EDO Principal Correspondence Control

FROM: DUE: 07/03/01

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FINAL REPLY:

David Lochbaum
Union of Concerned Scientists

TO:

Chairman Meserve

FOR SIGNATURE OF : ** PRI ** CRC NO: 01-0315

Chairman

DESC:

Issuance of Notice of Enforcement Discretion to Detroit Edison for Fermi 2 -- Perry

ROUTING:

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Cyr, OGC

DATE: 06/22/01

ASSIGNED TO: CONTACT:

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SPECIAL INSTRUCTIONS OR REMARKS:

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OFFICE OF THE SECRETARY
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ACTION OFFICE:	EDO		
AUTHOR:	DAVID LOCHBAUM		
AFFILIATION:	UCS		
ADDRESSEE:	RICHARD MESERVE		
SUBJECT:	RISK DOUBLE -SPEAK		
ACTION:	Signature of Chairman		
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NOTES:	COMMISSION CORRESPONDENCE		
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6540

Union of Concerned Scientists

Citizens and Scientists for Environmental Solutions

June 1, 2001

Chairman Richard A. Meserve
Commissioner Nils J. Diaz
Commissioner Greta J. Dicus
Commissioner Edward McGaffigan, Jr.
Commissioner Jeffey S. Merrifield
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

SUBJECT: RISK DOUBLE-SPEAK

Dear Chairman and Commissioners:

By letter dated March 29, 2001, the NRC Region III staff issued a Notice of Enforcement Discretion (NOED) to Detroit Edison allowing Fermi 2 to continue operating for up to seven more days with a broken emergency diesel generator. Paragraph 2.1 of Section B of NRC Inspection Manual Part 9900 does not allow the staff to issue an NOED involving even a minimal or negligible increase in risk:

> Granting of this type of an NOED [regular NOED as opposed to severe weather related NOED] shall not involve an increase in radiological risk.

Detroit Edison conducted a plant-specific risk assessment for operating the reactor for 14 days with EDG 14 broken compared to the 7 days permitted by the Technical Specifications. The results of that assessment are documented in the company's March 26th letter to the NRC and are parroted by the NRC staff in its March 29th letter:

> The results showed an incremental conditional core damage probability of 2.08E-7 and an incremental conditional large early release probability of 3.66E-8.

It appears that the NRC staff justified this very clear violation of the explicit criterion in NRC Inspection Manual Part 9900 on this basis:

> Your submittal [i.e., Detroit Edison's March 26th letter] also stated that eliminating the plant shutdown required by the Technical Specifications would eliminate consequent transitional risk associated with a shutdown and startup of the plant, offsetting the risk associated with the increased time of the diesel outage and resulting in a minimal effect on plant safety.

Neither the staff's letter nor the company's letter provides a qualitative assessment of the alleged transitional risk. Consequently, the quantitative assessment showing a risk increase is opposed by a subjective, undocumented, non-qualitative, non-quantitate assessment (a.k.a. hand-waving). Parargraph 4.0 of Section B of NRC Inspection Manual Part 9900 states:

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The safety basis for the request, including an evaluation of the safety significance and potential consequences of the proposed course of action. This evaluation should include at least a qualitative risk assessment.

In this case, Detroit Edison submitted the results from their quantitative assessment showing an increase in both core damage probability and large early release probability. Yet the staff dismissed those results and accepted an undocumented, unreported, qualitative assessment by the company that shutting down and starting back up posed a greater risk.

But does NRC Region III sincerely believe that shutting down and starting back up a nuclear plant poses greater risk? The evidence strongly suggests that they do not. Consider the following information regarding another nuclear plant—the Perry plant northeast of Cleveland, Ohio— in NRC Region III extracted verbatim from NRC Plant Status Reports (PSRs):

PSR Date	Perry's Power Level, Percent	Comment for Perry
April 27, 2001	100	[None]
May 1, 2001	0	Cold Shutdown / Reactor Scram
May 2, 2001	0	Cold Shutdown
May 4, 2001	0	Startup / Close to Criticality
May 7, 2001	90	Power Operation / Increasing Power
May 8, 2001	0	Hot Shutdown / Reactor Manually Scrammed Due to Recirculation Pump Problem
May 9, 2001	0	Cold Shutdown / Manual Reactor Scram From 22% Power Due to a Recirculation Pump Problem
May 10, 2001	0	Cold Shutdown
May 15, 2001	12	Power Operation / Increasing Power
May 21, 2001	25	Power Operation /Shutting Plant Down Due To Circ[ulating] Water Pump Problem
May 22, 2001	0	Cold Shutdown

