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APPENDICES

APPENDIX 1

QUESTIONNAIRE FOR EFFECTIVE SHIFT HANDOVER

Questionnaire for effective shift handover

Please mark ✓ in the appropriate box according to your opinion.

Position Team Operator LTO Shift Sup. Others _____.

Experience with TLBYrs Shift A, B, C, D

A. Time allocation for conduct shift handover

1. Is the allocation over-lap time provided by your organization sufficient for shift handover?
 - insufficient (If you have chosen this choice please continue question no.3)
 - sufficient
2. How much over-lap time is allocated by your organization for shift handover?
 - 15 minutes
 - 20 minutes
 - 30 minutes
3. If the over-lap time is not sufficient from your idea how much should it be?
 - 20 minutes
 - 30 minutes
 - 1 hour
4. Do you have time for meeting after shift handover has finish?
 - There is no meeting after shift handover
 - There is a Tool Box Meeting 1-2 hours after shift handover
 - There is a meeting after shift handover for 15 minutes
5. Is time allocated for the outgoing shift to prepare any handover material?
 - There is no time allocate to prepared shift report but once I finish I will prepared one to incoming team
 - There is time allocate to prepared shift report
6. Are you alert to necessary for lengthier and more thorough handovers in abnormal situation e.g. during emergencies, start-up, shutdown and or major turnaround maintenance etc.?
 - No time extension
 - There is a time extended but it will be paid as over time to the team
 - There is a time extended, by the team willing to do it without get over time paid

7. Is time allocated and are resources provided for the outgoing shift to prepare any handover material?
- No time allocated, depends on their load of task
 - Less time to prepared and need to finish it before the shift end
 - Time has been allocated and sufficient to prepare shift report

B. Conduct Shift Handover:

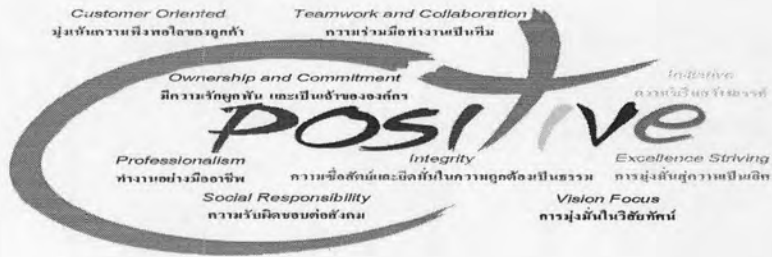
8. Do you have a guidance provided on how to conduct a handover?
- YE (Please continue question 10)
 - NO (Please continue question 9)
9. Without such guidance how can people know whether they are doing the right thing?
- Observed from other colleague
 - Have a trainer to guide for a while
10. Is written guidance available and easily to understand for operational personnel on how to conduct effective shift handover?
- Quite complicate due to it is written in English preferably to be written in Thai
 - Training has been conduct by using English working procedure.
 - Well understand foreign
 - Easy to understand because it is written in Thai.
11. Are handovers distraction free space allocated for one-on- one, face-to-face?
- Shift handover by using face-to-face at working area in each unit
 - Shift handover in the main control room (MCB) by having the little disturbance but no problem.
 - Shift handover in the main control room (MCB) but it is very noisy.
12. If not, is there an opportunity for two-way communication regarding tasks, i.e., can questions be asked?
- Yes, with feedback
 - Yes, but sometimes
 - No chance to do it

13. Are the shift handover procedures specifically trained?
- Yes, I have been trained
 - No
 - Do not remember
14. Are the shift handovers periodically monitored? **(This question is only for shift superintendent)**
- Often
 - Sometimes
 - None
15. Is handing over known to be an equal responsibility of both incoming and outgoing operator?
- YES
 - NO
16. Are you alerted to the necessity for lengthier and more thorough handovers in abnormal operations, when either person is new at the job, and when the taking over has been away from work for a few days?
- Well understand in this issue
 - Not certain

C Log Book or Log Sheet

17. Do you use English or Thai in writing logbook or handover book ?
- Thai
 - English (If you have answer this choice please go to question 18)
18. Are you good enough in English writing logbook to covered all the things that you need to write?
- Not well competent about using English normally copied from the previous report or someone else in the past.
 - Do not wish to use English and would prefer to written in Thai instead but in exception of technical term can be use in English.
 - Need more English training session if organization wants to write logbook in English.
19. Is your organization provided you a written support of handovers, such as structured shift handover worksheets, with specific questions or a list of material to be covered?
- NO
 - YES (If you pick this choice please continue question 20)

APPENDIX2
MANUAL HANDBOOK



EFFECTIVE SHIFT HANDOVER



Prepared by Jesada Kirdsawadi

Effective Shift Handover

PREFACE

This document has referred and gathered information from Ronal Lardner, Chartered Occupational Psychologist, The Keil Centre, Edinburgh Email ronny@keilcentre.co.uk (and other source of references that has been relevant paper) by research involved in communication and implementation prior to improvement on shift handover in UK Oil Refinery by considering incident case that have accident in many cases in Oil Refinery. From the research study, it can be concluded that foundation of technique in shift handover is communication such as listening, communication in speaking and writing communication to report and update what has been done during operate process plant. It must have guideline and procedure to be followed. Otherwise, miscommunication during shift handover can possibly lead fatal accidents during operation plant and equipment. Since communication could be complexity by itself and it obviously can mention that everyone cannot admit that his effectiveness in shift handover without learning and practicing the guideline provided

1. INTRODUCTION

To keep the plant running continuously of process operations by conducting shift handover is essentially needed. Therefore, all information and research relevant that involves in shift handover method in refinery, offshore and petrochemical has been gathered. The purpose of this document is wished to be beneficial for refinery operators during Shift handover which is essentially important for employees who are working in shift. Miscommunication can lead to interrupt working and essential message undelivered through could lead fatal accident not only to personal injury and also damage on asset or properties. One of the factor of root cause is originated from ineffective shift handover and no guideline and procedure to be followed in the good practice for daily routine activity during shift change.

2. Example of incidents revealed

According to the root cause analysis, it is found many accidents often occurred during the time close to shift change or after shift change. Major accident can result in loss of life and company assent and also impact to the environment of around residence area.

4 incident case studies have been analyzed and revealed for knowledge sharing to alert everyone to recognize and consider the significance of communication, which is essential and needed to pay attention during shift change. Therefore, incident prevention should be put in to practice during shift owing to potential failure in communication during shift change.

