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ACCESSION NBR:9010220088 DOC.DATE: 90/10/05 NOTARIZED: NO DOCKET #
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SUBJECT: Responds to request for addl info on proposed Amend 131 to License NPF-14.

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Director of Nuclear Reactor Regulation
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Project Directorate I-2
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SUSQUEHANNA STEAM ELECTRIC STATION
RESPONSE TO RAI ON PROPOSED AMENDMENT 131
TO LICENSE NO. NPF-14
PLA-3458 FILES A17-2/R41-2 Docket No. 50-387

Dear Dr. Butler:

Reference: PLA-3380, H.W. Keiser to W.R. Butler, "Proposed Amendment No. 131 to License No. NPF-14: Addition of New CRM Sample Lines", dated April 17, 1990.

The following information is provided in response to a question raised by Mr. R. Goel of NRR during his review of the referenced proposed amendment.

As stated in the No Significant Hazards Considerations in the reference, "this modification installs piping into penetrations similar or identical to designs already in place in the plant." More specifically, the isolation valve arrangement for the penetrations has been previously reviewed and approved by the NRC in similar applications at Susquehanna.

Each penetration will have two 1" Class 1E process solenoid valves outboard of the containment penetration as depicted in Detail "q" of FSAR Figure 6.2.44g. This arrangement is justified for the existing sample lines in FSAR Subsection 6.2.4.3.3.6 (Attachment 1), and although the new lines will not be required to support a post-LOCA function, they have been designed to the same criteria and the valves are located as close to containment as possible.

The NRC approved this isolation arrangement in Section 6.2.4 of the Susquehanna Safety Evaluation Report (NUREG-0776) (Attachment 2) citing that "the location of a valve inside containment would subject it to more severe environmental conditions (including suppression pool dynamic loads), and it would not be easily accessible for inspection."



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In response to a separate question, please be advised that PP&L plans to propose in a forthcoming amendment changes to support energizing the new isolation valves. At that time, maximum isolation times and isolation signals will be proposed for the Containment Isolation Valve Table in the Technical Specifications.

Any questions on this additional information should be directed to Mr. R. Sgarro at (215) 770-7916.

Very truly yours,

H. W. Keiser

Attachments

cc: NRC Document Control Desk (original)
NRC Region I
Mr. M.C. Thadani, NRC Project Manager
Mr. G.S. Barber, NRC Senior Resident Inspector
Mr. T.M. Gerusky, PA DER

The justification for the approach taken for isolating these lines is that the check valves, with the water seal provided by the suppression pool and the external pipe acting as a second barrier, provide leakage control in the short term. Long-term leakage control is afforded by the control room operator closing the motor-operated valve remote-manually; the external piping provides the second barrier. For these reasons, flow rate is appropriately the only parameter sensed for initiation of containment isolation.

6.2.4.3.3.4 RCIC and HPCI Turbine Exhaust Vacuum Breaker Lines

These lines are provided with power operated isolation valves, outside containment. The valves close on a containment isolation signal.

6.2.4.3.3.5 Reactor Building Closed Cooling Water and Reactor Building Chilled Water Supplies and Returns

The influent lines and effluent lines are provided with two normally-open, power-operated gate valves. The power operated valves are automatically closed on receipt of a containment isolation signal.

6.2.4.3.3.6 Post-LOCA Atmosphere Sampling Lines

The post-LOCA sampling system lines that penetrate the containment and connect to the drywell and suppression chamber air volume are equipped with two normally open, failed closed solenoid operated isolation valves in series. The valves are located outside and as close to the containment as possible. The external piping is considered an extension of containment boundary because it must be available for long term usage following a LOCA. This piping is designed to the same quality standards as the containment. Thus, the need for isolation is conditional.

6.2.4.3.3.7 Liquid Radwaste System Equipment and Floor Drains

These lines are equipped with two normally-closed, solenoid-actuated, air-operated gate valves, both located outside containment. Inasmuch as the containment penetrations are just above the drywell floor slab, locating the inboard isolation valves inside containment would have been impractical, since the valves might have been underwater as a result of an accident. Thus, the inboard valves are attached directly to their respective containment penetration sleeves. In both cases, the piping between the isolation valves is designed as seismic Category I, ASME Section III, Class 2; the two valves are separated by only 1.5 feet of piping.

The containment isolation systems are designed to the American Society of Mechanical Engineers Code, Section III, Class 1 or 2 and are classified as seismic Category I design systems.

The containment isolation provisions for the lines penetrating containment conform to the requirements of Criteria 55, 56 or 57 of the General Design Criteria as appropriate. As provided by Criteria 55 and 56 of the General Design Criteria, there are containment penetrations whose isolation provisions do not have to satisfy the explicit requirements of the General Design Criteria but can be acceptable on some other defined basis.

Most of those penetrations not satisfying the explicit requirements of the General Design Criteria were found acceptable based on their meeting alternative criteria specified in Section 6.2.4, item II of the Standard Review Plan. These alternative acceptance criteria are summarized below:

(1) Lines that must remain in service following an accident and lines which should remain in service during normal operation for safety reasons are provided with at least one isolation valve. A second isolation boundary is formed by a closed system outside the containment.

(2) Where a closed system outside the containment forms the second isolation boundary, each of the systems and all components which form its boundary are designed to Quality Group B and seismic Category I standards. Valves which isolate the branch lines of these closed systems outside containment are normally closed and under strict administrative control.

(3) On some engineered safety features or related system, remote manual valves are used in lieu of automatic valves since these lines must remain in service following an accident. Where remote manual valve are used leakage detection capabilities are provided.

(4) On some penetrations the containment isolation provisions consist of two valves in series both of which are outside the containment. The location of a valve inside containment would subject it to more severe environmental conditions (including suppression pool dynamic loads), and it would not be easily accessible for inspection.

Those lines which we found acceptable based on the criteria specified in the Standard Review Plan include: Drywell suppression chamber purge supply and return; sample, analyzer and nitrogen makeup; equipment, floor drains; suppression pool clean and drain; containment spray systems, traversing incore probe system; residual heat removal suction, pump test line, steam condensing recirculation, minimum recirculation; high pressure core injection pump suction, turbine exhaust, pump minimum recirculation, and vacuum breaker; reactor core isolation cooling pump suction, turbine exhaust, pump recirculation, vacuum pump discharge, and vacuum breaker.

Other lines penetrating the containment described below do not meet either the explicit requirements of the General Design Criteria or the alternative Standard Review Plan acceptance bases but meet acceptable isolation criteria on other defined acceptance bases.