

**MANAGEMENT PLAN FOR
EFFECTIVE MAINTENANCE OF
PETROLEUM TANKS IN SRI LANKA**

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Degree of Master of Science in Project Management

Department of Building Economics

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DECLARATION

I declare that this is my own work and this thesis/dissertation does not incorporate without acknowledgement any material previously submitted for a Degree or Diploma in any other university or institute of higher learning and to the best of my knowledge belief it does not contain any material previously published or written by another person except where the acknowledgement is made in the text.

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Date

The above candidate has carried out research for the Masters Dissertation under my supervision.

.....
Signature of the supervisor

.....
Date

DEDICATION

Every challenging works need guidance and support of many partnerships specially from those who are very close to our heart. My Humble effort I dedicate to my loving,

Parent

Those affection, love, encouragement and prays of day and night make me able to such success and honor, Along with hardworking and respected

Teachers

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Also, I like to thank the participants in my survey, who have willingly shared their precious time and knowledge during the process of interviewing and questionnaire surveying.

Finally I should express my heartfelt thanks for my family members, friends and my seniors for their support given me.

ABSTRACT

This research "Management Plan for Effective Maintenance of Petroleum Tanks" was focused on refinery tank farm which is the largest oil product store in Sri Lanka. The refinery is operated as a heart of Ceylon Petroleum Corporation (CPC) which carries on business as a main importer, exporter, seller, supplier and distributor of Petroleum products in Sri Lanka.

Storage plays very important role in the refinery so that it directly related to refinery operation an whole business of CPC.

As per the observations, the refinery tank maintenance management system is currently facing many problems leading to ineffectiveness in maintenance management system as whole.

The effort of this research is to address those problems via proposing best fit effective maintenance management system in order to overcome prevailing issues in refinery tank farm and bring the CPC to a profitable way. This research was based on Mix method approach which consists of quantitative and qualitative methods.

In the first phase of this research, it was carried out wide data survey and questionnaire data collection in order to find out prevailing maintenance management issues and barriers within refinery tank farm. Semi structured expert interview was conducted as the second phase of this study base on the findings of first phase. The expert's proposals and opinions were subjected to a detail content analysis in order to develop strategies and solutions for management plan of petroleum tank maintenance. This study revealed that refinery tank maintenance system has faced to a critical management failure in several aspects and it is required to have solution no more later.

Finally, It was proposes a total management solution for those issues. It is strongly believed that the finding of this research will address those issues effectively while achieving the utmost goal of the researcher as well.

Keywords: *Refinery Tank Farm. Tank Maintenance Management System, Issues in Refinery Tank Farm. Mix Method Approach, Quantitative and Qualitative Methods, Questionnaire Data Collection, Expert Interview, Content Analysis, Management Solution.*

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LIST OF ABBREVIATIONS

Abbreviation	Description
API	American Petroleum Institute
ASME	American society of Mechanical Engineers
ASSE	American Society of Safety Engineers
AST	Aboveground storage tanks
BS	British Standards
CBM	Condition Based Maintenance
COT	Crude Oil Tanks
CPC	Ceylon Petroleum Corporation
FMECA	Failure Mode Effects and Criticality Analysis
GPA	Grade Point Average
HRM	Human Resource Management
IEA	International Energy Agency
ISBL	Inside Battery Limit tanks
LHS	Left-Hand Side
LPG	Liquid Petroleum Gas
MSD	Major Shutdown
OMETA	Operations, Maintenance, Engineering, Training, and Administration
OSBL	Outside Battery Limit tanks
OSHA	Occupational Health and Safety Standards
OTF	Orugodawata Tank Farm
PdM	Predictive Maintenance
PIT	Product and Intermediate Storage Tanks
PM	Preventive Maintenance
RCM	Reliability Centered Maintenance
RHS	Right-Hand Side
RM	Reactive Maintenance
SBP	Special Boiling Point
TPM	Total Productive Maintenance
UST	Underground Storage Tanks
UOP	Universal Oil Product