2.1 The Sellafield Beach Incident

On September 1983, the incident befell upon release of radioactive waste into the sea from nuclear plant in Sellafield. The incident investigation has been disclosed that root cause of the incident was miscommunication during shift change. The waste toxic container which contains waste toxic liquid was normally kept in place and ready to release into the environment. Yet, eventually revealed that, it contained high concentration of radioactive substances and it has been released into the sea and effected to the environment around the area. This incident happened during yearly plant maintenance and inspection. The description on the log book states many copies from the previous writer and message has been deviated from original message. There was a message in log book saying ejection from HASW to ex HASW. The first message mentioned that this toxic waste was highly radioactive and the last message mentioned that radioactive substances is low emission and ready to release to the sea, which indicates the complexity and difficulty of message as communication tool for everyone to understand.

2.2 The Piper Alpha Disaster

The report of incident investigation exposed that one factor involved in this incident of Piper Alpha was miscommunication during shift change. There was a massive leakage of gas condensate which was ignited causing an explosion which led to large oil fires. The heat ruptured the riser of a gas pipeline from another installation. This produced a further massive explosion and fireball that engulfed Piper Alpha. All this took just 22 minutes. The scale of the disaster was enormous. 167 people died, 62 survived. It is believed that the leak came from pipe work connected to a condensate pump. A safety valve had been removed from this pipe work for overhaul and maintenance. The pump itself was undergoing maintenance work. When the pipe work from which the safety valve had been removed was pressurized at start-up.

The report <http://www.ukooa.co.uk> concluded that one of the many factors that contributed to Piper Alpha disaster was failure of information transmission at shift handover. Specifically, knowledge that a pressure safety valve had been removed and replaced with blind flange was not communicated between shifts.

2.3 The Wind scale Verifications Plant Shield Door Incident

This incident occurred when a container of high radioactive substances has been sent to the control cell for inspection. However eventually, there was no protection system and guideline on the protective system. Both shield doors at the control cell entrance was designed to protect from radioactive and it had been left open. Fortunately no one was nearby but the possibility that someone might be effected by radioactive substances would not be denied. The 6 protective systems in the control cell broken without any notice could bring incident and also the lack of instruction guideline to be followed.

Later on there was some modification on protective system for temporary but only this time override function logic controller must have one and it has been reported on the log book by shift manager also permit to work. It has been working to 4 continuous shifts after the installation and maintenance control cell used by not using override as per new normal operating. In addition the fact is that it has not been reported in logbook in Shift manager's log book. Once again somehow it has no incident but the point that need to stress is that shift handover is essential need to communicate during the shift change to include the activities which have been done during the shift and next activity would be also the plant update status and any temporally modification in plant and need to concluded in the permit to work. **A serious injury during offshore maintenance**

One man was serious injured while performed valve reparation in high pressure line, the incident was happen during the isolated valve was closed by valve on both side and open drain line between both valve. He realized that isolating valve was not properly closed. He was then closed drain line again and leave the message to the next shift to open the drain line again to release pressure and empty line. Next shift gave work permit and isolating certificate but did not consider the fact and details from hat has been done from the last shift and the message has not been transferred to new shift..

2.4 Conclusion

The conclusion can be drawn from the accidents which have been mention in the previous section and it can identify the potential risk that might occur during shift change are:

- Maintenance activity
- Some accident occurred when there is maintenance carried over the shift, it is essentially need to communicate to one another and pay attention on potential risk.
- Log book has not been designate to input key information and complexity.
- There is no guideline and procedure to be followed in prior to conduct and effective shift handover.
- Unclear message and unreliable of the input information in log book. Such as overriding safe guarding system has not been concluded in the log book.

From the root cause analysis it can be found the comparison between communications associate with incident can be influence to one another as the following below.

- The use of complexity language in communication.
- More potentially risk in miscommunication when each person has their own mental model in many difference aspect about plant status.
- Input information has not been analyze and to capture the overview for other to understand and cause in misunderstanding on the plant status.
- Still rely on one-way-communication such as: log book

Main topics in Effective Shift Handover are:

- Shift Handover method
- Communication
- Structured log Books or log sheet

3. Shift Handover Definition:-

Shift work is a fact of modern society. Critical services such as police and fire protection, health care, transportation, power, telephone and water are needed around the clock. Society demands and relies on these and other services and the production of certain goods around the clock. As a result, many workplaces operate 24 hours a day.

More and more people are working shifts. This has meant an increase in jobs in some work sectors. Although most people work shifts because it is part of the job, in some cases workers may prefer working shifts. To some people, working shifts may mean an increased income, a quieter work environment, or savings on child care expenses because both parents are not working at the same time.

Working shifts can affect a worker's health and safety. Shift workers have irregular patterns of eating; sleeping, working and socializing that may lead to health and social problems. Shift work can also reduce performance and attentiveness. In turn, this may increase the risk of accidents and injuries. Certain shift workers are more likely to encounter violent situations while working alone. Therefore the shift handover has been design for the following purpose below:

- Time interval of prepared of outgoing operation team.
- The shift handover communication between incoming and outgoing operation team to be discussed and exchange their information or tasks relevant.
- Incoming operator must cross- checking information in area of response such as Log book, Daily Instructions, Weekly Operation Plan, monitor conditions of process plant status from DCS before go on the field

Objective of shift handover: Information and task relevant must be correct and up to date also reliable. To ensure that all continuous tasks is safe and effectiveness.

4. Refinery operator's Task:

Oil refinery facilities consist of process units, utility facilities and other facilities spread over an area. These facilities are technically complicated, automated and computerize control consisting of sophisticated equipment, which required considerable knowledge, skills and experience to operate start-up and shutdown. Although substantial control of operation can be affected

from the control room, manual intervention and frequent physical checking/operating of equipment is required during normal operation. Start-up and shutdown of each piece of equipment however is done from outside.

Normally, operators are working as per shift roster such as 8 hours or 12 hours per shift. In the meantime, in order to operate with highly effectiveness of production plan. Everything must taken to account on basic safely condition. Because, the complexity of process and technical. Therefore, operators must have general knowledge and information of process and expertise on decisive operator by on the basis of "Mental model" to understand and control which cannot be seen by visual observation.

Detail of mental model it can be measured by monitor and check that whether operators capable of taking care of start-up process and plant equipment shutdown effectively or not. Also capable of monitor and check process conditions and shutdown process which can be specified as below:

- Expertise on product specifications, operating windows and the net target production plan activity.
- Demonstrate condition of present process
- General understanding of dynamic in process

The continuous working in the process plant, if there is some change o there is some deviate from the production plan. Therefore consequence of the deviation in the process will happen in the next shift. The message must be carried out to the next shift for understanding what has been happen in the past. Otherwise, the consequence will be effect to the process of production and weekly plan.

