



SECTION 6

HEALTH, SAFETY AND ENVIRONMENT

MANAGEMENT SYSTEM:

TRAINING AND MONITORING PLANS



Section Summary

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6.1 Introduction

LAB project introduces a kind of plant and technology not currently present in Syria. The new initiative requires that adequate training and preparedness are put in place in order to get personnel adequate professional level and awareness of health, safety and environment (HSE) matters.

Daaboul Company has recently got experienced in applying a quality assurance system to one of its plants, being certified ISO 9001 in 1999. On the base of this first experience, the Company intends to apply principles of good management also to the new LAB site, with particular attention to HSE matters.

Before plant commissioning and start-up, an intense activity of planning and training will be done, based on the following program:

- **July 1st** beginning of pre-commissioning phase, with mechanical tests implementation, housekeeping and all the necessary actions preliminary to commissioning phase;
- **October 1st** beginning of commissioning phase, with fluid feeding to the plant and all the necessary actions preliminary to start-up.

In the following paragraphs a synthetic description of the first elements of HSE management systems to be developed, of the main features of training plan and HSE monitoring plan will be presented. More detailed plans will be developed in the next months.



6.2 HSE Management principles

Before plant commissioning and start-up the fundamental elements of HSE management systems will be defined, in order to implement adequate training activities and elaborating or reviewing the necessary documentation.

The fundamental elements that will be developed are:

- 1 Organization and personnel tasks, with particular reference to HSE matters
- 2 Safety procedures
- 3 Operating manuals
- 4 Emergency response and preparedness
- 5 Periodical review of management practices

1) Organization and personnel with HSE specific tasks

In LAB site organization, all personnel will be informed and trained in order to be responsible for his own and his colleagues safety and for proper operation in order to avoid incidents and to protect environment.

With reference to the following **Fig.6.1**, describing a typical organisation chart that could be applied to LAB site, a group with specific tasks in Quality and HSE matters is foreseen.



Daaboul Co. for Petrochemical Industries
New LAB Factory typical organisation chart
Deir Ali - Damascus (Syria)

