APPENDIX – III

SPECIFICATION FOR BULK CHEMICAL HANDLING SYSTEM

1.0 Technical Specification:

1.1 Bulk Sulphuric Acid handling system

1.1.1 Bulk Sulphuric acid storage tank (BSAST):

1.1.1.1 The capacity of bulk Sulphuric acid storage tank shall be 10 m3 and BSAST shall be of horizontal cylindrical storage tank with semi-ellipsoidal dished end designed as per IS 2825. The material of construction of tank shall be **FRP** with **PP** lined **(14 mm thick).** The tank shall be provided with suitable ladder & platform for accessing valves and man holes. The minimum diameter of the man hole shall be 500 mm. Also it shall be provided with tubular type level gauges, vortex breaker, fume absorber, overflow, drain with isolation valve, vent etc. The tank shall be hydro tested at an atmospheric pressure for 30 minutes duration. The nozzles for level gauge and overflow shall be provided on the shell side of the tank and not on the dished end.

1.1.1.2 Double isolation valve shall be provided at the drain line and outlet of bulk Sulphuric acid storage tank.

1.1.1.3 One isolation valve shall be provided at drain line of dyke arrangement.

1.2. Sulphuric Acid Transfer Pump

1.2.1 The capacity of Sulphuric acid transfer pump shall be 5 m3/hr with suitable head to transfer the acid from the lorry tanker to the bulk Sulphuric acid storage tank. The material of construction of acid transfer pump shall be as per specification for centrifugal pumps.

1.2.2 The suction of Sulphuric acid transfer pump shall be provided with flexible hose (approx. length - 10 m) suitable to connect to lorry tanker and discharge piping from pump discharge to BSAST inlet. The acid will flow from bulk Sulphuric acid storage tank to acid measuring tanks by gravity and the pipe line shall be suitably sized. The minimum size of the interconnecting piping (UPVC) between bulk Sulphuric acid storage tank and acid measuring tanks shall be NB 40. The approximate length of the piping from BSAST to acid measuring tanks shall be 20 M.

1.2.3 The valves in bulk Sulphuric handling system shall be of UPVC diaphragm valves. The MOC of pipelines shall be UPVC for transferring the H_2SO4 from BSAST to Acid measuring tanks.

1.3 Bulk caustic handling system

1.3.1 Bulk Caustic Storage Tank (BCST)

1.3.1.1 The capacity of bulk caustic storage tank shall be 15 m3. BCST shall be of horizontal cylindrical storage tank with semi-ellipsoidal dished end designed as per IS 2825. The minimum shell & dished end thickness shall be 8 mm. The tank shall be supported on steel saddles welded to the shell and designed as per BS 5276, Part-2. The material of construction of the tank & the dished end shall be IS: 2062, Gr.B (FE 410W B). The tank shall be provided with suitable ladder & platform for accessing valves and man holes. The minimum diameter of the man hole shall be 500 mm. Also it shall be provided with reflux type level gauges, vortex breaker, fume absorber, overflow, drain with isolation valve, vent etc. The tank shall be hydro tested at an atmospheric pressure for 30 minutes duration. The nozzles for level gauge and overflow shall be provided on the shell side of the tank and not on the dished end.

1.3.1.2 Double isolation valve shall be provided at the drain line and outlet of bulk caustic storage tank.

1.3.1.3 One isolation valve shall be provided at drain line of dyke arrangement.

1.3.2 Caustic Transfer Pump

1.3.2.1 The capacity of caustic transfer pump shall be 10 m3/hr with suitable head to transfer the caustic from the lorry tanker to the bulk caustic storage tank. The material of construction of caustic transfer pump shall be as per specification for centrifugal pumps.

1.3.2.2 The suction of caustic transfer pump shall be provided with flexible hose (approx. length - 10 m) suitable to connect to lorry tanker and discharge piping from pump discharge to BCST inlet. The caustic will flow from bulk caustic storage tank to alkali measuring tanks by gravity and the pipe line shall be suitably sized. The minimum size of the interconnecting piping between bulk caustic storage tank and alkali measuring tanks shall be NB 40. The approximate length of the piping from BCST to alkali measuring tanks shall be 20 M.

1.3.2.3 The valves in bulk caustic handling system shall be of CPVC diaphragm valves / suitable for 48% caustic lye.