Public Service
Electric and Gas
Company

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JAN 14 1992

NLR-N92001

U.S. Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555

Gentlemen:

IN-SERVICE TESTING REQUIREMENTS
RELIEF REQUEST REVISION
HOPE CREEK GENERATING STATION
DOCKET NO. 50-354

By Letter NLR-N91191 dated November 15, 1991, Public Service Electric and Gas Company (PSE&G) submitted a relief request for the In-Service Testing (IST) requirements pertaining to the Post Accident Sampling System (PASS) containment isolation valves. PSE&G is hereby submitting a revision to that relief request.

The November 15, 1991 submittal proposed, as alternate testing, that the affected valves would be tested every 18 months. Based upon telephone conversations with Mr. Steve Dembek, USNRC Licensing Project Manager for Hope Creek, PSE&G is revising this request to propose that the required testing be conducted during cold shutdowns. This is the only change to the relief request.

The revised relief request is contained, in its entirety, in Attachment 1.

Should you have any questions, we will be pleased to discuss them with you.

Sincerely,

S Labruna

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Attachment

C Mr. S. Dembek
USNRC Project Manager - Hope Creek

Mr. T. T. Martin, Administrator
USNRC Region I

Mr. K. Tosch, Chief
Bureau of Nuclear Engineering
New Jersey Department of Environmental Protection

ATTACHMENT ONE

IN-SERVICE TESTING REQUIREMENTS
RELIEF REQUEST REVISION
HOPE CREEK GENERATING STATION
DOCKET NO. 50-354

COMPONENTS:

Post Accident Sampling System (PASS), Remote Manual Containment Isolation Valves RC-SV-8903A and RC-SV-8903B.

CATEGORY:

These valves are ASME Category A fast acting solenoid valves.

TEST REQUIREMENTS FOR WHICH RELIEF IS REQUESTED:

RC-SV-8903A and RC-SV-8903B are currently exercised tested, stroke time tested and fail safe tested every three months in accordance with the following ASME Code requirements:

IWV-3412 Exercising Procedure

(a) Valves shall be exercised to the position required to fulfill their function unless such operation is not practical during plant operation. If only limited operation is practical during plant operation, the valve shall be part-stroke exercised during plant operation and full-stroke tested during cold shutdowns. Valves that cannot be exercised during plant operation shall be specifically identified by the Owner and shall be full-stroke exercised during cold shutdowns. Full-stroke exercising during cold shutdowns for all valves not full-stroke exercised during plant operation shall be on a frequency determined by the intervals between shutdowns as follows:

For intervals of 3 months or longer - exercise during each shutdown.

For intervals of less than 3 months - full-stroke exercise is not required unless 3 months have passed since last shutdown exercise.

(b) The necessary valve disc movement shall be determined by exercising the valve while observing an appropriate indicator, which signals the required change of disk position, or observing indirect evidence (such as changes in system pressure, flow rate, level, or temperature), which reflect stem or disk position.

IWV-3413 Power Operated Valves

(a) The limiting value of full-stroke time of each power operated valve shall be specified by the owner. Full-stroke time is that time interval from initiation of the actuating signal to the end of the actuating cycle.
(b) The stroke time of all power operated valves shall be measured to the nearest second, for stroke times 10 seconds or less, or 10% of the specified limiting stroke time for full-stroke times longer than 10, whenever such a valve is full-stroke tested.

IWV-3415 Fail-Safe Valves

When practical, valves with fail-safe actuators shall be tested by observing the operation of the valves upon loss of actuator power. If these valves cannot be tested once every 3 months, they shall be tested during each cold shutdown; in case of frequent cold shutdowns, these valves need not be tested more often than once every three months.

BASIS FOR RELIEF:

Testing RC-SV-8903A and RC-SV-8903B while at power has, on several occasions, caused inadvertent plant transients and/or actuations of Emergency Safegards Features (ESFs). This has been attributed to pressure perturbations caused by cycling the affected valves. These perturbations are communicated, via instrumentation sensing lines, to various reactor level transmitters. The most recent event occurred on September 23, 1991 and is described here in detail.

Initial conditions were as follows (reference Hope Creek P&ID Nos. M-38, sheets 1 and 2 and M-42, sheets 1 and 2):

- Reactor at 100% power
- Reactor Level at 35"
- Reactor Water Level Control selected to "A" Channel
- Line downstream of RC-SV-8903B depressurized due to cycling the jet pump sample valve, RC-SV-0624-D24, during periodic qualification testing by Chemistry.
- Line between RC-SV-8903A and B at some indeterminate low pressure due to minor leakage past RC-SV-8903B.
- Operations initiated PASS Containment Isolation Valve Inservice testing in accordance with OP-IS.RC-0101(Q).

