

Public Service
Electric and Gas
Company

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February 20, 1986

Director of Nuclear Reactor Regulation
United States Nuclear Regulatory Commission
7920 Norfolk Avenue
Bethesda, Maryland 20814

Attention: Ms. Elinor Adensam, Director
Project Directorate 3
Division of BWR Licensing

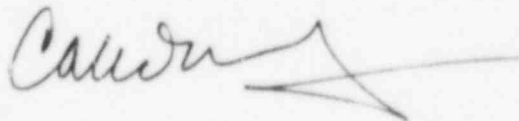
Dear Ms. Adensam:

CONTAINMENT ISOLATION VALVE CLOSURE TIMES
HOPE CREEK GENERATING STATION
DOCKET NO. 50-354

The enclosed information provides the Public Service Electric and Gas Company (PSE&G) response to the request for additional information on containment isolation valve closure times as detailed in the telephone conference call between members of the Nuclear Regulatory Commission (NRC) staff and PSE&G staff on January 28, 1986. Closure times for various containment isolation valves have been revised in Final Safety Analysis Report (FSAR) Table 6.2-16, Amendment 14 (C.A. McNeill to E. Adensam dated February 4, 1986) as detailed in the attached Tables 1 and 2, while the justifications for the revisions are summarized in Attachment 1. This summary concludes that the closure times for the containment isolation valves listed in the Amendment 14 version of Table 6.2-16 are conservative revisions when compared to the results of offsite dose evaluations and are consistent with Technical Specification Table 3.6.3-1.

Should you have any questions on the subject filing, please do not hesitate to call us.

Sincerely,



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Attachments

C D.H. Wagner
USNRC Licensing Project Manager

R.W. Borchardt
USNRC Senior Resident Inspector

ATTACHMENT 1

In support of revisions made in Amendment 14 to Table 6.2-16, the following detailed justification addresses the valve closure times which were either changed in an apparently non-conservative direction, or deleted.

As indicated in SRP 6.2.4 Sections II.n and III and SRP 15.6.5 Appendix A, containment isolation valve closure times should be limited to one minute or less. Therefore, the containment isolation valve closure times that were increased in Amendment 14 but that did not exceed one minute are justified. Accident consequences have been calculated for lines which can potentially release radioactivity to the environment if it takes over one minute to isolate the line, or if the line communicates directly with the atmosphere and takes more than 5 seconds to isolate. As indicated in Table 1 the only valves which isolate lines in over one minute serve the RHR and Core Spray Systems, which constitute closed loops outside containment, and are designed to be operated (i.e. opened) during the course of the accident but at times much later than containment isolation. The only potential for radioactive releases from these lines is from system leakage which is already included in the DBA LOCA dose analysis in FSAR Section 15.6.5. While faster valve closure would reduce the dose consequences from system leakage, the reduction would be negligible when compared to the long-term dose consequences. Therefore, the containment isolation valve closure times that exceed one minute in Amendment 14 are also justified.

The deletion of closure times (see Table 2) and use of NA (not applicable) for various valves has been employed in both the FSAR and Technical Specifications to clearly indicate which valves do not automatically reposition at the onset of an accident for the purposes of containment isolation. Valves in this category include: ECCS pump suction and injection valves which remain open during an accident to provide the necessary coolant to the reactor, check valves which close on reverse flow, ECCS pump minimum flow valves which operate in response to system flow and pressure signals, and valves which have been intentionally placed out of service and are administratively controlled in the closed position. The justification for each valve is detailed on Table 2. For the power-operated valves

listed, a maximum stroke time will be included in the HCGS Inservice Testing Program (IST) since the operability of the valves is more closely tied to system operability than to containment isolation. The IST program imposes stringent testing requirements on valves and includes retest and repair requirements for valves which exceed predetermined maximum stroke times.

Based on the above two arguments and the justifications provided in Table 2, the closure times for containment isolation valves identified in FSAR Table 6.2-16, Amendment 14 and Technical Specification Table 3.6.3-1 are consistent and accurately reflect plant operability.

