



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

August 25, 2004

SECRETARY

COMMISSION VOTING RECORD

DECISION ITEM: SECY-04-0138

TITLE: DENIAL OF A PETITION FOR RULEMAKING TO REVISE 10 CFR PART 50 AND ASSOCIATED GUIDANCE TO SPECIFICALLY ADDRESS THE IMPACT AND FOULING ON THE PERFORMANCE OF ALL HEAT EXCHANGE SURFACES IN A NUCLEAR POWER PLANT

The Commission (with all Commissioners agreeing) approved the subject paper as recorded in the Staff Requirements Memorandum (SRM) of August 25, 2004.

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

A handwritten signature in black ink, appearing to read "Annette Vietti-Cook", written over a horizontal line.

Annette L. Vietti-Cook  
Secretary of the Commission

Attachments:

1. Voting Summary
2. Commissioner Vote Sheets

cc: Chairman Diaz  
Commissioner McGaffigan  
Commissioner Merrifield  
OGC  
EDO  
PDR

SECY NOTE: THIS VOTING RECORD WILL BE RELEASED TO THE PUBLIC 5 WORKING DAYS AFTER THE LETTER IS SENT TO THE PETITIONER.

VOTING SUMMARY - SECY-04-0138

RECORDED VOTES

|                  | APRVD | DISAPRVD | ABSTAIN | NOT PARTICIP | COMMENTS | DATE    |
|------------------|-------|----------|---------|--------------|----------|---------|
| CHRM. DIAZ       | X     |          |         |              | X        | 8/17/04 |
| COMR. McGAFFIGAN | X     |          |         |              | X        | 8/18/04 |
| COMR. MERRIFIELD | X     |          |         |              | X        | 8/16/04 |

COMMENT RESOLUTION

In their vote sheets, all Commissioners approved the staff's recommendation and provided some additional comments. Subsequently, the comments of the Commission were incorporated into the guidance to staff as reflected in the SRM issued on August 25, 2004.

SECY NOTE: THIS VOTING RECORD WILL BE RELEASED TO THE PUBLIC 5 WORKING DAYS AFTER THE LETTER IS SENT TO THE PETITIONER.

NOTATION VOTE  
RESPONSE SHEET

TO: Annette Vietti-Cook, Secretary

FROM: CHAIRMAN DIAZ

SUBJECT: **SECY-04-0138 - DENIAL OF A PETITION FOR  
RULEMAKING TO REVISE 10 CFR PART 50 AND  
ASSOCIATED GUIDANCE TO SPECIFICALLY  
ADDRESS THE IMPACT OF FOULING ON THE  
PERFORMANCE OF ALL HEAT EXCHANGE  
SURFACES IN A NUCLEAR POWER PLANT (PRM-50-  
78)**

Approved  Disapproved  Abstain   
Not Participating

COMMENTS:

See attached edits.

  
\_\_\_\_\_  
SIGNATURE

08/17/2004  
\_\_\_\_\_  
DATE

Entered on "STARS" Yes  No

Chairman Diaz's Comments on SECY-04-0138

I approve the staff's recommendations in SECY-04-0138, "DENIAL OF A PETITION FOR RULEMAKING TO REVISE 10 CFR PART 50 AND ASSOCIATED GUIDANCE TO SPECIFICALLY ADDRESS THE IMPACT OF FOULING ON THE PERFORMANCE OF ALL HEAT EXCHANGE SURFACES IN A NUCLEAR POWER PLANT (PRM-50-78)." It is appropriate to deny this petition for rulemaking. The staff's analysis makes clear that NRC regulation and oversight of nuclear power plants includes the establishment of regulations, operating licenses, technical specifications, and continuous inspections and technical reviews of licensee programs and plant performance. When viewed in total, these regulatory requirements and related oversight practices provide confidence in the safety of operating nuclear power plants. It is clear that even though no specific regulation explicitly addresses fouling of heat exchangers, no rulemaking is required because the existing structure of regulations, technical specifications, and licensee programs subject to NRC inspection provide the necessary confidence that plant safety features, including heat exchangers, are properly designed and maintained.

On August 12, 2004 the new Strategic Plan for fiscal years 2004-2009, including the five revised performance goals, was publicly announced. The staff should update the *Federal Register* notice and the letter to the petitioner to reflect the revised performance goals. Additionally, the *Federal Register* notice and the letter to the petitioner should include the attached editorial changes.

added to require publicly available performance reports on these surfaces, including records of mechanical degradation, and cleaning procedures and their effectiveness.

