Sealing Abandoned Areas in Underground Coal Mines
Compliance Guide Questions and Answers
Mine Safety and Health Administration
December 2008

Introduction

This document is presented in a question and answer format with the questions asked from the perspective of the mine operator.

1. Who should use this publication?

This publication is intended to provide compliance information to mine operators, miners, and representatives of miners about sealing abandoned areas in underground coal mines.

2. What is the purpose of this guide?

This guide contains compliance information to help mine operators meet the requirements of the seals final standard.

Section 75.335 Seal Strengths, Design Applications, and Installation

Section 75.335(a) Seal strengths

3. What if a seal was completed prior to October 20, 2008, but has not reached full design strength by that date?

The seal is acceptable as long as the post-construction test results indicate that it meets the design criteria.

4. Can I finish sealing an area by mixing seals constructed under the ETS with seals approved under the final rule?

Yes.

5. Does the seals rule apply to existing bulkheads when they are designed to impound water?

The rule does not affect the design of new or existing bulkheads, unless they are being used as seals.

6. Can seals be approved to separate the active longwall panel from the panel previously mined?

Yes, if they meet the sampling and monitoring provisions specified in § 75.336. The mine operator must designate in the approved ventilation plan a sufficient number of sampling locations to adequately evaluate the atmosphere in the sealed area.

7. Will I need a seal designed to withstand pressures greater than120 psi if any condition is encountered as described in § 75.335 (a)(3)(i) through § 75.335 (a)(3)(iii)?

Yes.

8. What is detonation?

A detonation occurs when the flame of an explosion propagates through the unburned fuel at a velocity equal to or exceeding the speed of sound.

9. What factors determine the likelihood of detonation in a sealed area?

Mine operators should consider issues such as whether a high energy ignition source may exist in the sealed area, whether extensive volumes of homogeneous explosive concentrations of methane may exist in the sealed area, whether sufficient oxygen concentrations may exist in the sealed area, and any other situation that could trigger a detonation.

10. What does MSHA mean by homogeneous mixtures of methane between 4.5% and 17.0% and oxygen exceeding 17.0% throughout the entire area?

A homogeneous mixture is a mixture of gases that have a uniform composition. If methane is found to be within the specified range throughout the entire sealed area, it is homogeneous.

11. What if the gas concentrations in the sealed area are not "homogeneous?"

Even though the gas concentrations throughout the entire sealed area are not homogeneous, other factors must be considered such as the possibility of detonation or pressure piling to determine the appropriate minimum seal strength. The mine operator must comply with other applicable provisions of the rule.

12. What is "pressure piling?"

Pressure piling is the development of pressure in excess of normal atmospheric pressures as a result of the velocity-related compression of the gases in front of the flame. Pressure piling results from the rapid acceleration of the front of the flame.

13. Describe the conditions which can lead to pressure piling.

The mine operator must evaluate the physical characteristics of the underground workings near all seals surrounding the sealed area to address whether pressure piling may occur to a degree that causes explosion overpressures to exceed 120 psi. For example, overpressures that occurred during the 2006 explosion at the Sago Mine increased in magnitude due to a severe change in the physical characteristics of the underground workings near the seals. The seals at the Sago Mine were constructed to a height of approximately 7 feet. The workings in the sealed area had been previously second mined to a height of nearly 20 feet in some locations near the seals. As the explosion propagated toward the seals, pressure piling occurred and caused an increase of pressure at the location of the seals. This factor must be considered by the mine operator to determine if a situation exists that may cause pressure piling, resulting in pressures above 120 psi.

14. Could there be pressure piling in an area that has water accumulation?

Yes.

15. Does the rule prohibit the use of a water seal?

No, but the design must be submitted to Technical Support for approval. It would then be subject to approval in the ventilation plan.

16. What are my options if I detect an explosive mixture behind one 50-psi seal?

You must monitor and maintain the entire sealed atmosphere inert or install replacement seals so that every seal around the affected sealed area is at least 120 psi.

