# ABSTRACT



This thesis presents the development and design of an expert system for boiler operation and analysis in Mae Moh lignite power plant. In power plant boiler operation, operating cost is in general very high. There are many possibilities for making decisions while operating and these might not always be optimal. Many problems need to be solved at the same time, and it's difficult to do by manual. This often leads to unsound control which causes big losses as it has been the case for several times. After installing the expert system, it can be used for analysis and calculation of boiler performances in order to find comprehensive operation guidance immediately, the operation will be easy, more safe and with a higher efficiency. The expert system was developed by using the Visual C++ 6.0 program, which can run on Windows 98 or later versions. This expert system can helps operators to reduce operating cost at least 1.92 million Baht per year per unit or 11.5 million Baht per year for 6 units at 80% period of each year. An expert system architecture is composed of seven parts such as working memory, knowledge base, a knowledge acquisition module, a knowledge query module, an inference engine, an user interface unit and explaination module. The expert system experimental results is 75.83 percent accuracy when compared with human expert diagnosis.