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DIAGNOSIS AND PROGNOSIS

OF RESERVOIR

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Synopsis

In Malaysia, reinforced concrete structures started widely constructed in late 1950 after the Second World War and large development programme which followed it, established concrete as major constructional material.

2 million gallon concrete reservoir in ITM Shah Alam which will become case study in this thesis was constructed in 1970 and now it is 26 years old . The use of a relatively new building material inevitably brings problems which were not anticipated initially. Reinforced concrete is no exception and due to the increasing age of the early structures, the need for repair and maintenence is increasing.

While the design of structures varies widely from one country to another, the principles of repair are more universally applicable . Therefore the contents of this thesis is hope will be useful to a very wide range of persons who are responsible for the maintenence of concrete structures of all types.

CHAPTER ONE

INTRODUCTION

1.0 Reinforced concrete structures was introduced at the end of the nineteenth century .Concrete as a general construction material only began to be used on a larger scale after the end of the first world war. The requirements of the second world war and the large development and rebuilding program which followed it, established concrete as the major constructional material .

Like any other materials, concrete is no exception and due to the increasing age, the need for repair prevails. In Malaysia concrete structures defects are becoming major issues today as many structures erected in the last two or three decades have started showing symptoms of deterioration.

1.1 Field of study

The usual reason for repairing concrete reservoirs or other water retaining structures is to remedy leakage. Associated with any form of leakage, particularly when the structure has been in use for some years, is likely to be the corrosion of the reinforcement and the spalling and cracking of the concrete.

It must be realized that in practice, no concrete structure will be that is known as ' bottle tight ' , unless it is lined with a waterproof membrane . In the case of old reservoirs, the argument is sometimes advanced that the cost of the water loss by leakage is small