protected by a circuit-interrupting device of adequate interrupting capacity and voltage that provides short-circuit, overload, ground-fault, and under-voltage protection as follows:

(1) **Short-circuit protection.**
   (i) The current setting of the device must be the setting specified in the approval documentation or 75 percent of the minimum available phase-to-phase short-circuit current, whichever is less; and
   (ii) The time-delay setting must not exceed 0.050 seconds.

(2) **Ground-fault protection.**
   (i) Neutral grounding resistors must limit the ground-fault current to no more than 0.5 amperes.
   (ii) Ground-fault devices must cause de-energization of the circuit extending to the continuous mining machine at not more than 0.125 amperes. The time-delay of the device must not exceed 0.050 seconds.
   (iii) Look-ahead circuits must detect a ground-fault condition and prevent the circuit-interrupting device from closing as long as the ground-fault condition exists.
   (iv) Backup ground-fault devices must cause de-energization of the circuit extending to the continuous mining machine at not more than 40 percent of the voltage developed across the neutral grounding resistor when a ground fault occurs with the neutral grounding resistor open. The time-delay setting of the backup device must not exceed 0.25 seconds.
   (v) Thermal devices must detect a sustained ground-fault current in the neutral grounding resistor and must de-energize the incoming power. The device must operate at either 50 percent of the maximum temperature rise of the neutral grounding resistor or 302 °F (150 °C), whichever is less. Thermal protection must not be dependent on control power and may consist of a current transformer and over-current relay in the neutral grounding resistor circuit.
   (vi) A single window-type current transformer that encircles all three-phase conductors must be used to activate the ground-fault device protecting the continuous mining machine. Equipment grounding conductors must not pass through the current transformer.

(vii) A test circuit for the ground-fault device must be provided. The test circuit must inject no more than 50 percent of the current rating of the neutral grounding resistor through the current transformer. When the test circuit is activated, the circuit-interrupting device must open.

(3) **Under-voltage protection.** The under-voltage device must operate on a loss of voltage, de-energize the circuit, and prevent the equipment from automatically restarting.

(b) **Re-closing.** Circuit-interrupting devices must not re-close automatically.

(c) **Onboard Power Circuits.** When a grounded-phase indicator light circuit is used and it indicates a grounded-phase fault, the following corrective actions must be taken:
   (1) The machine must be moved immediately to a location with a properly supported roof; and
   (2) The grounded-phase condition must be located and corrected prior to placing the continuous mining machine back into operation.

[75 FR 17549, Apr. 6, 2010]

§ 75.825 Power centers.

(a) **Main disconnecting switch.** The power center supplying high voltage power to the continuous mining machine must be equipped with a main disconnecting switch that, when in the open position, de-energizes input to all power transformers.

(b) **Trailing cable disconnecting device.** In addition to the main disconnecting switch required in paragraph (a) of this section, the power center must be equipped with a disconnecting device for each circuit that supplies power to a high-voltage continuous mining machine. A disconnecting device is defined as a disconnecting switch or a cable coupler.

(c) **Disconnecting switches.** Each disconnecting switch must be labeled to clearly identify the circuit it disconnects, and be designed and installed as follows:
   (1) Rated for the maximum phase-to-phase voltage of the circuit;
   (2) Rated for the full-load current of the circuit that is supplied power through the device.
§ 75.827 Guarding of trailing cables.

(a) Guarding.

(1) The high-voltage cable must be guarded in the following locations:

(i) From the power center cable coupler for a distance of 10 feet inby the power center;

(ii) From the entrance gland for a distance of 10 feet outby the last strain clamp on the continuous mining machine; and,

(iii) At any location where the cable could be damaged by moving equipment.

(2) Guarding must be constructed using nonconductive flame-resistant material or grounded metal.

(b) Suspended cables and cable crossovers. When equipment must cross any portion of the cable, the cable must be either:

(1) Suspended from the mine roof; or

(2) Protected by a cable crossover having the following specifications:

(i) A minimum length of 33 inches;

(ii) A minimum width of 17 inches;

(iii) A minimum height of 3 inches;

(iv) A minimum cable placement area of two and one-half inches (2½") high by four and one-quarter inches (4¼") wide;

(v) Made of nonconductive material;