5.0 HOW TO CUMMUNICATE EFFECTIVELY AT SHIFT HANDOVER?

UK Health and Safety Executive has intend to state the shift handover during plant up set, abnormal, or long holidays even shift handover for those who is expertise and new employees. It can be seen that human error would occur during shift handover, therefore, it is essentially need to have procedure in shift handover and guideline on writing on log book to transfer the information between each shift by intent to focus on important activities during shift such as maintenance in progress, plant/equipment out of service, plant abnormalities etc.

5.1 Current guidance on shift handover (the UK Health and Safety Executive):

- Guideline and instruction in writing for logs book/log sheet shall be provided.
- Step of work regarding to procedures of shift handover must be provided.
- Guideline on information input in each section during conduct shift handover such as maintenance in progress, maintenance completed, plant or equipment out of service or process abnormalities

- Ensure that all incoming operators are familiar with plant/equipment operating status in the present condition. In order to avoid human error that associate with process operations log report or log sheet shall be provided.

5.2 The difference between “Information”, “Knowledge” and “Understanding”

From the theory, state the objective of Information flow is transferring message from one place to another place. By using channel of communication to transfer message and encoded in appropriate for the receiver can encoded and efficiency of receive and transfer can be limited by limitation of channel of communication, rate of transferring and deviation of disturbance such as noise.

Note: Encode information such as symbol, languages and drawing etc.

From the theoretical, it can be seen that message that transfer to the receiver, if it can be reduce from the difficulty or some deviate disturbance then the message will not be deviate from the original message and make the receiver understand the information clearly.

Regarding to Michael K. McCuddy state and classified information channels in term of richness which are:

Channel richness is the limitation of channel in effectiveness of communication.

- **Richest** channels are face-to-face **communication**.
- Moderately rich channels are the methods of communication by using telephone or mobile phone, electronic chat rooms, E-mail, written memos, and letters.
- Leanest channels are the method of using posted notices and bulletins.

The reason why Face-to-face communication is richness channel because it can then feedback to one another suddenly if the message is not clear and not well understand by the receiver. And corrective action has been done on scene.

Knowledge: is the content of information or message from each personal. It can be divided into to 2 type of know ledges.

- Procedural knowledge is the general knowledge on what is has to be done and knowing the step of work which is cannot explain by talking.
- Declarative knowledge is including the fact that can be found.

Understanding is the how make a clear communication by telling or discussed including feedback to one another for exchanging information between one another.

5.3 “Effective” Communications

Consider the situation when a person with sole responsibility for a task takes a break from work, then returns to the same task following their absence. If the task has not been progressed or altered by someone else, communication is not an issue. Contrast this with work which is shared between more than one people or continues during an

absence. Under such conditions, communication and co- ordination assume crucial importance. In industries which operate continuous processes, continuity is maintained across shift changes via shift changeover.

The purpose of this objective is to communicate by intend to repeat the message to ensure the receiver understand the message such as face-to-face communication with visual aid of display.

It can then be concluded as:

- To ensure the repeat of message by using log book to be include during face-to-face communication
- Encourage team to give feedback in prior to make the clear message for better understanding.
- Develop and improve operator in communication skill.

5.4 Feedback:

From the theoretical studies about Mental Model found that when a group of people have been communicate to one another and react to one another during the communication which then led to give some feedback to support in good communication to one another. Also give the clear detail and accurate in message. The more feedback from receiver the better accurate detail would be.

The theory of Mental Model state the case studied from many accidents, therefore in the meaning of mental model for refinery operator is the responsible operate refinery plant and factor for mental model can be divided into 2 factors

- For effective in mental model, the communication between incoming and outgoing must have the same level of experience in prior to understand the plant status or other activities.
- In case of different level of mental Model in this case feedback to one another must be done in prior for effective communication.

6.0 THEORETICAL OF COMMUNICATION

Tools that help Effective Communication	Methods to drive effective shift handover communication
The communication can be transfer into many kinds of information such as written or by spoken to one another. Also repeat of delivered message have to talk for more than one time in the meeting.	Information can be repeated by another sources of information such as verbal or by written as a diagram on the signboard.
Delivered the right message during communication	Two-way communication with some feedback is also important during shift handover.
Messenger who delivered the message must be well clear to give a speech and well understood for audience with greater impact.	Most common way of this communication can be done by verbal face to face.
The statement of messages to deliver must be present situation and also cover for the future plan and unforeseen situation to be face.	Most likely, it has to admit that some people can misunderstand the message that receiving from the messenger by incoming operator and outgoing operator. Ti can be happen in such a rush time or emergency shutdown. To avoid this issues allowable time for shift handover must be adequately.
When it come to written form of communication. The document must support their functional team and user to deliver the messages and some relative information to help in communication.	The use of logs book system and computer displays must be use to communicate during the shift change. For instant of using electronic mail to send the message throughout the incoming shift team.
Barriers to effective communication	Methods to drive effective shift handover communication
During shift handover, it can be interrupted by the noise of people surround the area.	Key information must be specified and well presented without any useful information.
Some people might not be able to deliver the message properly. Some details still in the gray area that cannot be clarify.	In order to avoid this issue, it can be reduce by Specifically clarify the information to be communicated such as equipment number or plant area.
Too much information to remember when communicates in face to face.	Avoid giving unnecessary information.
People tend to give little effort intention on communication. Most people think it is should not take time to communicate to their incoming team due to their normal routine work.	Need cooperation from team to pay attention to this issue by: Encourage team to see the consequence that might occurred when it come into the accidents regard to miscommunication during shift handover

Table 1: Communication Theory & Implications for Effective Shift Handover Communication

(Source: <http://www.hse.gov.uk/research/otopdf/1996/oto96003.pdf>)

6.1 Summary

From the previous sections and it can then be summaries from the observation and studied in shift handover and can be explain as following list.

Operator is essentially needed to conduct shift handover by:

- By doing Face-to-face communication
- Need to have tow way communication for both incoming and outgoing and ensure that both understand one another to take his responsible.
- Verbal communication must also use aid of visual to be concluding in the shift handover.
- Allow time for necessary item to pay attention for effective in communication.
- Time for shift handover must be adequately to support effectiveness of communication and also allow extra time to brief for those who have been long absence from work.
- Topic of log book or computer based log must be designate and detail needed.
- Data input must be clear and need to capture for overview picture and indicated the target plan including the objective of the target.
- Procedure guideline must be follow for effective shift handover.
- If there is an essentially or general knowledge that need to be input and it must be analyze before put in log book.
- Everyone must commit his responsible for the team and willing to accept and cannot be deny from misunderstanding.

