



UNITED STATES  
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

August 10, 1994

MEMORANDUM FOR: Thomas King, Deputy Director  
Division of Systems Research  
Office of Research

Patrick Baranowsky, Chief  
Trends and Patterns Branch  
Division of Safety Programs  
Office of Analysis and Evaluation  
of Operational Data

Jitendra Vora, Chief  
Aging and Components Section,  
Electrical and Mechanical Engineering Branch  
Division of Engineering  
Office of Research

FROM: James M. Taylor  
Executive Director for Operations

SUBJECT: TASKING OF PANELISTS FOR REVIEW OF A DIFFERING PROFESSIONAL  
OPINION (DPO)

Reference 1: Differing Professional Opinion Concerning Uncoordinated  
Circuit Breakers at Catawba Nuclear Station; Memorandum  
(with enclosures) dated July 28, 1994; Charles E. Morris  
EELB, NRR to James M. Taylor, EDO.

Each of you has been selected for your particular background experience and capabilities to carry-out an independent DPO panel review of the generic safety concern(s) in Reference 1. I appreciate the willingness of each of you to undertake this important review task on my behalf. Your panel review activities should be carried out in accord with the standing provisions of Management Directive 10.159. Thomas King will chair the panel proceedings and coordinate the resultant report to me of the panel findings and recommendations for DPO dispositioning. To the extent practicable, I would appreciate the panel's final report within approximately 30 working days from the date of this memorandum. Each of you also received a copy of Reference 1 on August 2, 1994, from Mat Taylor of my staff. At that time, you were advised of the full support received from your respective Office Directors toward your individual participation on the DPO review panel.

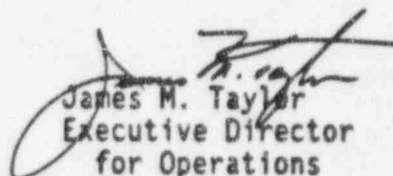
The panel chair is empowered to carry out the necessary review arrangements of the panel and any fact-finding interviews seen as warranted to complete the panel review of the Reference 1 concern(s). This includes fact-finding

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interviews with the DPO author and/or entities internal or external to the NRC that may have expertise or other information pertinent to the Reference 1 technical, policy or legal concerns. Also be advised that the General Counsel has been consulted on this matter and I have been assured that OGC stands ready to provide panel assistance should questions of a legal nature arise that require OGC resolution.

Review of the case-specific circumstances from which the Reference 1 generic concern(s) derive indicates to me that the NRR-DPV review panel findings and recommendations were generally sound. The NRR-DPV review panel found in large part, that additional assessments and analyses by the Catawba licensee were warranted as part of the docket record for any final case-specific decision-making on this matter. Consequently, I see no reason why progress on these NRR-DPV panel findings and recommendations should be delayed or otherwise impeded by the ongoing DPO review panel activities. NRR should continue with its plans to obtain this additional case-specific information.

Should you have particular questions or concerns about this DPO panel tasking or if other issues arise in the interim that I may help resolve, do not hesitate to contact or meet with me directly on such matters. Alternately, feel free to contact Mat Taylor (504-1722) to effect such arrangements. By copy of this memorandum, the DPO author is being formally notified of the above panel arrangements.

  
James M. Taylor  
Executive Director  
for Operations

cc: ✓ C. Morris  
K. Cyr  
J. Milhoan  
W. Russell  
E. Beckjord  
E. Jordan  
P. Bird

Even if a rigorous PRA were done - what is the level of risk acceptable to the staff?

DRAFT

~~(ENCLOSURE II)~~

MEMORANDUM TO: DPO PANEL

08 AG 94

FROM: C. MORRIS, EELB

IN RES: CATAWBA BREAKER COORDINATION DPO DISCUSSION

Catawba in their proposal to continue to operate with safety breakers not coordinated said that they should do so because:

(1) The initiating event, a double cable fault, for the 125-Vdc system; or a three phase fault for the 600-Vac vital power system, was sufficiently infrequent as not to cause a significant risk.

(2) Modifications to the uncoordinated breakers would be costly.

(3) In the event of a fault followed by uncoordinated breakers and the loss of one safety division, the other safety division loads could perform all the required safety functions.

The DPO addresses only item (3) above, because

A licensee could be permitted to break any, or even every, rule and requirement, if he could demonstrate with sufficient rigor that there was no significant risk to doing so.

I am concerned here only with whether or not a licensee <sup>the staff can accept a</sup> ~~can be~~ <sup>are that the staff</sup> permitted by the NRC ~~argue that he should be~~ permitted to operate with known design basis deficiencies because the redundant safety train would probably perform the necessary safety functions, if one safety train were to be disabled. ae

How many times per plant would the argument be allowed? The answer to that question would rest, in each case, on a PRA. If the form of the argument is acceptable, it may be repeated over many plants and over many systems, in each plant. <sup>That is the concern stated in the DPO, the concern not addressed.</sup> Why should the argument be restricted to design deficiencies? Why not apply it also to degraded components and to every kind of component defect.

Catawba came in with a shotgun argument relying on an unweighted mixture of arguments to convince the staff that nothing need be done. His probabilistic argument was that no cable failures had yet been experienced and therefore that none would be. He also said that the existence of a second train met the single failure criterion (SFC).

The SFC is inadequate in that it does not define a SF <sup>SF</sup> sufficiently precisely, but allows cascading failures to be classed as a single failure. The definition is also inadequate because it does not restrict failures to unpredictable failures, but allows departure from good practice to cause cascading failures. Unpredicted failures could, perhaps must, be classified

as single failures, but known defects which could cause multiple failures should not be allowed to persist.

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As nuclear power plants evolve, design features are not permitted that once were. But there can be little reason to allow to persist a failure to meet the design basis because of a licensee's oversight.

The argument should not be accepted by the staff because redundancy should be reserved for surprises and not used up to cover failures to meet design commitments or to follow good practice. The exceptions will, otherwise, accumulate per plant and throughout the industry, to the ~~detriment of all.~~

*eventual loss of N. reliability -*

If the licensee had demonstrated, rigorously enough, that the initiating event was sufficiently low, he could have relied on that basis alone. But because he had not done a PRA, he covered the failure to do so with an argument which in essence says that he meets the SFC. The SFC is not the only design basis a licensee must meet. And the SFC does not exclude *fixing* known preexisting conditions which increase the probability of a safety division not functioning when it is needed.

The condition of a plant may, almost certainly will, degrade with age; the safety train redundancy should be reserved to protect against such failures, also, and not expended where it need not *needed*.

*Redundant trains should enter PRA only as a means to square overall prob. of operation of safety train function.*

$$\begin{array}{c|c} A & \\ \hline B & \end{array} \quad \begin{array}{l} P(A+B) = P(A) + P(B) - P(A)P(B) \\ \text{Let } P(A) = P(B) = .9 \\ \therefore P(A+B) = 1.80 - .81 = .99 > .9 \\ \text{or } P(\bar{A}\bar{B}) = P(\bar{A})P(\bar{B}) = .01 \\ \therefore P(A) = P(B) = .9 \end{array}$$