CHAPTER VII

CONCLUSION AND RECOMMENDATION

This chapter provided the overall conclusions, limitations and recommendations for the thesis, which were limitations of authorization and confidential in certain issue to be the most important parts of the research process. The whole research processes, problems encountered limitations of the research, the findings and its relations, the research problems and the objectives would be summarized and listed in respective manner in this following chapter.

7.1   Conclusions

This thesis was carried out to improve the effectiveness in shift handover during shift change in Refinery. It is the essential needs to be improved for better to drive the operation target to meet the shareholder vision and mission. To reduce the risk during the shift might be occurred from lack of communication tools to be provided and need to provide proper guideline on shift handover. Due to the limitation of refinery company, some of the issue that has been states as confidential shall not be explored and revealed to public issues.

As per statement of the problem, it would be recognized from the case study in the background statement from the earlier chapter; therefore the problem in Oil refinery could be summarized.

1. No standard procedure is provided.
2. No standard logbook/log sheet is provided.
3. Communication problem
4. Time constrain during shift handover.
5. No auditing during shift handover.

This was originated from the ineffectiveness of the search system. The way it worked as well as they would strictly follow some of believe culture from the past experience from the senior operation without knowing that, it is right or wrong. No audit form to monitor on the effectiveness of shift handover system.

The primary investigation started by observing from the researcher, who has working experience in process refinery. His role and responsibility is involving in Maintenance activities, finding the difficulty for his crew to receive permit to work in the process area. Even though, the process of receiving permit to work according to common refinery process, required to hand in permit to work to operation shelter on the evening of the day before the next day.

Operation from the night shift will sign the authorization and prepare the tasks to handover to maintenance for the next shift in the morning. Yet, usually, permits to work and system isolation is often not prepared from the operation. Therefore, maintenance team would then have to wait for the operation to handover the process equipment or

isolate the line to proceed the maintenance activity and give the authorization on the permit to work. Generally, it would take about 30 minutes to 1 hour later than normal working time. This problem would be found that, it was detected from poor communication between the shifts on activity and task for incoming team and outgoing team to do or prepare for next shift team.

According to the pilot test, questionnaires were carried out the critical item to be asked the participant on effectiveness of the shifts handover. And to analyze the problem by the pilot test and construct the guideline for both in Safe communication that has been mentioned in the previous chapter and also how to maintain and monitor the effectiveness of shit handover system. It would be summarized as below on shift handover meeting and shift meeting after the shift change.

7.2   Recommendation and further works

Since, the technology has been grown, giving the comfort to users interface with computerized system. The computerized software program for shift handover has launched for many refinery for worldwide. Additionally, the company that researcher recently works with will launch the Computerized management system as known as SAP to implement to his organization.

He would suggest the further study on the shift handover to investigate how effectiveness of logbook and log sheet it is in term of software program to support in effectiveness of shift handover. Since as the world-class business refinery or other related industry tend to implement the electronic log book and log sheet for their shift handover.

- **The electronic shift logbook**

Electronic logbooks that have a predefined plan for data collection seem to work the best. They are nexus defining the status of the operation, available for all within the organization. Some may be automated and others may be the gathering of an operator's investigations or calculations.

Additional information might be harvested from laboratory results, managers, engineers, supervisors, field operators, maintenance personnel, maintenance or business planners, and schedulers. In its best form, the pre-defined sheet of the logbook ensures consistent data collected at defined, scheduled times. In its worst form, the "log book" is a collection of disparate data maintained by a manager, or managers not shared up, and down, the chain of command within the organization.

They begin to test existing operators. These managers discovered that some operators have reading and writing skills below those expected for high
school graduates. Remedial training would save these operators and make them more useful to their companies.

However, a periodic review should be conducted to assure that no one will be blindsided by an unexpected problem. Obviously, it will sometimes be necessary to report the same measurement in two logbooks.

Handover Book is an electronic tool designed to manage the information flow effectively between outgoing and incoming shifts. Regards, to there have been such a need of information technology to provide the communication within the organization. The purpose of using electronic tool is another solution to improve on shift handover process.

During the course of a shift, the Shift Operator or Supervisor keeps track of the many events and processes that occur. At the end of the shift, this information is entered into the Handover Book. This is a clear and concise record at the key areas of the process that will be needed by the incoming shift operator or supervisor. When the incoming operator or supervisor comes in, he has a clear and concise summary of the status of the process at the start of the shift, and could make informed decisions as to the course of action required to maintain and improve the process. Other users such as field operators, technical personnel and managers can also monitor the Handover Logs to see how the shift went.

The Handover Log also provides a secure, searchable record of the status of the shift at handover, which could be applied for many other purposes such as the evaluation of process campaigns etc.

The primary benefit to going to a networked Handover Log system is that all the incoming shift workers start the shift well informed. They have a clear and concise understanding of the status of the process as they start their work. This means that expensive and major plant upsets will be avoided because of better decisions.

There is also a clear record and audit trail of the handover so that each operator knows his responsibility in the process. Once people are aware of their responsibilities, they take a pride in them and the quality of operations would steadily improve.

