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PROGRAM INFORMATION BULLETIN NO. P08-19

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SUBJECT: Re-Issue of P01-4 - Hoist Examination and Safety Test Requirements

Who needs this information?
This information bulletin applies to coal mine operators, independent contractors, and Coal Mine Safety and Health (CMS&H) inspection personnel.

What is the purpose of this program information bulletin (PIB)?
This bulletin reminds the coal mining industry of the required examinations and tests of hoist equipment safety devices. Improper tests and examinations could lead to a potential safety hazard.

Information
Mine operator compliance with the examination and test standards can detect unsafe conditions and lead to their prompt correction. This bulletin clarifies coal mine operators' compliance responsibilities for examining, testing, and maintaining equipment used to transport persons under the applicable 30 C.F.R. §§75.1400 and 77.1400.

30 C.F.R. §75.1400(c)

Section 75.1400 (c) requires that cages, platforms, or other devices used to transport persons in shafts and slopes shall be equipped with safety catches or other no less effective devices approved by the Secretary that act quickly in an emergency. Such catches or devices shall be tested at least once every two months.

Other no less effective devices referred to in this section include the overspeed safety devices installed on the hoist man-trip brake car to act quickly in an emergency. Overspeed devices are electro/mechanical devices installed to prevent overspeed in the event of a brake failure on the hoist or a hoist rope failure. The overspeed devices can either be centrifugal or magnetic motion type.

30 C.F.R. §75.1400(d)

Section 75.1400(d) requires that hoisting equipment used to transport persons, including elevators, shall be examined daily.

30 C.F.R. §75.1400(e)

Section 75.1400(e) requires that when persons are transported into or out of a mine by a hoist, a qualified hoisting engineer shall be on duty while any person is underground. No such engineer, however, shall be required for automatically operated cages, platforms, or elevators.

30 C.F.R. §75.1400-1

Section 75.1400-1 requires that brakes on hoists used to transport persons shall be capable of stopping and holding the fully loaded platform, cage, or other device at any point in the shaft, slope, or incline.

30 C.F.R. §75.1400-2

Section 75.1400-2 requires that "A record shall be made in a book of the tests, required by 30 C.F.R. 75.1400, of the safety catches or other devices approved by the Secretary. Each entry shall be signed by the person making the tests and countersigned by a responsible official."

30 C.F.R. §§75.1400-3(b) and 77.1403

Section 75.1400-3 (b) requires a daily examination of hoists and elevators that include, but are not limited to, the following:

1. an examination of the rope fastenings for defects;

2. an examination of safety catches;

3. an examination of the cages, platforms, elevators, or other devices for loose or missing or defective parts;

4. an examination of head sheaves to check for broken flanges, defective bearings, rope alignment, and proper lubrication; and

5. an observation of the lining and all other equipment and appurtenances installed in the shaft.

Section 77.1403 requires a daily examination of hoists and elevators that include, but is not limited to, the following:

1. an examination of the rope fastenings for defects;

2. an examination of head sheaves to check for broken flanges, defective bearings, rope alignment, and proper lubrication; and

3. an examination of the automatic controls and brakes required under Section 77.1401.

30 C.F.R. §77.1401

Section 77.1401 requires that hoists and elevators shall be equipped with overspeed, overwind, and automatic stop controls and with brakes capable of stopping the elevator when fully loaded.

30 C.F.R. §75.1400-4

Section 75.1400-4 requires that at the completion of each daily examination required by 75.1400, the person making the examination shall certify, by signature and date that the examination has been made. If any unsafe condition is found during the examination required by 75.1400-3, the person conducting the examination shall make a record of the condition and the date. Certifications and records shall be retained for one year.

Overspeed devices on the brake car can either be centrifugal or magnetic motion type. Both types can be tested bimonthly by one of the following methods:

Test Method 1

1. Lift brake car until the wheel units that drive the overspeed devices are off the rail.

2. Securely block the brake car to prevent movement.

3. Drive the wheel units that are connected to the centrifugal overspeed devices to 115% of rated hoist rope speed to verify the overspeed operation and activation of the safety catches. Verify with a speed indicator, set to feet per minute that both overspeed devices cause the overspeed safety catches to operate within their specified range.

Test Method 2

1. Load brake car with rockdust or sand bags to simulate normal mantrip load capacity.

2. Disable overspeed device on the main hoist.

3. Run loaded brake car down the slope at 115% of rated rope speed. Verify that each overspeed device independently activates the safety catches and causes the brake car to stop and hold the fully loaded brake car.

4. Check the hoist depth indicator speed (feet per minute) to determine that the overspeed devices activated the safety catches within their specified range.

5. When brakes are applied with brake car on the slope, do not release the brakes unless the hoist rope is tight or the brake car is held by other means.

6. Push the off switch on the brake car to release the brakes.

In addition, the manufacturer of the brake car recommends a daily examination check list for the brake car that includes the following:

1. Check brakes to see that they are adjusted to 1/4" to 3/8" above the rail and that they move freely on their supports.

2. Check the battery charge with a hydrometer. A fully charged battery will be between 1.225 and 1.260 specific gravity in each cell.

3. Check condition of V-belts driving the centrifugal overspeed switches, and ensure that belt tightener moves freely (some brake cars have magnetic motion overspeed detectors).

4. Manually close each centrifugal overspeed switch independently and activate the safety catches.

5. Push the off button to release brakes.

6. The circuit breaker mounted vertically on the control panel provides short-circuit protection. This should be closed at all times.

7. Close the circuit breaker next to the ammeter. The red light will go on and the car is ready for operation. This switch should be opened when the brake car is not used for extended periods of time, but must be closed when charging the batteries.

8. Push the ON button to apply brakes. All brakes should go down on the rail and the ammeter should indicate 85 to 90 amps. The white light should be on.

9. Push the OFF button to release the brakes.

10. Push the UP button to establish the roll-back circuit. The green light will go on. Move car inby and see that brakes are applied.

11. Push the OFF and DOWN buttons to release the brakes and deenergize the roll- back circuit.

12. Once the cars have been put in service at the start of the shift, the only attention needed is to push the UP button before starting up the slope and the DOWN button before going down.

13. If the control circuit fuse blows or the panel mounted circuit breaker opens, the brakes automatically will be applied through the fail-safe circuit. The white light will be on and the ammeter will not show discharge. After removing slack from the rope, open the circuit breaker next to the ammeter to release the brakes, and correct the faulty circuit.

Background
A double fatality occurred in an underground coal mine on August 28, 2000, when a hoist rope used in a service slope of an underground coal mine failed, resulting in the death of the miners. The two miners were riding the mantrip down the slope when the rail-mounted hoist-operated mantrip ran away, breaking the wire rope. The overspeed devices on the brake car did not function to stop the run-away mantrip. The investigation revealed that the overspeed devices on the brake car had not been properly tested and the centrifugal switches were out of adjustment.

Is this information bulletin on the Internet?
This information bulletin may be viewed on the Internet by accessing the MSHA home page (http://www.msha.gov) and then choosing Statutory and Regulatory Information, Program Information Bulletins, and 2008 Program Information Bulletins.

What is the authority for this bulletin?
The Federal Mine Safety and Health Act of 1977; as amended, 30 U.S.C. §801 Et Seq; 30 C.F.R. §§75.1400 and 77.1400

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Who will receive this bulletin?
Program Policy Manual Holders
Coal Mine Operators
Independent Contractors
Special Interest Groups
Miners' Representatives