PSEG

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Nuclear Business Unit

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United States Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555

VALVE RELIEF REQUEST V04 – EXCESS FLOW CHECK VALVES
HOPE CREEK GENERATING STATION
FACILITY OPERATING LICENSE NPF-57
DOCKET NO. 50-354

Gentlemen:

Pursuant to 10CFR50.55a(a)(3), Public Service Electric and Gas Company (PSE&G) requests relief from the augmented inservice requirements of 10CFR50.55a(f) for excess flow check Valves (EFCVs). Specifically, an alternative is proposed to perform functional testing with verification that flow is checked at least once per 18 months per Technical Specification 4.6.3.4, immediately preceding a planned Refueling Outage and with the appropriate administrative and scheduling controls established.

The attachment to this letter includes the proposed alternative and supporting justification for the relief. Based on the evaluation contained in the attachment, PSE&G has concluded that the proposed alternative provides an acceptable level of quality and safety. Accordingly, the proposed alternative satisfies the requirements of 10CFR50.55a(a)(3)(i). A similar proposal has been approved by the NRC in a safety evaluation for the Susquehanna Steam Electric Station, dated August 30, 1996 (TAC Nos. M95507 and M95508).

The EFCV testing is required to be performed during the upcoming ninth refueling outage at Hope Creek (scheduled to begin in April 2000). Since Hope Creek would realize immediate benefits from the proposed relief during the upcoming refueling outage, PSE&G is requesting that the NRC approve these changes by March 15, 2000.

Should you have any questions regarding this response, please contact Mr. C. Manges at 609-339-3234.

Sincerely,

for GS

G. Salamon
Manager – Licensing

Attachment: Relief Request No. V04

A047

PDR ADOCK

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HOPE CREEK GENERATING STATION
IST PROGRAM - VALVE RELIEF REQUEST NO. V04

COMPONENTS:

Excess Flow Check Valves (EFCVs) - See Below for Component Numbers

FUNCTION:

These valves are instrument line EFCVs installed to meet primary containment isolation requirements. The valves are normally open to provide safety-related instrumentation, indications and control functions. The valves automatically close on rising flow (2-3 gpm) to isolate the instrument line from the reactor vessel in the event of an instrument line break.

CATEGORY: C

CLASS: 1

TEST REQUIREMENTS:

Category C check valves shall be exercised nominally every 3 months, in accordance with the requirements of OM-10, Paragraph 4.3.2.1.

DEFERRED TEST JUSTIFICATION:

Excess flow check valves are installed on instrument lines penetrating containment in accordance with Regulatory Guide 1.11. The lines are sized and/or orificed such that off-site doses will be substantially below 10CFR100 limits in the event of a rupture. Therefore, individual leak rate testing of these valves is not required for conformance with 10CFR50, Appendix J requirements.

Functional testing of valves to verify closure can be accomplished by the process of venting the instrument side of the valve while the process side is under pressure. Such testing is required by Technical Specification 4.6.3.4 at least once per 18 months. System design does not include test taps upstream of the EFCVs. For this reason, the EFCVs cannot be isolated and tested using a pressure source other than reactor pressure.

Testing on a frequency greater than once per 18 months is not prudent for several reasons. The testing described above requires the removal of the associated instrument or instruments from service. Since these instruments are in use during plant operation, removal from service may cause a spurious signal that could result in a plant trip or an unnecessary challenge to safety systems. Additionally, process liquid would be contaminated to some degree, requiring special measures to collect flow from the vented instrument side and contributing to an increase in personnel radiation exposure. Therefore, testing on a quarterly basis is deemed impractical since the risk of performing the test quarterly is judged to outweigh the benefit achieved with a quarterly test and will also increase personnel exposure.