Thus, the Perry plant experienced three (3) unplanned reactor shutdowns and two subsequent plant startups in a 26-day period between April 27, 2001 and May 22, 2001. Assuming that NRC Region III staff truly believed that shutting down and restarting nuclear plants represented greater risk than operating with a broken emergency diesel generator, a reasonable person might expect to see them dispatch a Special Inspection Team to the Perry site to assess whether the people of Cleveland were living on the edge of something other than Lake Erie. But NRC Region III has not visibly reacted to the "heightened" risk at the Perry plant. So, they either do not believe what they said in the Fermi matter or are not concerned about the elevated risk at Perry.

It might not just be a case of whether NRC Region III was right at Fermi or right at Perry. They may actually have been wrong both times. In the Fermi case, the staff maintained—without any quantitative analysis whatsoever—that the planned shutdown and restart of the Fermi plant one time was greater risk than operating another seven (7) days with a broken diesel generator. Their qualitative analysis is contradicted by a performance indicator of the Reactor Oversight Program (ROP) as developed by the NRC Office of Nuclear Reactor Regulation (NRR) and implemented by NRC Region III.

The Initiating Events cornerstone of the ROP is described as serving the following purpose:

> The objective of this cornerstone is to limit the frequency of those events that upset plant stability and challenge critical safety functions, during shutdown as well as power operations. If not properly mitigated, and if multiple barriers are breached, a reactor accident could result which might compromise public health and safety. Licensees can reduce the likelihood of a reactor accident by maintaining a low frequency of these initiating events. Such events include reactor trips (scrams) due to turbine trips, loss of feedwater, loss of off-site power, and other reactor transients.

A performance indicators (PI) for the Initiating Events cornerstone is Unplanned Scrams, which is defined as follows:

> The number of unplanned scrams during the previous four quarters, both manual and automatic, while critical per 7,000 hours. The scram rate is calculated per 7,000 critical hours because that value is representative of the critical hours of operation in a year for a typical plant.

The GREEN-to-WHITE threshold for the unplanned scram PI is three (3). Thus, even if the shutdown at Fermi were considered unplanned, it would take two additional unplanned shutdowns to move the facility into the WHITE box from the GREEN box. But the GREEN and WHITE boxes are considered to have very low risk significance. The WHITE-to-YELLOW threshold is six (6). At least five additional unplanned shutdowns would therefore be required to move Fermi into the YELLOW or RED box or into a performance area having anything other than very low risk significance.

So, either Region III was wrong in its qualitative analysis for the planned shutdown and restart of Fermi or NRR was wrong when it established the thresholds for YELLOW and RED colorization of the unplanned scram PI. They cannot both be right.

NRC Region III may also have been wrong by not reacting to the flurry of plant shutdowns at Perry. Three unplanned shutdowns over a 26-day period represent a rate of 33.65 per 7,000 critical hours.[1] The YELLOW-to-RED threshold for unplanned scrams is established at 25 per 7,000 critical hours. So, NRC Region III reacted to a potential RED PI with no visible response.

I am unable to reconcile NRC Region III's action at Fermi with their inaction at Perry. First, they claim that the risks from shutting down and restarting a nuclear plant are so large that it is better to continue operating with a broken diesel generator. But they take no action just a few weeks later when a nuclear plant experiences a relatively large number of unplanned shutdowns with planned restarts. Any help that you can provide me and other members of the public in deciphering these inconsistent NRC stances on risk would be greatly appreciated.

Sincerely,

David Lochbaum
Nuclear Safety Engineer
Washington Office

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[1] Obtained by dividing 3 by 624 (e.g. 26 days x 24 hours/day = 624 hours) and then multiplying by 7,000. In reality, the rate would be higher because Perry was obviously not critical for every hour during that 26-day period.