CHAPTER V

PLANT MODEL CONSTRUCTION

After the economic study of the plant, a model of the plant is made to see the rough design and construction of the project as it shows 3-dimension layout of the plant. The piping will permit a comprehensive view of the overall plant. The modification and charges of the design can be made in the design first, as it costs less and saves time than in the detailed design. Plant model can also be used to demonstrate the flow of the process to the plant operators or for training and educational purposes.

The construction of the model is made according to the plant layout, the major equipment and the piping arrangement. The master plot plan for the plant is made for the processing area and storage area as shown in Figure V-1. The unit plot plan is shown in Figure V-2. The location of each unit and the location of the pipe rack is indicated in the unit plot plan. The arrangement of equipment is done in order that the piping layout be as simple as possible. The scale of the plant is 1":10'.

In constructing the model the space for maintenance and operation is considered in the unit plot plan. The space between major equipment is considered according to the safety of fire and other hazards.

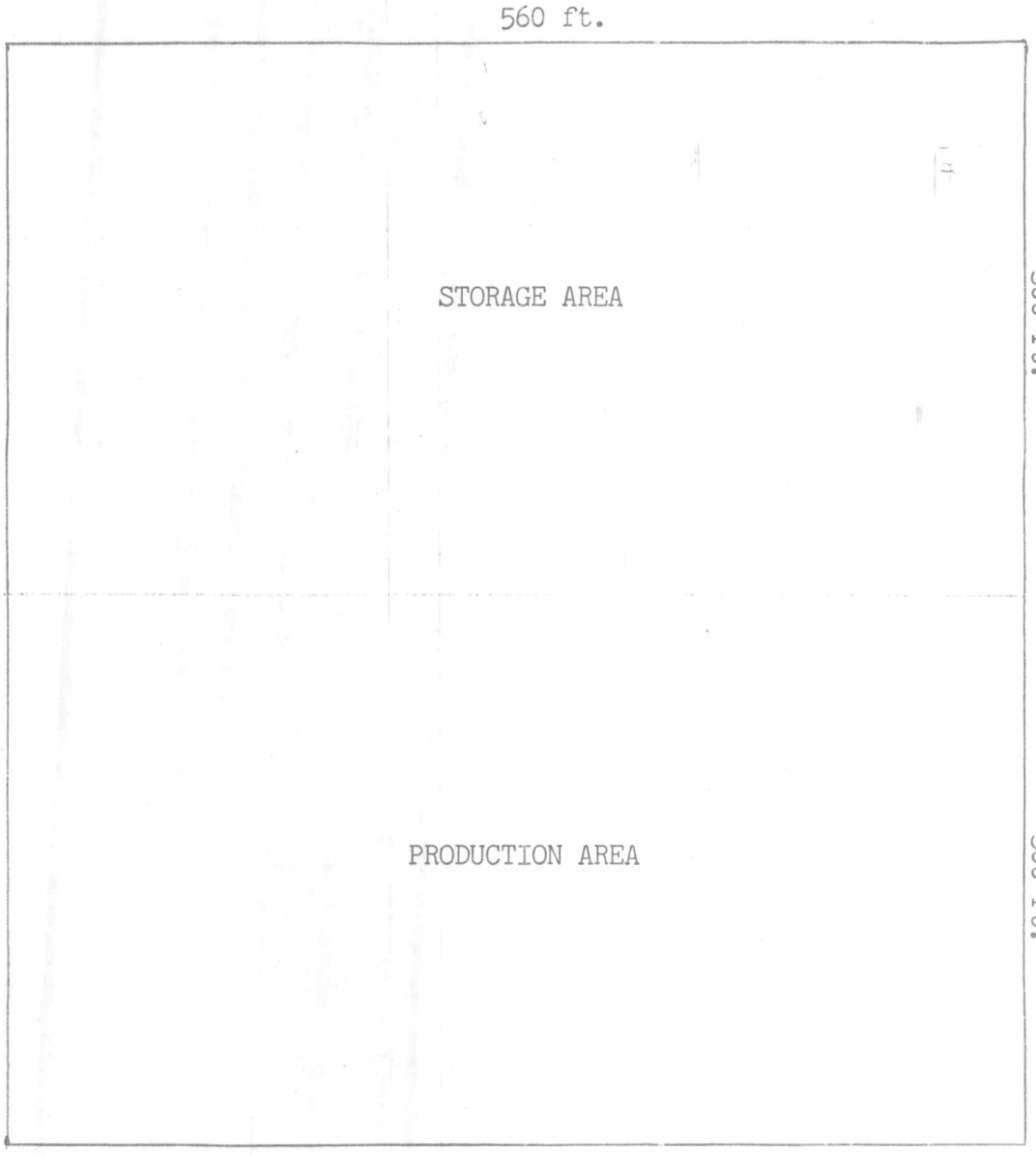

Figure V-1 Master Plot Plan

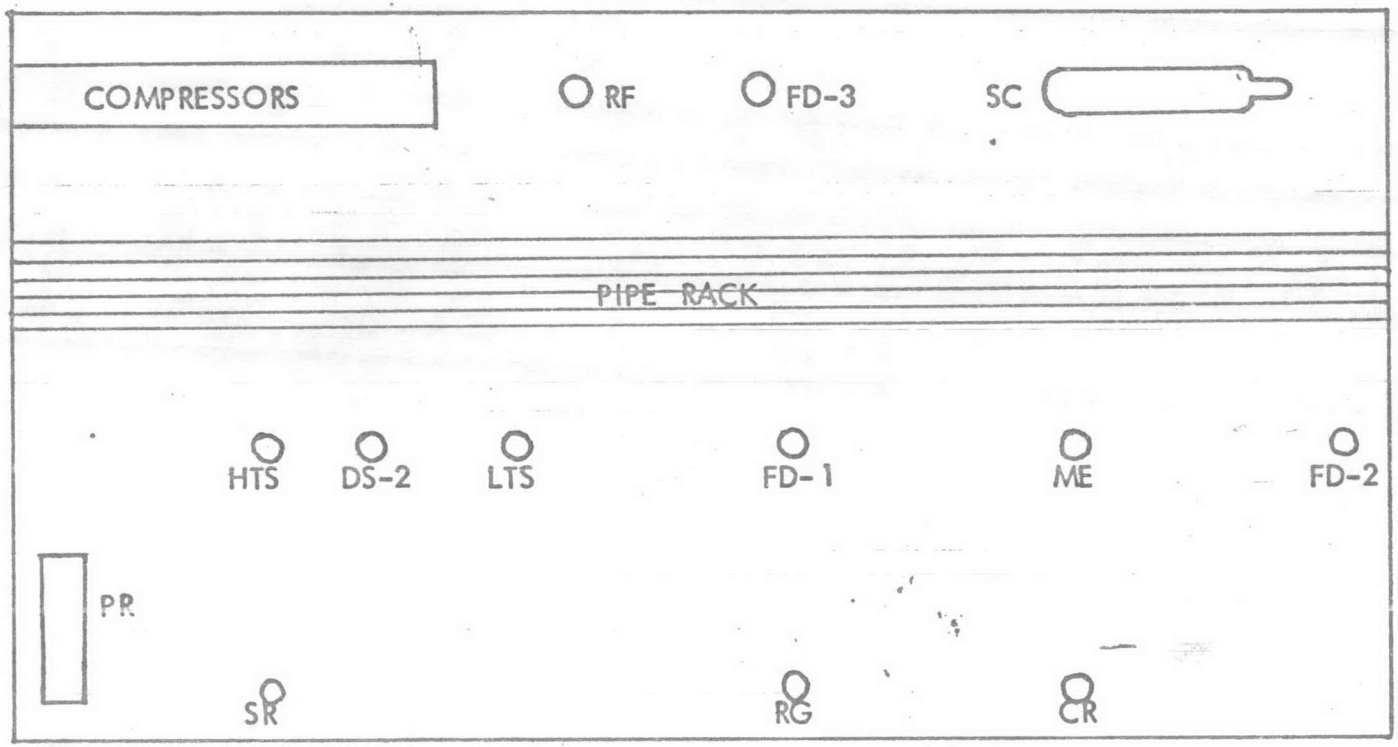

Figure V-2 Unit Plot Plan

The model is mainly made of wood and the piping of wire. The size of the equipment and the space can be determined from the equipment design sheet. The major equipment is constructed on the base as in the unit polt plan, then the pipe connection between the equipments. After the piping layout, labelling of each piece of equipment is made to correspond to the process flow sheet. The model construction is shown in Figure V-3.

This layout shows a preliminary idea of the plant and will be a criterion for site selection and geological consideration in the detailed design. Considerations upon the good practice, in safety, environment, construction, maintenance operation, room for future expansion and of process relationship such as gravity flow and pump suction head can be made from this preliminary model. Also potential problems can be prevented beforehand.

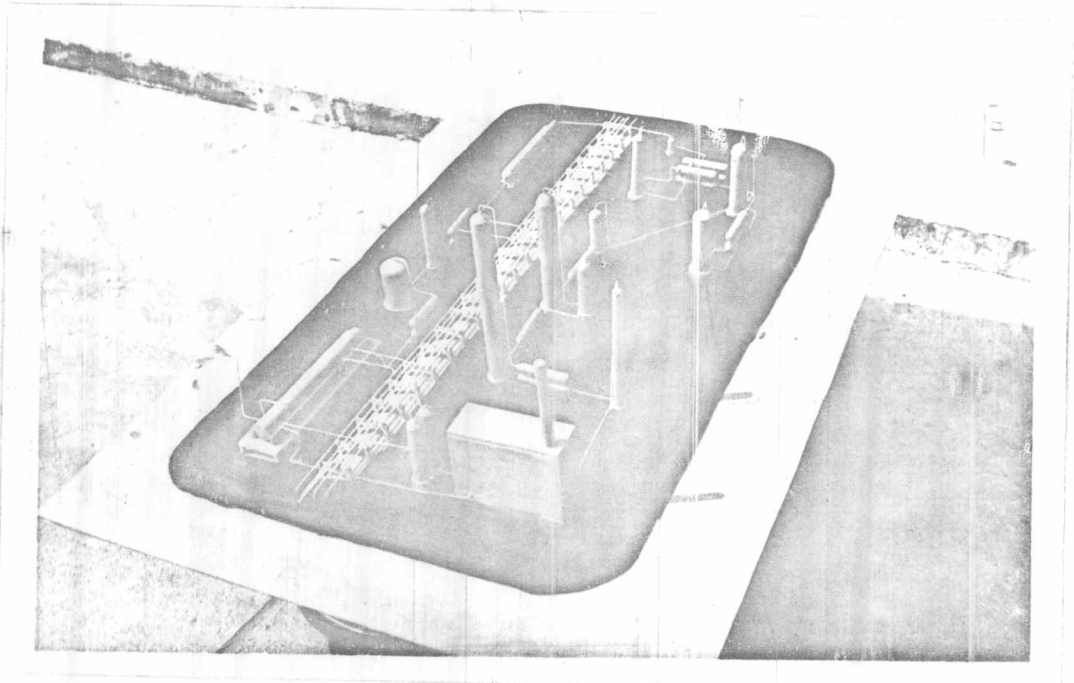

Figure V-3 The Model of the Designed Plant