TABLE 1

CONTAINMENT ISOLATION VALVE'S WITH INCREASED CLOSURE TIMES
 FSAR TABLE 6.2-16, AMENDMENT 14 REVISIONS

<u>LINE, PENETRATION(S), AND VALVE(S)</u>	<u>AMENDMENT 14</u>	<u>PREVIOUSLY</u>
Main Steam (P-1A,B,C,D) AB-V059, AB-V060 AB-V061, AB-V062 KP-V010, KP-V009 KP-V008, KP-V007	45	29
RHR Shutdown Cooling (P-3;4A,B) BC-V071, BC-V164 BC-V013, BC-V110	45	29
DW Cooler Chilled Water (P-8A,B;38A,B) GB-V046, GB-V070 GB-V048, GB-V071 GB-V081, GB-V083 GB-V082, GB-V084	60	51
RWCU Supply (P-9) BG-V001, BG-V002	45	35
RHR Head Spray (P-10) BC-V020, BC-V021	60	35
Main Steam Drain (P-12) AB-V039, AB-V040	30	19
Reactor Recirculation Water Sample (P-17) BB-SV-4310 BB-SV-4311	15	<10
Recirculation Pump Seal Water (P-19,20) BF-V098, BF-V099	45	29
Drywell Purge Vent (P-22,23) GS-V009, GS-V023 GS-V021, GS-V020 GS-V024, GS-V026 GS-V004, GS-V005 GS-V002, GS-V003	15 45	3-9 28
DW Floor and Equipment Drain Sump Discharge (P-25,26) HB-V005, HB-V006 HB-V045, HB-V046	30	21

<u>LINE, PENETRATION(S), AND VALVE(S)</u>	<u>AMENDMENT 14</u>	<u>PREVIOUSLY</u>
Instrument Gas (P-28A,B;39) KL-V001, KL-V002 KL-V025, KL-V026 KL-V027, KL-V028 KL-V049	45	29
RACS (P-29,30) ED-V019, ED-V020 ED-V021, ED-V022	45	28
TIP Probe Guide Tube (P-34A,B,C,D,E) SE-V026, SE-V027 SE-V028, SE-V029 SE-V030	15	<0.5
TIP Purge System (P-34F) SE-V004	15	10
RHR To Suppression Chamber Spray Header (P-214A,B) BC-V015, BC-V112	75	65
Core Spray Test to Suppression Pool (P-217A,B) BE-V025, BE-V026	80	72
Suppression Chamber Purge & Vacuum Relief (P-219,220) GS-V006, GS-V007 GS-V010, GS-V008 GS-V028, GS-V027 GS-V022	45 15 15	39 3-9 5
Torus Water Cleanup (P-222,223) EE-V001, EE-V002 EE-V003, EE-V004	45	39
H ₂ /O ₂ Gas Analyzer (J-3B,7D,9E,10C) GS-V031, GS-V032 GS-V033, GS-V034 GS-V047, GS-V048 GS-V045, GS-V046 GS-V053	45	29
RCPB Leakage Radioactive Gas Sampler (J-5A) SK-V008, SK-V009	45	29

<u>LINE, PENETRATION(S), AND VALVE(S)</u>	<u>AMENDMENT 14</u>	<u>PREVIOUSLY</u>
RCPB Leak Detection (J-8C) SK-V005, SK-V006	45	29
Suppression Chamber Outlet/Inlet To/From H ₂ /O ₂ Analyzer (J-201,202,210,212) GS-V051, GS-V052 GS-V042, GS-V043 GS-V040, GS-V041 GS-V049, GS-V050	45	29
Instrument Air to Torus (J-211) KL-V018, KL-V019	15	10

TABLE 2

CONTAINMENT ISOLATION VALVE'S WITH DELETED CLOSURE TIMES
 FSAR TABLE 6.2-16, AMENDMENT 14 REVISIONS

SYSTEM/PENETRATION(S)	VALVE(S)	AMENDMENT 14	PREVIOUSLY	JUSTIFICATION FOR "NA"
Feedwater P-2A,B	AE-V002 AE-V006	NA	5	These check valves do not receive containment isolation signals.
RHR Shutdown Cooling P-4A,B	BC-V117 BC-V118	NA	10	These normally closed/fail closed valves are used by the operator to equalize the pressure across the testable check valves during testing. The valves are opened by depressing the control push-button. Once released, the valve closes.
Core Spray to Reactor P-5A,B	BE-V071 BE-V072	NA	10	See justification for valves BC-V117 and BC-V118 above.
	BE-V003 BE-V007	NA	12	These ECCS injection valves do not receive containment isolation signals thus permitting the systems to function during a LOCA.
	BJ-V001	NA	20	

SYSTEM/PENETRATION(S)	VALVE(S)	AMENDMENT 14	PREVIOUSLY	JUSTIFICATION FOR "NA"
LPCI P-6A,B,C,D	BC-V119 BC-V120 BC-V121 BC-V122	NA	10	See justification for valves BC-V117 and BC-V118 above.
	BC-V004 BC-V016 BC-V101 BC-V113	NA	24	See justification for valves BE-V003 and BE-V007 above.
HPCI Turbine Steam Supply P-7	FD-V001 FD-V002	NA	36	These valves do not receive a containment isolation signal thus permitting the system to perform its safety function. These valves do receive a system isolation signal.
	FD-V051	NA	29	
RCIC Turbine Steam Supply P-11	FC-V001 FC-V002 FC-V048	NA	12	These valves do not receive a containment isolation signal thus permitting the system to perform its safety function. These valves do not receive a system isolation signal.
Standby Liquid Control P-18	BH-V028 BH-V054	NA	27	These valves do not receive a containment isolation signal. These are remote manual stop check valves that do not receive any automatic open or close signal.

