observed the performance of startup test 1-ST-31, "Loss of Offsite Power," on December 6, 1985. Reactor power was above 10% for the test and when the loss of offsite power was initiated the Division I, II and III diesel generators started and carried safety-related electrical loads as required. The loss of offsite power event was terminated as required by the procedure and no safety relief valves lifted and reactor water level did not drop to the point of initiating the high pressure core spray pump during the event. After termination of the event, the reactor core isolation cooling system was used to restore reactor water level to normal. An initial review of the test data revealed that all control room chillers did not start as required by the procedure. Licensee investigation of the failure of all chillers to start revealed that one standby diesel loaded approximately 3 seconds earlier than the other diesel which allowed chilled water flow to be established on one division and the other division chillers did not start due to chilled water flow already being established. It appears that the chillers performed as designed and the licensee initiated a review to determine if all chillers are needed during a loss of offsite power event. The preliminary indication, based on heat load calculations performed by S&W engineering, is that only one chiller is required during the first 20 minutes of a loss of offsite power event and the operator can start other chillers after 20 minutes if they are needed. The licensee will evaluate the present design of the chiller start logic and initiate changes if required. The SRI will evaluate the final disposition during the required review of the final test package.

No violations or deviations were identified in this area of inspection.

5. Startup Test Program Quality Assurance (QA) Review

During this inspection period the RI began a review of the licensee's QA audit and surveillance program for operational activities conducted under the startup and power ascension test program. This initial review revealed no problems and the program review will be completed during a future NRC inspection.

No violations or deviations were identified in this area of inspection.

6. Operational Safety Verification

The SRI and RI observed operational activities throughout the inspection period and closely monitored operational events. Significant operational activities observed included several attempted turbine rolls which were stopped due to high vibration, a successful completion of turbine roll and initial synchronization of the main generator on December 3, 1985. The main generator was on-line for a short time (approximately 30 minutes) and

a reverse power trip was received. The problem was traced to a wiring problem, which was corrected, and the generator was again synchronized on December 4, 1985, and maintained on-line with a generator load of approximately 60 megawatts. The highest power level reached during this inspection period was approximately 200 megawatts electrical. Also, on December 31, 1985, a turbine trip occurred with reactor power at approximately 20%. Subsequent analysis of the trip revealed that a power to load unbalance signal was received which caused the turbine control valves to close and resulted in a turbine trip and subsequent reactor scram on high pressure. The power to load unbalance signal apparently occurred due to the combination of a failed pressure transmitter and an electrical grid upset from loss of a 500 kilovolt line. During this event and other operational activities, operational staff actions were observed to be well coordinated and efficient and the plant responded as expected.

In addition to observing operational activities, the SRI reviewed licensee generated condition reports during the inspection period. A review of two condition reports (CRs 85-0559 and 85-0561) and the subsequent followup by the SRI revealed that inadequate retest was performed following modifications/repairs made on two separate occasions. These two occasions were the change out of wiring to the back-up scram valves with no documented continuity checks or functional test performed and a wiring change to the shutdown cooling suction valve (E12*F008) with no valve stroking performed upon completion of the wiring modifications. In both instances, no documented engineering-approved alternative testing was provided, and the function of the components was compromised by the modifications/repairs. Subsequent review of this situation by the licensee revealed that both conditions were complicated by either a design error or by unclear design instructions. This design control problem is being documented by the licensee QA organization.

A review by the SRI of the significance of the compromise of the function of the components revealed that the back-up scram valves are mentioned in the River Bend FSAR but they apparently are not taken credit for in any accident analysis and the shutdown cooling suction valve was locked closed per a commitment to the NRC and shutdown cooling operation was not compromised while the wiring error was in place. However, the failure to perform adequate retest on a safety-related/important to safety component represents a serious breakdown in the QA program and this inadequate retest following a modification or repair was identified by the SRI as an apparent violation (458/8581-02).

7. Site Tours

The SRI and RI toured areas of the site during the inspection period to observe general work practices and gain knowledge of the facility.

No violations or deviations were identified in this area of inspection.

8. Exit Interview

An exit interview was conducted on January 10, 1986, with licensee representatives (identified in paragraph 1). During this interview, the SRI reviewed the scope and findings of the inspection.