



Program Management Office  
4350 Northern Pike  
Monroeville, Pennsylvania 15146

July 23, 2007

OG-07-337

U.S. Nuclear Regulatory Commission  
Document Control Desk and Chief Financial Officer  
Washington, DC 20555-0001

Subject: Pressurized Water Reactor Owners Group  
**Comments to Draft Generic Letter “Managing Gas Intrusion in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems” (PA-SEE-0365)**

Reference: (1) Nuclear Regulatory Commission Proposed Generic Communication “Managing Gas Intrusion in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems” notice of opportunity for public comment, May 16, 2007.

On May 16, 2007, the Nuclear Regulatory Commission released a draft generic letter for public comment entitled, “Managing Gas Intrusion in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems (reference 1).” This letter is to transmit the comments from the Pressurized Water Reactor Owners Group to the proposed generic communication on reference 1. These comments offer suggested editorial changes and provide recommended changes to ensure a clear interpretation of the generic letter.

**Comments:**

1. General Comment: The PWROG agrees that the subject systems need to be maintained “sufficiently full of water” to ensure operability, as opposed to “full of water.” Maintaining the subject systems “sufficiently full of water” acknowledges that gas intrusion in the subject systems does not necessarily render the system(s) inoperable. The amount and location of the gas are important in determining whether the system(s) are inoperable. In order to develop realistic criteria to determine the amount of gas that could impact operability, several studies need to be completed, such as:
  - ✓ Characterizations of the sources and rate of generation of gases in systems
  - ✓ Ingestion of gas from tanks and recirculation sumps (vortexing)
  - ✓ Characterization of gas transport in the subject system piping as a function of system flow requirements

*Project 694*

*DOYB*

- ✓ Allowable limits on the ingested gas volume for pump suction piping for assessing pump operability, as well as for the pump discharge piping to alleviate water hammer (slamming check valves or water cannon effect on the piping)
- ✓ Allowable limits on ingested gas volume in pump suction piping to ensure pump operability
- ✓ Allowable limits on ingested gas volume to mitigate dynamic pressure pulsation
- ✓ Development of guidance on the sequence of venting to prevent void formation in high points remote from the vent location
- ✓ Identification of those portions of systems in which venting is unnecessary (e.g., downstream of the CS spray isolation valve to the spray headers).

Additionally, studies will have to be completed on gas detection techniques and the associated accuracies.

1. The scope of the above activities suggests that a generic program approach be used. In this respect, the Generic Letter should consider the schedule for completing these activities and also add a provision for the use of interim guidance to address these issues until the generic program can be completed. The PWROG also requests that the schedule for the preparation of the TSTF associated with the Generic Letter consider the schedule for completion of the generic program to ensure that the TSTF is consistent with the guidance developed by the program.
2. In the first paragraph of the Discussion Section, it is stated that “venting processes sometimes did not ensure that all gas was removed from the venting location”. Use of the word “all” conflicts with the statement that the piping should be “sufficiently full of water”.
3. In the first paragraph of the Discussion Section, it is stated that the issues include Technical Specifications that “do not adequately address operability of the subject systems prior to surveillance and for the time span until the next surveillance.” An evaluation of various gas intrusion mechanisms (e.g., check valve leakage, degasification in other high points due to venting at a lower elevation, operation alignments, ... etc.), as well as the potential void growth rate would be required to address the operability of the subject systems between surveillances. See General Comment #1.
4. In item (3) of the Discussion Section, it is stated that “In some plants, the relief valve reseating pressure is less than the existing RCS pressure, a condition that complicates recovery.” It is not understood what is intended by this statement, since if the relief valve opens, the DHR system will not be damaged due to over-pressurization.
5. In item (6)(1) of the Discussion Section, it is stated that “associated surveillance procedures, have not reliably precluded gas problems.” Use of the word “precluded” does not acknowledge that the piping only be “sufficiently full of water.”

6. In item (6)(1) of the Discussion Section, it is stated that "Although the TS and FSAR at many facilities indicate that the subject systems are full of water, in practice it is not uncommon for licensees to vent some gas during period surveillances." Depending upon the type of maintenance and post maintenance testing that is performed; it would not be unexpected for gas to be vented, since the system may be open to the atmosphere (e.g., depressurized or drained to empty high points in other locations, ... etc.), which would introduce air into the system. Post maintenance venting is preventive. Additionally, if a licensee's Tech Specs include a Surveillance to verify that the piping is full of water, venting some gas may be required to satisfy this surveillance. See General Comment #1.
7. In item (6)(1) of the Discussion Section, it is stated that "Hence, the current TS and FSAR may establish a standard that may not be realistic to establish system operability. A realistic standard should bound the volume of gas that may impact pump operability and the volume for which water-hammer-induced stress limits may be exceeded." Clarification is needed to distinguish between water hammer and dynamic pressure pulsations in the piping downstream of the pump.
8. In item (6)(2) of the Discussion Section, it is stated that "Based on the as-found volume and location of gas, corrective actions beyond simply refilling a system may be necessary to provide reasonable assurance that the affected system will remain operable until the next surveillance." See comment 3.
9. In item (6)(3) of the Discussion Section, it is stated that "The NRC staff is initiating a Technical Specifications Task Force (TSTF) activity to address the recognized TS weaknesses associated with gas intrusion concerns." The NRC should clarify what is meant by this statement, specifically whether the TSTF activity will precede the scheduled completion of the development of a generic program as discussed in General Comment #1, or whether the TSTF activity would follow the completion of such a program .
10. In item (6)(3) of the Discussion Section, it is stated that "This condition must be shown to be satisfied during the time between surveillances," See comment 3.
11. In the last sentence of the last paragraph of the Discussion Section, it is stated that: "for guidance in the TSTF program to develop improved TSs." See comment 9.
12. In the Requested Actions it is stated: "to assure that gas intrusion is minimized and monitored in order to maintain system operability". See General Comment #1.
13. An alternative to a Technical Specification Surveillance Requirement (SR) with a fixed frequency should be considered. For example, monthly venting for three consecutive months could be performed. If no significant gas was found, the frequency could be extended to a quarterly frequency for three performances, then a 6 month frequency, etc.

Detailed analysis for how much gas is acceptable for an operable system should be performed on a case by case basis and not for systems that may not have venting problems.

14. The draft Generic Letter does not consider ALARA. For plants that do not perform routine ECCS venting, there will be a significant increase in routine doses. If no safety benefit is demonstrated after an initial testing program, the ALARA principle would indicate that such testing should be discontinued.

If you have any questions regarding the attached or the contents of this letter, please contact Reginald Dulaney at (412) 374-6549 or any of the undersigned.

Regards,



Frederick P. "Ted" Schiffley, II  
Exelon Nuclear  
Chairman, PWR Owners Group  
(630) 657-3897

FPS:RRD:mjl:las

cc: Tilda Liu, USNRC  
David Terao, USNRC  
Stacey Rosenberg, USNRC  
John Grobe, USNRC  
Sean Peters, USNRC  
William Macon, USNRC  
Thomas G. Scarbrough, USNRC  
Jim Riley, NEI  
Ike Ezekoye, Westinghouse  
Steven Swantner, Westinghouse  
James Andrachek, Westinghouse  
PMO