The system is useful to different people in different ways. For example, an incoming maintenance manager would be interested in the maintenance fields while a supervisor would like to look at why there are continuing shutdowns in a given process stream.

The handover logs are maintained in an easily searchable database so that technical and managerial staff can easily locate specific handover records.

For instance, an engineer could realize where a particular problem started to appear by looking back through the handover logs.

Maintenance Complete and Maintenance on Going: This summarizes the maintenance issues that have been completed during the shift and the maintenance that are still under execution.

Process Shutdowns and Abnormal Operations: These fields relate to any process shutdowns that had to occur during the shift and any abnormal operations that were carried out.

- **The benefits and advantages of implementing electronic hand book or log book system.**

1. Minimal Administration

The Handover Book is a true web server based application. There is no requirement to load software on any of the client machines. This suggests that the Handover logs can be quickly available to tens or even hundreds of users without any changes to the user computers whatsoever.

2. Attach any file to the Handover Book

The user can attach files of virtually any format to the Handover Logs. (E.g. graphic files, Word or Excel files, Schedules, PowerPoint files etc.) When the user clicks on the Attachment link, the application (e.g. Word) starts on his or her system and the information immediately becomes available.

3. Truly Industrial

The Handover Book package has been designed particularly for use on Industrial sites. It would be easily tailored to suit the areas and streams of process plant and have a complete inbuilt user management system.

4. Easy to start: Easy to change

The Handover Book package comes with a standard set up so that you can immediately implement it on your site with a minimum effort. However, as user become familiar to the concepts of the Handover Book, he then will probably want to enhance and customize the application to better suit his specific site needs. This is a simple fill-in-the-blanks process that enables user to customize not only the look and feel of the Handover Book but also the structure.

5. Change the Look and Feel of Handover Book

Just change any of the presentation parameters and user will see the immediate effect of your changes. There are on-line tool tips for each of the categories to help user to make the choices. There are over 50 different parameters that you can choose from to vary the presentation of the layout. All of these changes shall be achieved through a simple fill-in-the-blanks form without having to do any graphical design. Most of the entries are available as options in pull-down combos.

6. Create site-specific fields

The users can add their own fields that are specific to company business. Just go into the configuration, and format of the new field. The system will take care of the database transactions and add a new column to the table.

7. Handover Book will automatically fill in the standard fields

The users do not have to fill in many of the standard fields like the date, area, console and their user name. Handover Book fills in all these fields automatically.

In addition, the system will not allow the users to enter data outside of their assigned areas and will only give them the choice of options that are in fact valid for their areas. Field operators too can only modify the status of Handover Logs that they have been assigned to.

8. Choose the valid options for your fields

The user can specify the valid options for each of the fields. For example, for the area field, you may specify the production areas as Raw Products, Utilities, Main Production, Recycle, and Technical etc. When the control room attendant is adding a new Handover Log, these options are being available to him or her in a combo box. They become available when you want to filter the logs to find some specific information.

9. Associate the options of each category with different color and style codes

To help users easily to identify the specific codes, they can assign colors and styles to these codes. For example, you can assign specific colors to the status of the Handover Logs.

10. Add additional Sessions at any stage

To add more concurrent sessions, you simply connect into our web site, order and pay for the new session licenses and we send you an updated license key. The software already on your system will recognize the new license and activate the new session keys for you.

11. Control who looks at Handover Book and what they can see

The users can decide who looks at Handover Book and exactly what they see. For example, you may want one user to be able to see everything on one site but only be able to enter handover logs in the control rooms.

12. Store data as much as possible

There is no software limit to the number of records that can be stored or the number of days of data that can be stored.

13. Set time window

The users can decide how far back in the Handover Logs database you would like to look. For instance, you may be only interested in the last 3 month's information.

14. Control the modification of Handover Logs Items

Handover logs a specific to suit user it can be modified. This means that people that are authorized to do so only update the Handover Logs. Moreover, the user can specify which parts of Handover Log users are allowed to modify.

For further, try not to cover with the user interface and feedback from the user to developed electronic logbook and log sheet. Also the pilot test should be performed to evaluate the status of system on shift handover once of the new electronic logbook log sheet has been launched.

7.3 Limitation

Limitation for this approach can be the barrier to drive the success in shift handover. It can be described as:

- Foreign language; Most of oil refinery use of language to communicate amongst their organization using English language for their communication such as writing internal electronic mail, written up a report for special occasion. Operation personal must have well competence and confidence about writing communication skill in English. More English session shall be conduct to improve on Operator writing skill.

- Co-operation from team to drive effective shift handover; they may have their personal idea about the system. Not ready to change the system due to internal political inside company.

- Lack of support from Management; Member from Top management will not blind in the idea about change a new system.

- Need more time to observe the change in the business and other factors that need to be considered. For instant, quarterly or 6 months review.

- The shift handover system itself however has been control under ISO: 9000:2001. At the beginning of the approach was successful but do not known the long-term issue. For instance, how to control it in the proper manner and maintain this practice occasionally.