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بسم الله الرحمن الرحيم



شبكة المعلومات الجامعية
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شبكة المعلومات الجامعية التوثيق الالكتروني والميكروفيلم



شبكة المعلومات الجامعية

جامعة عين شمس

التوثيق الالكتروني والميكروفيلم

قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
علي هذه الأفلام قد أعدت دون أية تغييرات



يجب أن

تحفظ هذه الأفلام بعيدا عن الغبار

في درجة حرارة من ١٥-٢٥ مئوية ورطوبة نسبية من ٢٠-٤٠%

To be Kept away from Dust in Dry Cool place of
15-25- c and relative humidity 20-40%

بعض الوثائق الأصلية تالفة

بالرسالة صفحات لم ترد بالاصل

**ENVIRONMENTAL AND MODELLING STUDIES INVOLVING
RADIOACTIVE WASTES DISPOSAL**

A THESIS

SUBMITTED IN PARTIAL FULFILMENT

FOR THE DEGREE OF

MASTER OF SCIENCE

BY

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TO

DEPARTMENT OF PHYSICS SCIENCE

INSTITUTE OF ENVIRONMENTAL

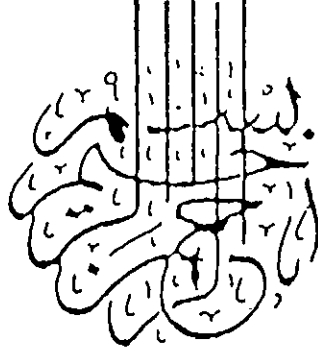
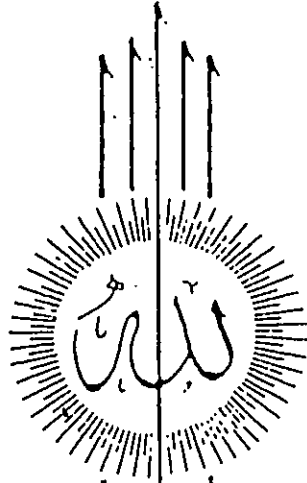
STUDIES AND RESEARCH

AIN SHAMS UNIVERSITY

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قَالُوا سُبْحَانَكَ لَا عِلْمَ لَنَا إِلَّا مَا
عَلَّمْتَنَا إِنَّكَ أَنْتَ الْعَلِيمُ الْحَكِيمُ
سُورَةُ الْأَنْعَامِ - آيَةُ ١٠٢

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CHAPTER I
INTRODUCTION

INTRODUCTION

The demand for energy is continually growing, both in the developed and the developing countries. Traditional sources of energy such as oil and gas will probably be exhausted within a few decades. The new sources, nuclear energy, is the most significant single reliable source available for closing the energy gap.

One of the major issues associated with nuclear power is the long term management of radioactive waste for the protection of man. Radioactive materials that are no longer useful to man become wastes that must be kept isolated from the human environment as long as potentially harmful levels of radioactivity exist. The radioactivity and thus the radiotoxicity of these wastes decay to lower levels with time, at rates depending upon the half-lives of the specific radionuclides and their daughter products. For most radionuclides of importance waste disposal, the half-lives vary from about one year to thousands of years or more. Thus radiation protection of man is needed for long time period, to limit radionuclide release into the human environment to levels that are compatible with requirements of radiation protection.

There are many categories of waste ⁽¹⁾, these may be defined by the concentration, the radioactivity and radiotoxicity levels, the physical form and the half-lives of the radionuclides involved. These wastes may have to be immobilized and packaged in different