In addition, the petitioner contended that fouling would restrict fuel element cooling and that axial growth beyond design limits would cause fuel rods to bow, and contact other fuel rods and control rod guide tubes. The petitioner claimed that this would lead to a safety problem. In addition, the petitioner proposed that the rules should require investigating grossly off-normal performance of heat exchange equipment. For example, the petitioner stated that fouling of steam generator tubes should be investigated because it has occasionally reduced heat transfer effectiveness to force operation at below-normal secondary side pressure, creating a safety issue.

#### Public Comments on the Petition

Four letters of public comment were received on PRM-50-78. Two were from the petitioner, who noted in support of his petition that the <sup>spell out</sup> (ACRS) did not address fouling of heat exchange surfaces during a meeting with Electric Power Research Institute (EPRI) in October 2002 and that one of the numerous heat transfer tests done for the NRC by Westinghouse (FLECHT Run 9573) resulted in tube failure. In addition, the petitioner noted that five additional ~~Advisory Gemmittee on Reactor Safeguards~~ (ACRS) subcommittee meetings did not address fouling issues.

The Nuclear Energy Institute (NEI) opposed the petition, noting that current reporting requirements in 10 CFR 50.72 and 50.73 require reporting any event or condition that could interfere with a safety function of any system needed to shutdown that plant and maintain it in a

The NRC disagrees with the petitioner. Both pressurized water reactor (PWR) and boiling water reactor (BWR) fuel bundle designs provide ample space for fuel pins to expand in the axial direction. A PWR fuel pin is neither supported at the bottom nor at the top; instead, spacers are used to hold the fuel pins together. Designed space both at the bottom and at the top of fuel bundles permits fuel pins to expand thermally without touching any other structures. A BWR fuel bundle is normally seated at the bottom and there is no restriction to prevent thermal expansion into the upper plenum. Expansion springs are sometimes used between fuel pins to allow nonuniform axial expansion within a fuel bundle. For these reasons, the NRC considers it unlikely that a fuel pin will bow <sup>enough to contact adjacent rods and control rod tubes and interfere with coolant flow</sup> due to axial thermal expansion. SRP 4.2 requires the NRC to review licensee fuel design analysis to confirm that dimensional changes due to thermal or irradiation effects such as fuel pin bowing or axial growth are adequately addressed.

6. Fouling of heat-transfer surfaces is generally not adequately considered in the licensing and compliance inspections of NPPs.

The NRC disagrees with the petitioner. The effects of fouling of heat transfer surfaces are adequately addressed in the following NRC licensing and compliance inspection program elements:

- NRC license reviews include extensive NRC review of the licensee's design of key safety systems, structures, and components, including heat exchangers in the primary and secondary sides of a plant. NRC staff analyses of all key safety systems, including heat exchangers, are performed during development of NRC safety evaluation reports (SERs) pertaining to a license application. As previously discussed, various regulatory requirements such as 10 CFR 50.65, Appendix B to Part 50, and plant technical specifications require that licensees

maintain, test and restore equipment such that the safety functions are maintained consistent with the licensing of the plant. These processes are subject to NRC inspection to ensure that the requirements are met.

- Compliance inspections of safety systems, structures, and components, including safety-significant heat exchangers, are designed to determine compliance with Appendix A to Part 50, "General Design Criteria for Nuclear Power Plants." Specifically, in the Reactor Oversight Program, Inspection Procedure 71111.07, "Heat Sink Performance," requires that a sample of safety significant heat exchangers (e.g., for the residual heat removal, component cooling water, emergency core cooling systems) be inspected both annually for specific performance issues and biennially for an intense review of heat transfer characteristics.

7. The NRC must require by rule the inclusion of fouling considerations in NRC-funded heat transfer test programs and in the several heat exchanger computer programs produced by the NRC.

The NRC does not believe that these requirements need to be included by regulation.

- ~~All~~ NRC-funded computer codes used to audit emergency core cooling system (ECCS) performance are capable of considering the impact of fouling on the performance of fuel element surfaces, and these codes have been used for that purpose when warranted.
- Ongoing experimental and analytical test programs (e.g., Argonne National Laboratory study on fuel cladding performance) in the NRC Office of Nuclear

Regulatory Research (RES) are investigating transient and operational oxidation models, including effects of significant pre-oxidation.

