d. Cyclic duty

e. Manually through selector switch provided for each pump (Hand / Off / Auto)

E. A selector switch for selection of operation through level controller or through float switches shall be provided in addition to automatic change-over from level control to float switches control in case of failure of level control. Normally this switch shall be kept at level control position.

F. The controls of the Plant shall be arranged in a logical order. Any failure or warning signal shall activate the annunciator. Whenever a fault occurs an indicator lamp shall illuminate the annunciator window to indicate the fault and a buzzer shall sound to give warning. It shall be possible to deactivate the buzzer but the visual signal shall remain until the fault is cleared or accepted. The control system shall be, accordingly, provided to enable executing the following tasks:

a. Full automatic control by RTU, in remote position selection

b. Enable local manual operation and control during maintenance or repair

c. Enable auto through PLC in local position selection

d. Safety devices cannot be overridden

e. Process programs cannot be changed without proper authorization

f. Set points cannot be changed without proper authorisation

g. Automatic change from Remote to Local if RTU failed

G. In case of unauthorised manipulation of control systems a remote and local alarm signal shall be given. This alarm can only be deactivated by resetting controls to their original operation points or by an authorised change. Any change of set-points shall be recorded in detail in the "event list".

H. For reference and guidance the control philosophy for the operation of pumps is attached as Appendix.

1.3.22 Programmable Logic Control (PLC)

1.3.22.1 Scope

The programmable logic controller (PLC) shall be provided as described herein which will receive discrete and analogue inputs. Through the use of relay ladder logic and other languages i.e. FBA, IL, Sequential Function Chart (SFC) etc., it will