APPENDIX

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

NRC Inspection Report: 50-458/90-18 Operating License: NPF-47

Docket: 50-458

Licensee: Gulf States Utilities Company (GSU)
P.O. Box 220
St. Francisville, Louisiana 70775

Facility Name: River Bend Station (RBS)

Inspection At: RBS, St. Francisville, Louisiana

Inspection Conducted: June 17 through July 21, 1990

Inspector: E. J. Ford, Senior Resident Inspector

Approved: Blaine Murray 8/9/90
for G. L. Constable, Chief, Project Section C Date
Division of Reactor Projects

Inspection Summary

Inspection Conducted June 17 through July 21, 1990 (Report 50-458/90-18)

Areas Inspected: Routine, unannounced inspection of followup of events, operational safety verification, maintenance observation, surveillance observation, and followup of previously identified items.

Results: Within the areas inspected, no violations or deviations were identified.

As a result of full power operation, safety relief valve leakage, and the higher than normal temperatures during late June 1990, the plant experienced elevated temperatures on the service water system, standby service water system, and suppression pool. These elevated system temperatures caused an approach to Technical Specification (TS) limits (95°F for the suppression pool and 82°F for the standby service water system). As a result, the licensee was considering a temporary waiver of compliance pending a Technical Specification change approval.

An unresolved item regarding calibration procedures is identified in paragraph 5. An inspector followup item concerning light indicators is discussed in paragraph 4.a.

The licensee and union employees agreed on a new 2-year contract. There was no work stoppage nor adverse impact on the unit during negotiations.

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DETAILS

1. Persons Contacted

E. M. Cargill, Director, Radiation Programs
*J. W. Cook, Technical Assistant-Licensing
*T. C. Crouse, Manager Administrative
*J. C. Deddens, Senior Vice President, River Bend Nuclear Group
L. A. England, Director, Nuclear Licensing
C. L. Fantacci, Supervisor, Radiological Engineering
*P. D. Graham, Plant Manager
J. R. Hamilton, Director, Design Engineering
*T. L. Hunt, Senior Independent Safety Evaluation Group Engineer
*L. G. Johnson, Site Representative, Cajun
*G. R. Kimmell, Director, Quality Services
*D. N. Lorfing, Supervisor, Nuclear Licensing
*J. F. Mead, Supervisor, Electrical Design
*W. H. Odell, Manager, Oversight
*T. F. Plunkett, General Manager - Business Systems & Oversight
J. P. Schippert, Assistant Plant Manager - Operations, Radwaste and Chemistry
*K. E. Suhrke, General Manager - Engineering and Administration
J. Venable, Assistant Operations Supervisor
*R. G. West, Supervisor, General Maintenance
S. Woody, Supervisor, Nuclear Security
S. Young, Supervisor, Reactor Engineering

The inspector also interviewed additional licensee personnel during the inspection period.

*Denotes those persons that attended the exit interview conducted on August 1, 1990.

2. Plant Status

The licensee operated the plant at essentially 100 percent thermal power throughout the inspection period. During this time the licensee periodically reduced power to approximately 80 percent to perform scheduled weekly main turbine valve testing.

3. Followup of Events (93702)

During this inspection period, the inspector reviewed licensee condition reports (CRs) and 10 CFR Part 50.72 reports and held discussions with various plant personnel to ascertain the sequence, cause, and corrective actions taken for plant events. Discussion of a selected event is given below:

a. Increased Suppression Pool and Standby Service Water Temperatures

As a result of full power operation and above normal temperatures in the state of Louisiana, during the last half of June 1990, the plant was experiencing elevated temperatures on the normal service water system, standby service water system, and suppression pool.

During this cycle, the plant underwent two transients which caused the safety relief valves (SRVs) to actuate. As a result, leakage by several of the SRVs is being experienced. This leakage is vented to the suppression pool, which caused the temperature and level of the suppression pool to increase.

