Addendum to Compliance Guide for High-Voltage Longwall Regulations 30 C.F.R. Parts 18 and 75

1. **Section 30 CFR 18.53(b) requires each cover of a compartment in the high-voltage motor-starter enclosure containing high-voltage components be equipped with at least two interlock switches arranged to automatically deenergize the high-voltage components within that compartment when the cover is removed. My longwall has control/communication relays installed in the same bay as high-voltage motor contactors. The common bay is divided into two compartments by a removable grounded metal or insulated barrier that can only be removed from inside the bay. This barrier separates the high-voltage components from the control/communication relays to comply with 30 CFR 18.53(a). Will interlocks located on the cover of the common bay satisfy the requirements of 30 CFR 18.53(b)?**

   Yes. However, testing and troubleshooting can only be performed on the control/communication relays when the high-voltage components in this bay are deenergized.

2. **Can protective relays such as the overcurrent, ground-fault and ground-wire monitor relays be located in the high-voltage motor contactor compartment?**

   No. These relays have only low-voltage inputs and outputs. In order to prevent accidental contact with a high-voltage circuit while troubleshooting low- and medium-voltage circuits; these components must be located in a control/communications compartment(s).

3. **I want to use a high-voltage contactor with electronic circuits that provide short-circuit, overload, undervoltage and ground-fault protection and also ground-wire monitoring as an integral part of the contactor. Is this contactor permitted for a high-voltage longwall?**

   Yes. A high-voltage contactor assembly with integral electronic circuits that provide short-circuit, overload, undervoltage and ground-fault protection and also ground-wire monitoring may be installed in the motor contactor compartment provided:

- The contactor and associated electronic circuits are supplied by the manufacturer as one assembly.

- The low- and medium-voltage components are separated from the high-voltage components by grounded metal or insulated barriers.

- All settings and adjustments to the low- and medium-voltage protective circuits are accessible without entering the motor contactor compartment.

- Testing and troubleshooting are only performed on the protective circuits of the contactor when the high-voltage components in this compartment are deenergized.

- The short-circuit, overload, undervoltage and ground-fault protection, and ground-wire monitoring meet all MSHA approval requirements.

4. **30 CFR Section 18.53(g) requires that "Control circuits for the high-voltage motor starters must be interlocked with the disconnect device…" What is the definition of a control circuit?**

   The control circuit includes all the components that are used to control the operation of the high-voltage motor starters. These components include the start/stop switches and other man/machine interface (MMI) devices, the programmable controller, if it is used to control the high-voltage starters, and protective relays for high-voltage motors. In general, the control circuit includes all components located in the control/communications compartment.

5. **Low-voltage lighting circuits and low- and medium-voltage PTO circuits are neither high-voltage motor starter circuits nor control/communications circuits. In which compartment should these circuits be located?**

   Although the rule does not specifically address these circuits, the intent of the rule is to separate circuits and components by voltage classification. When complete separation of voltage classifications is not possible with barriers or partitions where both medium- and high-voltage circuits or both low- and high-voltage circuits are connected to a component or device, that component is required to be located in the motor contactor or disconnect device compartment. If these circuits are connected to the line side of the disconnect device, these circuits must be located in the disconnect device compartment. The low- and medium-voltage circuits must be separated from the high-voltage components by grounded metal or insulating board. If these circuits are connected to the load side of the disconnect device, then they cannot be located in the disconnect device compartment.

6. **Can insulated high-voltage wiring pass through the control/communication compartment?**

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Yes, but the wiring must be separated from the control/communication circuits by a grounded metal or insulated barrier.

7. Can a reinforced flame-resistant cable guard be used as the insulated barrier described in item 6?

Yes.

8. Does the barrier described in item 6 require interlock switches?

The barrier described in item 6 would require interlock switches only if the barrier can be easily removed without the removal of additional components or wiring.

9. Can low- and medium-voltage wiring be run through the high-voltage motor starter compartment?

Yes, provided the low- and medium-voltage wiring is installed such that the low- and medium-voltage wiring cannot contact any high-voltage components or wiring. The method of separating these classes of wiring must be documented on the approval drawings.

10. Can the main disconnecting device required by 30 CFR 75.815(a) be installed in its own separate enclosure?

No, unless the disconnect enclosure is physically attached to the power center to become an integral part of the power center. The physical connection must be rigid and substantial.

11. My longwall shield pumps are not included in my Part 18 longwall approval. Are these pumps considered longwall equipment that must be deenergized by the main disconnecting device required by 30 CFR 75.815(a)?

Yes. The Part 18 longwall approval only specifies equipment that is required to be permissible. When the longwall shield pumps are not located within 150 feet of longwall faces, they are not required to be permissible and therefore the pumps are not required to be listed on the Part 18 longwall approval. The disconnecting device that is required by 30 CFR 75.815(a) must deenergize all longwall equipment that are moved as the longwall face retreats, including equipment that may not be listed on the Part 18 longwall approval. Stationary longwall shield pumps and other stationary equipment that are located at the mouth of the longwall section are not required to be deenergized by the main disconnecting device.

12. My longwall uses a combination power center/high-voltage motor starter assembly. The only high-voltage cables extending from this assembly are the cables extending to the high-voltage motors or the shearer. These cables are each provided with instantaneous ground-fault protection as required by 30 CFR 75.814(a)(5). Are these

cables high-voltage circuits extending from the section power center that must be provided with ground-fault protection described in 30 CFR 75.814(a)(4)?

The cables extending from this assembly are high-voltage cables extending from the section power center and must be provided with ground-fault protection per 30 CFR 75.814(a)(4). One device may be used to provide the protection required by 30 CFR 75.814(a)(4)(i) and the protection required by 30 CFR 75.814(a)(5) for these cables. The mining industry has, in the past, provided separate devices to meet these requirements and MSHA encourages this design. In addition, the system must have two separate devices, one to comply with 30 CFR 75.814(a)(4)(ii) and the other to comply with 30 CFR 75.814(a)(4)(iii).

13. Section 30 CFR 75.814(a)(4)(iii) requires thermal protection for the grounding resistor be set at 50 percent of the maximum temperature rise of the neutral grounding resistor. How is the maximum temperature rise of the neutral grounding resistor determined?

The maximum temperature rise of the neutral grounding resistor is the increase in resistor temperature with the maximum system ground-fault current flowing through the resistor. The thermal protection must be set at 50 percent of this value.

14. Do the new regulations require any tests or inspections of the equipment before being placed in service?

All longwall systems must be approved as permissible under 30 CFR Part 18. New designs submitted for approval will require a field inspection of the system by the MSHA Approval and Certification Center prior to being placed in service. Longwall systems built or rebuilt according to an existing approval do not need an inspection by the MSHA Approval and Certification Center. However, MSHA enforcement personnel will inspect the equipment for compliance with the regulations and may be available to provide compliance assistance and inspect or test longwall equipment at locations away from the mine.

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