17. Can seals be reinforced rather than replaced?

Before a seal can be reinforced or replaced, the mine operator must obtain MSHA approval of the seal design and installation in the ventilation plan.

Section 75.335(b) Seal design applications

18. Do we need to replace seals constructed prior to the effective date of the final rule?

No. Existing seals do not need to be replaced, unless they are in need of structural repair.

19. What happens if construction on ETS seals is not completed by October 20, 2008?

Construction of seals approved under the ETS must be completed by October 20, 2008. A partially completed seal approved under the ETS must be replaced with a seal approved under the final rule.

20. Do I have to re-submit a new seal design for approval under the final rule if I submitted the design under the ETS?

Yes. Seal designs submitted to MSHA's Office of Technical Support under the ETS will need to be modified and submitted in accordance with the final rule.

21. Will seal designs under the final rule have new approval numbers?

Yes.

22. How long will it take for Technical Support to approve a new seal design?

The time for approval will depend on the complexity, completeness and accuracy of the seal design application.

23. Can any approved seal design be applied to any area of the mine?

No. Seals are designed for specific conditions in a mine. For example, a seal designed for an entry height of 8 feet may be unsuitable for a mine with a 10-foot entry height.

24. Will MSHA consider explosion wave mitigation techniques in sealed areas?

Explosion mitigation techniques are not discouraged by MSHA. However, explosion wave mitigation alone cannot be used to meet strength requirements. Most wave mitigation techniques are designed for a one-time use, after which they do not offer any quantifiable resistance to an explosion overpressure.

25. What is "elasticity of design" as used in § 75.335(b) (1) (i) and how is it evaluated?

Applications for seals designed for overpressures of 120 psi or greater must address elasticity in their design. Seals must be able to withstand repeated, independent overpressures from both directions. The elastic nature of a seal is its ability to deflect or bend and still return to its initial shape afterwards. If a seal deflects or bends past its yield point, permanent deformation will occur, which would take the seal out of its elastic range.

The evaluation of a seal's elastic range is based upon material properties and how it deflects or bends when subjected to the prescribed load. This evaluation is usually conducted using calculations or through modeling.

26. Does a laboratory have to be certified to analyze seal quality control samples? What type of certification is required?

Material testing should be conducted by a certified laboratory and by qualified personnel. The certification for the laboratory must be from a professional organization such as the International Organization for Standardization (ISO) and the personnel must be able to demonstrate qualifications to ensure proper quality control testing. A certified laboratory along with qualified personnel, which would be deemed acceptable by the MSHA District and Technical Support prior to any tests performed, would be used for all quality control testing on the samples collected.

27. If I submit a seal design application for a 120-psi design, and material testing results are stronger than the minimum design criteria, can the seal be approved for a higher strength?

No. Your application will be reviewed in accordance with the seal design strengths addressed the seals rule.

28. If a Mitchell Barrett seal was built in front of an adequately constructed omega block seal, can I add the two seal strengths together in calculating their combined strengths?

No.

29. Does the engineering design application submitted to Technical Support have to be signed by a professional engineer located in the state where the mine is located?

No. MSHA accepts the certification of a professional engineer from any state.

30. What are the responsibilities of the professional engineer regarding the seal design?

The professional engineer must certify that an engineering design application is in accordance with current, prudent engineering practices and that the seal design is applicable to conditions in an underground coal mine. In addition, the professional engineer is responsible for (1) the selection or development of design standards or methods, and materials to be used in seal construction; (2) the development and preparation of the structural analyses and design computations, drawings, and specifications; (3) the selection or development of techniques or methods of testing to be used in evaluating materials used either during seal construction or following completion of seal construction; and (4) the development of construction procedures.

31. Will MSHA evaluate a seal design based on actual full-scale explosion testing including pressure piling?

Yes. If a sealed area is subject to pressure piling, full-scale testing can help to establish the extent of the pressure piling. The extent of pressure piling would determine the minimum design strength of the seal. A professional engineer must certify that the explosion or pressure piling testing was done in accordance with current, prudent engineering practices for construction in a coal mine."

