

From: Eric Duncan ^{ED}
To: ExponentreportGroup
Date: Thu, May 3, 2007 4:01 PM
Subject: UCS Letter to NEIL Concerning Exponent Report

To all,

See attached FYI.

Eric.

F-192



Union of Concerned Scientists

Citizens and Scientists for Environmental Solutions

April xx, 2007

David B. Ripsom
President & Chief Executive Officer
Nuclear Electric Insurance Limited
Suite 1100
1201 N. Market Street
Wilmington, DE 19801

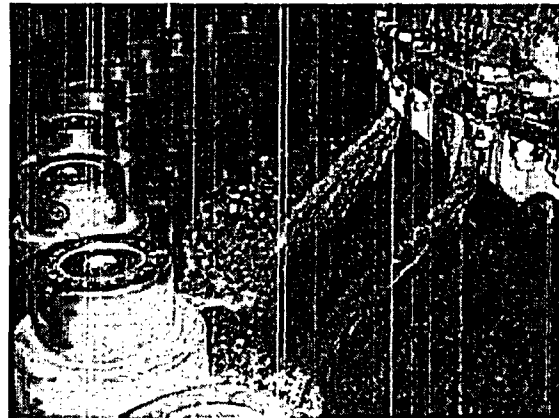
SUBJECT: FIRSTENERGY'S DAVIS-BESSE REPORT

Dear Mr. Ripsom:

I read your letter dated February 23, 2007, to Mr. Gary R. Leidich at FirstEnergy Nuclear Operating Company (FENOC) regarding the report prepared by Exponent Failure Analysis Associates and Altran Solutions Corporation about reactor vessel head degradation at the Davis-Besse nuclear plant. FENOC submitted the report to the Nuclear Regulatory Commission (NRC), which is available in the NRC's ADAMS online electronic library under ML070860211. I have read the report, too.

The report raises some new issues, but fails to convince me that the fast corrosion rate scenario was more likely than the scenario described in FENOC's original root cause report and the NRC's augmented inspection team report. Among the points that are not reconciled by the fast corrosion rate scenario:

- During 12RFO in April 2000, a worker at Davis-Besse took the infamous "red photo" showing reddish-tinged boric acid crystals flowing down the outside surface of the reactor vessel head from the service platform's weepholes to the flange area. The Exponent / Altran report proposes a small control rod drive mechanism (CRDM) nozzle through-wall leak rate with minor reactor vessel head wastage during 12RFO and no significant leakage or wastage until the crack uncovered in the October – November 2001 timeframe. If so, how does that scenario explain the reality shown in the "red photo"?



Red Rusty Boric Acid Deposits on Vessel Flange (12RFO)

- The Exponent / Altran report relies on circumstantial evidence to support the theory of crack uncovering in the October – November 2001 timeframe. Among the cited evidence is an increase in unidentified leak rate occurring after October 19, 2001. Figure 7.2 from the Exponent / Altran report shows this increase. But the report does not mention or account for the fact that Davis-Besse was shut down on October 19, 2001, and restarted less than a day later due to a generator stator cooling water problem. The thermal cycling associated with shutting down and restarting a nuclear power plant could easily explain a discernible yet minor increase in the unidentified leakage rate.

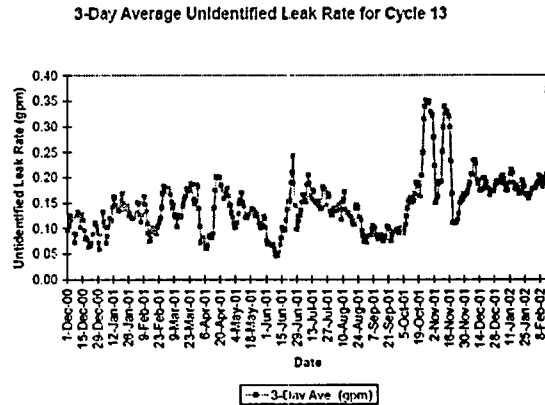
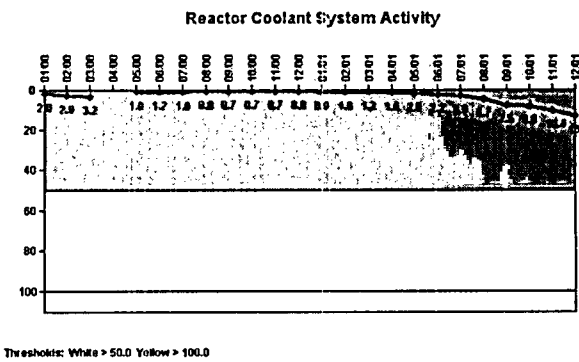


Figure 7.2 Three-day average unidentified leak rate for Davis-Besse Cycle 13.⁶⁷

- In addition to the circumstantial evidence from increased unidentified leakage inside containment, the Exponent / Altran report also relies on increasing radiation levels inside containment in the October – November 2001 timeframe. But the report does not mention or account for the fact that the integrity of the fuel in the reactor was on a steadily declining trend beginning around the April – May 2001 timeframe as clearly illustrated in the NRC graphic of Reactor Coolant System Activity based on information provided by FENOC. Thus, even a constant leak rate would have produced increasing radiation levels inside containment.



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- Leakage of borated reactor coolant water resulting in the accumulation of boric acid crystals on the carbon steel reactor vessels was identified at US reactors other than Davis-Besse, including Oconee, Sequoyah, and South Texas Project (shown in picture). Only Davis-Besse encountered significant corrosion and wastage of the head. If the fast corrosion rate theory were close to reality, evidence of corrosion / wastage should have been identified at these other reactors, too.



Even if the scenario presented in the Exponent / Altran report is more likely, it still fails to support the conclusion that there was nothing FENOC could have done to prevent the two-year-plus outage that resulted from the discovery of the large hole in the reactor vessel head in March 2002. FENOC met with the NRC staff on November 28, 2001, to discuss Davis-Besse. FENOC could have informed the NRC that it was voluntarily shutting down Davis-Besse in December 2001 to conduct the inspections sought by the NRC via Bulletin 2001-01. After all, the owner of the North Anna and Surry reactors voluntarily shut down all four reactors – even though some were not scheduled for and did not perform refueling outages – in order to perform the inspections.

Had FENOC shut down Davis-Besse in early December and had the Exponent / Altran timeline been accurate, the timely inspection would have identified the growing problem and stopped it long before it reached the proportions finally found in March 2003. Thus, FENOC could have and should have done more, regardless of whether the timeline in this Exponent / Altran report is right or not. FENOC should have voluntarily shut down Davis-Besse in 2001 as the NRC sought and as other plant owners responsibly did.

Sincerely,

A handwritten signature in black ink, reading "David A. Lochbaum". The signature is written in a cursive style with a large, prominent initial "D".

David Lochbaum
Director, Nuclear Safety Project