6.2 The responsibility of management and department in the organization:

- Pay more attention to the team in effective shift handover including problem during operation and risk that might occurred during the shift changed especially major shut down activity, plant start up and shut down activity.
- Generate procedures/guidelines which involved in effective shift handover and review and approved by concerned people from many discipline in prior to prove that guideline can be follow and can implement on site.
- Pay special attention in shift handover for those team member who has been long absence from work to give them understand the plant condition and what has been done in the past and in the action plan for the production side and any maintenance outstanding works that has been leave out to be continue in the shift. In case of Plant Maintenance activities mentor of the program must give the clear instruction to those new employee or those people who has less experience in the area response.
- Constructed key information for the incoming operation team to understand and update mental model about plant status condition of plant.

- Encourage and support the method of communication for team to use log book, or visual displays that has been designed for operator needs.
- Developed operators to be train about communication skills.
- Also have adequate data to support and construct guideline for implemented and measure performance. This can be the following list below.
- Quality of data must be important for the incoming so it would update “mental model” about plant status condition.
- Logbook for operator must be design for their need of the data required or wish to know.
- Everyone must participate and get involve in shift handover to communicate to everyone in the team.
- Identified of high potential risk which are:
 - During plant maintenance, especially it needs to carry over the shift and need to continue for the next shift.
 - plant up set
 - For employees who took a long holidays
 - Shift handover between high level of mental model and low level of metal model.

6.3 Shift Handover Meeting

This meeting normally takes longer than the handover meeting. It requires participation at the tactical and strategic level. It should take place early in the shift. The purpose of the shift team meeting is sharing information between line supervisors, lead team operator and operators.

This is the tactical section of the meeting. It is best to follow the same outline for each meeting. Begin this segment with a summary of each product or department, with topics in order of importance: safety, environment, quality, production, and reliability. Unlike the handover meeting, the shift meeting should address more details of a strategic nature.

The tactical section should cover the threats, limitations and potential opportunities. The meeting should address staffing issues, ongoing maintenance repair, and preparation for maintenance, lockout and tag out, test results, special permit preparation and implementation.

7.0 The shift Log Book

This tool is, defining the status of the operation, available for all within the organization. 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.

Managers shouldn't assume that operators are competent writers. Nor should they assume that operators will make clear descriptions of events. Operators are not hired for their communication skills. We've found that many plants managers do not evaluate candidates for these skills. However, companies are beginning to see the value of communications skills for their operators. Recently, many companies have started testing new recruits for their writing abilities.

7.1 Key elements for topic in log book are:

- ☛ Safety & Environmental
- ☛ Maintenance Complete
- ☛ Maintenance in progress
- ☛ Outstanding Items
- ☛ Abnormal conditions
- ☛ Process Plant status

8. Log book Content Example:

Example of log book has been refer to California Electricity Generation Facilities standard committee 1st April 2003 for control room operator and have been change and revise to suit for Oil refinery.

8.1 Objective: To indicate the need in writing for refinery by having processes plant and equipment during operation.

8.2 General

Every process plant and equipment indicate operator responsible to record and observe in the sequence of status on plant and equipment. Also detail of operation and maintenance. In conclusion each unit of process must be recorded.

8.3 Operator log Plant Status :

Log must be keep in file by making a hard copy, electronic format both data must be keep and store for at least 2 or 3 years for re-audit. A must report on process plant status which included:

- 8.3.1 Current feed rate/type/grade.
- 8.3.2 Temperature, other parameters
- 8.3.3 Adjust product specifications
- 8.3.4 Equipment conditions that may has faulty
- 8.3.5 Product blending/transferring
- 8.3.6 Product loading etc

8.4 In case of plant and equipment off line or abnormal:

- 8.4.1 Must identify the root cause of failure and expected time to bring it back to normality.
- 8.4.2 In case of isolated equipment for maintenance, the reason of description must be given.
- 8.4.3 Environmental issues such as level of Sox/ NOx, smell, complain etc.
- 8.4.4 Equipment out of service must be report the exact number for the preparation of isolated for maintenance.
- 8.4.5 Unplanned process unit shutdown must be explain and expected time for start up
- 8.4.6 For abnormal operating conditions or faulty of equipments such as fouling, leak etc.
- 8.4.7 Outstanding works must be recorded.
- 8.4.8 Active work permit/clearance
- 8.4.9 Status of Utilities such as raw water, de-mineral water, cooling water including equipments.

8.5 Sequence of status on plant and equipment must be state.

- 8.5.1 Any change of Feed rate or parameters must be record and also the objective of new purpose and reason to support the feed rate change. Including:
 - ☛ The direct order from authorize person such as MFOE/scheduling coordinator/Technologist/Engineer
 - ☛ Feed rate has been reducing due to the faulty of equipments such as compressor, pumps and heat exchanger etc.
- 8.5.2 Operations highlight e.g. Start-up, shutdown etc.
- 8.5.3 Implementation of advance process control system in service and out of service.
- 8.5.4 Details of unit and equipment trips including the detail of faulty and what has been done.
- 8.5.5 Feed rate constrain also included the reason support for justification and item of actions that has been done.
- 8.5.6 Performance test of equipment/system must be recorded.
- 8.5.7 Detail of environmental impact by recorded time and date of impact and how to avoid the impact not to happen.
- 8.5.8 Report of accident/incident during the shift.

APPENDIX 3
WORKING INSTRUCTION

Effective Shift Handover procedure



THAILUBE

**Thai Lube Base Public Company Limited
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Chonburi 20230

This document has been approved by

(Phumjitr Thatsanaprasert)

Operation Manager

Code No.	
Revision No.	<i>0</i>
Effective Date	<i>14/8/08</i>

Note for revision

Effective Shift handover

Topic to be implementing: Shift Handover

Objective: The purpose of this procedure is suit to improve in effective of communication in shift handover between incoming and outgoing operation team. To protect in miscommunication between the shifts and to keep plant run smooth. Moreover, to encourage everyone to prevent potential risk that might cause accident or incident during shift handover from the previous incident. Therefore everyone in the shift must take his responsible for the practice below:

Accountability: Operators in their own responsible area of work including Shift Supervisor and Lead Team Operators

Place : Refinery

Equipment : Process plant and equipment

References : "Effective Shift Handover" by Ronny Lardner, Chartered Occupational Psychologist, the Keil Centre, Edinburgh

