Consumers Power Company

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Operating Reactors Branch No 5
Nuclear Reactor Regulation
US Nuclear Regulatory Commission
Washington, DC 20555

DOCKET 50-155 - LICENSE DPR-6 -
BIG ROCK POINT PLANT - SEP TOPIC IX-3,
STATION SERVICE AND COOLING WATER

The NRC requested Consumers Power Company in a letter dated July 20, 1980 to provide additional information concerning SEP Topic IX-3 for the Big Rock Point Plant. The requested information included (1) verification of the existance of procedures to ensure that fire protection system flow requirements are met; and (2) an evaluation of the effect of a passive failure on system performance. Our response is attached.

It is important to note that the subject of passive failures in the fire protection system was previously considered (Consumers Power Company letter dated February 4, 1977 and NRC Memorandum and Order dated May 26, 1976) by Consumers Power Company and the NRC staff following issuance of the FAC (Final Emergency Core Cooling Acceptance Criteria-10 CFR 50.46 and 10 CFR 50, Appendix K). At that time the NRC staff was concerned with passive failures in the fire system and whether they might affect the performance of the ECCS during the long-term-cooling phase following a loss-of-coolant accident (LOCA). In particular, they were concerned with the possibility of a rupture of the underground fire piping during the long-term cooling phase. This concern was primarily based on two considerations: (1) that unlike the piping and components in the screenhouse and post-incident room, the underground piping would not be accessible for routine visual inspection for leak detection; and, (2) that the fire system might be required to function for long periods of time (i.e. months) following a LOCA in order to remove decay heat from the containment building. In response to this concern, even though the NRC regulations do not explicitly require consideration of passive failures in this event for Big Rock Point, Consumers Power Company committed to provide a means to assure that long-term cooling could be maintained even assuming a passive failure of the underground fire system piping. The plant modification proposed and implemented to satisfy this commitment (CPCo 2/4/77 letter) involved installation of necessary fire system fittings and valves so

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that a fire hose could be attached to the fire pumps in the screenhouse and which would run to the post-incident heat exchanger in the post-incident room so that long-term decay-heat removal could be restored.

In addition, Consumers Power Company has upgraded the fire system piping inside the screenhouse to make the already-low-probability of a passive failure even lower. This portion of the piping has now been analyzed for seismic loads and supports have been added to qualify this piping for the postulated earthquake.

In conclusion, the more probable passive fire system failures have already been considered and addressed; and, other "possible" passive failures have also been addressed in the attachment and found not to represent a significant safety concern. Therefore, we feel the Big Rock Point Plant fire protection system meets the intent of current licensing criteria regarding passive failures.

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CC Administrator, Region III, USNRC
NRC Resident Inspector-Big Rock Point

Attachment - 2 pages

BIG ROCK POINT

EVALUATION REPORT OF SEP TOPIC IX-3,
STATION SERVICE AND COOLING WATER SYSTEMS

Request for Additional Information
September 3, 1982

1. The licensee should verify the existence of procedures which would ensure that system flow requirements are met.

Answer

Consumers Power Company has verified the existence of plant procedures to ensure that fire protection system flow requirements are met. The procedures are listed as follows:

Operating Procedure SOP:-8 - Post-Incident System
Emergency Operating Procedure EMP-3.3 - Loss of Reactor Coolant.

Furthermore, SOP-8 lists the system tests, including flow tests, and test procedures required to ensure that system flow requirements are met. Additionally, there are routine operator surveillances to ensure the integrity of this system is met during operations and/or plant shut-down.

2. The licensee has not addressed the effect of a passive failure in the Fire Protection System.

Answer

While evaluating this topic, it is not our intent to duplicate the discussions of incidents in other SEP Topic evaluations, but to consider failure mechanisms important to safety. When considering these failure mechanisms such as the "potential for a passive failure of the common non-redundant pipe header" located in the Fire Protection System (in screen-house), it is assumed that some type of postulated incident would be in effect and the Fire Protection is functioning in its operating mode (i.e. the electric fire pump is operating with the diesel fire pump as backup).

A postulated passive failure could be due to pipe or valve failure. The vulnerability of screenhouse equipment (which includes piping and components) to specific incidents are to be addressed in other SEP Topics such as: SEP Topics III-5.B - HELB Outside Containment; III-4.A - Tornado Missiles; III-4.C - Internally Generated Missiles; III-6 - Seismic Design Considerations - refer to R A Vincent letter to D M Crutchfield dated July 27, 1981, same subject.

The check valve associated with each pump above including the jockey fire pump could possibly leak through the system to the dormant lines. Small leakage in check valves(s) could be tolerated, but if for some reason a check valve remained open when its function is to close in order to prevent back flow, a problem could exist. This problem, however, may be

handled by manually closing the isolation valve to the malfunctioning check valve.

Another potential problem could exist regarding long term corrosion of the piping in this non-redundant header. However, Consumers Power Company conducts a test (TSD-01 Fire Pump Operating Characteristics) at each refueling outage, which determines fire pump capabilities and allows for pressurization of this piping to a much greater pressure than produced by the jockey fire pump. Consequently, during this testing any leakage from the pipe wall or flanges could be detected.

Based upon the responses presented above, it is concluded that there are no outstanding safety issues present for this topic evaluation nor are there any undefined safety problems concerning the passive failure of the common non-redundant pipe header.