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PROCEDURE INSTRUCTION LETTER NO. I11-V-09

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SUBJECT: Updated Procedures for Inspection of Seals

Scope

This Procedure Instruction Letter (PIL) replaces I08-V-8 and applies to all Coal Mine Safety and Health (CMS&H) enforcement personnel and Technical Support personnel.

Purpose

The purpose of this PIL is to update the Mine Safety and Health Administration's (MSHA) PIL No. I08-V-8, Procedures for Inspection of Seals, issued on December 19, 2008. This PIL clarifies that MSHA's existing seals standard does not permit the use of gob isolation seals or internal seals in underground coal mines except as allowed under an approved spontaneous combustion plan under 30 C.F.R. § 75.334(f). This PIL also clarifies that MSHA's existing seals standard supersedes the 1993 Coal Mine Safety and Health (CMS&H) Memorandum No. HQ-93-095-S titled "Seal Examination." Furthermore, this PIL includes uniform inspection procedures and guidance for sealing of abandoned areas of underground coal mines and addresses seal inspections, monitoring of sealed atmospheres and inspection requirements during seal construction.

Procedure Instruction

MSHA's existing seals standard does not permit use of gob isolation seals or internal seals in mines that do not have an approved spontaneous combustion plan under 30 C.F.R. § 75.334(f). In addition, MSHA emphasizes that the CMS&H Memorandum No.

HQ-93-095-S titled "Seal Examination," issued February 1993, was superseded by MSHA's existing seals standard on April 18, 2008. Section 75.337 of MSHA's existing seals standard requires that all seals be maintained and repaired. Also, mine operators must conduct a preshift examination under 30 C.F.R. § 75.360, or conduct a weekly examination under 30 C.F.R. § 75.364 of existing MSHA standards. Mine operators seeking to construct gob isolation seals or internal seals in mines without an approved spontaneous combustion plan under 30 C.F.R. § 75.334(f) should be advised to submit a petition for modification to the Office of Standards, Regulations and Variances under 30 C.F.R. Part 44. Furthermore, mines with a history of spontaneous combustion or mines that are located in a coal seam determined to be susceptible to spontaneous combustion must comply with the approved spontaneous combustion plan, including 30 C.F.R. §§ 75.334(f), 75.336(a)(3), and 75.371(cc).

Seal Inspections

All seals must be inspected each quarter, (including new seals and seals being constructed) except seals determined by MSHA to be gob isolation seals in an approved spontaneous combustion plan (30 C.F.R. § 75.334(f)). Seals that are constructed as part of an approved spontaneous combustion plan that are accessible, such as those outby the face on the tailgate or inby the face on the headgate, also need to be inspected. It may also be necessary to inspect seals during spot inspections under Section 103(i) of the Mine Act.

During the inspections, the following evaluations must be conducted:

1) Before going underground, review examination record books concerning seals and adjacent air courses, including the sampling records under 30 C.F.R. § 75.336(e). Any hazardous conditions noted by the seal examiners recorded in the weekly or preshift exam books should be investigated. Review seal construction records under 30 C.F.R. §§ 75.335(c)(1) and (2), §§ 75.337(c)(5), 75.337(d), and 75.337(e);

2) Inspect safe access for the examiner's route of travel to and from seals. Roof support must be maintained to provide safe access to the seals. Check for hazardous conditions, test for methane and oxygen deficiency and determine if the air is moving in the proper direction under 30 C.F.R. §§ 75.360(b)(5), 75.364(b)(4), and 75.364(c)(3);

3) Verify the required operators' examinations by checking initials, dates, and times;

4) Inspect seals for deterioration and for damage such as cracking, spalling, or bulging. Inspect the base of the seal for deterioration due to mine water and floor heave. Although some spalling of ribs and sloughing from the roof may accumulate near the seal, enough of the seal must be kept clear to facilitate a reasonable visual examination;

5) Inspect the strata surrounding seals for rib sloughing, roof falls or floor deterioration that may affect the integrity of the seal. Ensure that the seal's convergence is being measured and that the threshold as per design has not been exceeded;
6) Evaluate rock dust around the seals and in adjacent air courses;

7) Inspect sampling pipes and sample the atmosphere behind the seals. At a minimum, inspectors should sample at one location at each set of seals. Seals that have reached a design strength of at least 120 psi overpressure or greater do not have to be sampled. The determination of seal strength is based on the quality control test results specified in the seal design under 30 C.F.R. Section 75.335(b)(1)(i) and reported to the District Manager under 30 C.F.R. Section 75.337(e)(3).

