PLANT LOCATION AND SELECTION

The location of the plant is a crucial parameter in the profitability of the project and in the quest for future expansion. Various factors decide the location of a plant. An overview of some factors is made here.

(1) Market availability:

An effort must be made to locate the plant quite close to the primary market, as this will reduce transportation costs.

(2) Raw material availability:

Xylenes are manufactured from petroleum cuts and hence have to be located in the main petrochemical complex to avoid unnecessary transportation of the raw material.

(3) Available transportation infrastructure:

Transport of materials and products is an important consideration in the selection of the location. The site must be adequately connected by road, rail and waterways (river or a port) to ensure smooth movement of materials.

(4) Availability of labor:

A petrochemical complex being a labor-intensive organization, skilled and unskilled labor is important considerations. A local pool of unskilled laborers, availability of skilled workers for plant maintenance, local trade unions and restrictive practices are some of the factors that need consideration.

(5) Availability of utilities:

Water, power and fuel are extremely important raw material for the commissioning of a plant. Water scarcity can adversely cripple the functioning of a plant, while power shutdowns necessitate the use of generators, which add to the capital and running costs. Hence these factors are of overriding importance. Petrochemical complexes may possess captive power generation plants, which may satiate the needs of the plant. Similarly fuel can also be obtained from the complex.

(6) Effluent disposal:

Effluent disposal is an important parameter. Local regulations on the limits of toxic and non- toxic wastes must be adhered to. Attempts must be made to recycle the wastewater; else the treated effluent must be discharged into natural streams.

(7) Local community considerations:

The proposed plant must fit into the general scheme of things of the community. The community safety must not be compromised by the proximity of the plant site. Health hazards should be kept to a low minimum and all safety precautions taken. The plant must serve the community in a constructive manner.

(8)Political and strategic considerations:

Capital grants, tax considerations and other inducements are often given by the government to direct new investments to preferred locations, such as areas of high employment. The availability of such grants can be the overriding consideration in site selection.

The economic construction and efficient operations of a process unit will depend on how well the plant and equipment specified on the process flow sheet is laid out. The chief factors to be considered are enumerated below:

(1) Economic considerations:

Adopting a layout that requires the least length of pipes and least amount of structural steel work can minimize the cost of construction. This layout, however, may not be the best arrangement for smooth operation.

(2) Process requirements:

All the requirements should be fully considered to ensure that none of the requirements are hampered.

(3) Convenience of operation:

Equipment that needs frequent maintenance and monitoring like valves, sample points should be located at convenient positions and height. Sufficient working space and headroom must be provided to allow easy access of equipment.

(1) Safety:

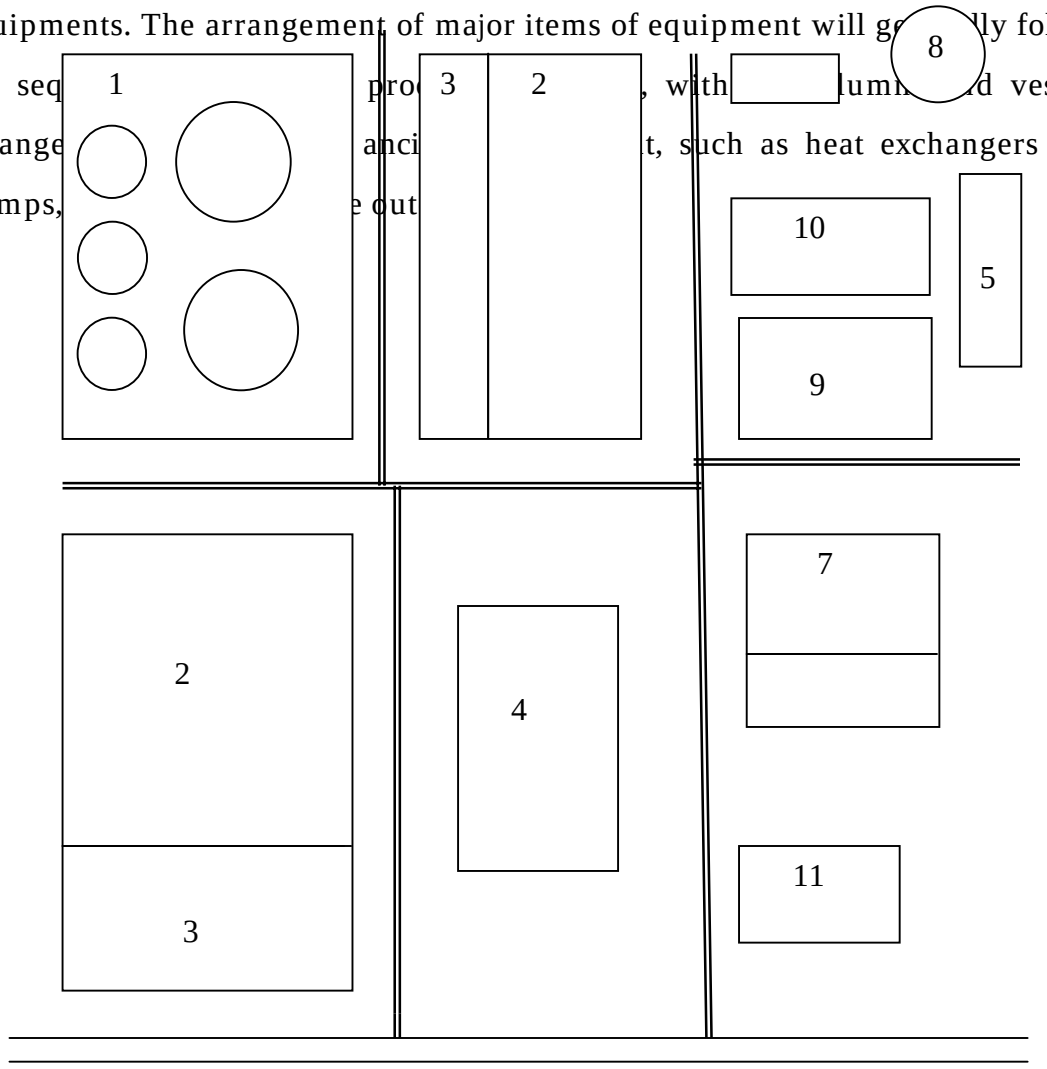
Blast walls may be providing to isolate potentially hazardous equipment and confine the effects of an explosion. At least two escape routes for operators must be provided from each level in the process building.

(2) Future Expansion needs:

Equipment must be suitably located so that it can be integrated into any future expansion plan.

(3) General considerations:

Open structural steelwork buildings are normally used for process equipments. The arrangement of major items of equipment will ge lly follow the seq pro , wit lumi d vessels arrange anci t, such as heat exchangers and pumps, e cut



1. TANK FARM
2. PLANT AREA
3. EXPANSION
4. PLANT UTILITIES
5. STORES
6. FIRE STATION
7. CANTEEN
8. EMERGENCY WATER
9. LABORATORY