UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

September 22, 2009

SECRETARY

COMMISSION VOTING RECORD

DECISION ITEM: SECY-09-0059

TITLE: FINAL RULE RELATED TO ALTERNATE FRACTURE TOUGHNESS REQUIREMENTS FOR PROTECTION AGAINST PRESSURIZED THERMAL SHOCK EVENTS (10 CFR 50.61A) (RIN 3150-A101)

The Commission (with Commissioners Klein and Svinicki agreeing) approved the final rule as recorded in the Staff Requirements Memorandum (SRM) of September 22, 2009. Chairman Jaczko disapproved the final rule.

This Record contains a summary of voting on this matter together with the individual vote sheets, views and comments of the Commission.

Annette L. Vietti-Cook
Secretary of the Commission

Attachments:
1. Voting Summary
2. Commissioner Vote Sheets

cc: Chairman Jaczko
Commissioner Klein
Commissioner Svinicki
OGC
EDO
PDR

VOTING SUMMARY - SECY-09-0059

RECORDED VOTES

	APRVD	DISAPRVD	ABSTAIN	NOT PARTICIP	COMMENTS	DATE
CHRM. JACZKO	X				X	8/21/09
		X			X	9/15/09
COMR. KLEIN	X				X	6/4/09
	X				X	8/24/09
COMR. SVINICKI	X					6/8/09

COMMENT RESOLUTION

In their vote sheets, Commissioners Klein and Svinicki approved the final rule and Chairman Jaczko disapproved the final rule. Subsequently, the Commission affirmed the final rule in an Affirmation Session as reflected in the SRM issued on September 22, 2009.

AFFIRMATION ITEM

RESPONSE SHEET

TO: Annette Vietti-Cook, Secretary

FROM: COMMISSIONER JACZKO

SUBJECT: SECY-09-0059 – FINAL RULE RELATED TO ALTERNATE FRACTURE TOUGHNESS REQUIREMENTS FOR PROTECTION AGAINST PRESSURIZED THERMAL SHOCK EVENTS (10 CFR 50.61a) (RIN 3150-AI01)

Approved __XX____ Disapproved ____ Abstain _____

Not Participating _____

COMMENTS: Below ___ Attached _X_ None ___

SIGNATURE

8/21/09

DATE

Entered on "STARS" Yes ___ No ___

Commissioner Jaczko's Comments on SECY-09-0059
Final Rule Related to Alternate Fracture Toughness Requirements for Protection Against Pressurized Thermal Shock Events (10 CFR 50.61a) (RIN 3150-AI01)

The requirements in 10 CFR 50.61a have served the agency well over the past 20 years in providing protection of public health and safety. I recognize that there this is clear support for moving forward with revising these requirements, and I approve of the final rule. In my previous votes, I proposed an alternative approach that I believe would maintain safety and still allow licensees to address challenges with embrittlement over the life of the reactor. I believe that the rule change is for licensee convenience only and is not necessary since fracture toughness can still be evaluated on a case-by-case basis under the current rule.

The recommendations of the Advisory Committee on Reactor Safeguards should be addressed by the staff. Specifically, to aid in the implementation of the rule, the staff should undertake an effort to verify and document the capability of nondestructive examination (NDE) procedures that will be used to characterize the flaw distributions in reactor vessels; and an effort is needed to plan for the most effective use of surveillance samples to ensure that any deviations from the current understanding of embrittlement trends in reactor vessels will be identified in a timely manner.

Notwithstanding, I continue to support the need for all PWRs to update their material embrittlement metric using the updated embrittlement correlation. This would provide a baseline upon which to assess the vulnerability of each potentially affected unit in a consistent manner across the U.S. reactor fleet. Those that exceeded the screening criteria would then perform a complete reanalysis in accordance with the updated technical basis. The promulgation of voluntary options to existing requirements leads to increased complexities in understanding and ensuring compliance with the licensing and design basis. This results in us placing an additional burden on our licensing and inspection staff to be fully versed to address the different approaches to safety in a consistent and timely manner. The bifurcation of requirements also leads to challenges in our communications to external stakeholders on the NRC's coherent approach to nuclear safety.