The suppression pool is cooled by the residual heat removal (RHR) system in the suppression pool cooling mode. Heat is normally removed from the RHR system heat exchangers by the normal service water system. The normal service water and circulating water systems are cooled by four mechanical draft cooling towers. The maximum average temperature limit established in the TS (3.6.3.1) for the suppression pool was 95°F. However, the normal service water temperature had been exceeding 95°F for several weeks. The licensee therefore, began utilizing the standby service water system to cool the suppression pool through the RHR system. The basin water temperature limit established (by TS 3.7.1.2) for the standby service water system was 82°F. The temperature of this system had been as high as 80.5°F. The elevated temperatures essentially precluded any further use of the standby service water system.

As of June 21, 1990, the suppression pool temperature was at 89°F. A temperature rise between 1-4°F per day was being experienced. As a result, the licensee installed a chiller unit outside the standby service water tower to cool the standby service water system. This unit was operational on June 23, 1990, and was effective in reducing the standby service water system temperature and, consequently, the suppression pool temperature. The chiller unit takes a suction from the pool above the minimum standby cooling tower level to ensure that a line break does not drain the tower below the TS limit.

A proposed TS change to raise the suppression pool 95°F limit to 100°F was submitted by the licensee for NRC review and approval. None of the suppression pool or standby service water system temperatures exceeded the TS limits, described above, during the inspection period.

No violations or deviations were identified.

4. Operational Safety Verification (71707)

The inspector conducted daily control room tours to observe operational activities and review plant status. During these tours, the inspector noted that operations management personnel were frequently in the control room. The inspector also noted that proper access controls were enforced and that control room staffing always met or exceeded requirements.

a. During this inspection period the inspector also made periodic tours of the plant and site area. During a tour of the control building 98-foot elevation, the inspector noted general housekeeping to be good and physically verified that remote shutdown room Doors CB-098-27 and CB-098-28 for Division I and remote shutdown room Doors CB-098-29 and CB-098-030 for Division II were locked as required by the licensee's administrative controls. The inspector also observed appropriate switch positioning and light indications for the following main control room local air intake radiation monitoring cabinets:

- 1RMS*RE13B
- 1RMS*REY13B
- 1RMS*RE13A
- 1RMS*REY13A

The inspector verified, by visual observation, that the safety-related breakers in the 4.16 kV Standby Bus 1ENS*SWG1A and 1ENS*SW1B were properly positioned in their individual cabinets. This was determined by observation of the relative position of an index mark and pointer and other physical indicators in the interior of the cabinet, observing a correct match between the exterior breaker lights and interior breaker indication and noting that the breaker charging motor switch was in the "on" position. The inspector then examined the "open" or "close" state of the breakers and found them to be properly positioned for the supplied power and loads. During normal operation the Division I and Division II 4.16 kV standby (safety-related) buses (1ENS*SWG1A and 1ENS*SWG1B, respectively) are powered from the nonsafety-related preferred station service transformers (1RTX-XNRIC and 1RTX-XNRID) with backup power available from Divisions I and II emergency diesel generators.

The inspector also noted for both control building 480 Vac safety-related load centers, 1EJS*SWG1A and 1EJS*SWG1B, that all breakers were racked in, energized, and appropriately positioned for the supplied loads. However, for Breaker 1EJS*ACB042 there was no light indication and for Breaker 1EJS*ACB042 there was a dim indication, on both the yellow and green lights. The inspector reported this to the control operating foreman who immediately dispatched an operator to investigate. Breaker ACB042 had a burned out light bulb and the inspector was reviewing Breaker ACB043 light indication with licensee engineering personnel. This is a followup item (458/9018-01) pending the results of that review.

The inspector also observed the position of all breakers on the 480 Vac standby motor control centers:

- 1EHS*MCC8A
- 1EHS*MCC8B

- 1EHS*MCC14A
- 1EHS*MCC14B

It was noted that all breaker switches were correctly positioned or had a properly authorized clearance tag.

b. On Elevation 116 of the control building, the inspector verified correct inverter switch positioning and meter indications, housekeeping, climate control, and (with operator assistance) correct functioning of emergency lighting in the 1A, 1B, and 1C Standby 125 Vdc equipment rooms. Additionally, correct battery levels, satisfactory visual appearance of battery connections and caps, portable emergency eye-wash cylinder pressure, and housekeeping were observed in the 1A, 1B, and 1C Standby 125 Vdc battery rooms. Emergency lighting in these areas was checked with operator assistance. Although no lamps were burned out in the battery rooms, the inspector noted that ambient light levels were low and commented on this to the licensee. The licensee was evaluating the light levels for these rooms.