- Calculations were performed by RES to support the evaluation of this petition using NRC computer codes. These calculations showed that fouling and excess pre-oxidation would not have a significant effect on reflood heat transfer capability.
- The NRC fuel performance code FRAPCON-3 can calculate enhanced oxidation from crud buildup on fuel element surfaces.
- The RELAP and TRACE codes use the FRAPCON information to calculate transient effects.

The NRC has evaluated the advantages and disadvantages of the rulemaking requested by the petitioner with respect to the four performance goals of the Commission.

1. Maintaining Safety: The NRC believes that the requested rulemaking would not make a significant contribution to maintaining safety because current regulations and regulatory guidance already address the effects of fouling of heat exchanger surfaces in NPPs. No data or evidence was provided by the petitioner to suggest that fouling of heat exchanger surfaces created any significant safety problems. Existing regulations, guidance, and practices provide for monitoring, detecting and correcting possible fouling effects on heat exchanger performance before any significant safety problems can occur. Thus, there would be <sup>little or</sup> no safety benefit from changing the regulations.

2. Enhancing Public Confidence: The proposed revisions would not enhance public confidence. Current regulations and guidance already address the effects of fouling on the performance of heat exchanger surfaces. The petitioner's request would require that

substantial, additional consideration be given to the effect of fouling on the performance of heat exchanger surfaces throughout the nuclear plant. The NRC does not believe that unnecessary and costly regulatory action to address a non-safety-significant issue would enhance public confidence in the safety of nuclear power.

3. Improving Efficiency and Effectiveness: The proposed revisions would decrease efficiency and effectiveness because licensees and the NRC would be required to generate additional information as part of the evaluation of numerous heat exchanger surfaces throughout the nuclear plant. Revising the regulations to be more specific about effects of fouling on heat exchanger performance would require an expenditure of NRC resources. Because <sup>little or</sup> no safety value would be added, this regulatory action would not improve NRC efficiency or effectiveness.

4. Reducing Unnecessary Regulatory Burden: Rulemaking in response to these petitions would change the regulations to specify addressing the effects of fouling on the performance of heat exchanger surfaces. Because existing rules and guidance already require that adequate attention be given to numerous heat exchanger performance criteria, as well as other phenomena, any rule change would be redundant. Licensees would incur minimal additional burden in modifying procedures but <sup>little or</sup> no benefit would occur.

#### Reasons for Denial

The Commission is denying the petition for rulemaking (PRM-50-78). As discussed above in the NRC technical evaluation, existing regulatory requirements (e.g., 10 CFR 50.65, Appendix A and B to Part 50, and plant technical specifications), require licensees to monitor and to perform preventive and corrective maintenance to ensure that all safety-related structures, systems or components are capable of fulfilling their intended functions. Generic Letter 89-13 recommended initiation of test programs to verify heat transfer capability of all heat-exchangers, and implementation of these programs is monitored closely by the NRC. The

NOTATION VOTE

RESPONSE SHEET

TO: Annette Vietti-Cook, Secretary

FROM: COMMISSIONER MCGAFFIGAN

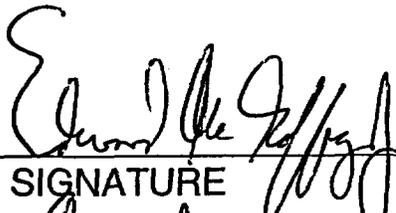
SUBJECT: **SECY-04-0138 - DENIAL OF A PETITION FOR RULEMAKING TO REVISE 10 CFR PART 50 AND ASSOCIATED GUIDANCE TO SPECIFICALLY ADDRESS THE IMPACT OF FOULING ON THE PERFORMANCE OF ALL HEAT EXCHANGE SURFACES IN A NUCLEAR POWER PLANT (PRM-50-78)**

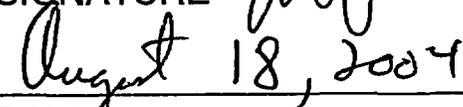
Approved  Disapproved \_\_\_\_\_ Abstain \_\_\_\_\_

Not Participating \_\_\_\_\_

COMMENTS:

Approved subject to the revisions and edits proposed by Commissioner Merrifield and Chairman Diaz.