Gregory B. Jaczko

Signature

8/21/09

Date

SUPPLEMENTAL VOTE

AFFIRMATION ITEM

RESPONSE SHEET

TO: Annette Vietti-Cook, Secretary

FROM: COMMISSIONER JACZKO

SUBJECT: SECY-09-0059 – FINAL RULE RELATED TO ALTERNATE FRACTURE TOUGHNESS REQUIREMENTS FOR PROTECTION AGAINST PRESSURIZED THERMAL SHOCK EVENTS (10 CFR 50.61a) (RIN 3150-AI01)

Approved _____ Disapproved _X_ Abstain ___

Not Participating _____

COMMENTS: Below ___ Attached _X_ None ___

Gregory B Jaczko
SIGNATURE

09/15/09
DATE

Entered on "STARS" Yes _X_ No ___

Chairman Jaczko's SUPPLEMENTAL Comments on SECY-09-0059
Final Rule Related to Alternate Fracture Toughness Requirements for Protection Against Pressurized Thermal Shock Events (10 CFR 50.61a) (RIN 3150-AI01)

Upon consideration of the final majority position, I must reassess my earlier vote and disapprove of this rule.

In my initial vote, I proposed changes to the rule that would have addressed the recommendations of the Commission's Advisory Committee on Reactor Safeguards. Specifically, to aid in the implementation of the rule, I believe the Commission should have directed the staff to undertake an effort to verify and document the capability of nondestructive examination procedures that will be used to characterize the flaw distributions in reactor vessels. I believe the Commission should have also directed the staff to plan for the most effective use of surveillance samples to ensure that any deviations from the current understanding of embrittlement trends in reactor vessels will be identified in a timely manner.

Additionally, I proposed that all pressurized water reactors should be required to update their material embrittlement using the updated embrittlement correlation. This would provide a baseline upon which to assess the vulnerability of each potentially affected unit in a consistent manner across the operating reactors. Those that exceeded the screening criteria would then perform a complete reanalysis in accordance with the updated technical basis.

Without the majority agreeing to either of these beneficial changes, I can not vote for this final rule. It is voluntary, for licensee convenience, and unnecessary since fracture toughness can be evaluated on a case-by-case basis under the current rule.

Gregory B. Jaczko 09/15/09

Gregory B. Jaczko Date

AFFIRMATION ITEM

RESPONSE SHEET

TO: Annette Vietti-Cook, Secretary

FROM: COMMISSIONER KLEIN

SUBJECT: SECY-09-0059 – FINAL RULE RELATED TO ALTERNATE FRACTURE TOUGHNESS REQUIREMENTS FOR PROTECTION AGAINST PRESSURIZED THERMAL SHOCK EVENTS (10 CFR 50.61a) (RIN 3150-AI01)

Approved X **Disapproved** _____ **Abstain** _____

Not Participating _____

COMMENTS: **Below** ___ **Attached** X **None** ___

SIGNATURE

6/4/09

DATE

Entered on "STARS" **Yes** ✓ **No** ___

Commissioner Klein's Comments on SECY-09-0059,
Final Rule Related to Alternate Fracture Toughness Requirements for Protection Against Pressurized Thermal Shock Events (10 CFR 50.61a)

I approve the staff's recommendation to publish the final rule, §50.61a, to provide alternate fracture toughness requirements for protection against pressurized thermal shock (PTS) events for pressurized water reactor (PWR) vessels.

Consistent with the Commission's PRA policy statement, this new alternate rule applies risk information to the regulatory requirements in a manner that complements deterministic engineering approaches and supports the traditional defense-in-depth philosophy. The technical basis for the existing §50.61 uses various models and parameters to estimate the probability of a PWR vessel developing a breach as a consequence of PTS loading. Since the 1980s, when the parameters used to predict the embrittlement characteristics of reactor vessel material were last revised, a substantial amount of reactor vessel surveillance data has been collected. In addition, improved scientific understanding and better analytical models have led to more realistically conservative probabilistic fracture mechanics analyses. The new rule, §50.61a, incorporates these advancements within a risk-informed framework that is commensurate with the Commission's safety goals.

In addition, the requirements developed for this rule adhere to the concept of the balanced application of risk related information that is also envisioned in the Commission's PRA policy statement. On one hand, decades of operating experience, better science, and state-of-the-art modeling capability allow us to "reduce unnecessary conservatism." On the other hand, the rule would require licensees to submit surveillance data to determine if the embrittlement of a specific heat of vessel material is consistent with the embrittlement predicted by the correlation estimates. This information would allow us to assess the predictive capability of the calculated estimates, particularly for the latter portion of the licensed operating period for which there is a need for more data. The rule would also require licensees to look for smaller flaws in the ultrasonic testing data used for ASME inspections to account for uncertainties in the ultrasonic examinations. The result is a sound, risk-informed rule that is consistent with the fair-minded intent of the Commission's policy to "reduce unnecessary conservatism," but "where appropriate... support the proposal for additional regulatory requirements."