32. Will I have to replace a seal if it has a metal sampling or water drainage pipe?

No.

33. Is it acceptable to have metal roof supports that are fully encapsulated in a seal?

Roof or rib support bolting and bearing plates should be left in place at the seal location. Metal objects such as roof mesh, straps, and beams that extend out of either side of the seal must be removed.

34. Can MSHA require that additional information be included in a seal design application?

Yes.

Section 75.335(c) Seal Installation Approval

35. Can I submit an approved seal design under the ETS for installation in a mine after October 20, 2008?

No.

36. Do I have to provide the assessment in the ventilation plan of potential for overpressures greater than 120 psi in areas to be sealed?

Yes. Your assessment should include information regarding homogeneous mixtures, pressure piling, or other conditions, such as the likelihood of detonation in the area to be sealed. To assess the area to be sealed for homogeneous mixtures, you should include information regarding additional sampling locations, the appropriate number of locations, such as seals, boreholes, shafts, and other information required by the District Manager. If all sampling results show that methane is stabilized between 4.5 and 17% and oxygen above 17%, the area to be sealed would be considered homogeneous.

To assess the area to be sealed for pressure piling you should also include the physical characteristics of the area to be sealed that could cause overpressures to exceed 120 PSI. For example, it would be important to indicate where the area has been mined to a height of nearly 20 feet, but changed to only 7 feet near the seals.

To assess the sealed area for conditions such as the potential for detonation, you should include an evaluation of ignition sources to determine if they are high-energy ignition sources, potential methane concentrations, whether there are extensive volumes of homogeneous mixtures, potential oxygen concentrations, and sufficient oxygen.

37. How many different seal designs can be submitted in the ventilation plan?

There is no limit on the number or types of approved seals that can be included in a ventilation plan.

38. Who can certify that a seal design is applicable to the particular mining conditions?

A professional engineer.

39. Can a professional engineer or a registered land surveyor from any state certify the mine map for seals?

No. Section 75.1201 requires that a registered engineer or a registered surveyor must be certified or registered in the State in which the coal mine is located.

40. Does the professional engineer who certifies that the provisions in the approved seal design have been addressed and are applicable to conditions at the mine have to be registered in the state where the mine is located?

For this purpose, MSHA accepts the certification of a professional engineer from any state and allows that certification to be used in other states. Each state is responsible for enforcing its rules and regulations.

41. How much time does a professional engineer have to spend at the mine site during seal installation?

MSHA does not require the professional engineer to be present at the seal installation site during the entire construction process. The professional engineer must be present for a sufficient amount of time to (1) verify that the seal application is suitable for the specific conditions; (2) confirm that the site preparation is adequate; (3) confirm that the workforce is adequately trained to properly build the seals; (4) verify that the correct materials and procedures are being used to construct the seal; and (5) confirm that adequate quality controls are in place and are being followed.

42. Can a professional engineer certify the suitability of proposed seal designs if he or she is not employed by the mine operator?

Yes.

43. Is the professional engineer required to certify that seals were constructed as designed after an area is completely sealed?

No. Under § 75.337(d), a senior mine management official makes this certification.

44. Is it necessary to include the entire seal approval in the ventilation plan or only a summary of the approval?

The approval number and the summary of the installation procedures for the approved seal design is required to be included in the ventilation plan. This summary should include all of the information necessary to construct a seal including quality control; material and testing by a certified laboratory (such as ISO) and by qualified personnel.

45. What safety precautions should I take prior to seals achieving full design strength?

Operators should sample behind seals every 24 hours or as otherwise authorized by the District Manager. If samples show a potentially explosive atmosphere, miners should be withdrawn from the entire mine or other area as approved by the District Manager. If an inert atmosphere is present behind seals that have not reached their full design strength, miners would not need to be withdrawn from the affected area.

46. Am I required to include the set-back distance from both sides of the seal?

Yes. The set-back distance is the distance from the corner of a pillar block to a seal, which is critical to the long term stability and protection provided by of a seal.

