

**STUDY THE BEST METHOD OF EMERGENCY
RESPONSE PLAN FOR CHLORINE GAS FACILITY
AT INTEGRATED SHRIMP POND AREA**

AINUL AFIFI BIN AZMAN

**This report is submitted in partial fulfillment of the requirements
needed for the award of Bachelor in Chemical Engineering (Hons)**

**FACULTY OF CHEMICAL ENGINEERING
UNIVERSITI TEKNOLOGI MARA
SHAH ALAM**

JULY 2017

ABSTRACT

Chlorine is a type of chemical substance that possessed a hazardous and toxic characteristic. It may affect the human health as well as other living organisms in case were directly in contact with the substance. The effect on human health shall be concern as it will leads to the badly damages the respiratory system. Lung will experience the loss of most it tissues as the chlorine will enhance the degradation process if the sufficient amount of chlorine is inhaled (Sofia Jonasson, 2013). It will lead to the difficulties in breathing and for the worst may lead to fatal. It is therefore importance to prevent and for the best is to avoid the release of these toxic chemical from spreading into the atmosphere that will bring the unfortunate event towards the human races. Plant facilities that may containing the handling and storing a large amount of chlorine needs to be well design and also having an efficient of emergency response plan in case of the release of chlorine cannot be avoided. By having an emergency response plan will at least minimizing the risk of injuries and human exposed on chlorine. In this research, the passed accidental release of chlorine is studied to determine the impacts on environment and human upon released and also the root cause of the disaster also measured to avoid the same mistakes occur in the future. Besides, various emergency responses are studied based on their actions on tackling the emergency situation to be implied on the selected chlorine facility, shrimp pond owned by Isharp Sdn Bhd located in Terengganu.

ACKNOWLEDGEMENT

Firstly, I wish to thank God for giving me the opportunity to embark on my degree and for completing this long and challenging journey successfully. My gratitude and thanks goes to my supervisor Prof Dr. Zulkifli Bin Abdul Rashid. Thank you for the support, patience and ideas in assisting me with the project.

This thesis is dedicated to the loving memory of my dear late father and also my mother for the vision and determination to educate me. This piece of victory is dedicated to both of them. Alhamdulillah.

LIST OF TABLES

AUTHOR’S DECLARATION	ii
SUPERVISOR CERTIFICATION	iii
ABSTRACT	iv
ACKNOWLEDGEMENT	v
TABLE OF CONTENTS	vi
LIST OF TABLES	vii
LIST OF FIGURES	viii
LIST OF SYMBOLS	ix

CHAPTER ONE: INTRODUCTION

1.1	Problem Statement	1
1.2	Scope of Research	1
1.3	Objective of Study	1
1.4	Background Study	2

CHAPTER TWO: REVIEW STUDIES

2.1	Introduction	3
2.2	History of Accidental Chlorine Release	3
2.3	Emergency Response Plan	9
2.4	Literature Review on Response Plan	13
2.5	Summary	43

CHAPTER ONE

INTRODUCTION

1.1 PROBLEM STATEMENT

The emergency response plan is crucial as the action to be taken when the disaster happen. It is therefore important for every chlorine facility to have an effective emergency response plan to encounter emergency situation as an ineffective emergency response plan may lead to unclear flow of actions taken and inaccurate in decision making from emergency response team.

1.2 SCOPE OF RESEARCH

The scope of study is on the action to be taken, the role and responsibilities of personnel in emergency response team and the flow command of effective emergency response plan to encounter the event of accidental chlorine release cause by leakage of pipeline or rupture of the storage chlorine tank.

1.3 OBJECTIVE OF STUDY

- i. To identify the causes chlorine release accident.
- ii. To understand the purpose of emergency response plan and the role of emergency response team.
- iii. To recognize and implant the suitable preventive measures that can be used for the chlorine facilities to prevent the chlorine release accident in future.