This rulemaking effort, in my view, exemplifies the best of the staff's dedication and pursuit of excellence in risk-informing our regulations. My compliments to the staff for a job well done.

6/ 4 /2009

Dale E. Klein — Date

AFFIRMATION ITEM

RESPONSE SHEET

TO: Annette Vietti-Cook, Secretary

FROM: COMMISSIONER KLEIN

SUBJECT: SECY-09-0059 – FINAL RULE RELATED TO ALTERNATE FRACTURE TOUGHNESS REQUIREMENTS FOR PROTECTION AGAINST PRESSURIZED THERMAL SHOCK EVENTS (10 CFR 50.61a) (RIN 3150-AI01)

Approved XX Disapproved _____ Abstain _____

Not Participating _____

COMMENTS: Below XX Attached XX None ___

I supplement my vote of June 4, 2009, with the attached, additional comments.

(This confirms my Supplemental vote, which was signed on my behalf, by Roger K. Davis on August 24, 2009).

SIGNATURE

09/ 2 /09
DATE

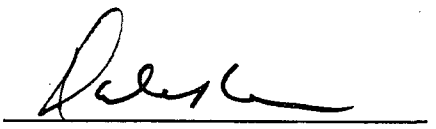
Entered on "STARS" Yes x No ___

Commissioner Klein's Supplemental Comments on SECY-09-0059, Final Rule Related to Alternate Fracture Toughness Requirements for Protection Against Pressurized Thermal Shock Events (10 CFR 50.61a)

I am pleased that the Commission has approved 50.61a, the final rule related to alternate fracture toughness requirements for protection against pressurized thermal shock events. I submit this supplemental vote to address Chairman Jaczko's additional proposal that all pressurized water reactors (PWRs) update their material embrittlement metric to meet the requirements of 50.61a using the updated embrittlement correlation.

I respectfully disagree with this suggestion and continue to support the Commission's prior decision, in the proposed rule, not to backfit updated reactor pressure vessel (RPV) embrittlement correlations into 50.61a. The Commission decided that requiring the majority of PWRs who are not close to the reference temperature screening criteria in 50.61 to recalculate their level of embrittlement would impose undue burden and provide no additional benefit in safety. Former Commissioner Peter Lyons commented in his vote, dated April 23, 2009, that "the quantification methods allowed in this rule will maintain safety while allowing licensees the flexibility to reduce the unnecessary conservatism inherent to the current regulations." Subjecting all PWRs to the requirements of 50.61a, thus, would negate this intended benefit of 50.61a.

This rule, however, is not just about reducing unnecessary conservatism. This rule appropriately balances the safety scale by imposing additional requirements. One such requirement is that a licensee adopting this voluntary rule must perform additional analyses of their in-service inspection data to ensure that the flaw distribution within their vessel is consistent with that used to develop the technical bases for this rule. In addition, a licensee must perform more statistically rigorous tests on its available surveillance data to ensure that the embrittlement of its vessel materials is not being underpredicted by the new models. As I've stated before, this balanced approach provides for a sound, risk-informed rule that is consistent with the fair-minded intent of the Commission's PRA policy statement to "reduce unnecesary conservatism," but "where appropriate... support the proposal for additional regulatory requirements."



Dale E. Klein

9/ 2/2009
Date

AFFIRMATION ITEM

RESPONSE SHEET

TO: Annette Vietti-Cook, Secretary

FROM: COMMISSIONER SVINICKI

SUBJECT: SECY-09-0059 – FINAL RULE RELATED TO ALTERNATE FRACTURE TOUGHNESS REQUIREMENTS FOR PROTECTION AGAINST PRESSURIZED THERMAL SHOCK EVENTS (10 CFR 50.61a) (RIN 3150-AI01)

Approved XX Disapproved _____ Abstain _____

Not Participating _____

COMMENTS: Below ___ Attached ___ None XX

SIGNATURE

06/8/09

DATE

Entered on "STARS" Yes ✓ No ___