

APPENDIX

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

NRC Inspection Report: 50-458/89-09

License: NPF-47

Docket: 50-458

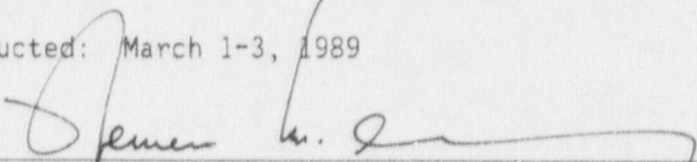
Licensee: Gulf States Utilities (GSU)
P.O. Box 220
St. Francisville, Louisiana 70775

Facility Name: River Bend Station (RBS)

Inspection At: RBS, St. Francisville, Louisiana

Inspection Conducted: March 1-3, 1989

Inspector:


N. M. Terc, Emergency Preparedness Analyst
(NRC Team Leader)

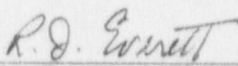
3/29/89

Date

Accompanying
Personnel:

E. Ford, NRC Senior Resident Inspector, RBS
B. Jones, NRC Resident Inspector, RBS
L. Cohen, NRR, USNRC
D. Schultz, Comex Corporation

Approved:


R. J. Everett, Chief, Security and Emergency
Preparedness Section

3/30/89

Date

Inspection Summary

Inspection Conducted March 1-3, 1989 (Report 50-458/89-09)

Areas Inspected: Routine, announced inspection of the licensee's performance and capabilities during an annual exercise of the emergency plan and procedures. The NRC inspection team observed activities in the Control Room (CR), Technical Support Center (TSC), Emergency Operations Facility (EOF), and the Operations Support Center (OSC) during the exercise.

Results: Within the areas inspected, no violations or deviations were identified. Four exercise weaknesses were identified by the NRC inspection team (paragraphs 2 through 7). The major exercise weakness identified was the poor flow of information between the CR and the TSC. As a consequence, decision makers did not have accurate and timely information upon which to base their decisions. Additionally, information flow within the CR and within the TSC was deficient. This prevented orders from the shift operations supervisor and emergency director (ED) to be carried out. The licensee's performance during the exercise was considered to be adequate, but significantly below the performance of the 1988 exercise. This was, in part, due to a fast moving scenario which greatly challenged their performance.

DETAILS1. Persons ContactedGSU

- *J. C. Deddens, Senior Vice President, Gulf States Utilities
- *J. Cadwallader, Supervisor, Emergency Planning
- *W. H. Odell, Manager, Administration
- *T. F. Plunkett, Plant Manager
- *M. F. Sankovich, Manager, Emergency Department
- *V. J. Normans, Jr., Supervisor, Administrative Services
- *K. E. Suhrke, Manager, Project Management
- *R. J. King, Supervisor, Nuclear Licensing
- *T. Crouse, Manager, Quality Assurance
- *J. E. Booker, Manager, River Bend Oversight
- *J. W. Cook, Lead Environmental Analyst
- *D. R. Spencer, Senior Emergency Planner - Onsite
- *K. Dreher, Emergency Planning - Offsite

NRC

- *E. J. Ford, Senior NRC Resident Inspector

The NRC inspection team also held discussions with other station and corporate personnel in the areas of security, health physics, operations, training, and emergency response.

*Denotes those present at the exit interview on March 3, 1989.

2. Program Areas Inspected

The NRC inspection team observed licensee activities in the CR, TSC, OSC, and EOF during the exercise. The NRC inspection team also observed emergency response organization staffing, facility activation, detection, classification, and operational assessment, notifications of licensee personnel, notifications of offsite agencies, formulation of protective action recommendations (PAR), offsite dose assessment, in-plant corrective actions and rescue, security/accountability activities, and recovery operations. Inspection findings are identified in the following paragraphs.

3. Control Room 82301(1)

The NRC inspection team noted that information flow among the staff in the CR was deficient. The licensee lacked an information feedback protocol to ensure that directives were clearly understood. On one occasion, for

example, the shift supervisor directed his staff to secure the hydrogen purge, but this directive was ignored. As a consequence, the release of radioactivity to the environment continued for 15 minutes.

The above is an exercise weakness. (458/8909-01)

No violations or deviations were identified in this program area.

4. Technical Support Center 82301(2)

The NRC inspection team noted that the TSC was unable to fulfill its required function during the simulated emergency. One of the factors contributing to this problem was inadequate information flow to and from the CR, and also deficient information flow within the TSC. During the 150 minutes following the design basis accident loss of cooling accident (LOCA) at 7:30 p.m., the TSC was approximately 1 hour behind actual plant status. The licensee identified this item as a weakness in their critique with the NRC.

Various events characterized the breakdown in the TSC function, as follows:

- o The TSC became fully activated and the ED assumed direction and control at 7:45 p.m. However, at that time, the specific events related to the LOCA were not fully understood by the TSC staff. This became apparent when the TSC Engineering Support staff contemplated actions after the same actions had already been completed by the CR operating staff; for example, the use of the RHR keep-fill system pumps to compensate for the unavailability of the Emergency Core Cooling System (ECCS). The TSC staff was considering whether to recommend this action 45 minutes after the CR staff had completed the action.
- o Twenty-five minutes after the large LOCA had taken place, the TSC staff questioned why the low pressure ECCS was injecting water into the core, indicating they were not aware that the LOCA had occurred.
- o Although the information was available, the TSC staff did not know the status of the condensate system 90 minutes after the LOCA, although the LOCA had occurred in the main feed water system, as indicated by various symptoms.
- o Information posted on the "General Information," and "Chronology of Events," status boards at the TSC lagged from 45 to 75 minutes behind events. The lack of this information caused the TSC staff to incorrectly assume, based on the status boards information, that the reactor scram occurred one hour before it actually did, and caused dose assessors to use an erroneous shutdown time resulting in an inaccurate nonconservative estimation of doses offsite.

