

ATOMIC ENERGY COMMISSION

FAILURE OF A STEAM GENERATOR PRESSURE RELIEF VALVE
AT CAROLINA POWER AND LIGHT COMPANY'S
(H. B. ROBINSON NO. 2) REACTOR FACILITY

Report to the Director of Regulation
by the Director, Division of Compliance

At 3:20 p.m. on April 28, 1970, seven licensee and contractor personnel were injured when a connecting line, between the main steam line and a steam generator pressure relief valve, failed during the hot functional testing program. No fuel was in the reactor. The most serious injury occurred to one licensee workman. The injury consisted of second-degree burns to the upper portion of his body and damage to his head and face. The workman is expected to recover.

A Compliance inspector was at the site at the time of the accident and obtained the following preliminary information:

- a. The failure occurred in a six-inch diameter, six-inch long transition piece that connected one of the four steam generator pressure relief valves for Steam Generator No. 3 to the associated main steam line. At this pressurized water reactor, there are three steam generators and a total of 12 steam generator pressure relief valves. A preliminary examination revealed that the failure may have occurred in the area of the heat affected zone of the field weld that connected the transition piece to the pressure relief valve.

- b. The transition piece was fabricated by B. F. Shaw Company from

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Schedule 80, A-106, Grade B, carbon steel pipe. The transition piece was counter bored to Schedule 40 dimensions to facilitate the welding of the pressure relief valve to the transition piece. The failure occurred at the point where the pipe thickness was reduced. The installation was 100 percent radiographed and 100 percent magnetic particle tested at the completion of work. In addition, a cold hydrostatic test at 150 percent of design, 1356 psig, was performed satisfactorily following completion of the installation.

- c. The steam generator pressure relief valves are located just outside of the containment wall. At the time of the accident, the primary plant was at operating temperature and pressure conditions--533° F. and 2335 psig. The steam generators were at normal, no load, operating conditions--532° F. and 900 psig. The testing in progress included the checking of the set points for the twelve steam generator pressure relief valves. With the plant in this condition, a "very big eruption" occurred in the vicinity of a pressure relief valve. This valve had been previously set. No work was being performed on this valve at the time of the accident. The valve, which separated from the transition piece, landed on a nearby catwalk.
- d. The contents of the steam generator blew out the six-inch opening. The blowdown boiled the steam generator dry in 45 minutes. The secondary system blowdown decreased the primary plant temperature from 533° F. to 360° F. over the 45-minute period. The minimum

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primary plant pressure achieved was 1863 psig. The water level in the pressurizer was below minimum indications for a period of 30 minutes.

The licensee stated that a written report of this accident will be submitted to the Atomic Energy Commission. The safety significance of this accident and its applicability to other facilities are being reviewed by the Divisions of Reactor Licensing and Compliance. We will inform you of significant developments.

Several press releases have been made by the licensee, the first on the evening of the accident. The press releases, copies of which are not currently available to Compliance, have been described by the licensee to our inspector as follows:

- a. Identification of the accident.
- b. Periodic statements on the condition of the injured.
- c. Positive statements that the facility was being tested and that no nuclear fuel was in the reactor.
- d. Positive statements that the accident occurred in the secondary system and that the failure was associated with a component that is similar to that used in conventional facilities.

The staff of the Joint Committee on Atomic Energy has been informed by telephone. A letter, confirming the telephone conversation, will be forwarded to the Committee.

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