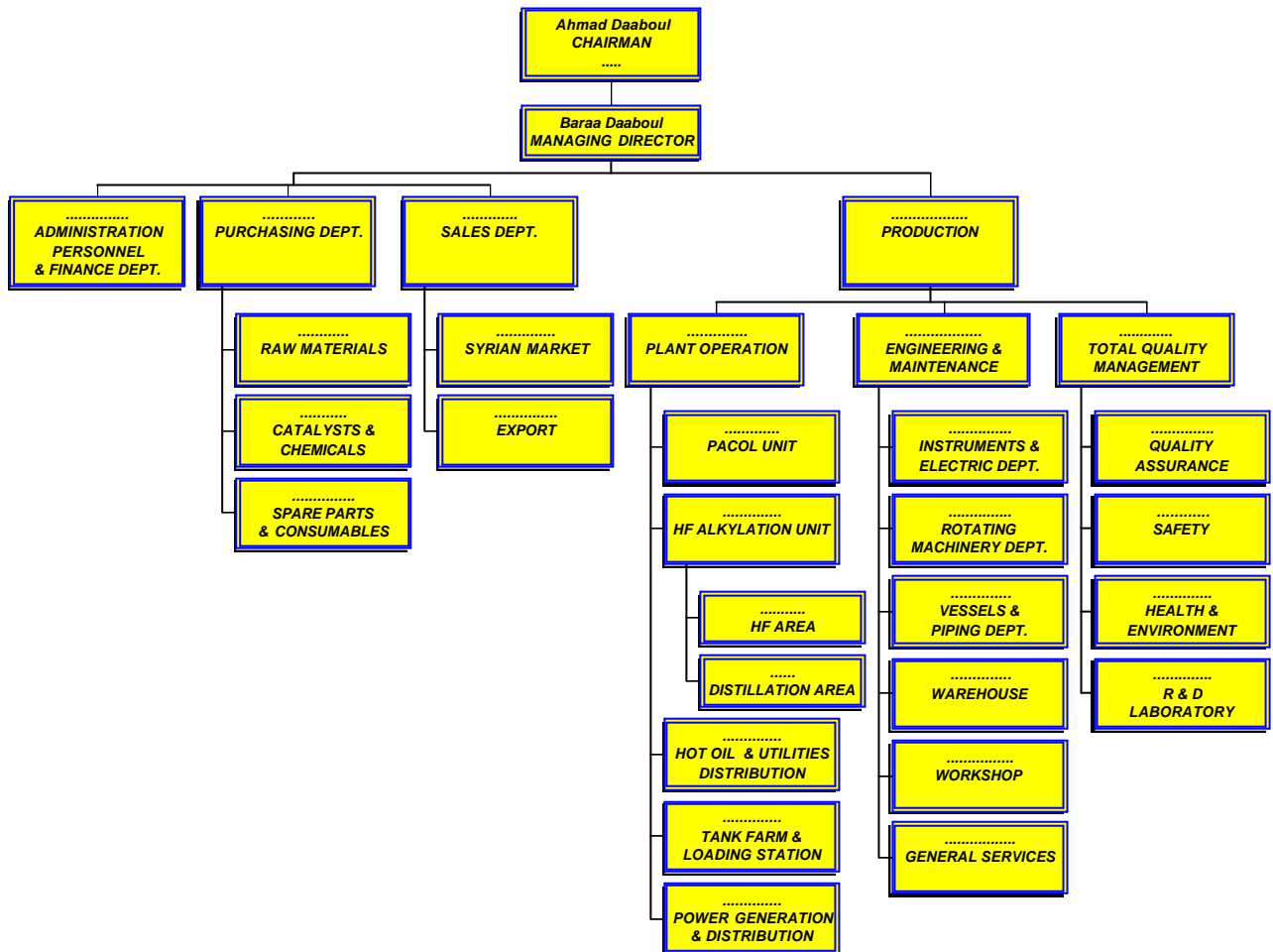


Fig. 6.1: Organization chart

Personnel in this group will be more deeply trained in HSE (hazard identification, risk evaluation, HSE management system, HSE monitoring and reporting, HSE procedures); they will have a key role in developing internal HSE regulations and procedures and in maintaining the necessary updating information in HSE matters. They can also have a role in internal training.

HSE group will also coordinates the activity of medical services. Medical personnel will be trained on benzene and HF specific hazards, precautions and medical treatments, according to UOP and NIOSH more recent standards.



LAB plant infirmary will be provided with appropriate HF treatments methods (magnesium oxide, benzalkonium solution etc.), according to reference standards.

More detailed responsibilities and tasks, also with reference to other Functions in the organization, will be developed in the next future.

2) HSE procedures

Main HSE procedures will deal with the following matters:

- Access to the plant regulation
(personnel identification, permitted/restricted areas, base HSE and emergency information, specific HSE information/safety precautions for external workers)
- Working permit
(risk evaluation and HSE precautions before inspection/maintenance activities, permissions required)
- Vehicles circulation
(permitted/restricted areas, parking areas, maximum velocity, safety precautions)
- Protective equipments
(necessary protective equipment in order to access to different plant areas, delivering to personnel, periodic controls and substitution)
- Housekeeping
(waste management, working areas housekeeping)
- Emergency response procedures and emergency drills
(procedures for specific events mitigation and general emergency plan, external communication, emergency drills program)
- Accidents and near accidents recording and reporting
(periodical review of negative events occurred with any damage to persons, environment or equipment, causes and prevention measures identification and implementation).
- HSE monitoring and reporting



(planning and implementation main HSE parameters monitoring, results recording and reporting)

3) *Operating manuals*

Operating manuals and other technical documentation will be provided to LAB site personnel by translating to Arabic the existing UOP operating manuals, with the necessary integrative parts and updated information.