SYSTEM/PENETRATION(S)	VALVE(S)	AMENDMENT 14	PREVIOUSLY	JUSTIFICATION FOR "NA"
RHR Containment Spray P-24A,B	BC-V018 BC-V019 BC-V115 BC-V116	NA	12	These normally closed valves do not receive a containment isolation signal. Only one valve (there are two in series in each containment spray line) can be opened at a time unless a accident signal is present and LPCI flow is purposefully being diverted by the operator to the containment for pressure control purposes.
HPCI Vacuum Breaker Network P-201,204	FD-V006 FD-V007 FD-V010	NA NA	120 21	See justification for valves FD-V001, FD-V002, and FD-V051 above.
HPCI Pump Suction P-202	BJ-V009	NA	96	This valve does not receive a containment isolation signal thus permitting the system to perform its safety function. The valve does receive a system isolation signal.
HPCI Minimum Return P-203	BJ-V016	NA	10	This valve does not receive a containment isolation signal. The valve opens and closes depending upon HPCI pump discharge flow and pressure. The valve also closes upon system isolation signals which indicate the HPCI steam supply valves are closed.

SYSTEM/PENETRATION(S)	VALVE(S)	AMENDMENT 14	PREVIOUSLY	JUSTIFICATION FOR "NA"
RCIC Vacuum Breaker Network P-207	FC-V005	NA	66	See justification for valves FC-V001, FC-V002 and FC-V048 above.
	FC-V006	NA	21	
RCIC Pump Suction P-208	BD-V003	NA	30	This valve does not receive a containment isolation signal. This valve is normally closed, receives no automatic close signals and opens upon receipt of low CST level signals.
RCIC Minimum Flow P-209	BD-SV-F019	NA	0.250	This valve does not receive a containment isolation signal, instead it opens and closes depending upon HPCI flow and pressure. This valve also closes upon signals which indicates the RCIC steam supply valves are closed.
RCIC Vacuum Pump Discharge P-210	FC-V011	NA	26	This is a remote manual valve which does not receive any automatic open or close signals.
RHR Pump Suction P-211A,B,C,D	BC-V001 BC-V006 BC-V098 BC-V103	NA	132	These are remote manual valves which do not receive any automatic open or close signals.

SYSTEM/PENETRATION(S)	VALVE(S)	AMENDMENT 14	PREVIOUSLY	JUSTIFICATION FOR "NA"
RHR Suppression Pool Cooling & System Test (Minimum Flow Valves) P-212A,B	BC-V031 BC-V034 BC-V128 BC-V131	NA	27	These valves do not receive containment isolation signals, instead they open and close depending upon RHR flow.
RHR Suppression Pool Cooling & System Test (Steam Condensing Valves) P-212A,B	BC-V026 BC-V126	NA	27	These valves are permanently out of service as electrical power has been disconnected, the manual override is chain locked in the closed position, and the valve is tagged out of service.
Core Spray Pump Suction P-216A,B,C,D	BE-V017 BE-V018 BE-V019 BE-V020	NA	96	These remote manual valves do not receive any automatic open or close signals.
Core Spray Test to Suppression Pool (Minimum Flow Valves) P-217A,B	BE-V035 BE-V036	NA	36	These valves do not receive containment isolation signals. The valves open and close depending upon core spray flow.

SYSTEM/PENETRATION(S)	VALVE(S)	AMENDMENT 14	PREVIOUSLY	JUSTIFICATION FOR "NA"
Suppression Chamber Purge and Vacuum Relief P-219,220	GS-V038 GS-V080	NA	3-9	These valves do not receive containment isolation signals. The valves open and close depending upon reactor building to suppression chamber differential pressure.
Post Accident Sampling System P-227 J-7E, 10E, 50 J-220,221	RC-SV-0643A&B RC-SV-0707A&B RC-SV-0729A&B RC-SV-0730A&B RC-SV-0731A&B RC-SV-8903A&B	NA	<5	These remote manual valves do not receive any automatic open or close signals. Administrative procedures prevent the valves from being inadvertently opened by ensuring that power is not supplied to the valves until the system is required to be operable.
Suppression Pool Water Level P-228 J-209,217,219	BJ-V500 BJ-V501 BJ-V502 BJ-V503	NA NA	29 30	These are remote manual valves that do not receive any automatic open or close signals.