Union of Concerned Scientists
Citizens and Scientists for Environmental Solutions

April 12, 2006

James L. Caldwell, Regional Administrator
Region III
United States Nuclear Regulatory Commission
2443 Warrenville Road
Suite 210
Lisle, IL 60532-4352

SUBJECT: LASALLE'S DELIBERATE WALK DOWN THE THREE MILE ISLAND AND CHERNOBYL PATHWAYS

Dear Mr. Caldwell:

In reading the report[#] by the NRC special inspection team on the Site Area Emergency declared at the LaSalle nuclear plant, I had many of my questions about this event answered. However, I was extremely troubled to learn the following information:

> *00:25 a.m.* *Control room operators entered EOP LGA-10, "Failure to Scram." Per procedure, actuation of the automatic depressurization system (ADS) was inhibited and all emergency core cooling system (ECCS) injection was manually prevented.*[NRC report enclosure, page 5]

According to the report, ECCS and ADS remained inhibited for seven minutes, until operators restored them at 00:32 am.

A primary cause of the March 1979 accident at Three Mile Island was the operators, following their procedures, turning off the ECCS. Had they not done so, the reactor core would not have partially melted down.

A primary cause of the April 1986 accident at Chernobyl was the operators intentionally disabling the ECCS prior to a low power test. Had they not done so, the test would have failed instead of the reactor.

All of my training, education, and experience tells me that you do not intentionally disable the emergency core cooling systems without a very, very, very solid reason. LaSalle lacked even a flimsy reason.

I can see why the decision was not black and white. The discussion on page 12 of the enclosure to the NRC report reported that two of the three control rods with uncertain position indication were diagonally adjacent and that the operators consulted with the qualified nuclear engineer on-shift at the time about

[#] Letter dated March 23, 2006, from Mark A. Satorius, Director – Division of Reactor Projects, Region III, Nuclear Regulatory Commission, to Christopher M. Crane, President and Chief Nuclear Officer, Exelon Nuclear, "LaSalle Country Station, Unit 1 / NRC Special Inspection Report 05000373/2006009."

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whether the reactor was subcritical. Having worked many years as a qualified nuclear engineer on boiling water reactors like LaSalle, I fully understand and recognize that the individual could not make that determination from the information available at that time.

Nevertheless, there was ample information available to the operators and qualified nuclear engineer in that control room and at that time to make the determination that the risk from the three control rods – even if it was postulated they were fully withdrawn – was orders of magnitude lower than the risk from a recently shut down reactor with ALL OF THE EMERGENCY CORE COOLING SYSTEMS DISABLED. It doesn't take RISKMAN or SPAR or a Ouija board to have made the right call that night.

To quote from page 11 of the NRC report enclosure:

> *Although all reactor power, pressure, and water level indications were indicative of a shutdown reactor condition, control room operators were faced with anomalous indications for 3 of the 185 Unit 1 control rods, potentially indicating that they were stuck in some intermediate position and that the reactor may not remain shutdown under all design basis conditions.*

True enough. And the initiation of one or more of the ECCS pumps would have injected cold water into the reactor vessel. This positive reactivity insertion could conceivably caused the reactor to re-achieve criticality had the three control rods, especially the two diagonally adjacent rods, been withdrawn. But a thinking person would have weighed the risk from that credible scenario against the risk from equally credible design basis events, such as a pipe break or stuck open relief valve (bear in mind that this entire event was triggered by the inadvertent opening of five turbine bypass valves), and not disabled ALL OF THE EMERGENCY CORE COOLING SYSTEMS and INHIBITED THE AUTOMATIC DEPRESSURIZATION SYSTEM. That was one of the stupidest, highest risk actions I've seen in my 25-plus year career.

Has the NRC analyzed the consequences of that control room action? From a risk-informed perspective, would it not have been far, far, far wiser NOT to intentionally disable ALL OF THE EMERGENCY CORE COOLING SYSTEMS?

And I truly believe my perspective is not armchair quarterbacking. Had I been on-shift as the qualified nuclear engineer in the control room that night, I feel certain that I'd have prevented ALL OF THE EMERGENCY CORE COOLING SYSTEMS from being disabled, or have died trying to prevent it.

I worked as a Shift Technical Advisor / Reactor Engineer at Browns Ferry in June 1980 when Unit 3 experienced a partial scram that caused the "Failure to Scram" EOPs to be revised. In fact, but for a lost coin toss, I'd have been the STA on shift during that June 28th event. I have more than a passing appreciation for the risks associated from withdrawn control rods. But I also have an appreciation for the clear and present danger the reactor core faces when ALL OF THE EMERGENCY CORE COOLING SYSTEMS are disabled. I would not have been a party to deliberately putting the reactor at greater risk.

Sincerely,

David Lochbaum
Director, Nuclear Safety Project