APPENDIX

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

NRC Inspection Report: 50-458/91-04 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: January 8-10, 1991

Inspector: E. J. Ford, Senior Resident Inspector

Approved: _____ 1-16-91
P. H. Harrell, Chief, Project Section C Date

Inspection Summary

Inspection Conducted January 8-10, 1991 (Report 50-458/91-04)

Area Inspected: Followup of an issue, identified by the licensee, that involved the ability of the automatic depressurization system to meet its design basis functions.

Results: Within the area inspected, one potential violation was identified (paragraph 2) related to the operability of the automatic depressurization system in the event of a loss of the normal air supply.

DETAILS

1. PERSONS CONTACTED

*J. E. Booker, Manager, Nuclear Industry Relations
*T. L. Crouse, Manager, Administration
*W. L. Curran, Cajun Electric Site Representative
*J. C. Deddens, Senior Vice President
*L. E. England, Director, Nuclear Licensing
*P. D. Graham, Plant Manager
*J. R. Hamilton, Director, Design Engineering
*G. K. Henry, Director, Quality Operations
*D. E. Jernigan, System Engineering Supervisor
*D. N. Lorfing, Nuclear Licensing Supervisor
*W. H. Odell, Manager, Oversight
*K. E. Suhrke, General Manager, Engineering and Administration
*E. J. Zoch, Senior Nuclear Engineer

*Denotes those persons that attended the exit interview conducted on January 10, 1991.

The inspector also contacted other plant personnel.

2. REVIEW OF THE OPERABILITY OF THE AUTOMATIC DEPRESSURIZATION SYSTEM (ADS) (93702)

2.1 Overview

The ADS is one of two subsystems of the emergency core cooling system (ECCS) and utilizes 7 of the 16 installed safety relief valves (SRV) to reduce reactor pressure following a small break, loss-of-coolant accident in the event of the failure of the high pressure core spray system. Each of the ADS/SRVs is equipped with an air accumulator, interconnecting piping, and check valve arrangement (i.e., accumulator assembly) to ensure that the valves can be operated, either automatically or manually, in the event of a loss of the air supply to the accumulators. During normal plant operation, the pressure in the accumulators is supplied and maintained by the nonsafety-related main steam system (SVV) air compressors at a pressure of approximately 175 psig. In the event that the SVV compressors are lost, air is supplied to the accumulators from the penetration valve leakage control system (PVLCS) air system. The PVLCS is a seismically-qualified, safety-related air system that provides a supply pressure of approximately 120 psig.

Historically, the licensee has considered the ADS to be operable, even with the SVV air system out of service, since pressure can be supplied to the accumulators by the PVLCS air system. A GSU interoffice memorandum to operations shift supervisors, dated December 25, 1987, on the subject of ADS/SRV operability states, in part, that, after review of Updated Safety Analysis Report (USAR), Sections 5.2.2, Depressurization; 9.3.6, PVLCS; and 6.3, ADS/ECCS, field engineering has determined that the ADS/SRVs are

- Implemented TCN 91-0006, on January 4, 1991, to Annunciator Response Procedure ARP-809-81, Alarm 0960 (and 0961), "ADS Safety and Rel Vlv Air Supply Hdr A (and B) Low Press," to state that the operators must refer to TS 3.5.1 for the appropriate LCO.

- Implemented Prompt Modification Request 91-01, on January 6, 1991, to install a temporary backup air compressor for the SVV system.

- Was in the process of evaluating the need for a TS interpretation (TSI) for TS 3.5.1.e.2 pressure requirements. This TSI will be subject to facility review committee review and plant manager approval.

- Was in the process of evaluating the need to replace the current SVV air compressors, due to frequent maintenance actions required in the past, and investigating better compressor and dryer designs.

During review of this issue, the inspector noted the following:

- The licensee, on January 4, 1991, returned an SVV compressor to service and exited the LCO for TS 3.5.1.e.2.

- The licensee made a 4-hour report in accordance with the requirements of 10 CFR Part 50.72.

- At the end of this inspection period, the licensee was in the process of formally reanalyzing the minimum accumulator pressure required to ensure that the ADS/SRVs could perform their intended safety function.

- TS 3.6.1.10, "Penetration Valve Leakage Control System," requires that a daily verification of PVLCS accumulator pressure be performed to verify that the pressure is greater than, or equal to, 101 psig, as a condition of operability, as stated in TS 4.6.1.10.

- The licensee, in November 1990, performed leakrate testing, using Surveillance Test Procedure STP-202-3603, of the ADS/SRV accumulator assemblies to ensure that the leak rate was within the established acceptance criteria and the accumulator assembly check valves were operable.

3. EXIT INTERVIEW

The inspector met with Mr. J. C. Deddens and other members of the licensee's staff on January 10, 1991. The meeting attendees are identified in paragraph 1. At this meeting, the inspector summarized the scope of the inspection and the findings. The licensee did not identify as proprietary, any of the material provided to, or reviewed by, the inspector during this inspection.

operational as long as the header and accumulator pressures are maintained above 120 psig. This is based upon USAR Section 9.3.6 that describes PVLCS as the safety-related supply for this system. The PVLCS compressors are designed for an output of 120 psig. A pressure of 101 psig is sufficient for operability of ADS/SRV, as this is the minimum design pressure of the PVLCS accumulators. For conservatism, field engineering has determined 120 psig to be the minimum operable pressure. The memo then states, with a later entry dated December 28, 1987, in part, that further investigation has led field engineering to determine that the ADS/SRVs are operational with a PVLCS accumulator pressure of 101 psig or greater.

2.2 Details

On January 4, 1991, the licensee informed the inspector that the licensee considered the ADS to have been inoperable. In response to questions posed by the operations department regarding operation of the ADS/SRVs, the licensee's engineering organization initiated a review to determine the required pressure in the ADS/SRV accumulators to ensure that the ADS/SRVs could perform their design basis functions. At the time the operations department requested engineering assistance, both SVV compressors had been removed from service for maintenance, thus making the normal air supply unavailable.

On January 4, 1991, the engineering organization preliminarily determined that the minimum pressure required in the accumulators, to ensure that the ADS/SRVs could meet the stated design basis, was 150 psig. This newly established value invalidated the licensee's previous assumption that, for normal operation (i.e., prior to an accident), the PVLCS air system was a backup to the SVV air system because the discharge pressure of the PVLCS air system is approximately 120 psig. Since the licensee was not sure that the pressure in the accumulators was greater than the pressure from the PVLCS, as there is no pressure indication on the ADS/SRV accumulator assemblies, the licensee declared the ADS inoperable from the time that both SVV air compressors had been removed from service.

The period of inoperability of the ADS (i.e., all seven SRVs) was from 5:41 a.m. (CDT) on January 3, 1991, until 9:12 a.m. January 4, a total of approximately 27.5 hours. The action statement for the limiting condition of operation (LCO) for Technical Specification (TS) 3.5.1.e.2 states, in part, that with two or more of the required ADS valves inoperable, be in at least hot shutdown within 12 hours and reduce reactor steam dome pressure to less than, or equal to, 100 psig within the next 24 hours.

The failure to comply with the action statement of TS 3.5.1.e.2 is an apparent violation (458/9104-01).

In response to this apparent problem, the licensee took the following actions:

- Implemented Temporary Change Notice (TCN) 91-0005, on January 4, 1991, to System Operating Procedure SOP-0011, "Main Steam System," to state that, with the SVV compressors inoperable and without an alternate 150-psig air system supplying the SVV air headers, the SRV/ADS valves are to be considered inoperable for the ADS function.