Diesel Fuel Maintenance System - Skid

1. Provide a fuel oil maintenance system that will automatically circulate and filter \_\_\_ gph of diesel fuel to obtain a final effluent particulate of less than 10 microns and water removal rated to 10 microns. The system shall be completely piped and wired with minimal field connections required. The system will be fully automatic with programmable settings to allow the operator to select the start times, frequency, and duration.
2. Major system components
   1. Filtration pump shall be an industrial duty gear pump with mechanical seal. Packing type shaft seals are not allowed. The pump shall be built with cast iron housing and steel gears, bronze, brass or aluminum housings are not allowed. Pump and motor shall be flexibly coupled and permanently aligned.
   2. System skid base shall be provided with 3” rupture basin to contain any leakage or spillage. The basin shall be provided with a ½ drain connection with drain plug.
   3. Simplex strainer shall be mounted upstream of the circulation pump. The strainer housing shall be cast iron with a stainless steel, 1/16” mesh basket.
   4. Particulate filter shall be a spin-on type filter with a removable 10 micron filter, a 20-25 micron start-up filter element shall be included.
   5. Water coalescing and separation filter with continuous water purging to waste holding container. The water separator shall rated at 98% efficiency to a level of 10 microns at full flow.
   6. Clogged strainer detector switch.
   7. Clogged filter detector switch.
   8. Flooded basin detector switch shall be float activated. The switch shall be normally closed, opening on an alarm condition.
   9. Pressure gages shall be 4” stainless steel liquid filled. There shall 2 gages, one 30-30 compound gage for the pump suction and one 0-50psi for the pump discharge.
   10. Ventilated enclosure shall contain the entire filtration set with the exception of the chemical injection module.
   11. Waste holding tank shall be stainless steel base with 15 gallon storage, high level alarm switch, and waste removal hand pump. It shall be installed on common skid with filtrations system.
   12. Continuous waste water purging system factory piped to waste holding tank.
   13. Additive injection to include 30 gallon steel storage tank and diaphragm pump rated at 11 gph/100psi. The pump shall be manufactured of 316 stainless steel with drop tube and pvc foot valve. System skid base shall be sized to accommodate storage capacity of additive tank and serve as rupture basin.
3. Control, interface and communication shall be through the UL 508 Programmable Logic Controller (PLC) control panel. The PLC shall be non-proprietary and field expandable. The local interface (HMI) shall be a touch screen. This touch screen shall permit the operator to easily configure the fuel maintenance system and to set or change parameters within the PLC such as start day and time, run duration in automatic as well as running the system in manual without opening the NEMA 4 enclosure. Remote interface and communication is with Modbus.
   1. To protect against arc flash hazard during start-up, normal service, or troubleshooting that requires the door to opened while the panel is energized, the logic controller panel shall not house any power over 49 volts.
   2. PLC
      1. Up to 1280 local addresses
      2. Minimum 15K memory
      3. 2 comm ports, 1 dedicated to touchscreen
      4. Real time clock/calendar
      5. PID loops with auto loop tuning
   3. Touchscreen
      1. 8.4”diagonal color TFT, LCD display, 64K colors, 640 x 480 pixel resolution
      2. 300 NITS display brightness, user replaceable backlight
      3. 1024 x 1024 analog resistive touchscreen
      4. USB port B for programming and download
      5. Ethernet 10/100 base-T port for program/download & PLC communications
      6. Remote internet access requiring no additional software
      7. Compact flash card slot
      8. 10 Mbyte memory
      9. 2 year warranty from date of purchase
   4. Motor Controller Module – A fully functioning, UL 508 listed motor control panel shall be provided and permanently mounted on fuel maintenance system. This panel shall contain the following components;
      1. NEMA 4 rated metal enclosure.
      2. Service disconnect for the fuel circulation pump motor.
      3. Hand-Off-Auto pump selector switch.
      4. Pump status and alarm lamps.
      5. Terminal block for all internal and field wiring connections.
      6. Control power transformer (if needed).
   5. Fuel Quality Testing Kit shall be provided by maintenance system provider to allow the owner/operator to draw a proper sample from storage tank and ship to lab.
      1. Thief Sampler – 16oz stainless steel
      2. Sounding tape – 10 m carbon steel
      3. Sample test kit & shipper
   6. Start-up and training shall be performed by a factory trained technician