  
\_\_\_\_\_  
SIGNATURE

  
\_\_\_\_\_  
DATE

Entered on "STARS" Yes  No \_\_\_\_\_

NOTATION VOTE

RESPONSE SHEET

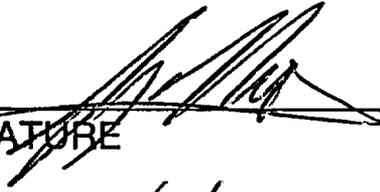
TO: Annette Vietti-Cook, Secretary  
FROM: COMMISSIONER MERRIFIELD  
SUBJECT: **SECY-04-0138 - DENIAL OF A PETITION FOR  
RULEMAKING TO REVISE 10 CFR PART 50 AND  
ASSOCIATED GUIDANCE TO SPECIFICALLY  
ADDRESS THE IMPACT OF FOULING ON THE  
PERFORMANCE OF ALL HEAT EXCHANGE  
SURFACES IN A NUCLEAR POWER PLANT (PRM-50-  
78)**

Approved  Disapproved  Abstain

Not Participating

COMMENTS:

*Approved subject to the attached edits to the  
Federal Register Notice and letter.*

  
\_\_\_\_\_  
SIGNATURE

*8/16/04*  
\_\_\_\_\_  
DATE

Entered on "STARS" Yes  No

Assurance Program Requirements (Operation).” The NRC routinely performs inspections of licensees’ programs for implementing the required procedures.

- Generic Letter (GL) 89-13, “Service Water System Problems Affecting Safety-Related Equipment,” July 18, 1989, recommended that licensees initiate test programs to verify heat transfer capability of all safety-related heat exchangers cooled by service water and routine inspection and maintenance programs to ensure serviceability of safety-related systems supplied by service water. Generic Letter 89-13 specifies that a continuing program for periodic retesting should address the effects of fouling, and licensees monitor parameters such as coolant flow, temperature, and pressure indicative of acceptable heat exchanger performance.
- The NRC oversees the licensees’ testing and maintenance programs via the inspection and assessment procedures included in the reactor oversight process. The NRC inspection procedure IP 71111.07, “Heat Sink Performance,” defines the current sampling and review process for NRC inspectors assessing licensees’ programs for the testing and maintenance of safety-significant heat exchangers.
- Standard Review Plan (SRP) 4.2 <sup>also</sup> describes the NRC review of thermal margins, effects of corrosion products, and hydraulic loads. This review also addresses postulated fuel failure resulting from overheating of fuel cladding.
- SRP 4.2 <sup>also</sup> describes the NRC review of licensee fuel design analyses to ensure that dimensional changes due to thermal or irradiation effects (such as fuel rod bowing or growth) are addressed.

Thus, the NRC ~~does not~~ believe<sup>of</sup> that additional regulations are <sup>not</sup> needed to address the impact of fouling on the performance of heat exchange surfaces throughout licensed nuclear power plants.

2. Fouling of heat exchange surfaces in reactors has the potential to cause significant safety problems.

The NRC acknowledges that, left undetected, excessive fouling of key heat exchange surfaces, or other problems that challenge the safety function of those heat exchangers, could represent a significant safety problem. The classification of the important heat exchangers as safety-related equipment, and the resultant requirements associated with their design and maintenance, demonstrates their importance. The NRC determined, for example, that the clogging of service water heat exchangers could have caused safety significant problems in the past and as a result issued several generic communications culminating in Generic Letter 89-13, "Service Water System Problems Affecting Safety-Related Equipment," July 18, 1989. The NRC believes that the current regulatory requirements for the testing and maintenance of heat exchangers (as described in GL 89-13 along with recommendations for meeting the requirements), are adequate to identify and correct potential safety significant problems in safety-related heat exchangers. Consequently, the NRC has determined that no new regulations are required to address this issue. The NRC will continue to monitor the implementation of GL 89-13 and will, ~~as it has in the past,~~ <sup>appropriate</sup> take actions if adverse trends are observed.

3. NRC regulations must require publically available reporting on the performance of heat exchange surfaces, including records of mechanical degradation of heat transfer assemblies, and cleaning procedures and their effectiveness.

