



Union of Concerned Scientists

Citizens and Scientists for Environmental Solutions

Statement at the NRC Public Meeting on Hope Creek

NRC letter dated January 10, 2005 documented the preliminary results from its special inspection at Hope Creek. According to page 2,

“PSEG determined that a limit switch had been incorrectly set for one of the two closed valves needed to satisfy an interlock to allow the HPCI full flow test valve (F008) to open.”

and

“PSEG determined that the wrong lubricant had been applied to the HPCI vacuum pump shaft. As a result, the HPCI system barometric condenser vacuum pump tripped several times during the depressurization and cooldown phase of the event.”

PSEG’s licensee event report dated December 9, 2004, provides additional documentation about these HPCI system errors and their occurrence during HPCI system operation for reactor vessel level and pressure control during the October 10th event.

Hope Creek Updated Final Safety Analysis Report Section 6.3.2.2.1 covers the high pressure coolant injection system. Figure 6.3-3 provides the design operating modes of the system, including reactor vessel level and pressure control.

The unanswered question is why all of the testing conducted on the HPCI system to satisfy requirements in the technical specifications, UFSAR, ASME code, in-service testing programs, etc. failed to detect these two errors.

The related unanswered question is why did neither PSEG nor NRC address why the HPCI testing regime failed to detect these two errors.

Appendix A to 10 CFR 50 explicitly requires that the emergency core cooling systems, which includes HPCI, to be tested. Specifically, Criterion 37 requires:

The emergency core cooling system shall be designed to permit appropriate periodic pressure and functional testing to assure (1) the structural and leaktight integrity of its components, (2) the operability and performance of the active components of the system, and (3) the operability of the system as a whole and, under conditions as close to design as practical, the performance of the full operational sequence that brings the system into operation, including operation of applicable portions of the protection system, the transfer between normal and emergency power sources, and the operation of the associated cooling water system.

UCS formally alleges that Hope Creek has not complied with GDC 37 as evidenced by the failure of testing to identify the two HPCI system errors described by PSEG and the NRC. PSEG checks HPCI pump performance and measures HPCI system valve stroke times and other system parameters, but their overall testing program fails to find problems like those revealed during the October 10th event. That result is not what GDC 37 requires.

The inability of the testing to find these errors is comparable to the testing program deficiencies that prompted the NRC to issue Generic Letter 96-01, "Testing of Safety-Related Logic Circuits," on January 10, 1996. The NRC stated:

The NRC staff finds that the failure to adequately test safety-related actuation logic circuitry is safety significant in that inoperable essential electric components required for automatic actuation of post-accident mitigation systems may be undetected for extended periods.

The NRC's own inspection program has failed to detect the HPCI system testing shortfalls that enabled problems to remain undetected for extended periods. For example:

- NRC Inspection Report 50-354/2000-05 dated July 18, 2000 – Page 9: "The inspectors observed portions of and reviewed the results of HPCI pump inservice testing."
- NRC Inspection Report 50-354/2002-07 dated January 23, 2003 – Page 8: "The inspectors witnessed post maintenance testing (PMT) and/or reviewed the test data for ... the high pressure coolant injection (HPCI) pump test line valve (1BJ-HV-F008) on December 12. ... The inspectors ... verified that the PMTs were adequate for the scope of maintenance performed." This very valve caused one of the HPCI system malfunctions on October 10th.
- NRC Inspection Report 50-354/2003-02 dated January 31, 2003 – Page 3: "The team reviewed HPCI and EDG TS required performance data acquired during surveillance testing (ST) activities to verify that the results demonstrated the functional capability and met the acceptance criteria. ... The team witnessed the performance of the HPCI quarterly full flow ST from the field and assessed test data to verify the functional capability and operational readiness of the system."
- NRC Inspection Report 50-354/2003-05 dated November 10, 2003 – Page 14: "The inspectors observed portions of and/or reviewed the results of five surveillance tests, including ... HPCI pump IST on August 19."
- NRC Inspection Report 50-354/2004-09 dated September 10, 2004 – Pages 7-8: "The team reviewed the methodology associated with the design package and determined that the actions taken were reasonable with respect to restoring operability and the original design basis capability of the system."

Why didn't any of the tests performed on the HPCI system by PSEG discover the two errors that caused system malfunctions during the October 10th event?

Why didn't any of the NRC's inspections of the HPCI system discover the two errors?

If PSEG's testing and NRC's inspections cannot find existing problems, why should the public have any confidence in your reassurances that Hope Creek is safe to restart?

I'll conclude by citing one other General Design Criterion from Appendix A to 10 CFR Part 50:

- *Criterion 14--Reactor coolant pressure boundary.* The reactor coolant pressure boundary shall be designed, fabricated, erected, and tested so as to have an extremely low probability of abnormal leakage, of rapidly propagating failure, and of gross rupture.

What is the testing program for the bowed recirculation pump shaft that shows "an extremely low probability of abnormal leakage, of rapidly propagating failure, and of gross rupture?"

I submit that no such testing exists and none is proposed and formally allege that Hope Creek will be in violation of GCD 14 if it operates for an entire cycle.

Hope Creek should not restart until the failures of its testing programs are remedied and the results from the corrected testing program confirm that appropriate safety margins exist.

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