April 9, 2001

Dr. George E. Apostolakis
Chairman
Advisory Committee on Reactor Safeguards
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

SUBJECT: ACRS COMMENTS ON "DRAFT REPORT, REGULATORY EFFECTIVENESS OF THE ANTICIPATED TRANSIENT WITHOUT SCRAM RULE"

Dear Dr. Apostolakis:

We appreciate your letter dated March 8, 2001, regarding the "Draft Report, Regulatory Effectiveness of the Anticipated Transient Without Scram Rule," and note that the Advisory Committee on Reactor Safeguards (ACRS) agrees with the general conclusions of the report. Your letter contained a recommendation that the staff consider the anticipated transient without scram (ATWS) risk during reviews of fuel cycle changes and power uprates. In addition, your letter contained a number of suggestions regarding regulatory effectiveness studies.

The staff concurs with the ACRS recommendation that ATWS risk needs to be maintained at an acceptably low level for future fuel cycle changes and power uprates. The current staff practice of conducting deterministic reviews of fuel cycle licensing activities is to review proposed changes in design-basis parameters which are important to ATWS risk (e.g., moderator temperature coefficient) to confirm that there are no significant changes, thereby providing adequate assurance that ATWS risk remains acceptably low. When requests are made for significant changes to these important design-basis parameters, the staff would explicitly consider their impact on ATWS risk by requesting the licensee to submit information on how the changes would affect risk. The Westinghouse Owners Group (WOG) is preparing a proposal that will allow greater flexibility with regard to fuel cycle parameters, and the staff plans to include in its review the impact of these changes on ATWS risk. For significant power uprate reviews, the staff also considers risk implications due to the proposed power increase, including the impact on ATWS response (e.g., operator action on boiling water reactors).

Many of the ACRS suggestions have been incorporated into the effectiveness studies. For example, the attachment links the ACRS suggestions to the ATWS study and places in the study where the information could be found. To the extent possible, the Office of Nuclear Regulatory Research (RES) will continue to incorporate ACRS suggestions in the future

regulatory effectiveness studies. It should be noted that documents associated with the regulation under study do not always address the suggested information. As discussed in the attachment, the ATWS report addresses suggestions to the extent that the ATWS rule documents contain the suggested information.

Sincerely,

/RA by Carl J. Paperiello Acting For/

William D. Travers
Executive Director
for Operations

Attachment: As stated

cc w/att.:
Chairman Meserve
Commissioner Dicus
Commissioner Diaz
Commissioner McGaffigan
Commissioner Merrifield
SECY

regulatory effectiveness studies. It should be noted that documents associated with the regulation under study do not always address the suggested information. As discussed in the attachment, the ATWS report addresses suggestions to the extent that the ATWS rule documents contain the suggested information.

Sincerely,
/RA by Carl J. Paperiello Acting For/
William D. Travers
Executive Director
for Operations

Attachment: As stated

cc w/att.:
Chairman Meserve
Commissioner Dicus
Commissioner Diaz
Commissioner McGaffigan
Commissioner Merrifield
SECY

Distribution w/att.:
REAHFB R/F
DSARE R/F
OEDO R/F
EDO G2001-0101
ISchoenfeld, OEDO
MSatorius, OEDO
PNorry, DEDM
KCyr, OGC
SBurns, OGC
JCraig, AO
TAttard, NRR
FAkstuleiwcz, NRR
MFields, NRR
RES 2001-055

C:\ACRSatws.wpd
*See previous concurrence
OAR in ADAMS? (Y or N) Y ADAMS ACCESSION NO.: ML010950412 TEMPLATE NO. EDO-002
Publicly Available? (Y or N) Y DATE OF RELEASE TO PUBLIC **04/13/01** SENSITIVE? No
To receive a copy of this document, indicate in the box: "C" = Copy without enclosures **"E"** = Copy with enclosures **"N"** = No copy

