



Maintenance Management of the Municipal Wastewater Treatment Plants in Jordan

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A thesis

**Submitted to faculty of Engineering as a partial fulfillment of the
requirement for Master degree in Engineering Projects Management**

August, 2019

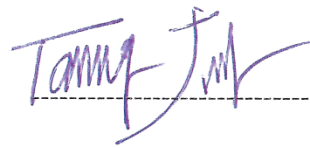
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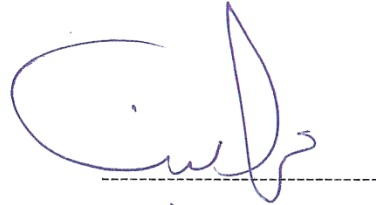
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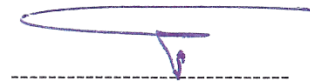
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Dedication

I dedicate this work to my country, IRAQ

I dedicate this thesis to my father and mother, and
to my brothers and sisters.

I dedicate this work, first and foremost, to all the
people who contributed towards the success of this
dissertation.

In addition, I would like to thank Hashemite
Kingdom of Jordan and their people for their help
and for hosting me throughout the duration of my
research.

Acknowledgement

I wish to express my deepest respect and sincere appreciation to my family for its kindness and encouragement throughout my undergraduate and graduate study.

*I would like to express my sincere thanks and deep gratitude to my supervisor, **Dr. Tariq J. Al-Musawi**, for his valuable guidance, constant support, and understanding throughout the present work, encouragement, suggestions, and utmost effort and interest that contributed to the successful completion of this work.*

*Also, special thanks are due to the staff of the Civil Engineering Department at Al Isra University, especially **Dr. Ibrahim A. Mohammed**, for their continual support throughout my research.*

Lastly, I wish to express my thanks to all my colleagues for their support and for giving me the feeling of being a part of a team whenever we worked together.

Ahmed

August 2019

Table of Contents

Committee	Error! Bookmark not defined.
Authorization Form.....	Error! Bookmark not defined.
Dedication.....	iii
Acknowledgement.....	iv
Table of Contents.....	v
Table of Figures	xi
List of Tables.....	xiii
Abstract	xiv
1 CHAPTER ONE: INTRODUCTION.....	1
1.1 Introduction	1
1.2 Maintenance of the WWTP.....	3
1.3 The problem of the study	5
1.4 Hypothesis.....	6
1.5 Objectives.....	6
1.6 Methodology	6
1.7 Thesis structure	7
2 CHAPTER TWO: LITERATURE REVIEW	8
2.1 Definition of Maintenance	8
2.1.1 Maintenance purposes in the WWTP.....	9
2.1.2 Maintenance Strategies	9

2.2	Maintenance Classification	10
2.2.1	Maintenance Classification According To Size	10
2.2.2	Maintenance Classification According To Expenditure Budget.....	11
2.2.3	Breakdown Maintenance Classification.....	11
2.2.4	Planned and unplanned Maintenance classification.....	11
2.2.5	Maintenance Cost.....	13
2.3	Wastewater treatment plant units	14
2.4	Preliminary Treatment process.....	17
2.4.1	Parshall flume.....	17
2.4.2	Screens and pumps	19
2.4.3	Grit Removal:.....	22
2.4.4	Grease separators.....	23
2.4.5	Sulphur Removal:.....	24
2.5	Primary Settling Tank	25
2.6	Biological treatment (Secondary Treatment)	28
2.7	Chlorine Disinfection	30
2.8	Previous studies.....	32
3	CHAPTER THREE: CASE STUDY AND THE MAINTENANCE SYSTEMS.....	39
3.1	The Adopted Methodology	39
3.2	Madaba WWTP Specifications	40
3.3	Summary of Facilities of Madaba WWTT.....	42

3.4	Pre-Treatment Unit.....	46
3.3.1	Inlet Works.....	47
3.3.2	Coarse and Fine Screens	48
3.3.3	Aerated grit and grease removal chambers	49
3.3.4	Septic Waste Receiving Station	51
3.5	Flow Control and Equalization Tank	52
3.6	Influent Pumping Station	52
3.7	Flow Measurement.....	53
3.8	Secondary Treatment	53
3.7.1	Activated sludge treatment method.....	54
3.7.2	The anaerobic zone.....	56
3.7.3	The anoxic zone	57
3.7.4	Secondary Treatment - Return and surplus activated sludge pumping station	59
3.9	Tertiary Treatment.....	59
3.8.1	General	60
3.8.2	MDF filtration	61
3.8.3	Filter media	61
3.8.4	Filter operational control.....	61
3.8.5	Backwashing the MDF.....	62
3.10	Disinfection by chlorination.....	63
3.11	Effluent Delivery Works	63

