



Testing of Emergency Electrical Disconnects (e-stops)

BUREAU OF WEIGHTS AND MEASURES

PO Box 8911
Madison, WI 53708
(608) 224-4942
datcp.wi.gov

RESOURCES

Wis. Admin. Code ATCP 93
https://docs.legis.wisconsin.gov/code/admin_code/atcp/090/93.pdf

NFPA
<https://www.nfpa.org>

Emergency electrical disconnects, commonly called e-stops or emergency stops, are devices, primarily of a push button style, that are designed to disconnect power to equipment that is used for the transfer of product from a fixed storage tank system to a tank vehicle, rail tank car, or vehicle fuel tank. Wisconsin Administrative Code § ATCP 93.370 requires that these devices be installed at new or existing petroleum or hazardous liquid terminals, bulk plants, and vehicle fueling facilities, both retail and non-retail. By reference from Wis. Admin. Code § ATCP 93.370 to NFPA 30A, section 6.7, the requirements for specific equipment to be disconnected is defined in general terms. While not directly referenced in Wis. Admin. Code ch. ATCP 93, the emergency electrical disconnect is also required by NFPA 70, the National Electrical Code, in Art. 514.11 (A) (B) and (C).

With the publication of the revised Wis. Admin. Code ch. ATCP 93 on November 1, 2019, emergency electrical disconnects are now required to be tested for dispensing system shut-down on an annual basis. Specifically Wis. Admin. Code §§ ATCP 93.370(2) and ATCP 93.605(1)(fm) require that emergency electrical disconnects be tested at least annually and documented on the functionality verification form, TR-WM-139. Since this requirement has been added, Wisconsin petroleum service companies are seeking further guidance on what specific equipment needs to be disconnected. The purpose of this fact sheet is to provide that guidance.

The following list of equipment that needs to be disconnected when an emergency disconnect device has been actuated was compiled based on guidance provided within the NFPA codes:

- An emergency electrical disconnect shall disconnect power to:
 - all dispensing devices;
 - all remote pumps serving the dispensing devices;
 - all associated power, control, and signal circuits;
 - all communication, data, and video circuits (including POS card reader)
 - all other electrical equipment in the hazardous (classified) locations surrounding the fuel dispensing devices
 - and to other fluid transfer systems serving the fuel dispensing area.
 - Other fluid transfer systems include: vacuum cleaners, windshield washer fluid dispensing systems, and compressed air pumps. Note that Wis. Admin. Code § ATCP 93.620(2) prohibits the installation of equipment or devices not required for, or not integral to, the fueling operation, such as vending machines or automated teller machines, in the fuel dispensing area and includes the systems.

(over)

Additional Requirements

- The disconnection requirement applies to each circuit leading to or through dispensing equipment.
- All conductors of the supply circuits shall be disconnected simultaneously, including the grounded conductor.
- Disconnecting of low-voltage data circuits, such as audio, video card reader, loyalty program and other communication circuits may require the use of a low voltage dispenser disconnect (LVDD).
- Emergency disconnect systems shall be wired to prevent the tank monitor from inadvertently turning on the submersible pump.
- When more than one emergency disconnect is provided, all devices shall be interconnected so that activation of one emergency disconnect activates all the emergency stops. This does not apply at facilities with distinct separate fueling areas where the entire tank system, dispensers, electrical systems, POS associated with a fueling area are separate from the other fueling area, such as can be found at large truck stops.

Exemption from disconnect requirement

- Power for illumination of dispensing areas shall not be affected by activation of any of the electrical shutoffs when the illumination is located outside of hazardous (classified) locations or is intrinsically safe.
- Intrinsically safe equipment such as leak detection sensors or electronic line leak detectors. While the department has verified with two major leak detection manufacturers that their sensors are all intrinsically safe, it is the responsibility of the testing company to verify with the sensor or electronic line leak detector manufacturer that is the case.
- Any L.E.D. digital display units that are battery operated inside the dispenser housings.
- All other intrinsically safe equipment.