Sample the sealed atmosphere whether seals are outgassing or ingassing. Additional sampling locations may be specified in the approved ventilation plan.

Equipment that may be needed includes:

- Permissible vacuum pump with sufficient power to pull a sample through a sampling pipe in seals that are ingassing
- Tubing, adapters, connectors, etc.
- High range methane detector
- Standard range methane detector (less than 5%)
- Oxygen detector
- Carbon dioxide detector (if an alternative method is approved under (30 C.F.R. § 75.336(d)) to determine the inert status of the sealed atmosphere.
- Bags to collect samples
- Double pointed needle syringe
- Gas sample tubes

Multi-gas detectors should be used during regular inspections and bag samples should only be used to verify compliance if a detector indicates the atmosphere behind a seal may be non-inert. If the handheld detector indicates oxygen levels of 8.5% or greater and methane levels between 2.5% and 23%, a bag sample should be taken. It is not necessary to collect bag samples at each set of seals during quarterly inspections.

Pumping must continue long enough to purge the sampling tube and line with six times the volume of the sample system prior to extracting the sample;

8) Inspect the water drainage system and check for lack of air exchange (test with chemical smoke). Examine the drainage pipe system and verify that seals do not impound water or slurry. If a drainage system includes a valve, it must be opened as part of the inspection;

9) Confirm that the certified persons conducting sampling have been trained in the use of the sampling equipment and sampling procedures. Check the required training records and certifications under 30 C.F.R. § 75.338; and
10) New seal installations must be inspected by MSHA during construction. Inspectors should examine both sides of seals during construction. Section 75.337(e)(1) requires the mine operator to notify the District Manager between two and fourteen days prior to commencement of seal construction. An inspection, which may coincide with a quarterly inspection or a Section 103(i) spot inspection, must be conducted during construction of each set of seals. This construction inspection will assist in determining mine operator's compliance with MSHA's existing seals standard and ventilation plan including:

- Proper site preparation
- Sealed area preparation
- Seal construction
- Training
- Examinations
- Record keeping including certifications
- Any other requirements specified in the approved ventilation plan

Section 30 C.F.R. § 75.337(e)(2) includes a requirement for the mine operator to notify the District Manager in writing within five days of completion of a set of seals. After construction is completed, seals must be inspected by MSHA during the next regular inspection. The focus of the inspection of newly-completed seals should be to determine the mine operator's compliance with the requirements of MSHA's existing seals standard and ventilation plan, including:

- Seal construction
- Quality control tests
- Certifications
- Examinations
- Post-sealing ventilation
- Rock-dusting
- Sampling pipes and water drainage system
- Roof support
- Any other requirements specified in the approved ventilation plan

Background

On April 18, 2008, MSHA published the existing seals standard which superseded the CMS&H Memorandum No. HQ-93-095-S titled "Seal Examination." Provisions for MSHA's existing seals standard include requirements for (1) seal strengths, design applications and installation under 30 C.F.R. § 75.335; (2) sampling and monitoring, spontaneous combustion, inert atmospheres, mines with a demonstrated history of

carbon dioxide, and withdrawal of miners under 30 C.F.R. § 75.336; (3) construction, repair and examination of seals, District Manager approval to conduct welding, cutting and soldering with an arc or flame within 150 feet of a seal, sampling pipes, and water drainage systems under 30 C.F.R. § 75.337; (4) training under 30 C.F.R. § 75.338; and (5) seals records under 30 C.F.R. § 75.339.

Authority

The Federal Mine Safety and Health Act of 1977, as amended, 30 U.S.C. § 801 et seq.; and 30 C.F.R. §§ 75.334, 75.335, 75.336, 75.337, 75.338, 75.339, 75.360, 75.363, 75.364, 75.370 and 75.371.

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