

Fire Pumps

Please provide the following information on sprinkler plans for diesel-driven pumps:

- Install a flow test meter for used during droughts and an outlet or test header to test "real" water for certifying the pump after installation, then every three years (according to NFPA 25 5-3.3, 1998 Edition.) Please locate the outlet on the discharge side of the meter and provide this detail on your plans.
- Provide a detail showing supports and bracing for the diesel storage tank. (See California Fire Code Section 7902.1.14.5, 1998 Edition.)
- Detail or descriptive notes of protection for storage tank supports. (See CFC Section 7902.14.4.) We accept a filled concrete base. However, Thermo-12 Gold Pipe and Block insulation may be easier to install. It has a service temperature of 1200 degrees F and manufactured by Schuller Mechanical Insulation Division (1-800 654-3103).
- Show a rain cape and vent pipe for the storage tank and that the pipe terminates at least 12 feet above the ground. (See CFC Section 7902.1.11.4.)
- Show on the plans or with a general note how fuel lines are protected from damage by installing them in uni-strut channel, PVC, or with equivalent protection. (See CFC Section 7901.11.1.1 and NFPA 29 8-4.2, 1999 Edition.)
- Provide detail on the tank title, so 5% of the diesel fuel is located in a sump, which cannot be used by the diesel engine. See NFPA 20 8-4.5.
- Provide detail on the pump house. Include the construction of the building (H occupancy), details of drainage and ventilation, and how the tank will be filled. Arrangements that require the fill line to cross the diesel engine and/or pump are not permitted.
- Obtain a Fire Department Permit to store in excess of 25 gallons of fuel inside of the building.

Fire Alarm Function Tests for Diesel Pumps

Fire alarm function tests must include the following for diesel-driven pumps:

- Pump override (Note 1) ○ Pump override occurs whenever the selector switch is set to "manual" or "off". Treat as a separate supervisory signal to the FACP and called simply "Pump Override". The next 5 failure signals, Notes 2 through 6, are treated as a single trouble signal to the FACP.
- Low battery (Note 2) ○ A switch at the controller allows you to disengage Battery 1 or Battery 2. Look for the red light on the controller; the alarm bell located on the controller will sound. Remember to push the reset switch.
 - To get a trouble signal to the FACP, battery trouble contacts must be connected to the common trouble contacts. Except for pump override and pump running, we group all the various trouble signals together as one "unknown trouble".
- Low oil pressure (Note 3) ○ The low oil pressure alarm light on the controller is normally obtained by switching the start position to "manual". Reset occurs automatically when the engine is started. For an audible alarm and a trouble signal to the FACP, you must have low oil pressure while the diesel engine is operating - which is a really bad

idea! The new Cutler-Hammer Fire Pump Controllers know when the controller is set to manual. So to complete this test, you must jumper across the oil pressure switch.

- Failure to start (Note 4)
 - One method to test this feature is to disconnect the power to the fuel pump and attempt to obtain a start. The diesel engine will attempt to start 3 times: Battery A, then Battery B, and repeated for 3 full cycles. Never disconnect the batteries to make this test!
 - With the Cutler-Hammer Fire Pump Controllers, disconnect the crank wires to the diesel engine's starter solenoid at the controller. A magnetic pickup on the fly wheel of the diesel engine would normally terminate cranking power. However, if the diesel motor has not started, you can see the relays in the controller alternately light up as switching occurs from Battery A to Battery B, and repeated for the 3 full cycles.

- Engine over speed (Note 5)
 - A switch at the diesel engine allows you to simulate engine overspeed. You will get the red light on the controller, audibles, and a signal to the FACP. The engine will shut down. Remember to push the reset switch.

- High temperature (Note 6)
 - We do not want the engine to overheat in to test this function, so we just jumper across the electrical connection to test electrical connections.

- Pump running (Note 7)
 - Stockton Fire Department requires that pump running be an alarm signal, not a supervisory signal.

If you have questions regarding any of these requirements or if you are ready for an inspection, please contact the [Fire Prevention Division](#).