3.12 Sludge Treatment	64
3.12.1 General	64
3.12.2 Sludge treatment process.....	65
3.12.3 Sludge transfer to thickener.....	65
3.12.4 Sludge thickener	65
3.12.5 Sludge dewatering	65
3.12.6 Sludge drying beds alternative	66
3.12.7 Deodorization System	66
3.13 Organization of maintenance sections.....	68
3.13.1 Centralized Maintenance System	68
3.13.2 Decentralized Maintenance System	69
3.13.3 Combination of Centralized and Decentralized System	69
3.14 Implementation of maintenance	70
3.14.1 Implementation of maintenance by units	70
3.14.2 Implementation of the maintenance by a specialized team:.....	70
3.14.3 Implementation of the maintenance method of contracting.....	70
4 CHAPTER FOUR: RESULTS AND DISCUSSION.....	71
4.1 Data collection.....	71
4.2 Costs of maintenance	72
4.2.1 Screen	72
4.2.2 Pumps in the sand unit	73

4.2.3	Maintenance of scrapper	74
4.2.4	Water mixing turbines in the balancing tank	75
4.2.5	Pumps of aeration tanks	76
4.2.6	Aeration pumps	77
4.2.7	Scraper.....	78
4.2.8	Filters.....	79
4.2.9	Chlorine system.....	79
4.2.10	Irrigation pumps	80
4.3	Method of Replacement	82
4.3.1	Screen	83
4.3.2	Grit Removal Pump.....	83
4.3.3	Mixer	84
4.3.4	Equalization Pump	84
4.3.5	Secondary treatment plant aerators	84
4.3.6	Irrigation Pump	84
4.4	Evaluation of the current system of modern WWTP maintenance management	84
4.4.1	Analysis of the method of programming maintenance work	85
4.4.2	Analysis of maintenance cost and budget	86
4.4.2.1	Mechanical and electrical maintenance costs.....	87
4.4.2.2	Civil maintenance costs.....	88
4.4.2.3	Mechanical maintenance costs for vehicles	89

4.4.2.4	Building maintenance costs.....	90
4.5	Defining the defects of the current system based on the main functions of maintenance management (planning, organization, guidance, control).....	92
4.5.1	Planning.....	92
4.5.2	Organization.....	93
4.5.3	Directing.....	94
4.5.4	Controlling.....	94
4.6	Proposed system for maintenance.....	95
4.6.1	Coding system.....	95
4.6.2	Documentation system.....	97
4.6.3	Inspection and preparation of maintenance works.....	99
4.6.3.1	Routine visual examination.....	99
4.6.3.2	Detailed visual examination.....	102
4.6.3.3	Daily check list unit of wastewater treatment plant.....	104
4.6.4	Organization structure.....	105
5	CHAPTER FIVE: CONCLUSIONS AND RECOMMENDATIONS.....	106
5.1	Conclusions.....	106
5.2	Recommendations.....	107
	References.....	109
	Appendix.....	a

Table of Figures

Figure 1-1:General layout for wastewater treatment plant.....	1
Figure 1-2: A diagram of the conventional WWTP units (Shelmet W.,& Baldwin.(2004))	2
Figure 1-3: The overall view of maintenance (Almohsin.2005)	4
Figure 2-1:Maintenance classification according to size	10
Figure 2-2: Classification of maintenance according to planned and unplanned steps	12
Figure 2-3: Maintenance cost.....	14
Figure 2-4:Generalized flow diagram for municipal wastewater treatment (Nakshabandi, 1997).....	16
Figure 2-5: Schematic diagram of the Parshall flume (Tchobanoglous et al., 2003).....	17
Figure 2-6: A typical coarse screen used widely in the wastewater treatment systems (Haroun and at. Al ,2009).....	19
Figure 2-7: Grit Chamber using aeration process.(parida and. Et. Al,2007)	22
Figure 2-8: Grit and grease removal unit.(Moeller.,1996).....	24
Figure 2-9: Typical sludge flow diagram. (Moller., 1996)	26
Figure 2-10: Typical secondary treatment unit using activated sludge.(Sharon.,1997).....	29
Figure 3-1: The adopted methodology	39
Figure 3-2: A schematic layout of the treatment process (WWTP. Madaba)	41
Figure 3-3: A site plan of Madaba WWTP	42
Figure 3-4: Preliminary treatment unit(WWTPMadaba).	47