No	Description	Quality control
1.	<p>Conduct Shift Handover</p> <p>1.1 During Shift handover, operator shall conduct by using both face-to-face and two way communication. By exchange information about job involvement for the next shift and job that need to continue between incoming and outgoing team for effective communication. To prevent failure of misunderstanding.</p> <p>1.2 Incoming operators must make a short note to received information from outgoing team. The purpose is to remind their self on their tasks.</p> <p>1.3 For verbal communication, outgoing operator must bring Log book/log sheet to be included during conduct shift handover, to ensure that all information are correct.</p> <p>1.4 Incoming operator shall cross checking in log book/log sheet and daily instruction or weekly operation plan, to ensure that they have received the right information.</p> <p>1.5 In case of conduct shift handover for those who take long vacation or long absence from work, outgoing operators must draw a summary of activities has been done or certain period of absence for incoming operators and not only the present situation.</p> <p>1.6 In case of emergency or plant abnormal condition, those who are expertise must concentrate and pay attention to those new operator or those who has less experience in every details of work or step of work including identified potential risk that might occurred clearly in order to ensure mistaken will not happen during the shift.</p> <p>1.7 Shift superintendent must conduct shift team meeting before everyone starts their activities and cross checking information amongst his colleagues to ensure that all information have been transfer properly and</p>	

No	Description	Quality control
	also discussed potential hazard that might occurred during highlight activity.	
No	<p>Log Book/Log Sheet</p> <p>2.1 Topic to be included in log book/log sheet or computer based log shall be essentially need and important for daily highlight which are:</p> <p>2.1.1 Health, Safety and Environment such as: the level of Sox/Nox, smell, toxic gas alarms or smell complain from neighbor community, for the safety issue it can be found from the observation around the plant such as: accident/ incident, overriding safeguarding systems or other unsafe condition of equipment that has potential hazard for people nearby for instance found stream pipe line was leaked in certain place. etc.</p> <p>2.1.2 Maintenance: can divided into 2 parts one is Maintenance Complete and Maintenance in-progress or outstanding: In case of outstanding maintenance activity operator shall give the expected time to completed in the log and for maintenance completed equipment operator shall monitor of the test run result to feed back to team and inform maintenance team for further action if found abnormal condition during test runs.</p> <p>2.1.3 Abnormal Condition/Technical problem: In case of Abnormal such as equipment fouling, leak, unit trip etc. And in case of Technical problems such as during test run equipment was not satisfied or outstand maintenance equipment does not have spare part, constrains etc.</p> <p>2.1.4 Record plant status for each unit such as Feed rate, key parameters, yields, and product qualities, (rev. 1)</p> <p>2.2 For detail in logbook, operator shall analyze the important message to put in and objective including the purpose to make the message. Also that message shall be well prepared and precise and well understand for all workers to be able to read and get the idea. And preciously clear detail</p> <p>2.3 Operator shall record highlight activities during his shift by setting hierarchy and priorities by recording time and place.</p> <p>2.4 For Board Man or DCS Console operator must record Field Activities into log sheet also to capture the overview highlight activity during the</p>	Quality control

No	Description	Quality control
	<p>shift. In addition objective for each activity shall be included.</p> <p>2.5 Shift Superintendent and Lead Team Operator shall prepare and gather all information from their team in each section and area of response including record of overall activities during shift. By link data with PI program to show detail of feed rate in each unit.</p> <p>2.6 Log Book/log sheet, which is Hard copy, shall be keep in the files or portfolio folder. It shall be separate by area of response for ease of access or audit. For Shift Superintendent and Lead Team Operator's Electronic File shall be keep in electronic folder and to be store in central file network for only concern people able to access.</p> <p>2.7 Shift Superintendent shall send shift report to management and concern people in Thai Lube base and Thai Oil via E-mail to update plant conditions and monitoring shift handover (rev.1)</p>	

APPENDIX 4

FIELD OPERATION CHECK LIST

RO: FIELD OPERATION WORK LIST ⇔ Area : VDU, SWS, Propane, Flare and DOW					
Date: _____ Shift: _____		Name: _____			
Description	Yes	No	Others: Specify	Operator Feedback to SS/LTO	Acknowledged by SS/LTO
A: Daily/Routine Activities					
A-1: Work Preparatory prior to start work					
- Has recieved information of shift handover from the previous shift					
- Has conduted Tool-Box discussion/Brief regarding the planned activities					
- Has read Daily Instruction or DOP/WOP and well understood					
A-2: Operations, Plant and Equipment Monitoring					
2.1 Furnace:					
- Has checked the flame pattern, impingement & % O2					
- Has performed Soot-blowing, checked temp drop@ stack					
2.2 Pumps:					
- Has checked Lube Oil/Seal Oil					
-Has checked the performance of the Cooling Water					
- Has checked performance of the Oil Mist system					
- Has checked noise level of the Pumps					
2.3 Compressor: K-101A/B, K-102					
-Has checked Lube Oil/Seal Oil level and top up as required					
-Has checked cooling water performance(if applicable)					
-Has checked unusual noise of the compressor					
2.4 Fin-Fans					
-Has checked unusual noise of the fan coolers					
-Has check the lube oil and topped up as required					
2.5 Heat Exchangers					
-Has checked the leakage of oil around the flanges					
A-3: Other process plant operations					
3.1 SWS					
- Has Skimed Oil in the sour water Feed Surge Drum					
3.2 Flare					
- Has checked the performance of the flame detector					
- Has checked flow fuel gas FI-004&FI005					
3.3 Slops					
-Has checked unusual smell in DOW area					
3.4 Condensate-Has Checked&Drain KO drum of SSS					
A-4: Samplings					
- Has taken samples: 80SN, 150SN, 500SN and VR respectively					
- Has taken samples: Wild Naphtha and Stripped Water respectively					
- Has taken Samples:RSO:LR and Speccial Request by TC respectively					
A-5: Checking Chemical Stocks					
- Has checked Stock of NH3 and Oil Mist in the responsible area					
A-6: Supports to 579 Energy Conservation Activities					
-Has checked the cleanliness and maintained the area in tidy conditions					
- Has checked Steam Traps in the area to ensure no malfunction					
B: Non-Routine Activities					
- Has Filled-up : Liquid Propane in the system					
- Has Unloaded : Liquid Propane from Truck to storage					
- Has performed Cleaning Fuel Oil Burners of VDU heater					
- Has supported/cooperation Clemical On-line Cleaning @ VDU heater					
- Has checked Hand Tools to ensure they are hung in the places					
C: Monthly Activities					
1. Has Switched the spare Transfer Pump in the area (every 2 months)					
2. Has checked the Status of TSV/PSV e.g.leakage one by one					
3. Has checked Ignitor performance of the VDU heater					

