

June 23, 2003

MEMORANDUM TO: William D. Travers  
Executive Director for Operations

FROM: Annette L. Vietti-Cook, Secretary */RA/*

SUBJECT: STAFF REQUIREMENTS - SECY-03-0085 - DENIAL OF  
PETITIONS FOR RULEMAKING ON REVISING 10 CFR 50.46  
AND APPENDIX K TO 10 CFR PT 50 TO REQUIRE LICENSEES  
TO ADDRESS THE IMPACT ON COOLANT FLOW OF  
RELEASE AND RESUSPENSION OF CRUD BUILDUP ON FUEL  
CLADDING DURING LOSS-OF-COOLANT ACCIDENT  
SCENARIOS

The Commission has approved denial of two petitions for rulemaking on 10 CFR 50.46, "Acceptance criteria for emergency core cooling systems for light-water nuclear power reactors," and Appendix K to Part 50, "ECCS Evaluation Models." The Commission has approved publication of the petition denials in the Federal Register subject to the changes provided in the attachment.

(EDO)

(SECY Suspense:

7/25/03)

Attachment: Changes to the Federal Register notice in SECY-03-0085

cc: Chairman Diaz  
Commissioner Dicus  
Commissioner McGaffigan  
Commissioner Merrifield  
OGC  
CFO  
OCA  
OIG  
OPA  
Office Directors, Regions, ACRS, ACNW, ASLBP (via E-Mail)  
PDR

**NOTE: TO BE MADE PUBLICLY AVAILABLE 5 BUSINESS DAYS AFTER THE  
LETTER TO PETITIONER IS DISPATCHED**

Changes to the Federal Register notice in SECY-03-0085

1. On page 1, paragraph 1, revise line 12 to read ‘ ... leading to melting of the nuclear fuel – down.’
2. On page 2, last paragraph, revise line 3 to read ‘ ... criteria are: 1) peak cladding ....’  
Revise line 4 to read ‘ ... exceeded, 2) the maximum cladding oxidation thickness, 3) the maximum ....’  
Revise lines 5 and 6 to read ‘ ... hydrogen generation, and requirements to 4) assurance of a core geometry that can be cooled, and 5) assurance of abundant long ....’
3. On page 4, revise line 2 from the top to read ‘ ... compromising defense-in-depth.’
4. On page 4, 1<sup>st</sup> full paragraph, revise line 2 and 3 to read ‘ ... cooling during normal power operations of a light water cooled reactor at power.’
5. On page 4, last paragraph, revise line 2 to read ‘ ... ANP, a nuclear vendor, did not agree ....’
6. On page 5, 1<sup>st</sup> full paragraph, revise line 1 to read ‘ ... Nuclear, a power reactor licensee, stated that ....’
7. On page 5, last paragraph, revise line 1 to read ‘ ... Company, LLC, a nuclear vendor, opposed the ....’
8. On page 6, revise line 1 from the top to read ‘ ... reactors (PWRs), including cases ....’
9. On page 6, 1<sup>st</sup> full paragraph, revise line 1 to read ‘ ... Energy, a nuclear vendor, opposed the ....’
10. On page 7, delete the 2<sup>nd</sup> full paragraph (In addition to this ... normal operations.)
11. On page 7, last paragraph, revise the last line to read ‘ ... rulemaking contained as discussed in ....’
12. On page 8, paragraph 2, line 2, delete “also”.  
Revise lines 7 and 8 to read ‘ ... STARS stated that it does not believe that nuclear safety would will be enhanced ....’
13. On page 9, paragraph 1, revise line 1 to read ‘ ... (TVA), a nuclear power plant licensee, stated that ....’
14. On page 9, paragraph 2, revise lines 1 through 3 to read ‘ ... Company had opposed the initial petition for rulemaking PRM-50-73, and also opposed the action requested in this supplemental petition for rulemaking. Westinghouse stated PRM-50-73, stating that ....’  
In line 4, delete “any”.
15. On page 10, revise line 1 from the top to read ‘ ... excessive unusually heavy crud