47. Will the ventilation plans have to address the means to repair a damaged seal?

Yes. Section 75.335(c)(3)(iv)(J) requires that mine operators identify methods to maintain and repair seals. Only non-structural repairs may be made to a seal, while structural damage to a seal requires replacement.

48. What must be done to address shafts and boreholes in a sealed area?

The mine operator should specify how and when each borehole will be plugged and each shaft will be filled during sealing. The mine operator is also required to evaluate the atmosphere in the sealed area to determine whether sampling through required sampling pipes provides appropriate sampling locations.

49. How do I assess the potential for overpressures greater than 120 psi in a sealed area?

MSHA expects mine operators to sample an appropriate number of locations within the sealed area during the period when seals are reaching their full design strength to address whether a homogeneous explosive atmosphere exists. These samples should be taken at various locations, including through seals constructed around the sealed area and possibly through boreholes or shafts within the sealed area. If the methane concentration stabilizes between 4.5 percent and 17 percent and the oxygen concentration remains above 17 percent in all samples, then the atmosphere is considered homogeneous throughout the sealed area, and seal strengths must be designed to an adequate level above 120 psi, as recommend by the professional engineer and approved by MSHA.

MSHA expects mine operators to evaluate the physical characteristics of the underground workings near all seals surrounding the sealed area to address whether pressure piling can occur to any degree that may cause explosion overpressures to exceed 120 psi. MSHA expects that mine operators will fully evaluate potential ignition sources, potential methane concentrations, and potential oxygen concentrations in the sealed areas to determine if detonation could occur. Mine operators should consider whether a high energy ignition source exists in the sealed area, whether extensive volumes of homogeneous mixtures of explosive methane concentrations may exist, and whether sufficient oxygen may be present in the sealed area.

50. If a longwall panel is started off with a few entries and after advancing several crosscuts the panel is branched out with additional entries, could this lead to pressure piling?

Pressure piling could occur if the additional entries were configured in such a way as to focus the pressure wave in those entries directly onto the seals.

51. Does gunnite or other types of surface coverings have to be removed from the mine surfaces prior to beginning seal construction?

Yes. Gunnite or other surface coverings must be removed for the seal to fully contact the roof, ribs and floor.

52. Can seals be constructed on top of solid coal left in the mine floor or under coal left in the roof?

Yes, provided it meets the requirements of the approved engineering design application, a professional engineer certifies that the approved engineering design is applicable to the conditions at the mine, and each seal installation site is approved by the District Manager in the ventilation plan. The ventilation plan should specify whether the coal is on the roof or floor and any necessary additional precautions.

53. What is a set of seals?

Generally, seals that isolate each set of mains, submains, gate roads, or series of entries separated by a barrier are considered to be a set of seals. For longwall gob isolation seals, all seals along one panel may be considered a set of seals.

Section 75.336 Sampling and Monitoring Requirements

Section 75.336(a) Certified person, sampling location, sampling frequency, evaluation of sealed area, spontaneous combustion, continuous monitoring

54. Did the approved ETS sampling protocols expire on October 20, 2008?

Yes, they have been superseded by the final rule.

55. When do I have to begin sampling the sealed area under the final rule?

October 20, 2008.

56. Am I required to sample seals whether seals are ingassing or outgassing?

Yes.

57. Do I have to sample each sampling pipe and approved sampling location?

Yes, unless different sampling locations are approved in the ventilation plan (see 75.336(a)(1)(ii)).

58. How often do I have to sample the sealed atmosphere?

Mine operators must monitor sealed atmospheres every 24 hours, unless the District Manager approves a different frequency in the ventilation plan. For newly constructed seals of less than 120 psi, the final rule requires a 14-day sampling period before the District Manager may approve different sampling locations and frequencies.

59. When can I stop sampling the sealed atmosphere?

For atmospheres with seals less than 120 psi, you must sample the sealed atmosphere for as long as the seals are needed to serve the purpose for which it was built.

You must continue to sample the atmosphere with seals of 120-psi or greater until they reach full design strength. You must provide laboratory results from strength testing of seal construction material to MSHA demonstrating that each seal has reached its full design strength.