4) *Emergency response and preparedness*

As already mentioned in previous point 2, emergency procedures for specific incidents mitigation will be defined, on the base of information and indication contained in UOP documentation.

A general emergency plan, in order to get ready and respond in case of 'top events' will be defined, also on the base of incident analysis in progress.

A program for emergency preparedness will be defined, with periodical emergency drills involving all personnel and with specific fire fighting/HF leakages training for a specialized group (see also next paragraph 6.3).

5) *Periodical review of management practices*

In order to identify possible improvements in operations and organization periodical review will be planned. Main issues to be dealt with will be: accidents and near accidents events and analysis, HSE main parameters monitoring results, training activities and their effectiveness, organization modifications and so on.



6.3 *Training plan*

The main features of personnel training and preparation plan are highlighted below.

1) *Personnel recruitment*

New plant employees will be chosen from personnel with previous experience in Syrian refineries or in similar other Countries LAB plants.

Personnel will be also chosen among graduated students in petrochemical process from Damascus University.

Personnel recruitment will end within April 2002.

2) *Professional training*

- A “Basic training course” of 1 month (presumably 1 week modules of about 8 people per group) will be conducted to make plant’s operators familiar with the plant main equipment and to teach the process fundamentals with the use of standard training aids.

In this period, when free from courses, personnel will get familiar with plants under the guidance of trainers.

The basic course will be concluded within May 2002

- A 2-week “Refreshment/Advanced Process Training Course” for the key personnel (shift supervisors, plant management) will be held, within end of June 2001.

Trainers will be taken both from UOP and from Ballestra..

On-site training in other similar plants is foreseen, if practicable.



3) *Safety and environmental training*

A safety training program will be provided for all operative personnel as follows.

- General safety training, concerning:
 - Chemical substances hazards and classification
 - Other hazards present in LAB site
 - General protective equipments
 - Safety and environmental precautions
 - Base features of the emergency plan
 - Principles of fire fighting and first aid.
- Benzene and HF specific training:
 - HF and benzene hazards
 - protective equipments and safety precautions
- Internal safety and environmental procedures training:
 - working permit, sampling, emergency response plan, etc

For a selected group of operators, who will be given specific tasks in emergency plan and fire fighting:

- Emergency plan and procedures in detail
- Fire fighting training:
 - general principles
 - specific training for LAB plant,
 - fire fighting systems and protective equipment
 - simulations.

For medical personnel, specific training will be provided concerning:

- Hazards present in LAB site
- benzene and HF specific hazards:
 - precautions and medical treatments
 - monitoring program.



6.4 HSE monitoring plan

HSE monitoring plan will be developed considering the following main items:

1. Hazardous substances (mainly Benzene, HF, VOC)
2. Noise
3. Fuel combustion
4. Water use and discharge.

In the following a brief description of the monitoring activities is presented.

1) Hazardous substances

- Periodical monitoring of Benzene and Volatile Organic Compounds will be performed inside LAB site, in order to verify actual workers exposition to hazardous substances with respect to ACGIH and other applicable standards and in order to verify concentration values at the plant fence.

An appropriate medical control program will be defined for all internal personnel.

2) Noise

- A noise control campaign will be performed, in condition of ordinary plant operation, in order to define most noisy areas, where ear protection is mandatory and in order to verify noise pressure level values at the plant fence.

3) Fuel combustion

- Periodical air pollutant emission monitoring will be performed, in condition of ordinary plant operation, in order to verify actual emission values (SO₂, NO_x, TSP, CO) from the main stacks.
- Periodical air quality monitoring will be performed in the external area surrounding LAB site in order to verify actual concentration values of main pollutants from fuel combustion (SO₂, NO_x, TSP, CO).



4) *Water use and discharge*

- Groundwater consumption and quality will be accurately monitored, in order to verify eventual chances for optimisation.
- Waste water discharge quality will be periodically monitored, with reference to the different waste water streams.