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Comments concerning proposed paragraph (a)(2)(iv) of 75.824:

Supplementary Information III. D. Section-by-Section Discussion mentions the purpose of this additional section is to detect an open grounding resistor. Given this intent, the wording should be changed to require a monitor to de-energize the supply within a certain time if the neutral-grounding resistor opens. A reasonable time would be 30 to 60 s. As written the grounding resistor can be open until the first ground fault occurs. This allows an ungrounded condition to persist for an indefinite time.

The Section-by-Section Discussion mentions the back-up ground-fault protective device can be a combination of a potential transformer and voltage relay, or any other device capable of detecting an open neutral-grounding resistor. There are numerous problems associated with the proposed potential transformer and voltage relay monitoring method, including ferroresonance and the inability of a PT to detect rectified faults. The primary downfall is that a system that simply monitors neutral-to-ground voltage cannot detect an open grounding resistor. It only detects the voltage rise at the neutral. It is a voltage-based ground-fault detector. Newer technology is available that can reliably detect open grounding resistors before a ground fault occurs and de-energize the supply after a short delay.

Another problem with the potential transformer method is its inability to detect a shorted grounding resistor. Modern protective relays are available to reliably detect shorted resistors on very-high resistance grounded systems up to 5kV. A shorted grounding resistor will not limit fault current and therefore the touch potential on portable equipment will not be maintained at 100V or less. Changing paragraph (a)(2)(iv) of 75.824 to include a requirement for detecting both open and shorted resistors would increase miner safety.

Best regards,

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