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PROGRAM POLICY LETTER NO. P13-V-07

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SUBJECT: Reissue of P11-V-04 - Remote Restarting of Conveyor Belts when a Slip Switch Stops the Belt

### **Scope**

This Program Policy Letter (PPL) applies to underground coal mine operators, Mine Safety and Health Administration (MSHA) enforcement personnel, and other interested parties.

### **Purpose**

The purpose of this PPL is to provide guidance to the mining industry and enforcement personnel on the purpose of slippage switches required on belt conveyors under 30 C.F.R. § 75.1102.

### **Policy**

The function of the slippage switch required under 30 C.F.R. § 75.1102 is to stop the belt when the speed of the drive roller is different from the speed of the belt which may cause the belt to slip causing friction and overheating and creating a fire hazard to personnel. The American Geological Institute and the U.S. Bureau of Mines define a belt slip as "the difference in speed between the driving drum and the belt conveyor." *A Dictionary of Mining, Mineral, and Related Terms* 47 (2d ed. 1968). When that action takes place, the slippage switch is designed to automatically stop the belt to prevent overheating and ignition of the belt.

Belt slippage can be temporary and may not be excessive. This condition can be caused by a fall of material on the belt which would slow down the belt and cause a slight slippage. Some mines are restarting the belt remotely from the surface using a Programmable Logic Controller (PLC). The safest method of addressing a belt slippage condition is to physically go to the location where the slippage occurred, examine the belt and restart the belt at that location. However, MSHA believes that remote restarting of conveyor belts can be safely accomplished under controlled conditions. For States that permit usage of PLCs to start the conveyor belt from the surface, and to ensure that this practice is not taking place when an actual slippage condition occurs, remote starting of conveyor belts should be used only under controlled conditions. The following are examples of controlled conditions:

- Install an audible and visible alarm circuit along the belt entries to warn miners underground that the belt is restarting.
- Install a locking device in the PLC circuit to allow only one attempt to restart the belt from the surface. If the belt does not start the condition should be checked and the belt should be restarted locally.
- Incorporate additional safety circuits in series with the belt slip switch timer to ensure that the conveyor belt is not in an actual slip condition. These additional safety circuits consist of a revolution per minute (RPM) switch on the main drive pulley which will shut the belt down in a few seconds (4 to 7 seconds) if it senses a high rpm on start-up.
- Install a safety device on the motor circuit to monitor the rate of current increase. If the motor current does not indicate an inrush high current for motor start-up, it will shut down the conveyor belt in a few seconds versus the 2 to 3 minutes usually allowed by the belt slip timer.
- Provide a lockout circuit to prevent restarting of the belt by the PLC if the RPM switch activates indicating high RPM or inrush high current is detected on start-up, so that the circuit could not be restarted without someone going to the drive.
- Install live cameras at locations that will assist the person operating the remote start-up.
- Train miners on safeguards that should be in place to remotely start a belt under controlled conditions.

### **Background**

MSHA is aware that some mines are using a PLC to remotely restart conveyor belts from the surface or other remote locations after they detect a belt slippage condition without viewing the belt to determine the problem and correcting it if necessary. Running a conveyor belt when a slippage condition exists could cause friction and overheating, posing a fire hazard to miners.

### **Authority**

The Federal Mine Safety and Health Act of 1977, as amended, 30 U.S.C. § 801 et seq.; 30 C.F.R. § 75.1102.

### **Internet Availability**

This PPL may be viewed on the Internet by accessing [MSHA home page](#) under MSHA's Major Laws, Regulations and Policies choose "Compliance Information (PIBs, PILs, the PPM, and More" and select "Program Policy Letters."

### **Issuing Office and Contact Persons**

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### **Distribution**

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Underground Coal Mine Operators