



CHAPTER III

BACKGROUND OF THE ORGANIZATION OF CASE STUDY AND PROBLEM

3.1 Background of the organization

The refinery was established in 1993, constructed by JGC cooperation Japan and started up in 1998.

Raw material is the Arab Light Long Residue from Crude Distiller, some of them from largest distributor refinery and other portions are imported. The products are:

1. Lube Base Oil 275,000 MT/Year
2. Bitumen 425,000 MT/Year
3. By-products 500,000 MT/Year

3.2 Operations Department:

The main tasks are to operate plant as planned laid down by following the Daily Instructions, Weekly Plan, Movement Daily instruction and others specific work instructions in the correct, safe, with no environment impact and optimize manner. There also have other support functions e.g. maintenance, Technology etc. so as to ensure reliability and smooth running of the process plant/facilities.

3.2.1 Organization:

Most of the operating personnel are assigned shift work consisted of 4 shifts e.g. A-D, with 12 hours of shift work duration. Shift cycles are 2 days and 2-4 days for their day off. Shift work organization is:

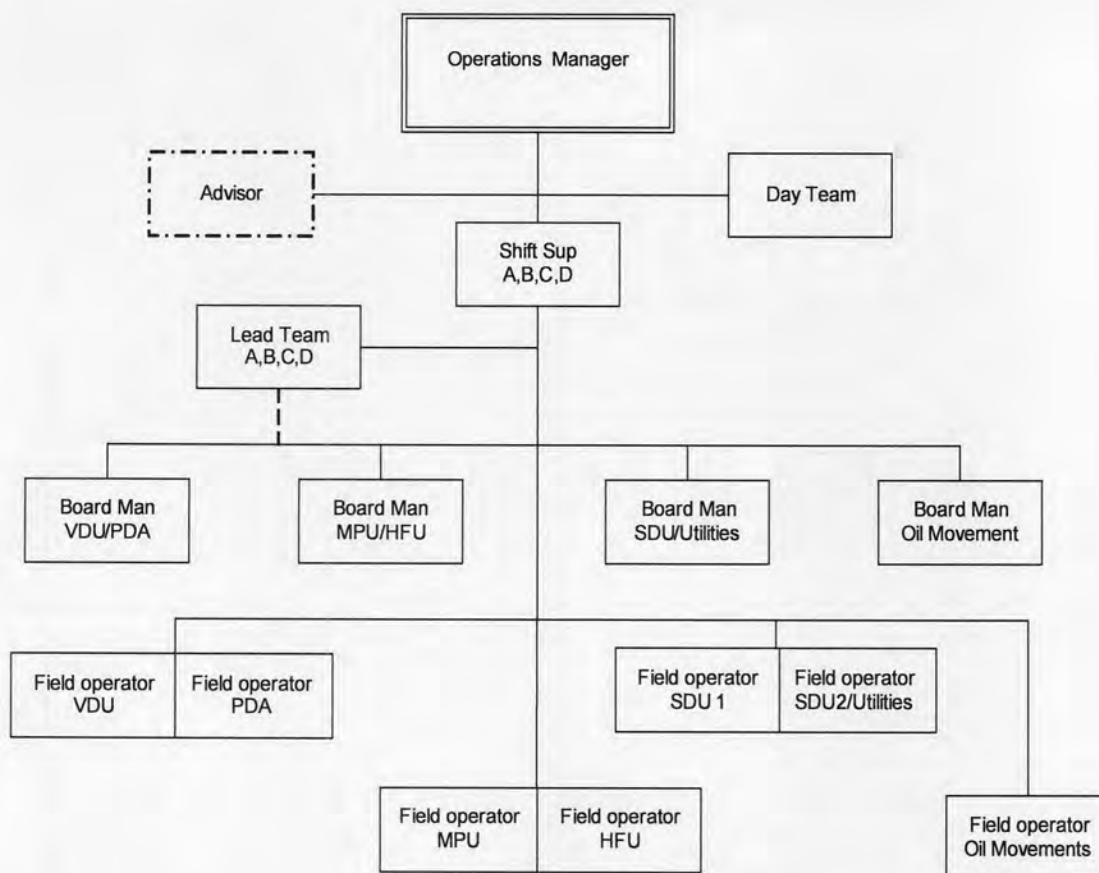


Figure 5: Shift work organization

Each of operators has their own log sheet to log the events or plant status during shift. For LTO and Shift Sup log sheet more details report of the whole plant and difference from the operator's logs. The way of writing differs due to style of each person.

3.3 Summary of principal accountabilities on each position in shift team

- **Refinery Operation Manager:**

To provide leadership and guidance to the operating team and maintain the plant to process the planned/targeted throughputs maintaining quality and product pattern parameters in a safe manner making optimum use of resources. Responsible for the safe, environmentally friendly operations. Responsible for harmonious industrial relations in the unit.

- **Shift Superintendent:**

To manage, integrate and co-ordinate all shift operation activities of processing unit, Utilities and Oil Movements/Offsite to meet operation plans and company KPI with full commitment to efficiency, productivity, health, safety and environment.

Despite of the large span control, geographical areas of work and technological company, the job incumbent must be maintained the overview of update situation; anticipate the problems, proactively coordinate/solve with concerned parties. In order to do

this, he has to establish effective handover where critical information is effectively transferred between shifts; good follow up system by setting daily priority of his work.

- **Lead Team Operator (LTO):**

Under direction of Shift Superintendent, to lead and organize team operators in performance of all operational works for the units under their responsibility to ensure that optimum plant operation is achieved, meeting all efficiency, productivity, HSEQ and KPI targets, by necessary co-ordination and consultation within as well as other operational section, engineering, technological and other sections, and to stand-in for Shift Superintendent as required.