The NRC <sup>believes</sup> does not agree <sup>of</sup> that it is <sup>not</sup> either necessary or useful <sup>to</sup> to report the routine operational matters involving heat exchanger degradation and cleaning which the petitioner proposes. The NRC is interested in system performance degradation when the situation might lead to a loss of safety function and regulations requiring such reporting already exist. 10 CFR 50.72, "Immediate notification requirements for operating nuclear power reactors," and 10 CFR 50.73, "Licensee event report system," require licensees to report on performance of any safety system in the primary or secondary sides of reactors if an event occurs that might compromise safe operating conditions, such as a deviation from plant technical specifications pertaining to residual heat removal systems.

Specifically, section 50.72(b)(3)(ii) requires reporting to the NRC within eight hours any event or condition that results in: (1) the condition of the nuclear power plant, including its principal safety barriers, being seriously degraded, or (2) the <sup>nuclear power</sup> plant being in an unanalyzed condition that significantly degrades plant safety. In addition, section 50.72(b)(3)(v) requires eight hour reporting of any event or condition that <sup>at the time of discovery</sup> could have prevented fulfillment of the safety function of structures or systems needed to: (1) shutdown the reactor and maintain it in a safe shutdown condition, (2) remove residual heat, (3) control the release of radioactive material, and (4) mitigate the consequences of an accident. Section 50.73 (a)(2)(i)(B) requires submittal of a Licensee Event Report (LER) within sixty days regarding any operation or condition prohibited by the plants' Technical Specifications, such as failure of a covered heat exchanger, and 50.73(a)(2)(ii)(A) requires an LER for any event or condition that resulted in the condition of the

nuclear power plant, including its principal safety barriers, being seriously degraded. The NRC believes that existing reporting requirements adequately address degradation of performance of heat exchange surfaces in nuclear power plants.

4. NRC regulations must address the need for investigating the grossly off-normal performance of heat exchange equipment in NPPs.

The NRC ~~disagrees with the petitioner.~~ <sup>believes that</sup> The existing structure of regulations, technical specifications, reporting requirements, and licensee programs subject to NRC inspection provides the necessary confidence that plant safety systems, including heat exchangers, are properly designed and maintained. A discussion of the existing structure of requirements and programs is provided in the NRC response to the petitioner's first request. An additional regulatory requirement related directly to the need for investigating the degradation of heat exchange equipment and to take those actions necessary to ensure that the performance of the equipment will support its safety function is provided by, Criterion XVI, "Corrective Action," of Appendix B to 10 CFR Part 50. This regulation requires that conditions <sup>d</sup>verse to quality, such as a significant degradation of a heat exchanger that is important to safety, be promptly identified and corrected. The NRC ensures compliance with these requirements by routinely performing inspections of licensees' programs for identifying and correcting problems.

5. Severe fouling of nuclear fuel elements leads to axial growth of the fuel rods beyond design limits as the operating temperature of the fuel rods becomes greater than allowed for in design. This would cause fuel rods to bow and contact adjacent rods and control rod guide tubes, interfering with coolant flow.

*believes that*  
The NRC ~~disagrees with the petitioner.~~ Both pressurized water reactor (PWR) and boiling water reactor (BWR) fuel bundle designs provide ample space for fuel pins to expand in the axial direction. A PWR fuel pin is neither supported at the bottom nor at the top; instead, spacers are used to hold the fuel pins together. Designed space both at the bottom and at the top of fuel bundles permits fuel pins to expand thermally without touching any other structures. A BWR fuel bundle is normally seated at the bottom and there is no restriction to prevent thermal expansion into the upper plenum. Expansion springs are sometimes used between fuel pins to allow nonuniform axial expansion within a fuel bundle. For these reasons, the NRC considers it unlikely that a fuel pin will bow due to axial thermal expansion. SRP 4.2 requires the NRC to review licensee fuel design analysis to confirm that dimensional changes due to thermal or irradiation effects such as fuel pin bowing or axial growth are adequately addressed.

6. Fouling of heat-transfer surfaces is generally not adequately considered in the licensing and compliance inspections of NPPs.