Upon opening the upstream PASS jet pump sample containment isolation valve, RC-SV-8903A, a pressure perturbation was initiated due to the lower downstream pressure which caused RC-SV-8903B, the downstream valve, to lift to its full open position. This was indicated by the process computer alarm chronology.

The pressure reduction was subsequently felt at the variable leg side of 1BBLT-N085A, the reactor shroud level (fuel zone range) transmitter. This is a Rosemount 1153 transmitter utilizing an oil-filled capacitor as its sensor. Insofar as the transmitter sensor assembly constitutes a filled system of small volume, any pressure perturbation can readily propagate through it to the reference side of the transmitter; at this point, it is in direct communication with all the instruments on the Channel "A" reference leg. The volume of this portion of the system is relatively small since Hope Creek utilizes 3/8" stainless steel tubing from the excess flow check valves outside containment all the way to the instruments. The somewhat dampened pressure perturbation at the reference leg side of 1BBLT-N085A is therefore propagated to all Channel "A" reactor water level and steam dome pressure transmitters.

The reactor water level transmitters sense the differential pressure between a constant height of water (reference leg) and the height of water in the reactor (variable leg), both of which are exposed to reactor pressure. The differential pressure is therefore proportional to reactor water level. Since a small change in differential pressure translates into a relatively large change in level, a pressure perturbation can cause these transmitters to momentarily sense a change in level beyond their setpoints while actual level remains constant. On this occasion, the change in level as sensed by the affected transmitters was on the order of 40" of water; this was indicated by the GETARS computer. On other occasions involving attempts to sample from the PASS jet pump sample line, or valving transmitters, even larger transients have been noted.

The reactor pressure instruments are not as susceptible to pressure perturbations since they require larger pressure changes to reach their setpoints.

The instruments of primary concern including their corresponding setpoints and trip functions are as follows:

- 1SMLT-N081A NSSSS (Level 1 and 2)
- 1BBLT-N091A HPCI, Core Spray, RHR (Levels 1, 2 and 8)
- 1BBLT-N091E HPCI, Core Spray, RHR (Levels 1, 2 and 8)
- 1SALT-N402A Redundant Reactivity Control System (Level 2)
- 1BBPDT-N004A Reactor Water Level Control
- 1BBLT-N080A RPS, NSSSS (Level 3)

On this occasion, GETARS indicated water level oscillated due to the pressure perturbation four times in a period of approximately 250 milliseconds. The lowest level indicated by GETARS was approximately -2.5". Since this is below the calibrated range of the instrument (0-60 inches) it is taken as an approximation as linearity cannot be confirmed outside the calibrated range. As a result of dropping below +12.5", the following occurred:

1. A full recirc runback and reactor water level setpoint setdown to +18" was generated from the Reactor Water Level Control System (1BBPDT-N004A). This was a result of Reactor Water Level Control using the Channel "A" transmitter for control. The channel selected for control supplies the signal to the alarm units which generate the runback and setpoint setdown signals.

2. A half scram on RPS Channel "A" was generated (1BBLT-N080A).

3. A half isolation signal was generated by NSSSS (1BBLT-N080A) for the RHR Shutdown cooling inboard isolation valve 1BCHV-F009-E11, reactor head spray inboard isolation valve 1BCHV-F022-E11, RHR flush to radwaste inboard isolation Valve 1BCHV-F049-E11, RHR inboard sample valves 1BCSV-F079A and B.

As a result of the full runback, actual reactor water level started to increase. The water level increase coupled with the reduced water level setpoint caused all three reactor feedpump turbine low pressure control valves to fully close. This in turn transferred the turbines to Governor Manual Control. Prompt operator action was necessary to control reactor water level and prevent further degradation of plant conditions.

There have been two other occasions in which operation of the PASS jet pump sample valves have directly or indirectly resulted in ESF actuations.

On August 22, 1986, during power ascension testing, PASS was being utilized to obtain reactor coolant samples. Pressure perturbations induced by valving manipulations caused 1BBLT-N091A and E to sense level both below -38" and above +55". Consequently, the HPCI system received both an initiation signal and turbine trip signal. Operator actions were required to restore the HPCI system to standby operation.

Subsequent to the August 22, 1986 event, it was decided that BB-LT-N085A would be isolated prior to testing the PASS isolation valves. This was done on July 14, 1987. However, when valving the transmitter back in to service after the test, pressure perturbations were once again experienced and resulted in HPCI again receiving concurrent initiation and turbine trip signals.

ALTERNATE TESTING:

PSE&G proposes to exercise test, stroke time test, and fail safe test RC-SV-8903A and RC-SV-8903B during cold shutdowns in accordance with the provisions of Subarticles IWV-3412, IWV-3415, and IWV-3522 and PSE&G Generic Valve Relief Request No. 1.