- o The PAR transmitted with the 7:45 p.m. General Emergency Declaration was to "shelter Sections/Areas 1, 4, 9, and 16 up to 2 miles." Based on plant conditions at the time of this event, Procedure EIP-2-007, "Protective Action Recommendation Guidelines," Attachment 2, Block 11, required an evacuation of a 2-mile radius and sheltering 5 miles downwind. This item was also identified by the licensee.
- o The TSC staff did not realize that a radioactive release to the environment was taking place for at least 55 minutes after initiation (from 8:30 p.m. to 9:25 p.m.). This release was inadvertently initiated by the CR staff at 8:30 p.m. in accordance with Emergency Operating Procedures (EOP-2) in order to reduce hydrogen gas accumulation in the containment. The CR staff did not correlate the initiation of the purge with the radiological conditions in the containment. Therefore, neither the CR or the TSC understood the source of the radiological release to the environment until 9:30 p.m. when the ED directed a determination of the source of the release. This item was also identified by the licensee.
- o The TSC staff was not aware of increases in containment hydrogen due to fuel uncovering following the LOCA at 7:30 p.m. Although hydrogen gas concentration is a Type C variable as described in Regulatory Guide 1.97, hydrogen gas concentrations were not available in the TSC, nor were they listed as a parameter in any of the TSC status boards.
- o The TSC staff did not learn of the 7:30 p.m. main feed water system rupture until 9:16 p.m., although several precursors, such as tripped condensate water pumps, empty hot-wells, elevated radiological conditions, and 6 inches of water in the turbine building basement, were known.
- o Actions taken by the CR staff as directed by the EOPs, critical to mitigating the consequences of the accident, were not relayed to the TSC staff. As a consequence, the TSC staff was not aware of the success or failure of many of these critical actions. For example, the TSC staff remained unaware of the CR's attempts to establish an alternate injection path (e.g., keep-fill system to residual heat removal and standby liquid control system) 45 minutes after these actions had been accomplished.
- o A General Emergency was declared at 7:45 p.m., but notification to offsite agencies was delayed until 8:16 p.m., that is, 28 minutes later. This is a repeat deficiency from the last exercise. This item was also identified by the licensee.
- o Information flow within the TSC was weak. This resulted in inadequate coordination and control. For example, a postaccident sample (PASS) was ordered by the ED in the TSC at 7:58 p.m. One hour and a half later, the ED realized that no action had been taken to obtain a PASS sample. The ED issued another order. The PASS sample was finally taken at midnight. This item was also identified by the licensee.

- o At 7:45 p.m., the Operations Support Coordinator in the TSC recognized that he was being severely limited because of lack of information from the CR. He voiced this concern about the need to establish adequate means of information flow by using a SRO or equivalent. No further action was taken to correct this concern. This item was also identified by the licensee.

These examples constitute an exercise weakness. (458/8909-02)

No violations or deviations were identified in this program area.

5. Emergency Operations Facility 82301(3)

The NRC inspection team noticed that, in general, command and control by the Recovery Manager (RM) in the EOF was poor, as evidenced by the following findings:

- o The RM announced the full activation of the EOF at 8:41 p.m. However, Message 7, to offsite officials was issued from the TSC at 9:03 p.m. indicating that the TSC staff continued to make decisions pertaining to notifications and changes to PARs which were the sole prerogative of the RM. This is contrary to the intent of Procedure EIP-2-021, "EOF Support Functions," which states in paragraph 4 that the RM shall recommend PARs to offsite government agencies. This item was also identified by the licensee.
- o Notification messages issued from the EOF and TSC contained a number of inconsistencies. For example, in Notification Message 8, projected thyroid doses were given in Item 12, but no iodine release rate was specified in Item 11 of the form. Message 8 also indicated an unchanged release rate (from Message 7) on Item 11 although whole body and thyroid doses projected on Item 12 showed a significant change. Notification Message 9 reported no change from previous message (Message 8 projected doses due to noble gases and iodine), while Item 6 of the form reported that the release rate had decreased to background. Message 7 shows no release rate for iodine on Item 11, although it included substantial doses for iodine.
- o The flow of information pertaining to operational and radiological assessments within the EOF did not converge towards the RM. The RM did not establish a protocol to establish a converging pattern of information, and as a consequence, he was forced to move around seeking information when he needed it.
- o The RM failed to communicate efficiently with the senior liaison officer from the Louisiana Nuclear Energy Division and failed to keep him informed of major developments. This item was also identified by the licensee.

These examples constitute an exercise weakness. (458/8909-02)

No violations or deviations were identified in this program area.

6. Operations Support Center 82301(4)

The NRC inspector noted that the OSC coordinator dispatched one team to perform maintenance activities in-plant without a radiation protection technician. This is contrary to Procedure EIP-2-017, "Operation Support Center-Support Function," which requires radiation protection support when teams are dispatched to radiological control areas.

The above constitutes an exercise weakness. (458/8909-03)

7. Licensee's Self-Critique

The NRC inspection team noted that the licensee's first attempt to identify and characterize exercise weaknesses during their formal critique with the NRC was deficient in that it did not properly characterize the findings according to their significance. However, the licensee continued their efforts immediately following their critique and properly identified and characterized many of the significant findings by the NRC inspection team.

The above is an exercise weakness. (458/8909-04)

8. Exit Interview

The NRC inspector met with the NRC resident inspectors and licensee representatives indicated in paragraph 1 on March 3, 1989, and summarized the scope and findings of the inspection as presented in this report. The licensee acknowledged their understanding of weaknesses and agreed to examine them to find root causes in order to take adequate corrective actions.