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From:

David Lochbaum

TACs:

MD4116

To:

J. E. Dyer

*** YELLOW ***

For Signature of:

Routing:

Dyer
Weber
Mitchell
Boger
Grobe
NRR Mailroom

Description:

Vermont Yankee "Unique Uniformity" PRA

Assigned To:

DRA

Contact:

HOLDEN, CORNELIUS F

Special Instructions:

Coordinate with RI.

Called DRA (Cheryl) on 1/30 at 10:45 a.m. for pick up.



Union of Concerned Scientists

Citizens and Scientists for Environmental Solutions

January 23, 2007

James Dyer, Director
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission Region I
Washington, DC 20555-0001

SUBJECT: VERMONT YANKEE'S "UNIQUE UNIFORMITY"

Dear Mr. Dyer:

The boiling water reactor at the Monticello nuclear plant recently experienced a reactor shutdown involving an enclosure around turbine valves breaking free and shifting nearly a foot. Representatives of the boiling water reactor at the Vermont Yankee nuclear plant publicly stated they were cognizant of the Monticello situation but didn't anticipate a similar problem at their facility because of design differences. A few years ago, the boiling water reactor at the Quad Cities nuclear plant experienced repeated problems involving vibration cracking of steam dryers. Representatives of the boiling water reactor at Vermont Yankee nuclear plant publicly stated they were cognizant of the Quad Cities situation but didn't anticipate a similar problem at their facility because of design differences. I could try your patience with additional examples of Vermont Yankee's representatives distancing themselves from boiling water reactor issues based on claimed design differences, but I assume you understand the point.

If we take the oft-chanted claims by Vermont Yankee's representatives at face value, we must conclude that the plant in Vernon has the same name but a different constitution as Monticello, Quad Cities, Brunswick, Hatch, Duane Arnold, and the other boiling water reactors. According to their public statements, Vermont Yankee is unique.

Yet when we review the plant-specific probabilistic risk analysis (PRA)¹ performed for "unique" Vermont Yankee, we find it relies on industry-wide component reliability and failure rate data. Quoting from the Vermont Yankee PRA:

The Vermont Yankee PRA model is a living model that is periodically updated to ensure that it continues to reflect the as-built and as-operated plant configuration.

The Vermont Yankee component failure rate data consists of "generic data" and "plant specific" data. The generic data represents failure rates developed by combining industry-side results for specific components.

¹ For example, on March 13, 2003, the 2002 update to the Vermont Yankee PRA Base Model for all internal events, including flooding, was completed as required by internal procedure DP 0068. Attachment D to this 2002 update described the component failure rate and maintenance unavailability data used in the PRA.

The primary source of generic component failure rate data is the PLG (Pickard, Lowe and Garrick, Inc) database. It consists of failure rate data from industry-wide experience and engineering judgment. This database is in integral part of the RISKMAN computer code package that is used to quantify VY system fault trees.

Thus, the PRA for the “unique” Vermont Yankee design relies heavily on “uniform” generic failure rate data. “Unique uniformity” – what a bizarre concept!

Clearly, Vermont Yankee’s design is either “unique” or it is “uniform.” If Vermont Yankee’s design truly differentiates it from Monticello and Quad Cities, then it is inappropriate to use failure rates derived from operating experience at Monticello and Quad Cities in the Vermont Yankee PRA. If Vermont Yankee is a fraternal sister to Monticello and Quad Cities such that their collective operating experience can be applied uniformly, then it is inappropriate for Vermont Yankee to claim to be “adopted” whenever a sister gets in trouble. Vermont Yankee’s design is not certainly chameleon-like, changing form as needed to match the situation.

What has the NRC done to verify that the Vermont Yankee PRA is using appropriate initiating event and failure rate data, whether from plant-specific or generic sources? We would appreciate it if your response spelled out the steps NRC has taken specifically for Vermont Yankee rather than outline typical actions. After all, we’ve heard that Vermont Yankee is unique.

Sincerely,

A handwritten signature in black ink, reading "David A. Lochbaum". The signature is written in a cursive, flowing style.

David Lochbaum
Director, Nuclear Safety Project
Union of Concerned Scientists