Figure 3-5: Secondary treatment unit. (WWTP Madaba).....	54
Figure 3-6: Tertiary treatment unit.....	60
Figure 3-7: Sludge treatment unit.....	64
Figure 3-8: The main parts of the maintenance management systems	67
Figure 4-1: The total costs of the emergency maintenance of screens.....	73
Figure 4-2: The total costs of the maintenance of pump.....	74
Figure 4-3: The total costs of the maintenance of scrapper	75
Figure 4-4: The total costs of the maintenance of turbines	76
Figure 4-5: The total costs of the maintenance of aeration pumps	77
Figure 4-6: The total costs of the maintenance of aeration pumps	78
Figure 4-7: The total costs of the maintenance of scupper	79
Figure 4-8: The total costs of the maintenance of Cl ₂ devise.....	80
Figure 4-9: The total costs of the maintenance of Irrigation pumps	81
Figure 4-10: Mechanical and electrical maintenance of the studied WWTP units.....	88
Figure 4-11: Civil maintenance of the studied WWTP units	89
Figure 4-12: Vehicles maintenance operated in the studied WWTP units	90
Figure 4-13: Buildings maintenance operated in the studied WWTP units.....	91
Figure 4-14: Daily report of activities at different levels of achievement	98
Figure 4-15: Routine visual examination	101
Figure 4-16: Detailed and emergency visual examination model.....	103
Figure 4-17: Represents daily examination of treated unit	104

Figure 4-18: Suggested water treatment plant structure..... 105

List of Tables

Table 2-1: Inspection points that should be implements in the Parshall flume..... 18

Table 2-2: Preventive maintenance schedule(Muchiri and et . al,2010)..... 21

Table 2-3: Maintenance factors of primary sedimentation tank.(Sardana. ,2010)..... 27

Table 2-4: Maintenance Checklist for secondary treatment unit.(Sharon., 1997) 29

Table 2-5: Maintenance Checklist for Chlorination Equipment 30

Table 3-1: Detailed specifications of the Madaba WWTP 43

Table 4-1: Calculation costs of replacement of Pump 1 of grit chamber..... 83

Table 4-2: Percentage costs of the total cost from 2014-2018..... 91

Table 4-3: Details of the coding system required for the proposed maintenance management system..... 96

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Abstract

The present study discussed the maintenance systems applied in the wastewater treatment plants (WWTPs). The Madaba municipal wastewater treatment plant was chosen as a case study. In fact, the municipal wastewater treatment plants should be continuously under maintenance. This is because these types of the infrastructure are costly to run. Therefore, the excellent maintenance steps should be intensively implemented.

The study aims to evaluate the maintenance system adopted by the Madaba WWTP and to suggest a suitable methodology to improve the present condition of the studied WWTP.

The data collection stage majorly focuses majorly on the specification of WWTP, stages of the treatment and the number of units, the current plan of the maintenance, and the cost spent on the maintenance of WWTP facilities. These data were obtained through documented reports, field visits and visual observations, interview with the engineers and laborers.

The results showed that the Madaba WWTP suffers from poor maintenance system for its operation management. Generally, this plant only adopts the routine visual observations for the treatment units and equipment. In addition, the documentation of the maintenance process are not employed. Far from these points, both planned and preventivemaintenance is not conducted. There is no budget set for maintenance of the facilities. It was found that the organizational structure of the Madaba WWTP did not include essential divisions and important units such as accounting and maintenance units inside the plant, where corresponding operations are carried out by the central headquarter of the parent company. Therefore, some maintenance operations have been delayed. Thus, the study recommends: to adopt the routine visual examination, detailed checking, and to approve the samples submitted by this study regarding these two examinations. In addition, all the assets in WWTP should be coded and make inventory of them in order to help control the process of planning, implementation, documentation and control of maintenance work and management. In addition, the study suggests restricting of the WWTP framework as suggested by this study

Keywords: Maintenance; Management; Cost; Wastewater treatment; Replacement.