NRC REPORT TO CONGRESS ON THE STATUS OF DOMESTIC AND INTERNATIONAL EVALUATIONS OF NUCLEAR REACTOR AND FUEL CYCLE SYSTEMS

April 1980

Semi-Annual Report to Congress on

Alternative Reactors and Fuel Cycles

Congress, in its authorizing appropriations legislation for NRC for Fiscal Year 1979 (P.L. 95-601), directed the Commission to: "...report to the Congress semi-annually through calendar year 1980 and annually through calendar year 1982 on the status of domestic and international evaluations of nuclear fuel cycle systems." NRC's first semi-annual report, covering events through June 30, 1979, was provided to Congress on December 3, 1979.

Since June 30, 1979, only a few significant events have occurred that bear on NRC's responsibilities related to alternative nuclear fuel cycle systems. These events are described below.

NASAP

During the fall of 1979, DOE published a draft final report of the Nonproliferation Alternative Systems Assessment Program (NASAP). The NASAP final report contains an Executive Summary plus nine separately bound volumes. The report covers the following subject areas: Proliferation Resistance, Resources and Fuel Cycle Facilities, Commercial Potential, Economics and Systems Analysis, Safety and Environmental Considerations for Licensing, International Perspective, Advanced Concepts, and Reactor and Fuel Cycle Descriptions.

The draft final* NASAP findings and conclusions of particular interest to NRC are:

- None of the alternative fuel cycles examined is inherently more proliferation-resistant than the once-through light water reactor (LWR) cycle.
- The fuel efficiency of LWR's can and should be improved.
- LMFBR research should be continued, but at a limited pace because breeder reactors will not be needed nor will they be commercially viable until the year 2010 or later.

These findings do not appear to justify a major NRC effort on alternative reactors and fuel cycles, nor any other activity within NRC's purview. DOE asked NRC (as well as other Government agencies, industry, and the general public) to comment on the draft final report by February 15, 1980. NRC provided comments, mainly of a technical nature, on Volumes I, II, and VI of the report. The final version of the NASAP report has not yet been published.

INFCE

The eight working group reports of the International Nuclear Fuel Cycle Evaluation (INFCE), and the summary and overview reports of the INFCE Technical Coordinating Committee, were submitted to the final INFCE Plenary Conference late in February 1980. The reports were presented to the Plenary Conference

* "Draft final" is terminology used by DOE to distinguish this report from preliminary NASAP reports.

without separate or dissenting views and, as consensus documents, were required to accommodate a wide range of assumptions and judgments from the 66 contributing countries. The Plenary Conference received the reports and submitted them to the governments of participating countries for their consideration in developing their nuclear energy policies and in future international discussions concerning nuclear energy cooperation and related controls and safeguards.

The reports consist largely of generalized findings and broadly-structured problem definition. They do not recommend one fuel cycle over another on the basis of nonproliferation superiority, although they also do not contradict the NASAP finding that no alternative fuel cycle appears more proliferation-resistant than the once-through LWR cycle. The reports do not provide NRC with data or conclusions which would guide U.S. advanced reactor licensing activity.

Budget

The first semi-annual report to Congress states that in Fiscal Year 1979, NRC was sponsoring $14 million in fast breeder reactor safety research and $3 million in advanced converter reactor safety research. In Fiscal Year 1980, however, the Administration asked Congress to terminate NRC's advanced converter efforts. NRC had intended to continue with all of the reactor safety research programs in 1981, but the OMB has called for their termination in the President's Fiscal Year 1981 budget. OMB has also called for the termination of DOE's advanced converter program and a massive cutback in the DOE breeder efforts.

Except for its funding for advanced reactor research, NRC has been able to provide only very limited resources for the review and evaluation of alternative fuel cycles, primarily because of higher priority requirements such as TMI related activity. This situation will continue for the foreseeable future.

Recommendation

Since NASAP and INFCE have not identified any alternative fuel cycle systems that are more proliferation resistant than the LWR, and since NRC is experiencing severe budgeting constraints with regard to advanced reactor activities, the Commission hereby recommends that Congress relieve the NRC of the (P.L. 95-601) responsibility of providing further semi-annual or annual reports in this series. If such relief were granted, however, the NRC would stand ready to promptly inform the Congress of any significant development in this area.