60. Am I required to submit a revised ventilation plan for monitoring sealed atmospheres prior to October 20, 2008?

No, unless the mine operator needs to request that the District Manager approve different sampling locations or frequencies than those specified in § 75.336.

61. What factors should I consider when assessing whether different sampling locations are appropriate?

Mine operators should consider the atmospheric composition of the sealed area, including size, methane liberation, leakage, ventilation pressures, and barometric changes. If the mine operator's analysis indicates that sampling through seal sampling pipes does not render an appropriate evaluation of the sealed atmosphere, the mine operator must establish additional sampling locations and specify them in the ventilation plan for the District Manager's approval.

62. Do I have to resample each approved sampling location after reconfiguring the ventilation system?

Yes. Reconfiguration of the ventilation system could change pressures affecting leakage through or around the seals. Pressure balancing (by reconfiguring the ventilation system) has been successfully used to fix the leakage that resulted in three explosions in a sealed area at a mine.

63. Can the District Manager approve boreholes as alternative sampling locations?

Yes, provided the mine operator includes information in the ventilation plan to assure representative sampling of the sealed area. The operator should be mindful that degasification boreholes or other boreholes that do not extend to the coal seam will not provide an accurate sample of the atmosphere in the open entries of the sealed area. In addition, due to the potential for an ignition source, persons may need to be withdrawn from the affected area as new boreholes are drilled and approach unexamined or unventilated areas.

64. May we drill boreholes in lieu of sampling at the seal sets?

No, however, the District Manager may require boreholes or other alternate sampling locations in addition to taking at least one sample at each set of seals at least every 7 days.

65. Do I need to comply with the sampling provisions of the seals rule if I have an approved spontaneous combustion plan under § 75.334(f)?

No. Mine operators with an approved ventilation plan addressing spontaneous combustion pursuant to § 75.334(f) must sample the sealed atmosphere in accordance with the ventilation plan.

66. Can I use a gas chromatograph to analyze a gas sample of the sealed atmosphere?

The time-sensitive nature of determining the measurement results preclude the use of gas chromatographs and computers located on the surface, except where continuous monitoring systems are used. Although MSHA believes that chromatographic analyses are more accurate than those from handheld instruments, MSHA also believes that handheld detectors can be an adequate sampling method to determine the methane and oxygen concentration at a sampling location.

67. Can I use a tube-bundle system or a means to pump a sample from the seal to an automated gas analysis system to meet the weekly sampling requirement?

Yes.

68. If a sealed area is completely surrounded by seals that are at least 120 psi, except for one seal that has a strength of less than 120 psi, do I have to sample the entire sealed area?

Yes. Each sampling pipe and approved location or other locations approved in 77.336(a)(1) and 75.336(a)(2), including through the 120 psi seals, must be sampled and the atmosphere in the entire sealed area must be maintained inert. If the atmosphere behind any seal, including the 120 psi seals, is not inert, then all of the provision specified in § 75.336 apply.

Section 75.336(b) Inert atmosphere

69. What is an inert atmosphere?

The atmosphere in the sealed area is considered inert when the oxygen concentration is less than 10.0 percent or the methane concentration is less than 3.0 percent or greater than 20.0 percent.

70. If I discover that the sealed atmosphere is not inert, how long can I take before I begin to restore the sealed atmosphere to an inert condition?

For seals with strengths less than 120 psi, immediate action must be taken to restore an inert sealed atmosphere.

71. What immediate action do I have to take to restore a sealed atmosphere to an inert condition?

The actions should be based on the specific conditions at the mine and may include the injection of inert gas, repairing leakage, grouting loose ribs near seals and pressure balancing of the sealed area.

72. When the atmosphere in the sealed area is not inert, do miners need to be withdrawn?

No, unless a potentially explosive atmosphere is detected.

Section 75.336(c) and (d) Potentially explosive atmospheres

73. What is a potentially explosive atmosphere?

A sealed atmosphere is potentially explosive when the concentration of oxygen is 10 percent or greater and the concentration of methane is between 4.5 percent and 17 percent.

