

NOTATION VOTE

RESPONSE SHEET

TO: Annette Vietti-Cook
Secretary of the Commission

FROM: CHAIRMAN MESERVE

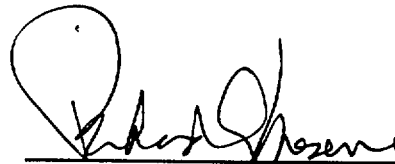
SUBJECT: SECY-00-0007- "PROPOSED STAFF PLAN FOR LOW
POWER AND SHUTDOWN RISK ANALYSIS RESEARCH TO
SUPPORT RISK-INFORMED REGULATORY DECISION
MAKING"

Approved in part Disapproved in part Abstain _____

Not Participating _____

COMMENTS:

See attached comments.



SIGNATURE

March 20, 2000

DATE

Entered on "STARS" Yes No _____

CHAIRMAN MESERVE'S COMMENTS ON SECY-00-0007

I have carefully reviewed SECY-00-0007 and the accompanying December 1999 report by the Office of Research, entitled, "Low Power and Shutdown Risk: A Perspectives Report." I have also reviewed ACRS letters to the Commission on this subject from the past three years, including the most recent one on SECY-00-0007, and I have read the comments of my colleagues on the Commission who have already voted on the staff's recommendations in SECY-00-0007.

I agree with the comments of Commissioners Diaz and Merrifield regarding the relative risks of many low power and shutdown (LPSD) events. Operators clearly have more time to take remedial actions during events occurring at cold shutdown conditions, with the reactor coolant system depressurized. The industry has also made substantial progress in developing tools to assist in outage planning and risk management during these conditions.

Nonetheless, I am concerned that the NRC may not be performing needed work to understand and assess LPSD risk. I find the staff's and ACRS's arguments that LPSD risk can be of the same order of magnitude as power operation risk to be troubling. However, the staff's report and the ACRS's letters and discussion during the March 3, 2000, Commission meeting indicate that the tools used by licensees for these assessments are not sufficiently detailed to permit quantitative assessment of LPSD risk to support risk-informed regulatory considerations. LPSD conditions may include situations that are not well-modeled in PRAs, including multiple trains of equipment out of service, open containments, and equipment availability that can change quickly in a short period of time. The risk during transitions, which was also discussed at the March 3 Commission meeting, is of particular concern, since the plant may be at elevated temperature and/or pressure, thus significantly reducing the time available for mitigative actions. Human performance, which tends to be a weakness of PRAs in general, is even more difficult to model during these periods, since operators may be faced with unfamiliar plant configurations, limited equipment availability, and the need to execute actions without adequate procedural guidance.

Moreover, I note that current initiatives underway, both as a result of economic imperatives and risk-informed regulation, have the potential to affect LPSD risk. For example, economic pressures provide incentives for licensees to shorten refueling outages, with the result that more outage-related activities (e.g., maintenance) will be performed in a shorter time, which could lead to problems in licensee control of many simultaneous tasks. The interactions among these tasks may neither be completely appreciated nor well-modeled with current industry LPSD risk assessment tools. The situation may be aggravated by the fact that risk-informed initiatives related to plant technical specifications (TSs) may allow hot shutdown to be specified as the endpoint for some TS action statements that now require plants to go to cold shutdown. As is true in the case of transitional conditions, the elevated temperatures and pressures during hot shutdown conditions may also lead to increased risk; I note that significant draindown events over the past few years, such as the ones at Wolf Creek (1994) and Waterford (1999) were exacerbated because the reactor coolant system pressure was elevated. In the specific case of Wolf Creek, this also led to the potential for common-cause failure of key safety systems that might have been needed to mitigate the event, had operators failed to diagnose the situation.

While I agree with the observations of my fellow Commissioners that some higher-risk situations are obvious (e.g., reduced inventory, loss of inventory, and loss of decay heat removal), there

may be more subtle situations or combinations of failures that could also lead to elevated risk that may not be as obvious and that current methods and tools for assessing LPSD risk may not be capable of modeling. I also note that in some areas, there are large uncertainties that can affect the estimates of LPSD risk.

Although I believe that LPSD events warrant continued scrutiny, I share the perceptions of my colleagues that some of the tasks proposed by the staff are premature. Accordingly, my positions on the staff's proposals are to:

1. Approve Task 1, continued participation in the American Nuclear Society's work to develop LPSD PRA standards.
2. Disapprove Task 2, development of improved guidance. The staff notes that improved guidance will be one of the results of the standards development program (Task 1). Beyond this, I believe it is premature to develop further specific LPSD guidance until the methods and tools for assessing LPSD risk have been improved. However, RES should continue to reflect and integrate new insights on LPSD risk into the work that is progressing in current efforts to risk-inform 10 CFR Part 50 and associated NRC documentation.
3. Disapprove Task 3, development of improved methods and tools for human reliability analysis (HRA) and Level 2 risk specifically during LPSD conditions. Staff efforts in this area should be an integral part of ongoing work in modeling human performance, i.e., the ATHEANA project.
4. Disapprove Task 4, evaluation of other areas important to risk. However, in light of the recommendations in the ACRS's letter of March 13, 2000, the staff should evaluate the adequacy of its tools for LPSD risk assessment in comparison with those used by the industry. If those tools are found to be inadequate, the staff should recommend to the Commission a course of action to address the inadequacies. In this regard, the staff should clearly indicate the priority of any proposed activities and address the questions cited by Commissioner Merrifield from the ACRS's current report on the safety research program (NUREG-1635, Vol. 3). The ACRS should review the staff's evaluation and provide the Commission its independent assessment of high-priority issues requiring additional research.

The staff should also continue to monitor industry performance during LPSD operations, and to assess LPSD risk as part of its normal evaluative process. The staff should inform the Commission if the staff detects a significant adverse trend in LPSD events and/or risk.