*believes that*  
The NRC ~~disagrees with the petitioner.~~ The effects of fouling of heat transfer surfaces are adequately addressed in the following NRC licensing and compliance inspection program elements:

- The* *conducts an*  
• ~~A NRC license review includes~~ extensive NRC review of the licensee's design of key safety systems, structures, and components, including heat exchangers in the primary and secondary sides of a plant. NRC staff analyses of all key safety systems, including heat exchangers, are performed during development of NRC safety evaluation reports (SERs) pertaining to a license application. As previously discussed, various regulatory requirements such as 10 CFR 50.65, Appendix B to Part 50, and plant technical specifications require that licensees

maintain, test and restore equipment such that the safety functions are maintained consistent with the licensing of the plant. These processes are subject to NRC inspection to ensure that the requirements are met.

- ~~Compliance~~<sup>Inspection</sup> inspections of safety systems, structures, and components, including safety-significant heat exchangers, are designed to determine compliance with Appendix A to Part 50, "General Design Criteria for Nuclear Power Plants." Specifically, in the Reactor Oversight Program, Inspection Procedure 71111.07, "Heat Sink Performance," requires that a sample of safety significant heat exchangers (e.g., for the residual heat removal, component cooling water, emergency core cooling systems) be inspected both annually for specific performance issues and biennially for an intense review of heat transfer characteristics.

7. The NRC must require by rule the inclusion of fouling considerations in NRC-funded heat transfer test programs and in the several heat exchanger computer programs produced by the NRC.

The NRC ~~does not~~<sup>do not</sup> believe<sup>5</sup> that these requirements<sup>5</sup> need to be included by regulation.

- All NRC-funded computer codes used to audit emergency core cooling system (ECCS) performance are capable of considering the impact of fouling on the performance of fuel element surfaces, and these codes have been used for that purpose when warranted.
- Ongoing experimental and analytical test programs (e.g., Argonne National Laboratory study on fuel cladding performance) in the NRC Office of Nuclear

Regulatory Research (RES) are investigating transient and operational oxidation models, including effects of significant pre-oxidation.

- Calculations were performed by RES to support the evaluation of this petition using NRC computer codes. These calculations showed that fouling and excess pre-oxidation would not have a significant effect on reflood heat transfer capability.
- The NRC fuel performance code FRAPCON-3 can calculate enhanced oxidation from crud buildup on fuel element surfaces.
- The RELAP and TRACE codes use the FRAPCON information to calculate transient effects.

The NRC has evaluated the advantages and disadvantages of the rulemaking requested by the petitioner with respect to the four performance goals of the Commission.

1. Maintaining Safety: The NRC believes that the requested rulemaking would not make a significant contribution to maintaining safety because current regulations, and regulatory guidance already address the effects of fouling of heat exchanger surfaces in NPPs. <sup>In addition,</sup> ~~No data~~ or evidence was provided by the petitioner to suggest that fouling of heat exchanger surfaces created any significant safety problems. Existing regulations, guidance, and practices <sup>already</sup> provide for monitoring, detecting and correcting possible fouling effects on heat exchanger performance ~~before any significant safety problems can occur.~~ <sup>the NRC believes</sup> Thus, there would be no safety benefit from changing the regulations.

2. Enhancing Public Confidence: The proposed revisions would not enhance public confidence. Current regulations and guidance already address the effects of fouling on the performance of heat exchanger surfaces. The petitioner's request would require that

substantial, additional consideration be given to the effect of fouling on the performance of heat exchanger surfaces throughout the nuclear <sup>power</sup> plant. The NRC does not believe that <sup>taking such an</sup> unnecessary and costly regulatory action to address a non-safety-significant issue would <sup>not</sup> enhance public confidence in the safety of nuclear power.

3. Improving Efficiency and Effectiveness: <sup>and Realism</sup> The proposed revisions would <sup>no improve,</sup> decrease efficiency and effectiveness <sup>and realism</sup> because licensees and the NRC would be required to generate additional

<sup>unnecessary</sup> information as part of the evaluation of numerous heat exchanger surfaces throughout the nuclear <sup>power</sup> plant. Revising the regulations to be more specific about effects of fouling on heat exchanger performance would require an expenditure of NRC resources. <sup>with added</sup> Because <sup>no safety</sup> value <sup>benefit and is unnecessary.</sup> would be added, this regulatory action would not improve NRC efficiency or effectiveness.

