

DATA HANDLING AT EBR-II FOR ADVANCED  
DIAGNOSTICS AND CONTROL WORK

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## ABSTRACT

Improved control and diagnostics systems are being developed for nuclear and other applications. The Experimental Breeder Reactor II (EBR-II) Division of Argonne National Laboratory has embarked on a project to upgrade the EBR-II control and data handling systems. The nature of the work at EBR-II requires that reactor plant data be readily available for experimenters, and that the plant control systems be flexible to accommodate testing and development needs. In addition, operational concerns require that improved operator interfaces and computerized diagnostics be included in the reactor plant control system. The EBR-II systems have been upgraded to incorporate new data handling computers, new digital plant process controllers, and new displays and diagnostics are being developed and tested for permanent use. In addition, improved engineering surveillance will be possible with the new systems.

## INTRODUCTION

Since 1964 the Experimental Breeder Reactor II (EBR-II) has served as a facility for the development and testing of new concepts ranging from fuels and materials irradiations, safety tests, operational strategies development, through improved plant control, diagnostics and toward full plant automation. At the same time, the EBR-II is a full power plant system rated at 20 Mwe (62.5 Mwt) with an operating plant capacity factor of over 70% for the past 10 years. The facility has been upgraded continuously in order to accommodate the many experimenters who use the facility.

The experimental load at EBR-II has required special plant data handling capability with enough flexibility to provide data for numerous types of experiments. The plant Data Acquisition System (DAS) allows flexible usage for streaming real-time data as well as for archival purposes. Recently, the DAS computer has been replaced and an additional network of computers installed which have permitted significant work to be done in the area of plant monitoring for engineering surveillance and for operator use. Concurrently, digital controllers have been phased into operation.