c. On a tour of the C tunnel at the 70-foot elevation, the inspector observed storage shelves constructed from scaffolding and lumber. The green color of the wood indicated it had been fire-retardant treated as required. Subsequently, during a tour of the 70-foot elevation of the control building, the inspector observed a 3-foot section of an apparently untreated (2 x 4-inch) piece of lumber in the HVC-ACU 2A room. This was reported to the control operating foreman who had it promptly removed. This was an isolated incident and not considered representative of the licensee's normal control of combustible materials.

The inspector observed that the following postaccident monitoring (PAM) equipment in the control building (70-foot elevation) had appropriate meter indications and were properly energized:

- 1RMS*CAB16A (Reactor Bldg-Containment PAM)
- 1RMS*CAB16B
- 1RMS*CAB20A (Drywell PAM)
- 1RMS*CAB20B

d. During general tours of the auxiliary building, the inspector found housekeeping to be acceptable and noted that radiological controls were good. The inspector entered the RHR A and B rooms and observed that the high radiation rope barriers were adequately secured and posted and did not have breaches which would allow inadvertent entry. At various elevations in the auxiliary building, established contamination zones were similarly barricaded and contained the proper notification signs. The RHR C room Door AB-095-03 (a high radiation area) and RCIC room Door AB-095-04 (a very high radiation area) were locked as required and properly posted.

e. The inspector selected Clearance No. RB-1-90-0958 from the tracking limiting condition for operation (LCO) tracking log and observed the following equipment to be properly safety-tagged for removal from service in the plant:

- 1HVK*MOV20C (chilled water pump 1C discharge valve) - Clearance Tag RB-1-90-0958-05

- 1EHS*MCC8A, Breaker 4D (1HVK*MOV20C power supply) - Clearance Tag RB-1-90-0958-03

- 1EHS*MCC8A, Breaker 2D (1HVK*P1C - chilled water pump 1C power supply) - Clearance Tag RB-1-90-0958-02

- 1HVK*V24 (chilled water pump 1C - suction valve) - Clearance Tag RB-1-90-0958-06

- 1SCV*PNL8A1 breaker 10 (MOV20C heater) - Clearance Tag RB-1-90-0958-04

(NOTE: Tag No. -01 was properly hung in the main control room.)

f. During a tour of B tunnel East, the inspector noted that a yellow and magenta rope barrier which separates the radiological controlled area (RCA) from the non-RCA areas, and which runs perpendicular to the length of the tunnel, was partially down. The approximate 4-foot length of rope, which was down, had been in place to prevent passage into the RCA by personnel travelling between a wall and a cable tray area. This would not be a normal route of travel. The inspector notified the onduty radiological protection foreman and he promptly dispatched a technician to investigate and repair the barrier. The rope that was down presented a small probability of inadvertent entry into the RCA and was not considered a radiological safety problem. However, it was a second instance of inattention to detail in the control of rope barriers. A previous incident was discussed in paragraph 4 of NRC Inspection Report 50-458/90-13.

No violations or deviations were identified.

5. <u>Maintenance Observation (62703)</u>

As previously reported in NRC Inspection Report 50-458/90-04, February 11, 1990, with the reactor at 100 percent power, the unit experienced a partial engineered safety feature (ESF) actuation of the Division II diesel generator (DG), Containment Unit Cooler 1B and associated service water supply valves, an autostart of the Control Building Filter B, the reactor core isolation cooling (RCIC) initiation logic, and the opening of the RHR B and C injection valves.

The event occurred when scheduled electrical preventative maintenance was being performed on the Division II battery charger (ENB*CHRG 1B). When an electrician switched to the equalize position on the charger, the TOPAZ inverter (powered by the charger's 125 Vdc bus) tripped. Upon operator restoration of the TOPAZ inverter, the ESF actuations described above occurred.