Operator Signature: _____

SS/LTO Signature: _____

Figure 1: Checklist task for field operator in each unit

RO: FIELD OPERATION WORK LIST ⇔ Area : SDU-1 and Utilities					
Date: _____		Shift: _____		Name: _____	
Description	Yes	No	Others specify	Operator Feedback to SS/LTO	Acknowledged by SS/LTO
A: Daily/Routine Activities					
A-1: Work Preparatory prio to start work					
- Has recieved information of shift handover from the previous shift					
- Has conduted Tool-Box discussion/Brief regarding the planned activities					
- Has read Daily Instruction or DOP/WOP and well understood					
A-2: Operations,-Monitoring Plant and Equipment					
2.1 Feed section					
pumps	-Has checked the Oil cup./Oil mist./Seal Oil pot./Cooling				
	-Has checked Mech seal ,vents and drains				
	-Has checked unusual noise of Pumps/Motors				
Chiller+Heat Exchangers (DPC/DPE)					
	-Has checked the leakage of oil at the flanges				
	-Haschecked conditions of chain / Shear Pins/and lubricant				
2.2 Filters section					
	-Has checked level of Seal Pot for Rotary Filter				
	-Has checked Lube Oil/Seal Oil system.				
	-Has checked the filter cloth and wire conditions				
	-Has checked unusual noise at the Motors				
	-Has checked spray Cold solvent system				
	-Has checked level of seal leg @ U-tube 400L-V-102/V-104				
2.3 Compressor and Refrigerant section					
	-Has checked buffer gas of 400L-K-401 system				
	-Has check key Pressure and Temp reading for correct reading				
	-Has checked Lube Oil/Seal Oil.of 400L-K-401 system				
	-Has checked conditions and noise level Motor/Fin-fans.				
	- Has checked Instrument Air purging to 400L-KM-401				
	it must be Positive pressure at all time				
A-3: Utilities					
3.2 4200L	-Has checked liquid gas of 4200L-V-101				
3.5 5500L	-Has checked performance of instrument Air				
	-Has checked performance of Air filter and Air dryer				
3.6 5700L	-Has checked performance of N2 system				
A-4: Samplings					
	- Has taken Samples; routine/Non-routine and special request				
A-5: Checking Chemical Stock					
	- Has checked Stock chlorine gas, Lube Oil, Oil-Mist in the area.				
A-6: Supports to 5?Wenergy Conservation Activities					
	- Has checked the cleanliness and tidy conditions of the working area				
	- Has checked the performance and leakage Steam Trap				
B: Non-Routine Activities					
	- Has checked Hand Tools and ensure they are in the right places				
Operator Signature: _____			SS/LTO Signature: _____		

Figure 2: Checklist task for field operator in each unit

RO: FIELD OPERATION WORK LIST <- Area : MPU, HFU and ADIP					
Date: _____		Shift: _____		Name: _____	
Description	Yes	No	????????	Operator Feedback to SS/LTO	Acknowledged by SS/LTO
A: Daily/Routine Activities					
A-1: Work Preparatory prior to start work					
- Has received information of shift handover from the previous shift					
- Has conducted Tool-Box discussion/Brief regarding the planned activities					
- Has read Daily Instruction or DOP/WOP and well understood					
A-2: Operations, Plant and Equipment Monitoring					
2.1 Column Reactor	- Has checked the leakage of oil at the flanges				
	- Has checked of the key Pressures and Temps reading				
2.2 Pumps:	- Has checked level of Lube Oil/Seal Oil				
	- Has checked performance of Cooling Water system				
	- Has checked and drained of the Oil Mist system				
	- Has checked normal noise level of the Pumps				
2.3 Compressor:	- Has Drained liquid/water @ the knock-out pots				
	-Has checked Lube Oil/Seal Oil level and top up as required				
	-Has checked cooling water performance(if applicable)				
	-Has checked unusual noise of the compressor				
2.4 Fin-Fans	- Has checked normal noise level of Fin-fan coolers				
	Has checked the belt conditions and leakage of oil at the flanges (especially 300L-E-112 &500E-109)				
2.5 Heat Exchangers	- Has checked the leakage of oil at the flanges				
A-3: Operations on the others support facilities					
3.1 MPU	- Has checked level C-101 at site and ensure correct reading				
3.2 ADIP	- Has checked the Function of Mist Spray at E-103				
3.2 Sump-pit	- Has checked level of open sump pit at MPU/Adip				
A-4: Samplings					
- Has taken Samples: Feed, Raffinate, Extract respectively					
- Has taken Samples:NMP (solvent), OVHD water (solvent) respectively					
- Has taken Samples:HF Raffinate, H2 make-up + Recycle gas respectively					
- Has taken Samples: LP/HP Adip gas and Adip (RFB/ATB) respectively					
A-5: Checking Chemical Stock					
- Has checked Stock/level of Lube Oil, Oil-Mist and Spindle Oil in the area					
- Has checked Stock/level of NMP (Solvent) in the area					
A-6: Supports to 5?Energy Conservation Activities					
-Has checked the cleanliness and maintained the area in tidy conditions					
- Has checked Steam Traps in the area to ensure no malfunction					
B: Non-Routine Activities					
- Has performed Make-up ADIP or increase RFB Strength in system					
- Has performed Make-up NMP solvent in the system					
- Has performed Line-up system for Reprocess Slops from 300-T-101					
- Has performed Transfer Light Oil from V-105/106 to 300-T101					
- Has co-operated On-line cleaning at 300-E-152, 500-E-151					
- Has checked Hand Tools and maintained them in the right places					
C: Monthly Activities					
1. Has Switched the spare Transfer Pump in the area (every 2 months)					
2. Has checked the Status of TSV/PSV e.g.leakage one by one					
3. Has checked Ignitor performance of the HOT Oil heater					