74. How many samples do I have to take to determine if I have a potentially explosive atmosphere?

If the first sample indicates a potentially explosive atmosphere in the sealed area, you must immediately take a second sample, and immediately thereafter notify the District Manager. If the result of the second sample confirms a potentially explosive atmosphere, miners must be withdrawn from the entire mine, or other affected area identified by the operator and approved by the District Manager in the ventilation plan, except those persons referred to in § 104(c) of the Act.

If the first sample results in a potentially explosive atmosphere in the sealed area, but the second sample does not, the mine operator is not required to withdraw miners.

75. If the first sample indicates an explosive atmosphere, then how much time do I have to take the second sample?

You must immediately notify the District Manager, and immediately thereafter take the second sample.

76. Can I take the sampling instrument away from the seal to check it before taking the second sample?

Yes, if there is reason to believe the instrument may be malfunctioning and the second sample is taken without undue delay. An example of undue delay would be to take a bag sample to the surface for analysis with a gas chromatograph for the required second sample.

77. Do I have to take the required second sample if the seal is outgassing?

Yes.

78. If an explosive atmosphere is found in the sealed area, how much of the mine must be evacuated if the sealed area is located in a remote part of the mine?

The entire mine must be evacuated, unless another affected area has been approved by the District Manager in the ventilation plan. When requesting approval of a different affected area, the mine operator must address the location of the seals in relation to (1) the areas where persons work or travel in all entries in front of the seals; (2) escapeways and potential damage to escapeways; (3) ventilation systems and controls in areas where persons work or travel and where ventilation is used for escapeways; and (4) other information required by

the District Manager. All aircourses and escapeways must be considered, including those separated by stoppings or other ventilation controls.

79. If I have a sealed area with 50-psi and 120-psi seals, do I have to withdraw miners from the entire mine when there is an explosive atmosphere behind any of the seals?

Yes, unless a different affected area has been approved by the District Manager in the ventilation plan.

80. What should be included in the ventilation plan regarding the actions to be taken before miners reenter the mine?

The actions should be based on the specific conditions at the mine but may include injecting inert gas, reducing air leakage, specifying additional sampling locations and frequencies, and pressure balancing the sealed area. The ventilation plan addendum must address the specific conditions associated with the particular event.

81. Do I need to submit a ventilation plan each time miners reenter the mine following a withdrawal?

Yes,

Section 75.336(e) Recordkeeping

82. Do I have to record sampling results?

Yes. Upon request, mine operators must promptly provide access to any record listed in Table 75.339(a), which includes gas sampling records.

Section 75.337 Construction and Repair of Seals

Section § 75.337(a), (b) and (c) Construction and repair of seals

83. When am I required to examine seals?

All seals must be examined in accordance with § 75.337 prior to construction or repair, during construction or repair, and upon completion of construction or repair.

84. Are physical examinations of seals required when the sealed atmosphere is monitored using a continuous monitoring system?

Yes.

85. What am I required to do if I have a seal that cannot be accessed or is hazardous to access for seal examination?

You must reestablish safe access to seals or install replacement seals at a safe, accessible outby location.

86. Can a seal be repaired?

The final rule allows non-structural repairs only. Non-structural repairs are those that are related to general maintenance and include excessive air leakage through and around seals repair of minor cracks, spalling of seal coating, water drainage systems and sampling pipes. If structural problems exist, the seal must be replaced.

87. Do I have the responsibility to examine and detect structural deficiencies in existing seals?

Yes. Section 75.335(b)(5) requires that once the seal design is approved, the approval holder must promptly notify MSHA, in writing, of all deficiencies of which they become aware. In addition, § 75.337(c)(5) requires the operator to make a record of examinations at the completion of any shift during which an examination was conducted, and the record must include each deficiency and corrective action taken.

