Report
on
LIGHT WATER NUCLEAR REACTORS

I. INTRODUCTION

There are approximately five hundred nuclear power plants in operation or under construction worldwide. These plants can produce as much as 370,000 megawatts of electricity. These nuclear power plants can be categorized into four types: (1) light water reactors, (2) heavy water reactors, (2) gas- cooled reactors, and (4) breeder reactors. Basically, a nuclear power reactor operates by having a central unit, called the core, in which nuclear fission reactions take place and produce heat. A liquid, called the coolant, flows through the system and absorbs the heat produced in the core. The liquid is then converted intosteam that drives a turbogenerator to produce electricity.

The purpose of this report is to present the basic design, operation, and safety measures of light water reactors to city council members. City councils are currently investigating the possibility of membership in a regional consortium as an alternative to increased coal-fired production of electricity. This report will explain how the two types of light water reactors, the design to be used by the consortium, operate and present the key safety and economic aspects of these reactors. Although the operations of nuclear power reactors does involve complex chemistry and physics, these aspects of the discussion have been avoided; only an