Testing on a Cold Shutdown frequency is also impractical considering the large number of valves to be tested and the condition that reactor pressure > 500 psig is needed for testing. OMa – Part 10 – Section 4.2.1.2(e) allows test deferrals to refueling outages if quarterly testing or testing during cold shutdowns is impractical. In this instance, considering the large number of valves and the test conditions required (reactor pressure), testing all of these valves during refueling outages is also a hardship. Recent improvements in refueling outage schedules (i.e. shorter outages) have minimized the planned duration for refueling and testing activities during the outages. The appropriate time for performing these EFCV tests during refueling outages is in conjunction with vessel hydrostatic testing. As a result of shorter outages, decay heat levels during hydrostatic tests are higher than in the past. If the hydrostatic test was extended to test all EFCVs, the vessel could require depressurization several times to avoid exceeding the maximum bulk coolant temperature limit. This is an evolution that challenges the reactor operators and thermally cycles the reactor vessel and should be avoided if possible. Also, based on past experience, EFCV testing during hydrostatic testing becomes the outage critical path and could possibly extend the outage by one day if all EFCVs were to be tested during this time frame.

A review of the maintenance history for EFCVs has shown that the valves have been extremely reliable over the life of the plant, showing less than a 2% failure rate during testing of these valves. Examples of causes for the failures included alarm problems, indication (limit switch adjustments), and bent instrument tubing. None of the failures resulted in the replacement of the valves. This review of the surveillance test history shows no evidence of time based failure mechanisms or common mode failures associated with the EFCVs.

A proposed alternative to testing during the refueling outage is to test certain EFCVs immediately preceding the refueling outage while the reactor is at power and with the appropriate administrative and scheduling controls instituted. This alternative provides the appropriate conditions for testing (reactor pressure >500 psig) while also providing an acceptable level of quality and safety. Performance of the EFCV testing prior to the outage will be scheduled such that, in the event of a failure, the resulting action statement and limiting condition of operation will encompass the planned shutdown for the refueling outage. Using this strategy, unplanned, unnecessary plant shutdowns as a result of EFCV testing will be avoided.

In summary, considering the extremely low failure rate, personnel and plant safety concerns, and the hardship of testing during refueling outages, EFCV testing at a frequency greater than once per operating cycle and exclusively during refueling outages is impractical and results in a hardship without a compensating increase in the level of safety.

ALTERNATE TESTING:

Functional testing with verification that flow is checked will be performed at least once per 18 months per Technical Specification 4.6.3.4, immediately preceding a planned Refueling Outage and with the appropriate administrative and scheduling controls established.

COMPONENTS:

1BBXV-3732A	1BBXV-3738A	1BCXV-4411A
1BBXV-3732B	1BBXV-3738B	1BCXV-4411B
1BBXV-3732C	1BBXV-3785	1BCXV-4411C
1BBXV-3732D	1BBXV-3789	1BCXV-4411D
1BBXV-3732E	1BBXV-3801A	1BEXV-F018A
1BBXV-3732F	1BBXV-3801B	1BEXV-F018B
1BBXV-3732G	1BBXV-3801C	1BGXV-3882
1BBXV-3732H	1BBXV-3801D	1BGXV-3884A
1BBXV-3732J	1BBXV-3802A	1BGXV-3884B
1BBXV-3732K	1BBXV-3802B	1BGXV-3884C
1BBXV-3732L	1BBXV-3802C	1BGXV-3884D
1BBXV-3732M	1BBXV-3802D	1FCXV-4150A
1BBXV-3732N	1BBXV-3803A	1FCXV-4150B
1BBXV-3732P	1BBXV-3803B	1FCXV-4150C
1BBXV-3732R	1BBXV-3803C	1FCXV-4150D
1BBXV-3732S	1BBXV-3803D	1FDXV-4800A
1BBXV-3732T	1BBXV-3804A	1FDXV-4800B
1BBXV-3732U	1BBXV-3804B	1FDXV-4800C
1BBXV-3732V	1BBXV-3804C	1FDXV-4800D
1BBXV-3732W	1BBXV-3804D	
1BBXV-3734C	1BBXV-3820	
1BBXV-3734D	1BBXV-3821	
1BBXV-3737A	1BBXV-3826	
1BBXV-3737B	1BBXV-3827	