This event was further reviewed by an augmented inspection team (see NRC Inspection Report 50-458/90-05). As part of the licensee's corrective actions, preventative maintenance (PM) procedures were developed for the TOPAZ inverters which included a voltage trip and reset setpoint check. This was implemented by the following maintenance work order (MWO) packages which were reviewed by the inspector:

MWO	MARK NO.*
MWO R136668	1D17*K699B
MWO R136666**	1E51*K603
MWO R136667	1D17*K699A
MWO R136662**	1C61*PWRSK002
MWO R136664	1E22A*PS01
MWO R136942	1E21A*PS01
MWO R130916	1E12A*PS01

*equipment identification number
**required setpoint adjustment, as noted by the inspector

During the review of the above listed MWO packages, the inspector verified that the following attributes were accomplished:

(1) The work traveler/inspection record and the continuation sheet were properly annotated and initialed for the work steps completed.

(2) The appropriate voltage and current values were recorded in the "maintenance performed" section of the MWO (as required by Step 7 of the work traveler continuation sheet).

(3) The Quality Control Inspection Report reflected that QC personnel witnessed the TOPAZ inverter reinstallation and that mounting screws were torqued to correct values as required.

(4) The maintenance briefing sheets were signed by the involved craftsman indicating that they had read, understood, and would follow the job plan.

(5) Attachment 1 (Data Sheet) of CMP-1281 was used to record required data and information as required by Step 4 of the work traveler continuation sheet.

(6) Attachment 2 (Lifted Lead and Jumper Tag Sheet) of GMP-0042 was used to record required data and information as required by Step H of the work plan instructions.

The inspector noted during the review of the above documentation that CR 86-1515 was referenced several times. This CR was used to document an earlier (October 1986) problem the licensee had experienced with TOPAZ inverter setpoints and may have provided the licensee with an indication of the need for a calibration program on them. TS 6.8.1 requires that written procedures be established, implemented, and maintained for surveillance and test activities of safety-related equipment. The inspector was reviewing this matter with the licensee and considers this issue to be an unresolved item (458/9018-02) pending further information.

No violations or deviations were identified.

6. Surveillance Test Observation (61726)

a. The inspector observed portions of the performance of Surveillance Test Procedure STP-500-4551, "RPCS High and Low Power Setpoint Monthly Functional Test (C11-N654A,B,C,&D and C11-N655A&B)," on June 29, 1990. This surveillance test met the requirement to perform a monthly channel functional test and trip unit setpoint calibration of the rod pattern control system low power setpoint and low power alarm point instrumentation (C11-N654A&B and C11-N655A&B), as specified by TS 3/4.3.6, Table 4.3.6-1.1.a and -b. This test also met the requirement to perform a monthly functional test and trip unit setpoint calibration of the rod pattern controller high power setpoint instrumentation (C11-N654C&D) as specified by TS 3/4.3.6, Table 4.3.6-1.1.a and -b.

The purpose of the rod pattern controller was to limit the worth of any control rod to minimize the undesirable effects resulting from a rod drop accident or a rod withdrawal error. It operationally enforced procedural controls by applying rod blocks before any rod motion could produce high worth rod patterns.

Prior to beginning the surveillance, the instrumentation and control (I&C) technicians notified the control operating foreman of the intent of the procedure and obtained permission to perform the test, as required by Step 6.4 of the procedure. The inspector questioned the two I&C technicians and found them to be cognizant of the surveillance test requirements. The test was conducted in accordance with the surveillance procedure. The alarm and trip setpoints were verified to be within the established acceptance range and were properly documented on Attachment 2 of the procedure. The inspector verified that the test equipment in use was within the calibration due date and was documented on Attachment 3 of the procedure as required by Step 7.3.4 of the procedure. The inspector noted during a subsequent review of the completed test document that Step 7.3.5, which required an independent verification of restoration, had been completed.

b. On July 17, 1990, the inspector observed portions of the performance of Surveillance Test Procedure STP-207-5252, "RCIC/RHR System Isolation, RHR Equipment Area Ambient Temperature High Monthly Chfunct . . . (E31-N610A)." The purpose of this monthly test was to perform a channel functional test of the RHR equipment area instrumentation as required by TS 3/4.3.2.1, Tables 4.3.2.1.-1.5.j and 4.3.2.1-1.6.a.