The incumbent must have reasonable theoretical knowledge and wide experience of various units, in particular, how units affect or be affected by other units, physically and finally, in order to decide on optimum conditions which will benefit the over all plant. With changing product specs and prices, and more demanding SHEQ requirements, he being in front-line role, plays an important part to ensure economic operation that will satisfy the customers, the law and the environment demands.

- **Panel Operator (DCS console):**

Under the direction of Shift Superintendent and under the leadership of Lead Team Operator, to help plan and execute operational panel control in the MCB (or field work), to ensure that optimum plant operation is achieved, meeting all efficiency, productivity, HSEQ and KPI and PIT targets, by necessary consultation and cooperation within the team, and exercising engineering and operation know how to rectify minor plant and equipment problems, ensure maximal plant availability.

- **Field Operator:**

Under leadership of LTO to help plan and execute field operational work, and specialist engineering work, as well as work within minor maintenance by operator, to secure that optimum plant operation is achieved, meeting all efficiency, productivity, HSEQ and KPI/PIT targets, by necessary consultation and cooperation with in the team and exercising engineering specialist and general know how to rectify minor plant and equipment problems, ensuring that maximal plant availability.

DAILY OPERATION FLOW CHART

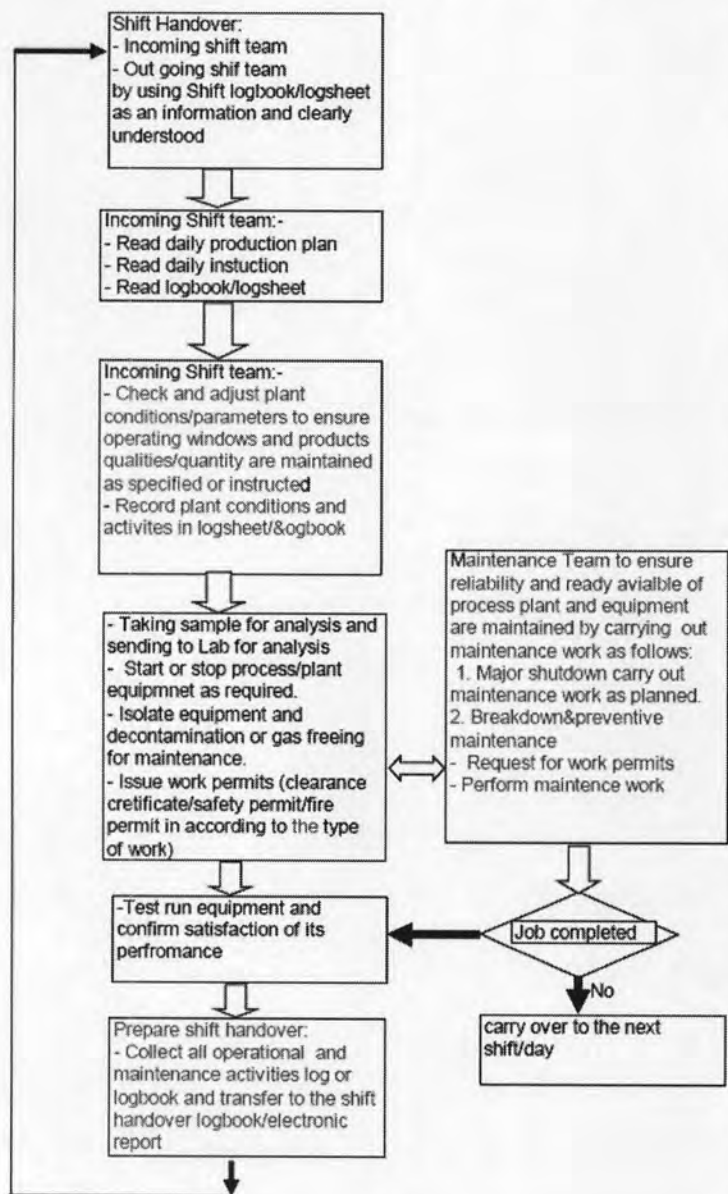


Figure 6: Shows Flow diagram of Daily operation

Refinery operations shall not be specifically laid down in procedures at every situation. A wide variety of problems may arise and causes and solutions would be complex. Nevertheless he will normally seek advice from his shift supervisor/lead team operator before action is taken, the Panel man is required to be able to assess these situations from his control panels. He is able to do this only because of his thorough knowledge of facilities in his area. He also has to pay attention to the energy conservation.

3.4 Background Behind of Shift Handover:

There were accidents & incidents occurred three times from the last 6 months. This made the company lost profit/image and also unsatisfied to the customers due to sale products off spec. The first two incidents were investigated and found miscommunication particularly arisen by unclear report in the log sheet. These cost approximately 2, 400, 00 US dollar loss. The other accident befell during preparation of the storage tank for repairing the collapse of storage tank. The event of this accident is:

- The bitumen tank was reported the roof being collapsed due to pressure vacuum valve failure to function. The decision was to shutdown and empty.
- The system was isolated (in and out valves were closed and tag out). The tank was pumped out till pump lost suction.
- Manhole was opened in order to use the mobile pump to suck the remaining oil on the tank floor. Unfortunately, the mobile pump was not ready to available at site on that day so the activity has postponed to the next day
- About 03.00 of the night shift, an operator performed the bitumen product circulation without checking the isolated valves at the mentioned tank.
- 04.30 hrs there was smoke from the opened manhole of the shutdown tank. Operator in that area suspected that there must be product passing into the tank then quickly stopped the bitumen circulation. Later on found that one small connection line the isolating valve was left opened.
- This mis-lined up and the consequence of hot bitumen product storage tank which has overflow from the manhole is a critical safety aspect (near miss)