Operator Signature: _____

SS/LTO Signature: _____

Figure 3: Checklist task for field operator in each unit

RO: FIELD OPERATION WORK LIST ⇔ Area : PDA, HOU and SRU					
Date: _____ Shift: _____		Name: _____			
Description	Yes	No	70007000	Operator Feedback to SS/LTO	Acknowledged by SS/LTO
A: Daily/Routine Activities					
A-1: Work Preparatory prior to start work					
- Has received information of shift handover from the previous shift					
- Has conducted Tool-Box discussion/Brief regarding the planned activities					
- Has read Daily Instruction or DOP/WOP and well understood					
A-2: Operations, Plant and Equipment Monitoring					
2.1 Furnace:					
- Has checked the flame pattern, impingement & % O ₂					
- Has performed Soot-blowing, checked temp drop@ stack					
2.2 Pumps:					
- Has checked Lube Oil/Seal Oil					
- Has checked the performance of the Cooling Water					
- Has checked performance of the Oil Mist system					
- Has checked noise level of the Pumps					
2.3 Compressor:					
- Has Drained liquid/water @ the knock-out pots					
- Has checked Lube Oil/Seal Oil level and top up as required					
- Has checked cooling water performance(if applicable)					
- Has checked unusual noise of the compressor					
2.4 Fin-Fans					
- Has checked unusual noise of the fan coolers					
- Has checked the lube oil and topped up as required					
2.5 Heat Exchangers					
- Has checked the leakage of oil around the flanges					
A-3: Operations on the others support facilities					
3.1 U-700					
- Has checked Open Sump of the sulphur seal leg					
3.2 Propane					
- Has checked Status of the purge pot for propane					
3.3 Sumps					
- Has Drained and checked Oil Sumps in responsible area					
3.4 HOU					
- Has Checked and Drained liquid knock-out drums					
A-4: Samplings					
- Has taken Samples: DAO, Asphalt, Water at open ditch respectively					
A-5: Checking Chemical Stocks					
- Has checked Stroke/level of NH ₃ and Anti-foam in responsibilities area					
A-6: Supports to 5P Energy Conservation Activities					
- Has checked the cleanliness and maintained the area in tidy conditions					
- Has checked Steam Traps in the area to ensure no malfunction					
B: Non-Routine Activities					
- Has performed truck Loading Liquid Sulphur					
- Has Cleaned Strainer at seal leg @ SRU					
- Has performed make-up Hot Oil (fresh) into the system					
- Has performed on line cleaning E-109					
- Has co-ordinated for On-line cleaning at furnace					
- Has checked Hand Tools and maintained them to hung on the right places					
C: Monthly Activities					
1. Has Switched the spare Transfer Pump in the area (every 2 months)					
2. Has checked the Status of TSV/PSV e.g.leakage one by one					
3. Has checked Ignitor performance of the HOT Oil heater					

Operator Signature: _____

SS./LTO Signature: _____

Figure 4: Checklist task for field operator in each unit

RO: FIELD OPERATION WORK LIST <> Area : SDU-2 and Utilities						
Date: _____		Shift: _____		Name: _____		
Description		Yes	No	???: ????	Operator Feedback to SS./LTO	Acknowledged by SS./LTO
A: Daily/Routine Activities						
- Has received information of shift handover from the previous shift						
- Has conducted Tool-Box discussion/Brief regarding the planned activities						
- Has read Daily Instruction or DOP/WOP and well understood						
A-2: Operations, Plant and Equipment Monitoring						
2.1 pumps	-Has checked the Oil cup./Oil mist./Seal Oil pot./Cooling					
	-Has checked Mech seal ,vents and drains					
	-Has checked unusual noise of Pumps/Motors					
2.2 Heat Exchangers						
	-Has checked the leakage of oil at the flanges					
	- Has checked the key Pressure&Temp reading					
2.3 Inert gas/inert gas stripper section						
	-Has checked the performance of Vacuum pump system					
	- Has checked oil level in 400-V-511					
	- Has checked oil level in 400-V-521					
	- Has checked oil level in 400-V-611					
2.5 Dwo mix and Slax wax mix section						
	- Has checked water level in 400-V-301					
2.6 Solvent Recovery						
	- Has checked water level in Boot of 400-V-106					
	- Has checked abnormal noise of all Fin-fans					
2.7 Storage and slop tanks						
	- Has checked water level in the open sump pit at 400L-V-111					
	- Has checked vents and Drains system of 400L-T-101,102,103					
	- Has checked vents and Drains system of 400L-T-104,T-501					
A-3: Utilities						
3.1 4000L	-Has checked Letdow and condensate recovery system					
	-Has checked Condensate water sending to TOP (Visual)					
3.4 4400L	-Has checked Tempered water system					
3.2 4500L	-Has checked Back-Wash at Raw Water system					
	-Has checked water level in Clear well					
3.4 4700L	-Has checked the pluggin Screen at the CW basin					
	-Has checked the performance of Cooling water fans					
	- Has checked the leakage of chemical store area					
	- Has checked lue oil level of 4700L-M-101A/B					
A-4: Samplings						
- Has taken Samples; routine/Non-routine and special request						
A-5: Checking Chemical Stock						
- Has checked Stock/level Lube Oil, Oil-Mist						
A-6: Supports to 5? \Energy Conservation Activities						
- Has checked the cleanliness and maintained in a tidy state						
- Has checked the performance/leakage of Steam Traps						
B: Non-Routine Activities						
- Has checked Hand Tools and maintained them in the right place						

Operator Signature: _____

SS/LTO Signature: _____

Figure 5: Checklist task for field operator in each unit

RO: FIELD OPERATION WORK LIST ⇔ Area : Off-site and Oil Movement (Tank - A/B)						
Date: _____		Shift: _____		Name : _____		
Description		Yes	No	Others specify	Operator Feedback to SS/LTO	Acknowledged by SS/LTO
A: Daily/Routine Activities						
A-1: Work Preparatory prior to start work						
- Has received information of shift handover from the previous shift						
- Has conducted Tool-Box discussion/Brief regarding the planned activities						
- Has read Daily Instruction or DOP/WOP and well understood						
A-2: operations, Monitoring Plant and Equipment						
2.1 Pumps:	- Has checked level of Lube Oil/Seal Oil					
	- Has checked performance of Cooling Water system (if applicable)					
	- Has checked the tracing steam systems					
	- Has checked the performance of Drain system and Oil Mist system					
	- Has checked the noise level at the Pump stations					
2.2 Tank	- Has correctly lined up each activities					
	- Has perform tank dipping when product delivery/transferred					
	- Has followed WOP/DOP when loading products to trucks or ship					
	- Has Transferred tank in according to DOP/WOP					
	- Has performed circulate tank in according with DOP					
2.3 Slops (U-6300)	- Has checked smell, level, and drain water in V-101/T-201					
	- Has checked Oil level at 6300-M-101					
2.4 Culvert	- Has checked culvert to ensure no liquid and debris					
2.5 Bitumen	- Has performed Line-up for Bitumen Feed Blending					
A-3: Operations in others support area						
3.1 Check Status water drain valve of the tank bund A ,B ,C , D						
3.2 Has checked the performance of the tank heater						
3.3 Has checked level of DO sumps at Tank A, B, C and D						
3.4 Has checked underground drain						
3.4 Has checked tracing steam system of Heavy oil pumps e.g. Wax , Bitumen, Asphalt , VR						
A-4: Samplings						
4.1 Has taken Sample in accordance with schedule						
4.2 Has checked abnormal of sample prior to sending to lab (visual)						
A-5: Checking Chemical Stock						
A-6: Supports to 52 Energy Conservation Activities						
- Has checked the cleanliness and tidiness of the working area						
- Has checked the performance of Steam Traps in the responsible area						
B: Non-Routine Activities						
1. Has taken water sample from AOC , COC						
2. Has taken special sample as requested						
3. Has performed sending of AOC , COC to TOP						
C: Monthly Activities						
1. Has performed Switching standby Transfer Pump (every 2 months)						
2. Has checked Status, Leak of the TSV/PSV's						
3. Has test running of sewer water diesel engine pump						

