[7590-01-P]

NUCLEAR REGULATORY COMMISSION

10 CFR Part 50

[Docket No. PRM-50-73]

Robert H. Leyse; Receipt of Petition for Rulemaking

AGENCY: Nuclear Regulatory Commission.

ACTION: Petition for rulemaking; notice of receipt.

SUMMARY: The Nuclear Regulatory Commission (NRC) is publishing for public comment a notice of receipt of a petition for rulemaking, dated September 4, 2001, which was filed with the Commission by Robert H. Leyse. The petition was docketed by the NRC on September 4, 2001, and has been assigned Docket No. PRM-50-73. The petitioner requests that the NRC amend its regulations on the acceptance criteria for emergency core cooling systems for light-water nuclear power reactors to address the impact of crud on cooling capability during a fast-moving, large-break, loss-of-coolant accident (LOCA).

DATE: Submit comments by (75 days after publication in the Federal Register). Comments received after this date will be considered if it is practical to do so, but the Commission is able to assure consideration only for comments received on or before this date.

ADDRESSES: Submit written comments to the Secretary of the Commission, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, Attention: Rulemakings and Adjudications Staff. Deliver comments to: 11555 Rockville Pike, Rockville, Maryland, between 7:30 a.m. and 4:15 p.m. Federal workdays.

For a copy of the petition, write to Michael T. Lesar, Chief, Rules and Directives Branch, Division of Administrative Services, Office of Administration, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001.

You may also provide comments via the NRC's interactive rulemaking website at http://ruleforum.llnl.gov. This site provides the capability to upload comments as files (any format), if your web browser supports that function. For information about the interactive rulemaking website, contact Ms. Carol Gallagher, 301-415-5905 (e-mail: cag@nrc.gov).

The petition and copies of comments received may be inspected and copied for a fee at the NRC Public Document Room,11555 Rockville Pike, Public File Area O1F21, Rockville, Maryland. Copies of comments received are also available through the NRC's Agencywide Documents Access and Management System (ADAMS), which provides text and image files of NRC's public documents. These documents may be accessed through the NRC's Public Electronic Reading Room on the Internet at http://www.nrc.gov/NRC/ADAMS/index.html. If you do not have access to ADAMS or if there are problems in accessing the documents located in ADAMS contact the NRC Public Document Room (PDR) Reference staff at 1-800-397-4209, 301-415-4737or by email to pdr@nrc.gov.

FOR FURTHER INFORMATION CONTACT: Michael T. Lesar, Chief, Rules and Directives Branch, Division of Administrative Services, Office of Administration, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, Telephone: 301-415-7163 or Toll Free: 800-368-5642.

SUPPLEMENTARY INFORMATION:

## The Petitioners Request

The petitioner requests that the NRC amend § 50.46(a)(1)(i) and Appendix K to Part 50 to address the impact of crud on cooling capability during a fast-moving (large-break), LOCA.

## Background

The petitioner states that § 50.46 and Appendix K to Part 50 do not address the impact of crud on coolability during a fast-moving (large-break) LOCA. The petitioner states that a certain licensed power reactor has operated with unusually heavy crud deposits on many of the fuel pins. These crud deposits were identified and partially classified during a refueling outage. The petitioner states that if a fast-moving (large-break) LOCA had occurred before the shutdown for refueling, extensive blockage of the flow channels within the fuel bundles would have developed. The petitioner further states that, during blowdown, the redistribution of crud into any or all of the several restricted channels would result in the substantial flow blockage. The petitioner states that these restricted flow channels include at least the following items within the fuel bundles: the spacer grids, the mixing vanes attached to spacer grids, and the regions of ballooned and burst fuel cladding. The petitioner states that the consequent degradation of coolability would have resulted in a rapid deterioration of defense in depth. Under these conditions, the unusually heavy crud deposits on the fuel pins would have threatened the integrity of all of the barriers that in total comprise defense in depth.

The petitioner believes that it could be argued that significant crud deposits would lead to an extensive amount of fuel failure during operation at [full] power. The petitioner believes that the amount of failed fuel would then lead to a decision to shut down the reactor as the inventory of radioactive materiel in the reactor coolant reached the limits that are allowed by

the Technical Specifications. According to the petitioner, operating experience reveals that it is possible to operate a light-water reactor within the applicable Technical Specifications even though unusually heavy crud deposits are present on the fuel pins.

## The Petitioner's Conclusions

The petitioner believes that the deficiencies in Part 50 must be corrected to retain defense in depth. Accordingly, elements in § 50.46 concerning comparisons to applicable experimental data must be revised to include the impact of crud on deposits on fuel pins.

Also, the following paragraphs in Appendix K to Part 50, should be revised to include the impact of crud deposits on fuel pins:

I.B. Swelling and Rupture of the Cladding and Fuel Rod Thermal Parameters;

I.C.2 Frictional Pressure Drops;

I.C.4 Critical Heat Flux;

I.C.5 Post-CHF Heat Transfer Correlations;

I.C.7 Core Flow Distribution During Blowdown;

I.D.3 Calculation of Reflood Rate for Pressurized Water Reactors;

I.D.6 Convective Heat Transfer Coefficients for Boiling Water Reactor Fuel Rods Under Spray Cooling; and

I.D.7 The Boiling-Water Reactor Channel Box Under Spray Cooling.

II.1.a The documentation requirements in this paragraph should include a description of each evaluation model used for estimation of the effects of crud deposits on fuel pins.

Dated at Rockville, Maryland, this 5th day of October 2001.

For the Nuclear Regulatory Commission.

**/RA/**

Annette L. Vietti-Cook,
Secretary of the Commission.