

## Letters to the Editor

### Comment on a Paper Discussing Hot-Channel Factors

Reference is made to a recent paper by Judge and Bohl<sup>1</sup> discussing hot-channel factors for "flat" power reactors. As pointed out by Nelson and Minkler,<sup>2</sup> the calculation of the nonfailure probability of a core must take into account each channel, whether "hot" or not, of the core. Therefore, the effect of power flattening on confidence level should not be evaluated by comparison of a "flat" core with the one hot channel of a "peaked" core having the same total output, but, rather, with all the channels of this latter core. This is because<sup>3</sup> the design limit may be reached in a channel which, according to the reference design, is not the hottest, with the nominal hot channel still operating below this limit. Accounting for this should lead to a reduction of the penalty attached to power flattening.

Similar considerations apply to hot-spot calculations; however, the number of "spots" being infinite, a practical

definition of the spot<sup>4</sup> must be related to the specific mode of failure one wishes to guard against.

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<sup>4</sup>H. M. GUÉRON, "The Treatment of Uncertainties in the Thermal Design of Nuclear Reactors," PhD Thesis, Dept. of Nuclear Engineering, Massachusetts Institute of Technology (1966).

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The point is correct and a quantitative assessment for a specific real case (a reactor with a cosine power shape) is presented in a Technical Note recently submitted to *Nuclear Science and Engineering* for publication.

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<sup>1</sup>F. D. JUDGE and L. S. BOHL, *Nucl. Sci. Eng.*, **28**, 296 (1967).

<sup>2</sup>A. C. NELSON, Jr. and W. S. MINKLER, *Nucl. Sci. Eng.*, **19**, 101 (1963).

<sup>3</sup>H. M. GUÉRON and H. FENECH, *Trans. Am. Nucl. Soc.*, **9**, 563 (1966).