Operator Signature: _____

SS/LTO Signature: _____

Figure 6: Checklist task for field operator in each unit

RO: FIELD OPERATION WORK LIST <> Area : Off-site and Oil Movement (Tank - C/D)					
Date: _____		Shift: _____		Name : _____	
Description	Yes	No	Others specify	Operator Feedback to SS./LTO	Acknowledged by SS./LTO
A: Daily/Routine Activities					
A-1: Work Preparatory prio to start work					
- Has recievd information of shift handover from the previous shift					
- Has conduted Tool-Box discussion/Brief regarding the planned activities					
- Has read Daily Instruction or DOP/WOP and well understood					
A-2: Operations, Mornitoring Plant and Equipment					
2.1 Pumps:					
- Has checked level of Lube Oil/Seal Oil					
- Has checked performance of Cooling Water (If applicable)					
- Has checked steam tracing system					
- Has checked performance of Drainage and Oil Mist systems					
- Has checked the noise level of the Pumps					
2.2 Tank					
- Has correctly lined up activities					
- Has performed tank dipping when delivery products /transferred product					
- Has performed task uin accordance with WOP/DOP for sailing product via trucks or ship					
- Has Transferred tank In according to DOP/WOP					
- Has performed circulating tank as in according to DOP					
2.3 Slops (U-6300)					
- Has checked smell, level and drain water from V-101/T-201					
- Has checked oil level at 6300-M-101					
2.4 Culvert					
- Has checked culvert to ensure no liquid and debris					
2.5 Bitumen					
- Has performed Line-up for Bitumen product blending					
A-3: Operation In others support area					
3.1 Check drain valve status of the tank bund A ,B ,C ,D					
3.2 Has checked the performance of the Tank Heater					
3.3 Has checked level of DO sumps at Tank A , B , C and D					
3.4 Has checked underground drain systems					
3.4 Has checked the tracing steam lines of Heavy oil pumps e.g. Wax , Bitumen, Asphalt , VR					
A-4: Samplings					
4.1 Has taken Sample as schedule laid down					
4.2 Has checked abnormality of sample prior sending to lab (visual)					
A-5: Checking Chemical Stock					
A-6: Supports to 5?-Energy Conservation Activities					
- Has checking the cleanlinessand tidliness of the responsible area					
- Has checked the performance of Steam Traps					
B: Non-Routine Activities					
1. Has taken water sample from AOC , COC to lab					
2. Has taken special sample as requested					
3. 7920630000 AOC , COC					
C: Monthly Activities					
1. Has performed Switching standby Transfer Pump in the area (every 2 months)					
2. Has checked the status or leakage of TSV/PSVs					
3. Has performed test running of the sewer water diesel engine pump					

Operator Signature: _____

SS/LTO Signature: _____

Figure 7: Checklist task for field operator in each unit

APPENDIX 5

OPERATOR COMPETENCE ASSESSMENT RECORD

LEVEL 1 -- OPERATOR COMPETENCE ASSESSMENT RECORD

Candidate Name Emp. No. JG
 Work Area/Unit Date of Assessment
 Equipment Name

Assessor Name 1.....23

Unit of competent to be assessed: Shift Handing over for Process Operations

Sources of Evidence:

- A Workplace observation B Oral question C Skill test D Written
 E Review records / logs

Competence Required	Assessment Result		Evidence				
	Competent	Not Competent	A	B	C	D	E
<p><i>As a result of your assessment of the candidate you must be confident that he :</i></p> <p>ELEMENT 4.1: Log sheet Writing</p> <p>1. Understand and able to correctly explain how to write the log sheet in accordance to Work Instruction</p>	<input type="checkbox"/>	<input type="checkbox"/>					
<p>2. Able to write the content in the structured log sheet by analyzing the need of information to be written.</p>	<input type="checkbox"/>	<input type="checkbox"/>					
<p>3. It should be precise and concise, described the target of action or proactive action . Know the consequence if failure to described such things</p>	<input type="checkbox"/>	<input type="checkbox"/>					

Unit of competent to be assessed:

Shift Handing Over for Process Operations

Sources of Evidence:

- A** **Workplace observation**
 B **Oral question**
 C *Skill test*
 D **Written**
- E** **Review records / logs**

Competence Required	Assessment Result		Evidence				
	Competent	Not Competent	A	B	C	D	E
<p><i>As a result of your assessment of the candidate you must be confident that he :</i></p> <p>ELEMENT 4.2: Conduct Shift Handover</p>							
1. Able to conduct face-to-face at shift and able to explain why two ways communication is important	<input type="checkbox"/>	<input type="checkbox"/>					
2. Know how to and able to handover to the person who have long absent from work or handover to in-experience operators	<input type="checkbox"/>	<input type="checkbox"/>					
3. Know how to handover during Startup/Shutdown/Emergency	<input type="checkbox"/>	<input type="checkbox"/>					

Shift Handing Over for Process Operations

Feedback on Assessment / Other comments

.....
.....
.....
.....
.....

Personal Development Plan

.....
.....
.....
.....

Approve by Section Head..... Candidate

Date:

BIOGRAPHY

Jesada Kirdsawasdi was born on 12 June 1980 in Chonburi, Thailand. In 2000, he went to study at Thammasat University, in Twinning Engineering Program (TUNU), Faculty of Engineering which cooperative with University of Nottingham. His major was Mechanical Engineering. In 2004, he has obtained his Bachelor Degree in Mechanical Engineering Third Class Honors from University of Nottingham and Bachelor Degree in Mechanical Engineering from Thammasat University. Later on he started his first carrier at Foster Wheeler International Cooperation, Thailand for 1 year as a piping design engineer. In the mean time, he was also a part time student at the Regional Centre for Manufacturing Systems Engineering as known as (RCMSE), Chulalongkorn University, Thailand and University of Warwick, United Kingdom.

After one year of his carrier passed by, he then joined PTT Aromatics and Refining Public Company as known as (PTTAR) which is a company of PTT group in the year 2005. His position is Maintenance and Construction Engineer, responsible for minor mechanical repair, project mechanical construction plant change and expansion, tank maintenance and plant unit shutdown activity.

