

U.S. Fire Administration / National Fire Academy

# Coffee Break Training

## Topic: Sizing Fire Pump Fuel Supplies

Learning objective: The student shall be able to compute the fuel requirements for diesel engines that drive fire pump assemblies.

**F**ire pumps driven by diesel engines require an adequate fuel supply to perform regular weekly tests and maintain operational integrity during a fire. NFPA 20, *Standard for the Installation of Stationary Pumps for Fire Protection* requires a minimum of 1 gallon of fuel for each engine horsepower (HP).

The fuel requirement is based on the premise that the engine will burn about 1 pint per horsepower per hour of run time, and the pump should have a total standby duration of 8 hours when the tank is full. The pump then can be tested for 12 weeks (6 hours of run time) and still have enough fuel to power the pump to meet the 2-hour requirements of a fire protection system.



NFPA 20 also requires a 10-percent cushion above the 1 gallon per horsepower rule to accommodate fuel expansion within the tank, and sump accumulation below the tank discharge level.

How large must the fuel tank be for a 150 HP engine that drives a fire pump?

$$1 \text{ gallon per HP} \times 150 \text{ HP} = 150 \text{ gallons}$$

$$150 \text{ gallons} + 10\% = 150 + 15$$

The tank must be capable of holding 165 gallons of fuel.

For additional information, refer to NFPA 20, *Standard for the Installation of Stationary Pumps for Fire Protection*.