88. Am I required to have MSHA approval before making repairs to a seal?

Yes. Section 75.337 requires that repair work be approved by the District Manager in the ventilation plan. Section 75.335(c)(3)(iv)(J) requires that the methods and materials that can be used to maintain each type of seal be approved by the District Manager in the ventilation plan before the seals are constructed. The only types of maintenance that can be performed on a seal are non-structural repairs. Structural defects require replacement.

89. Am I required to have at least 120-psi seals surrounding the sealed area if I cannot safely remove all insulated cables, batteries and other potential electric ignition sources from the area to be sealed?

Yes.

90. What are some other potential electric ignition sources than may be in the sealed area?

Other potential electric ignition sources include motors, transformers, pumps and associated electric cables and equipment, and electromagnetic devices. This also includes borehole casings, cables, and piping that extend from the surface to the open entries of a sealed area that are potential conductors for lightning or other electrical currents.

91. Can insulated cables be grounded in lieu of removing them from the area to be sealed?

No.

92. Can I operate a deep-well pump in the sealed area?

Yes, provided the operation of the deep well pump is approved by the District Manager in the ventilation plan. If you operate a deep-well pump in a sealed area, the pump and its components must not be in contact with the atmosphere in the sealed area. The pump, borehole casing and cables must be continuously under water, since they are potential ignition sources. Precautions must be taken to insure that the borehole opening in the sealed area for the pump remains under water.

93. Does metallic roof mesh have to be removed from the location where the seal is going to be constructed?

Yes. Metallic objects must be removed through or across seals.

94. Do track, belt structure, and pipes have to be removed from the area to be sealed?

No.

Section 75.337(d) Certification of construction and repair of seals

95. Who must certify that the seal is built in accordance with the approved ventilation plan?

Upon completion of construction of each seal a senior mine management official, such as a mine manager or superintendent, must certify that the construction, installation, and materials used were in accordance with the approved ventilation plan.

Section 75.337(e) Notification to MSHA

96. Can I notify the District Manager by e-mail of completion of a set of seals?

Yes.

97. Can quality control test results be submitted to the District Manager by the laboratory performing the analysis?

No. The quality control test results must be submitted to the District Manager by the mine operator.

98. Can I submit quality control test results to the District Manager by e-mail?

Yes.

99. Do I have to sample each sampling pipe until the seal reaches full-design strength for seals 120 psi or greater?

Yes. Each sampling pipe in each seal must be sampled until the District Manager determines that the full-design strength is reached based on your quality control test results. When these seals reach design strength of 120 psi, sampling is no longer required.

100. What can be done after a seal is constructed and test results indicate deficient material strength?

The seal must be replaced in accordance with the approved ventilation plan.

101. What are acceptable quality control tests?

You must perform the quality control test specified in the approved seal design and in the approved ventilation plan.

Section 75.337(f) Welding, cutting and soldering

102. Do I need a revision to the ventilation plan approved every time I cut, weld, or solder with an arc or flame within 150 feet of a seal?

Yes.

Section 75.337(g) Sampling pipes

103. Am I required to install sampling pipes in seals that are designed to meet 120-psi overpressure?

Yes.

104. What types of corrosion-resistant non-metallic pipe will be acceptable in 50-psi or 120-psi seals?

Acceptable sampling pipe includes any materials that are not susceptible to the effects of corrosion over time and that are not conductive such as polyvinylchloride (PVC). The pipe used in the seal and the connection between the pipe and the valve must each have an internal pressure rating greater than or equal to 240-psi and a temperature rating that exceeds the curing temperature of the seal construction material.

105. What is the required diameter of the sampling pipe?

The diameter of the sampling pipe is specified in the seal design approval.

106. Do I have to replace metal sampling pipes in existing seals?

No.

107. Can the mine operator embed non-metallic pipes in the seals for the injection of inert gas?

Yes, if approved as part of the seal design and in the approved ventilation plan.

108. Can sampling pipes be sealed after 120-psi seals reach full-design strength?

No.

Section 75.337(h) Water drainage

109. What level of overpressure does the water drainage system have to withstand?

In addition to being corrosion resistant and made of non-metallic material, drainage pipes must have strength properties consistent with the design strength of the seal, and the drainage system must have blast resistance equivalent to that of the seal. This also applies to couplers, elbows, traps, valves, and glue, if applicable.

