

of fusion power is given. Due to the condition of the world's fossil fuel supplies, the papers on hydrogen production using a fusion source by L. A. Booth et al. and synfuels production from fusion reactors by J. A. Fillo et al. are very timely. Also, since many people feel that the steam cycle may not be the best method of energy conversion, the article "Direct Energy Conversion Systems" by G. H. Miley is worthy of note.

All in all *The Technology of Controlled Nuclear Fusion* is an excellent text. It is specifically valuable in clarifying this complex technology and in pinpointing areas in which research is needed.

*M. A. Prelas (PhD, nuclear engineering, University of Illinois, 1979) is an assistant professor of nuclear engineering at the University of Missouri-Columbia (UMC). He joined the UMC faculty after completing his PhD on a direct energy conversion technique (nuclear-pumped lasers). His research interests are in the areas of direct energy conversion, gaseous electronics, and plasma engineering.*

**Proliferation, Plutonium and Policy/Institutional and Technological Impediments to Nuclear Weapons Propagation**

*Author* Alexander DeVolpi  
*Publisher* Pergamon Press Incorporated, Maxwell House, Fairview Park, Elmsford, New York (1979)  
*Pages* 359  
*Price* \$39.50  
*Reviewer* C. Heising-Goodman

DeVolpi has performed a detailed analysis of the use of denatured plutonium in the light water reactor fuel cycle

as a technical means of reducing the safeguards and proliferation risk associated with the conventional fuel cycle. Although the book is printed using computer typesetting, making it difficult to read, the material itself is presented in a fashion that facilitates the reader's understanding of both the technical aspects of the plutonium denaturing scheme and the political-social motivations for its introduction. Although himself not an advocate of the Carter Administration's anti-reprocessing/breeder policy, which is based on a fear of weapons proliferation, DeVolpi adopts the perspective of the technologist faced with regulatory design basis requirements that must be met through the design process. DeVolpi presents a convincing argument for the legitimacy of the denatured plutonium technical fix, performing many calculations of critical mass size required, heat and temperature effects of the <sup>238</sup>Pu additive, and the effects on the likely yield expected from crude devices that, in projected experiment, might be constructed with the denatured plutonium. The book should be of interest to nuclear technologists in the fuel cycle area, safeguards-nuclear materials management, nuclear chemical engineering, and military-related applications. It should also provide food for thought for political scientists and others involved in the policy-making surrounding safeguarding the nuclear fuel cycle.

*Carolyn D. Heising-Goodman received her BS degree (1974) in applied physics from the University of California at San Diego, and her MS (1975) and PhD (1978) degrees in nuclear engineering from the Department of Mechanical Engineering at Stanford University. She also holds a PhD minor in operations research from Stanford University. Currently, she is an assistant professor of nuclear engineering at Massachusetts Institute of Technology in the areas of reliability and nuclear safety analysis. She is working on contract to the Nuclear Safety Analysis Center with Professor Norman C. Rasmussen on class IX accident mitigation system analysis and methods for resolution of generic nuclear safety issues.*