**M200 Duplex Pump Set**

A. Manufacturers
   1. Duplex Pump Set: Earthsafe M200
   2. Positive Displacement Pumps: Viking / Tuthill
   3. Controls: Earthsafe Systems C800 or C900

B. General: Provide a packaged duplex pump set to provide fuel to a day tank or a series of day tanks. The duplex pump set shall be integrated with a control panel to provide motor control, system status, and alarm indication.

C. Design Criteria

   1. Transfer Pumps: Dual pumps each rated at the design flow as indicated on the drawings. Pump motors as a minimum shall be 1 VAC single phase, 1/3 HP. Motors shall be TEFC.
   2. Containment Base and Frame: Pumps shall be mounted on a welded steel liquid tight containment basin. The base shall include a welded steel support for piping and accessories.
   3. Pump Motor Starters: Each pump shall be equipped with amn individual motor starter disconnect panel. The panel shall include an HOA switch for operator use. The panel shall include output relays for pump overload trip and Not-In-Auto signals. In auto mode the pump shall be controlled by the duplex pump control module.
   4. Control Module: The pump set shall be controlled by a microprocessor based control module. The unit shall receive a pump on signal from a tank level controller to activate and deactivate the pump set. The unit shall monitor a flow switch in the fuel discharge. A “No Flow” condition for 15 seconds after the start of pump 1 shall automatically activate pump 2. The module shall have exterior hand-off-auto mode selector switches for each pump. Indicator lights shall be provided for power on, pump on, and flow failure alarm. The controller shall provide automatic alternation of pumps.

D. Accessory Equipment

   1. Ball Valves: Brass ball valves at unit inlet, outlet and to isolate each pump.
   2. Check Valves: Brass swing check valves at the discharge of each pump.
   3. Pressure Relief Valve: Brass relief valve set at 100 PSI at pump discharge.
   4. Strainers: Brass basket strainers at the inlet for each pump.
   5. Flow Switch: Flow switch at unit discharge to activate secondary pump.
   6. Pressure Gauges: Mount 2.5 inch liquid filled pressure gauge at unit outlet and vacuum gauge at inlet. Include isolation valves for the gauges,
   7. Leak Sensor: Provide liquid sensor for containment basin.
   8. Enclosure: Where indicated on the drawings the pump set shall be enclosed within a welded steel weatherproof enclosure.