The inspector, through observation and discussion with the technicians, determined that the required prerequisites for the procedure had been met and authorization had been given to begin the test. The technicians followed the instructions listed in the procedure and maintained proper control of lifted leads as stipulated in General Maintenance Procedure GMP-0042, "Circuit Testing and Lifted Leads and Jumpers." The inspector also verified that all of the test equipment being used was within the calibration due date.

The inspector noted that the technicians were adhering to a procedural requirement that alligator clips not be used for attaching test equipment leads or jumpers. The licensee required the use of mini-grabbers (which provide for a more positive attachment to wiring near terminal boards) as part of corrective actions for previous problems in this area.

The technicians initiated a preliminary change notice when Step 7.1.26 of the subject test procedure could not be performed as worded. This action was in accordance with Step 5.7, "Preliminary Change Notices," of Administrative Procedure ADM-0015, "Station Surveillance Test Program." The program required surveillances to be performed as written and approved. If the surveillance was incorrect as written and could not be properly performed, then the procedure was to be revised by temporary change notice (TCN), preliminary change notice (PCN), or revision. The technicians properly implemented the requirements of ADM-0015 as the inspector observed the performance of the surveillance. Among these requirements were: enter a pen and ink change into the official work copy of the procedure, assign a sequential number (i.e. PCN-1, PCN-2, etc.) to the change and identify this number in the right hand margin by each step changed, enter that same number on the PCN form along with the affected steps in the appropriate column, and obtain approval from a member of plant management and the on-shift operations supervisor. After further review, the procedure (ADM-0015) required that a TCN be initiated incorporating all changes noted on the PCN. Subsequently, the inspector reviewed portions of TCN 90-0600 (temporary approval dated 7/17/90), which incorporated the PCN. The inspector observed that the change requirements were implemented properly.

No violations or deviations were identified.

7. Followup of Previously Identified Items (92701)

a. (Closed) Open Item (458/8720-04): Evaluation of single control rod slow scram time.

The inspector reviewed the licensee's investigation of the single control rod (16-23) slow scram time which occurred on August 18, 1987, documented on CR 87-973. When the operator inserted a manual scram, Control Rod 16-23 was observed to insert at a normal drive speed.

The licensee removed the scram pilot valve (EP-139) for the control rod and verified that it was the cause for the slow scram insertion rate. The vendor (General Electric) then disassembled the valve and found that a piece of urethane seat material had broken off the diaphragm and lodged in the air passage in the pilot exhaust valve port. The licensee had previously refurbished the EP-139 valves with Viton seat material instead of the elastomer material. However, five spare valves in the warehouse were not refurbished. One of these valves was used on the Control Rod 16-23 skid.

The licensee subsequently refurbished all the applicable spare valves in the warehouse. The scram inlet and outlet valves will again be refurbished during the third refueling outage as recommended in G.E. Service Information Letter 417. CR 90-0327 was written to document the need to refurbish the valves and revise the applicable procedures to ensure timely replacement of the diaphragm.

This item is closed.

b. (Closed) Followup Item (458/8942-03): Clarification of inservice test requirements for the penetration valve leakage control system (PVLCS) injection line check valves.

On May 23, 1990, the Office of Nuclear Reactor Regulation responded to an NRC Region IV staff request regarding inservice test requirements for backflow testing of check valves used in the PVLCS. The NRC staff concluded, through the review and description of the PVLCS in the RBS Updated Safety Analysis Report, paragraph 9.3.6, that the check valves in question have no design basis safety function to close. Testing the check valves for closure, therefore, is not a requirement in the inservice inspection (ISI) program and is not within the scope of Generic Letter 89-04.

This inspector followup item is closed.

No violations or deviations were identified.

8. Exit Interview

An exit interview was conducted with licensee representatives identified in paragraph 1 on August 1, 1990. During this interview, the NRC inspector reviewed the scope and findings of the report. The licensee did not identify as proprietary any information provided to, or reviewed by, the inspector.