4. Reducing Unnecessary Regulatory Burden: Rulemaking in response to these petitions would change the regulations to specify addressing the effects of fouling on the performance of heat exchanger surfaces. Because existing rules and guidance already require that adequate attention be given to numerous heat exchanger performance criteria, as well as other phenomena, any rule change would be redundant. <sup>and is unnecessary.</sup> Licensees would incur minimal additional <sup>burden in modifying procedures but no benefit would occur.</sup>

#### Reasons for Denial

The Commission is denying the petition for rulemaking (PRM-50-78). As discussed above in the NRC technical evaluation, existing regulatory requirements (e.g., 10 CFR 50.65, Appendix A and B to Part 50, and plant technical specifications), require licensees to monitor and to perform preventive and corrective maintenance to ensure that all safety-related structures, systems or components are capable of fulfilling their intended functions. Generic Letter 89-13 recommended initiation of test programs to verify heat transfer capability of all heat-exchangers, and implementation of these programs is monitored closely by the NRC. The

Standard Review Plan specifies numerous tests, inspections, and surveillance plans to monitor heat exchanger performance.

The NRC has determined that none of the four performance goals of the Commission were met by any regulatory changes suggested by the petitioner.

*The* <sup>regulation and</sup> NRC oversight of nuclear power plants includes the establishment of regulations, the issuance of operating licenses and technical specifications, and continual inspections and technical reviews of licensee programs and plant performance. When viewed in total, these regulatory requirements and related oversight practices provide confidence in the safety of operating nuclear power plants. The NRC's finding that no rulemaking is required, ~~even though no~~ <sup>(i.e., 10 CFR 50.65, Appendix A and B to Part 50)</sup> ~~specific regulation explicitly addresses the performance of heat exchangers,~~ is based on the determination that the existing structure of regulations, technical specifications, and licensee programs subject to NRC inspection provides confidence that plant safety features, including heat exchangers, are properly designed and maintained <sup>in order to fulfill their intended function.</sup>

<sup>Commission concludes that the</sup> The integration of the various requirements and related NRC oversight functions provide reasonable assurance that systems important to safety, such as heat exchangers, will perform their intended functions. The addition of specific requirements to a regulation to address heat exchanger performance is not necessary.



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

Mr. Robert H. Leyse  
P.O. Box 2850  
Sun Valley, ID 83353

Dear Mr. Leyse:

I am responding to your letter of September 2, 2002, which submitted a petition for rulemaking (PRM) to amend regulations and guidance documents pertaining to the performance of heat transfer surfaces in nuclear power plants (NPPs).

Your letter contended that existing regulations, guidance documents, test procedures, computer codes, and licensing and compliance inspection programs do not adequately address the impact of fouling on the performance of all heat transfer surfaces in NPPs.

The Nuclear Regulatory Commission (NRC) published a notice of receipt of PRM-50-78 on October 31, 2002. Four letters of public comment were received on the petition. Two of the letters were from you and the other two opposed the PRM. The commenters noted that current reporting requirements in 10 CFR 50.72 and 50.73 require reporting of any event or condition that would interfere with a safety function needed to shutdown that plant and maintain it in a safe condition, remove residual heat, control radiological material, or mitigate accident consequences. The commenters also noted that these same concerns had been addressed by industry in opposition to two prior PRMs from you: PRM-50-73 and PRM-50-73A. The commenters stated that this new petition (PRM-50-78) provided no additional basis for revising any NRC regulations.

The Commission is denying your petition for rulemaking, (PRM-50-78) for the following reasons.

The petition provided no evidence, and the <sup>NRC did identify</sup> staff could not find any data or reports, to indicate that fouling of safety-significant heat exchanger surfaces had degraded performance to the extent that a significant safety problem existed.

The NRC regulation and oversight of <sup>NPPs</sup> nuclear power plants includes the establishment of regulations, the issuance of operating licenses and technical specifications, and continuous <sup>at</sup> inspections and technical reviews of licensee programs and plant performance. When viewed in total, <sup>the</sup> this regulatory program provides confidence in the safety of operating nuclear power plants. The NRC staff's finding that no rulemaking is required, even though no specific <sup>at</sup> regulation explicitly addresses the performance of heat exchangers, is based on the determination that the existing structure of regulations, technical specifications, and licensee programs subject to NRC inspection provides confidence that plant safety features, including heat exchangers, are properly designed and maintained, <sup>in order to fulfill their intended function.</sup>

*requirements and related oversight practices*