earth safe
Fuel Systems for Critical Facilities

M500 Generator Day Tank

A. Manufacturers
   1. Day Tank: Earthsafe M500
   2. Tanks: Modern, Containment Solutions
   3. Return Pumps: Viking, Tuthill
   4. Controls: Earthsafe Systems C800 or C900

A. General: Provide a packaged design fuel oil day tank. Day tank shall be for use with main tank in order to provide an automatic, self-refilling fuel supply system. Where a duplex or remote pump set is used, the day tank shall be equipped with an inlet solenoid valve and the day tank pump shall be eliminated. Where a generator base tank is used, the day tank is deleted and the control panel only is provided for installation on the base tank.

C. Design Criteria

1. Day Tank: The day tank capacity shall be 50 gallons or as indicated on the drawings. The tank shall be UL 142 listed rectangular steel tank with minimum 110 % containment basin. The day tank shall be finished with prime and finish coats of fuel resistant industrial coating.
   2. Dual Inlet Solenoid Valves: The day tank shall be equipped with dual solenoid valves, 100 PSI rated, normally closed, under control of level controller described below. The solenoid valve shall be protected by an upstream strainer. An inlet shutoff valve shall be provided. The inlet valves shall operate as primary and secondary valves and shall automatically alternate.

3. Day Tank Level Controller: Provide an electronic liquid level controller/indicator with functions to include: pump/valve level control, high / low / critical low level sensors, system alarms and manual operating controls. Level controller shall be based on an industrial grade controller with networking capabilities for system monitoring.

   a. Control Functions: The control functions shall include an “Auto-Off-Manual” fill control mode switch, a “press to test” fill control push-button, a pump/valve level control with output contacts for control of on-board solenoid valve and remote delivery valve and remote delivery system described above, and an overflow cutout.
   b. Duel Inlet Valve Control: The control panel shall provide for the automatic alternation of the dual inlet solenoid valves. The secondary valve shall open upon a low level condition in the day tank.
   c. Indication Functions: The day tank level controller shall be equipped with indicator lights for power on, pump on, high alarm, low alarm, critical low alarm, and tank leak
   d. Outputs: The day tank level controller shall be equipped with output relays for fill control, low level alarm, high level alarm, and tank rupture. The controller shall include a network adapter to interface with other control devices and the fuel system Network Interface Module.
   e. The level controller shall have an intrinsic overflow cutout backup control which, upon sensing a high level, will open the fill control contacts, close the fill control solenoid valve and stop the fuel delivery system.
   f. The level controller shall monitor a leak sensor in the day tank containment space.

D. Accessory Equipment

1. Level Sensor: The level sensor shall be a solid state capacitance type sensor with no moving parts. The sensor shall indicate 4 level positions High Alarm, Fill Stop, Fill Start, and Low Level.

2. Return Fuel Pump. Where required for return flow to a bulk storage tank, the day tank shall be equipped wit a return fuel pump and controls. The pump shall be sized to provide 125% of the fuel supply pump capacity. The pump shall be activated by the pump high level sensor and de-activated by the pump off level sensor. The return fuel pump shall have a local motor starter with disconnect and HOA operator switch.

3. High Level Shutoff Valves: Where indicated on the drawings, the day tank inlet piping shall include dual normally open solenoid valves directly upstream of the fill solenoid valves. The normally open solenoid valves shall be energized upon high level conditions to close and prevent overfilling.