CHAPTER I

INTRODUCTION

1.1 Background

Activities in Oil Company like Chevron Pacific Indonesia (CPI) affect the resources and assets of the company. In current condition, the activities in the company are very complex. So it needs an improvement for the performance.

This research explores the application of Vendor-Managed Inventory (VMI) to optimize Work-in-process (WIP) inventory in replenishment activity through Filling. Optimize the filling system can be performed by deciding properly when, how much and where to locate the crude oil.

In reality, the filling applied in the company has caused some delay in several conditions and an inconsistency in fulfill the shipping schedule. The problem occurs because of several reasons. One of the reasons is because of the improper filling decision. The filling activity said to be proper if it can properly determined when, how much and where to locate the crude oil so it will provides the crude oil amount to be loaded which align with the contract with costumers. The improper filling decision is caused by the human habit and the lack of regulation. So, the lack of regulation caused the employee to use their assumptions and experiences in creating a filling schedule. And these techniques furthermore become a habit. The problem indicated when the company has to postponed fulfills the customer demand because of the insufficient amount in the company's storage tank. For example, there was a condition where all tanks cannot provide the crude oil for costumer unless it is being filled before. So, the costumer must wait until the tank had

finished being filled and ready to be loaded. Customer waiting will result in inconsistency of shipping schedule. Because the loading starting time is delayed, the finishing time will delayed as well.

The research objective is to scope down the application of VMI in replenishment activities by developing an algorithm to find the best filling strategy to avoid delay shipment. The best filling strategy will define the proper amount of crude oil and storage tank for filling so the loading can meet the contract or shipping schedule as planned before. The algorithm is being developed using the fundamental concept of VMI, which is the integration of information. So, it is how the integration of the information in form of algorithm, can creates a good Filling strategy for improving the loading performance in CPI. When the algorithm is being applied, it will act as the regulation which finally can eliminates the use of assumptions and experiences in determine how much and where to locate the crude oil.

1.2 Problem Statement

This research will conduct to find the proper strategy for replenishment activity in CPI to avoid delay. The problem statement of the research is:

1) How much is the right amount of crude oil to be filled in order to timely fulfill costumer's order?
2) What is the correct Tank selected to be filled by crude oil in order to timely fulfill costumer's order?
3) When to fill the crude oil into the chosen tank in order to timely fulfill costumer's order?

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1.3 Objectives of the research

This research will be done by considering the phenomena that appears in this day businesses environment. Companies that can optimally manage their resources and constrain will be able to become the winner in the tight market competition. The objective of this research is to find the best filling strategy using the algorithm which integrating the information under VMI concept. For further, the objective of this research is stated below:

1. To find the right amount of crude oil to be filled in order to timely fulfill costumer's order under VMI concept.
2. To find the correct Tank selected to be filled by crude oil in order to timely fulfill costumer's order under VMI concept.
3. To find when to fill the crude oil into the chosen tank in order to timely fulfill costumer's order under VMI concept.

1.4 Significance

After this research was being done, it will give significance benefits as stated below:

1. Find the right amount of crude oil to be filled in order to timely fulfill costumer's order under VMI concept.
2. Find the correct Tank selected to be filled by crude oil in order to timely fulfill costumer's order under VMI concept.
3. Find when to fill the crude oil into the chosen tank in order to timely fulfill costumer's order under VMI concept.

1.5 Scope of research

The scope of the research will be stated as follows:

1) The research is carried out at PT. Chevron Pacific Indonesia in Dumai
2) Research is carried out to optimize the crude oil replenishment system (filling system).
3) Tank and equipment support is counted as Tank.
4) The research object is focusing only in 1 product, which is Sumatra light crude oil (SLC).
5) Research is solving the case study which based on actual problem defined by the company.
6) Research excluding cost calculation due to restricted data defined by company.
7) Research is conducted in limited time-frame of 6 July 2007 – 10 July 2007 due to the case study defined by company.

1.6 Definition of term

This research explores the application of Vendor-Managed Inventory (VMI) to optimize Work-in-process (WIP) inventory in a form of replenishment activity. The production system representative act as vendor, received the information of replenishment requirement from inventory management representative that act as retailer. Replenishment term in PT. CPI is in form of filling activity which is filled the Crude Oil into chosen tank. Crude oil that being gathering from PT. CPI's production field is Work-in-Process inventory in filling and loading system.

Find the best filling strategy which determines when to fill the right amount into the right tank is an important action to ensure timely delivery of consumer order. But

formulating an effective filling activity to ensure the crude oil availability for effective loading activity is not an easy task. Sometimes, if the amount of filling activity is wrong, it will affect loading activity which can results in delay.

This is why the algorithm is being developed under VMI concept in order to optimize the replenishment activity of work-in-process inventory through filling activity in PT. CPI which indirectly will affect the loading activity to avoid delay.

1.7 Writing Systematic

To make the literature writing of this research study is easier, the writing systematic will be continuing as follows:

CHAPTER II LITERATURE REVIEW

This chapter will explore the basic theory that will be used for solving the problems.

CHAPTER III METHODOLOGY

This chapter dive an explanation about the source and matter of the research, tools and methods of research, data that will be analyses, and flow chart of reserach.

CHAPTER IV DATA COLLECTION AND CALCULATION

This chapter will explore the data collection from the research study and the data calculation using algorithm.

CHAPTER V DISCUSSION

This chapter will present the result of data calculation and discuss the result for producing a conclusion and reccomendation to the current condition.

CHAPTER VI CONCLUSION AND RECOMMENDATION

This chapter will consist about the summary of the reseach study that has been done. In addition, the suggestion for the company and for further research study is stated.

REFERRENCES

APPENDIX A Results of Filling Planning Algorithm

APPENDIX B Actual and Proposed Loading Consolidations

APPENDIX C Actual and Proposed Filling Consolidations

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