OFFICE	REAHFB	E	REAHFB	E	AC:REAHFB	E	AD:DSARE		DD:RES	
NAME	WRaughley:mtb:mk		GLanik		JFlack		FEltawila by JRosenthal		RZimmerman	
DATE	03/29/01*		03/29/01*		03/29/01*		04/02/01*		04/04/01*	
OFFICE	D:RES		D:NRR		DEDR		DEDMRS		EDO	
NAME	AThadani by RZimmerman		BSheron		WKane		CPaperiello		WTravers	
DATE	04/04/01*		04/05/01*		04/09/01*		04/06/01*		04/09/01*	

RESPONSE TO ACRS SUGGESTIONS ON ATWS STUDY

1. What contribution to risk was associated with the pertinent sequences before the rule was promulgated?

   Response: Section 2, "Background," notes that ATWS rule risk estimates explicitly considered only those sequences which are shown in Appendix A, "Anticipated Transient Without Scram Rule Event Trees." These were identified as the most pertinent sequences, and were discussed in the report with respect to the associated risk expectations and outcomes resulting from rule implementation. Risks before the rule was promulgated are discussed with respect to reactor protection system (RPS) reliability and its relationship to the pertinent sequences.

2. What level of uncertainty was attributed to the determination of the risk contribution?

   Response: In part, the ATWS rule was implemented to address the uncertainty in RPS reliability. Uncertainty was inferred by the wide range of RPS reliability estimates rather than on a single statistical value. Section 3.2.2, "Comparison of ATWS Rule Risk Expectations and Outcomes," discusses levels of uncertainties in current estimates of RPS reliability.

3. In view of Items 1 and 2, why were these levels of risk and associated uncertainty considered unacceptable?

   Response: The ATWS rule documents do not specifically discuss risk and uncertainty in this context. However, given the range of estimates at that time, ATWS could represent a significant fraction of total risk, depending on the reliability chosen. The ATWS events at Brown's Ferry and Salem suggested lower RPS reliability and higher risk estimates than previously assumed.

4. What were the target levels of risk and associated uncertainty?

   Response: The target levels of risk were provided in Table 1, "Summary of ATWS Rule Expectations and Outcomes"; Table 3, "Summary of ATWS Rule Risk Expectations and Outcomes"; and discussed in Section 3.2.2, "Comparison of ATWS Rule Risk Expectations and Outcomes." The ATWS rule did not target a level of uncertainty.

5. Why were these target levels considered acceptable?

   Response: As shown in Section 3.3, "Value-Impact," the target levels of risk were justified based on monetary benefit from reductions in risk being greater than the cost of hardware to achieve the risk reductions.

6. What plant changes were implemented as a result of the rule?

Response: The changes that were implemented for each plant were summarized in Appendix B, “Plant-Specific and General ATWS Information by Reactor Group.” This information is summarized in Table1, Table 2, “ATWS Rule Modifications,” and discussed in Section 3.2.1, “Modifications and Operating Limitations.”

7. What reductions of risk and associated uncertainty were actually achieved by implementation of the rule?

Response: Table 3 shows the risk reductions actually achieved by implementation of the ATWS rule. Uncertainties regarding ATWS risk factors are discussed in Sections 3.2.2, 3.2.4, “Risk Insights From Licensee PRA/IPEs,” and 3.2.6, “Changes in Fuel Management May Affect PWR ATWS Mitigating Capability.”

8. What was the original regulatory analysis estimate of the cost of implementing the rule?

Response: The original regulatory analysis estimate of the cost is summarized in Table 7, “ATWS Rule Value-Impact Summary,” and discussed in Section 3.3, “Value-Impact.”

9. What was the actual cost associated with implementation of the rule?

Response: The estimated cost associated with the implementation of the rule was developed by the industry, summarized in Table 7, and discussed in Section 3.3. RES believes collecting the actual costs for implementation of the ATWS rule would unnecessarily burden the licensees.