Directorate of Regulatory
Operations Bulletin 74-14
November 14, 1974

BWR RELIEF VALVE DISCHARGE TO SUPPRESSION POOL

Description of Circumstances

Various BWR licensees have in the recent past, experienced unplanned actuation of reactor coolant system steam relief valves. These valves typically discharge to the suppression pool, where the discharge steam is quenched. With the suppression pool water at its normal temperature, the steam quenching proceeds in the expected manner. Extended discharge of a single relief valve, however, may raise the local temperature of the receiving water to a level at which the steam quenching becomes erratic and local pressure pulses of significant magnitude may be generated.

Past occurrences at several AEC licensed reactors have resulted in varying degrees of damage, such as baffle displacement and piping support damage. This damage has previously been attributed to a variety of causes; however, based upon more recent evaluations by the nuclear steam system supplier, General Electric Company, damage may have resulted from local pressure pulses as described above. Since only a limited number of temperature sensors are provided within the suppression pool, local temperature increases and resulting pressure pulses have not been specifically identified in past occurrences.

It appears that, during events in which relief valves cannot be closed promptly, primary attention by the operator may be directed under current procedures toward minimizing temperature and pressure transients in the reactor coolant system, without sufficient attention to the effects of extended steam discharge on the pressure suppression pool structure. This situation is currently under review by the Regulatory staff including consideration of whether revision to technical specifications may be required.

Action Requested of Licensees

1. Review your current operating procedures which are applicable to the situation discussed above, to determine whether they are adequate or should be modified in any of the following areas:

dupe
8010150702

a. Limiting bulk suppression pool temperatures during normal operation and during controllable transients.

b. Requiring reactor trip if the bulk suppression pool temperature exceeds that established as a limit for controllable transients or if relief valve(s) fails to reseat properly.

c. Taking prompt steps in case of inadvertent relief valve actuation or failure to reseat, to minimize the duration of steam discharge to the suppression pool.

d. In cases of relief valve discharge, promptly initiating suppression pool circulation to dissipate local peaking of water temperatures.

e. Conduct of visual internal and external inspection of suppression pool structure for evidence of damage in instances where one or more relief valve(s) fails to reseat properly or discharge to the suppression pool for an extended period of time.

During this review, the various aspects of plant operations should be considered so that procedural changes designed to minimize the effect of steam discharge to the suppression pool do not have an adverse effect in other areas.

2. Report to this office in writing within 20 days of receipt of this Bulletin the results of your procedural review and any changes you have made or plan to make in your operating procedures, including the date when such changes were or will be completed.

UNITED STATES
ATOMIC ENERGY COMMISSION
DIRECTORATE OF REGULATORY OPERATIONS
REGION 1
631 PARK AVENUE
KING OF PRUSSIA, PENNSYLVANIA 19406

October 25, 1974

Niagara Mohawk Power Corporation
Attention: R. R. Schneider
Vice President, Electric Operations
300 Erie Boulevard West
Syracuse, NY 13202

Docket No: 50-220

Gentlemen:

The enclosed RO Bulletin requests actions by you with regard to your reactor facility(ies) with operating license or construction permit.

Should you have questions regarding this Bulletin or actions requested of you, please contact this office.

Sincerely,

for James P. O'Reilly
Director

Enclosure:
RO Bulletin 74-13

cc: P. A. Burt, General Superintendent, Nuclear Generation
T. J. Perkins, Plant Superintendent
C. L. Stuart, Assistant Plant Superintendent
E. B. Thomas, Jr., Esquire
A. Z. Roisman, Counsel for Citizens Committee for Protection of the Environment

bcc: RO Files
DR Central Files
PDR
Local PDR
Reg. Reg. Rdg. Rm.
State of New York
OGC