- deposition.’ Revise line 2 and 3 to read ‘ ... happened once during the previous eight cycles for this specific plant. The NRC ....’ Revise line 7 to read ‘ ... fuel bundles have severe crud deposition is significantly lower than that of the LOCA alone and thus reduces the estimated risk of this scenario a design-basis accident.’
16. On page 10, in the indented paragraph, revise line 2 to read ‘ ... high power fuel bundles, ....’ Revise line 4 to read ‘ ... argued stated that during a ....’ Revise line 7 to read ‘ ... stream fuel grid locations.’
  17. On page 10, last paragraph, revise lines 2 and 3 to read ‘ ... even if the pressure wave breaks off some of the crud broke off, only small ....’ Revise line 4 to read ‘ ... the petitioner’s rationale argument for crud ....’ Revise line 6 to read ‘ ... the assumption that ; in a LWR, the crud might ....’ Revise line 7 to read ‘ ... the NRC does not believes that the ....’ Revise the last line to read ‘ ... crud are not supported by ....’
  18. On page 11, in the indented paragraph, delete the 1<sup>st</sup> sentence (The petitioner argued ... in depth.) Revise line 3 to read ‘ ... petitioner stated argued that if ....’
  19. On page 11, last paragraph, revise lines 3 and 4 to read ‘ ... function as an additional heat conduction barrier insulator between the ....’ Delete the sentence in lines 4 and 5 (But the NRC does ... is valid.) Revise lines 6 and 7 to read ‘However, if If the metal-water reaction is assumed to occur, the NRC believes that this additional ....’ Revise lines 9 and 10 to read ‘ ... stream would need penetrate inward through overcome the additional mass transfer resistance of the crud layer ....’ Revise line 11 to read ‘ ... would need to penetrate diffuse outward through ....’ Add the following at the end of the paragraph: ‘Therefore, the NRC has concluded that the petitioner’s concern about autocatalytic zirconium-water reactions is not valid.’
  20. On page 12, 1<sup>st</sup> full paragraph, line 1, delete “however,”. Revise line 7 to read ‘ ... crud buildup). The NRC does not believe that it It is not necessary for ....’
  21. On page 12, last paragraph (indented), delete the last sentence (These levels should ... above.)
  22. On page 13, 1<sup>st</sup> full paragraph (indented), revise line 2 to read ‘ ... it in the CHF [critical heat flux] calculations ....’ Revise line 3 to read ‘ ... RCS [reactor coolant system].’
  23. On page 13, last paragraph, revise line 1 to read ‘ ... addition, the NRC believes that the nuclear industry strong incentives exist for the nuclear industry to control ....’ Delete the sentence in line 4 (Reduced grid power is costly.) Revise lines 5 and 6 to read ‘ ... systems increases radiation dose - rates levels that would result in costly increases in worker radiation doses, since the the industry is required ....’ Revise line 8 to read ‘ ... are strong. The NRC is aware that the EPRI ....’
  24. On page 14, in the indented paragraph, revise line 4 to read ‘ ... an autocatalytic [i.e., self-propagative] zirconium-water ....’ Revise line 6 to read ‘ ... while the reactor LWR is at ....’ Revise line 7 to read ‘ ... that a reactor LWR may be ....’
  25. On page 14, last paragraph, line 1 delete “tight”.

26. On page 15, 1<sup>st</sup> full paragraph, revise lines 6 and 7 to read ‘ ... reaction. **Therefore, the NRC has concluded** ~~does not believe~~ that the petitioner’s concern about the ~~possibility of~~ autocatalytic zirconium-water reactions is **not** valid.’
27. On page 16, delete the last 2 sentences in lines 1 through 3 at the top of the page (The NRC believes ... of value.)
28. On page 16, last paragraph, revise line 1 to read ‘The **NRC believes that the** proposed revisions would ....’ Delete the last line (The NRC does not ... address a ....’) and insert ‘Taking such an unnecessary action may actually detract from public confidence in the NRC as an effective regulator.’
29. On page 17, delete lines 1 and 2 at the top of the page (... non-safety ... power.)
30. On page 17, 1<sup>st</sup> full paragraph, revise line 2 to read ‘ ... ~~decrease~~ **not improve** efficiency, effectiveness, ....’ Revise line 3 to read ‘ ... generate **unnecessary** additional information as ....’ Revise line 5 to read ‘ ... consideration is **unnecessary** of ~~marginal safety value~~ because the ....’ Revise the last line to read ‘ ... would be significant **and is unnecessary** ~~with little return of value.~~’
31. On page 17, 2<sup>nd</sup> full paragraph, revise lines 2 and 3 to read ‘ ... burden by **unnecessarily** requiring significant additional testing and analysis of ECCS effectiveness ~~with little expected benefit.~~’
32. On page 17, last paragraph, line 1 delete “Section”. Revise line 3 to read ‘ ... ECCS analyses. **An acceptable implementation** ~~The detailed interpretation of this ....’ Delete the sentence in lines 5 through 7 (The Commission does ... reasonable.)~~
33. On page 18, revise line 12 from the top to read ‘ ... Commission **considers** ~~does not believe~~ that the ....’ Revise line 13 to read ‘ ... activity levels is **not** credible.’ Revise line 14 to read ‘ ... the petitioner’s **bases for requesting rulemaking** ~~contentions~~ have not been ....’
34. In the letter to the petitioner, page 1, paragraph 2, revise line 4 to read ‘ ... commenters **stated** ~~argued~~ that existing ....’