110. Can I design a seal using a metal valve with a plastic drain pipe?

Yes. The design, however, must be approved by Technical Support and its installation must be approved by the District Manager.

111. Does the water trap have to be a certain distance from the seal?

The rule does not prescribe the trap's distance from the seal. The water drainage system, including the trap and its distance from the seal must be approved in the ventilation plan.

112. Can I pump water or slurry into the sealed area through a borehole or through a seal?

The District Manager will determine if this activity is appropriate. The maximum elevation of the water or slurry in relation to the elevation of the lowest seal must be evaluated. If a mine has a history of "squeezing", then this condition must also be considered, especially if it could result in water being forced against a seal.

113. What do I do when water is accumulating above the level of the water drainage pipe?

In the event that the water flow exceeds the discharge capacity of the water drainage system, remedial actions must be taken to decrease the water level.

114. What is the maximum depth of water that may be impounded behind a seal?

Seals are not designed to impound water other than to a minimal, unavoidable depth and in no case should water be permitted to accumulate to a depth exceeding the height of a water drainage system that is appropriately installed.

115. Can a seal be built to replace one that is impounding water?

No. Either the water level must be lowered inby the existing seal or an approved bulkhead must be constructed to replace the seal and impound water.

116. Can an additional pipe without a water trap be added to the seal that could be used for injecting an inert gas or removing methane?

Yes. The size and location of the pipe should be included in the approved seal design as authorized by § 75.335(c)(3)(iv)(N).

117. Can you construct a dam on the inby side of a seal to prevent water from accumulating against the seal?

No. However, a small coffer dam, less than one foot high or the height of a reasonably placed water trap would be acceptable for sediment control.

118. Can water continuously drain through the water drainage system?

Yes.

119. Does the ventilation plan have to address interior seals and their potential to impound water?

Yes. Impounded water anywhere within the sealed area must be addressed if the water could affect the new seals. Interior seals that may impound water should be breached or dewatering systems that are addressed in the ventilation plan may be used to control the water level.

Section 75.338 Training

120. When do I have to train the certified person conducting sampling?

Certified persons conducting sampling must be trained before they conduct sampling, and annually thereafter. Certified persons conducting sampling must be trained in the use of appropriate sampling equipment, procedures, location of sampling points, frequency of sampling, size and condition of the sealed area, and the use of continuous monitoring systems if applicable before they conduct sampling, and annually thereafter.

121. When do I have to train miners constructing or repairing seals, designated certified persons, and senior mine management officials?

These persons must be trained prior to constructing or repairing a seal and annually thereafter. The training must address the materials and procedures in the approved seal design and ventilation plan.

122. Who may conduct training?

The rule does not specify requirements for persons providing training on seals. MSHA expects the trainer to be capable of demonstrating knowledge in the areas for which they are providing training.

123. How long must the training class be?

The final rule does not require a minimum amount of time for training. The class should be of appropriate duration to address each topic. MSHA expects mine operators to determine the time necessary for this training based on the complexity of the seal design in the ventilation plan, construction or repair procedures, materials used, and knowledge and skill levels of persons receiving training.

124. Does my Part 48 training plan have to be revised?

No. Seals related training is in addition to Part 48 training.

125. When should annual training be provided?

Miners constructing or repairing seals, designated certified persons, and senior mine management officials must be trained prior to constructing, repairing or certifying a seal and annually thereafter. Annual training must be provided within every 12 months. For example, if retraining occurs in a month preceding the original month of training, that month becomes a new “anniversary” month. For example, a miner receiving training in December is required to complete retraining no later than the end of December of subsequent year. If a miner completes the training in July, then subsequent retraining must be completed before the end of July in subsequent year.

126. May training be documented on an MSHA Form 5000-23, or will a separate form be required?

Mine operators may use MSHA Form 5000-23 for certifying the training. You may also use a book or other suitable record to document training.