

**QUESTIONS AND ANSWERS
MSHA'S REFUGE ALTERNATIVES REQUIREMENTS
Updated: 12/13/19**

1. **Can Part 7 approved harmful gas, breathable air and air monitoring components from different manufacturers be used in grandfathered structural components?**

Yes, until the grandfathering period for structural components expires on December 31, 2018. However, all four components must be certified as compatible by the applicant pursuant to § 7.503(a)(2)(iv) and approved as such by MSHA. To certify compatibility, the applicant must submit a statement to MSHA's Approval and Certification Center demonstrating that the components function together to provide the protection in the Refuge Alternative standard.

2. **Can a state-approved, grandfathered structural component be modified to accept another manufacturer's Part 7 approved harmful gas, breathable air and air monitoring components?**

Yes, however the state approval for the structural component must be amended to reflect the modifications and re-approved by the State that granted the initial approval in order to maintain the structure's grandfathered status. The applicant must then certify compatibility of all components.

April 29, 2009

**QUESTIONS AND ANSWERS MSHA' S FINAL RULE ON
REFUGE ALTERNATIVES**

EFFECTIVE DATE & IMPLEMENTATION DATES

1. **When does this final rule take effect?**

The final rule took effect March 2, 2009.

2. **Do any sections of this final rule have significant dates?**

Yes, they are as follows:

§ 7.503

- For any approval consideration by MSHA in the first year, an application for approval of a refuge alternative or component must have been submitted by April 30, 2009. Applications submitted after April 30, 2009, have no assurance of consideration in 2009. Partial applications submitted will be issued a letter identifying deficiencies, i.e., a discrepancy notification.

§ 75.1502(c)(3), (c)(4)(vi), (c)(8), and (c)(10) through (12)

- For mines with refuge alternatives in the mine on March 2, 2009 (the effective date of the rule), the operator must have submitted a revised program of instruction to the appropriate District Manager for approval by April 30, 2009, and must conduct initial mine emergency evacuation training and drills on the refuge alternatives and components, under § 75.1504(b)(3)(ii), (b)(4)(ii), and (b)(6) through (9), within 30 days of program approval.
- For mines with no refuge alternatives in the mine on March 2, 2009 (the effective date of the rule), the operator must submit a revised program of instruction to the appropriate

District Manager for approval within 30 days of receipt of the refuge alternatives or components, and conduct initial mine emergency evacuation training and drills on the refuge alternatives and components, under § 75.1504(b)(3)(ii), (b)(4)(ii), and (b)(6) through (9), within 30 days of program approval.

§ 75.1504(c) (3)

- For mines with refuge alternatives in the mine on March 2, 2009 (the effective date of the rule), the operator must complete the initial annual expectations training on the refuge alternatives and components no later than December 31, 2009.
- For mines with no refuge alternatives in the mine on March 2, 2009 (the effective date of the rule), the operator must complete the initial annual expectations training on the refuge alternatives and components no later than December 31, 2009, or within 60 days of receipt of the refuge alternative, whichever is later.

3. If there is no MSHA approved refuge alternative available for new mining sections that come online after March 2, 2009, which refuge alternative is acceptable under the new rule?

MSHA will continue to accept prefabricated refuge alternatives that states have approved until units approved under Part 7 are commercially available.

4. Are these state-approved prefabricated refuge alternatives grandfathered like the units purchased prior to March 2, 2009?

Yes.

GRANDFATHERING

5. Do I have to immediately replace my existing refuge alternatives that were approved in an Emergency Response Plan (ERP)?

No. Under § 75.1506(a)(3), prefabricated refuge alternative structures that states have approved and those that MSHA has accepted in approved ERPs that are in service prior to March 2, 2009, are permitted until December 31, 2018, or until replaced, whichever comes first. And, refuge alternatives consisting of materials pre-positioned for miners to deploy in a secure space with an isolated atmosphere that MSHA has accepted in approved ERPs that are in use prior to March 2, 2009, are permitted until December 31, 2010, or until replaced, whichever comes first.

6. Does the capacity of the grandfathered state approved units have to be reduced to comply with § 75.1506(b)(1).

No.

7. If I have a refuge alternative that is grandfathered under this rule, do I have to replace the components by December 31, 2013?

Yes. Under § 75.1506(a) (3), breathable air, air-monitoring, and harmful gas removal components of either a prefabricated self-contained unit or a unit consisting of 15 psi stoppings constructed prior to an event in a secure space and an isolated atmosphere that states have approved and those that MSHA has accepted in approved ERPs that are in use prior to March 2, 2009, are permitted until December 31, 2013 or until replaced, whichever comes first.

8. **Can components within refuge alternative structures be submitted for approval at the end of the 5-year grandfather period?**

Yes.

9. **Can refuge alternative structures be submitted for approval at the end of the 10-year grandfather period?**

Yes.

10. **If I replace components of a refuge alternative before December 31, 2013, do the replacement components need to be approved?**

Yes.

11. **Can an operator use the components from refuge alternatives consisting of materials pre-positioned for miners to deploy in a secure space with an isolated atmosphere that MSHA has accepted in approved ERPs after December 31, 2010?**

Yes. The breathable air, air-monitoring and harmful gas removal components may be used in prefabricated units or units consisting of 15 psi stoppings constructed in a secure space prior to

an event and an isolated atmosphere until December 31, 2013. All components must be approved in the ERP.

12. **Does the 10-year grandfathering continue if a refuge alternative is moved from the mine that it was originally approved or purchased for to another mine?**

Yes.

13. **Is a purchase order acceptable for prefabricated units that were specified in the ERP prior to March 2, 2009, but could not be delivered by that date?**

Yes. The District Manager may accept, in lieu of the "in service" requirement of the grandfathering provision, a copy of a valid, "bona fide," written purchase order entered into by March 2, 2009, provided that the purchase order contains a confirmed delivery date prior to December 31, 2009.

14. **What is a "bona fide" purchase order?**

The preamble to the final rule provides that "MSHA will accept, as good faith evidence of compliance with final § 75.1506(a)(1) and (a)(2), a copy of a valid, bona fide, written purchase order with a confirmed delivery date for an approved unit." "Bona fide" means "legitimate," "authentic," or "legal."

15. **If a grandfathered refuge alternative or component is repaired or serviced, will any replacement parts have to be approved under part 7?**

No, if the servicing/repair is minor and all replacement parts are the same as the originals.

16. **Is the preshift examination provision under § 75.360 applicable to grandfathered prefabricated units?**

Yes. Although grandfathered units may not have external gauges, preshift examinations must be conducted to determine the ready availability of compressed oxygen and air and the mechanisms required to deploy the refuge alternative. Preshift examinations also ensure that the integrity of the tamper-evident seal is maintained.

17. **Can grandfathered components be moved from one mine that closed to a new mine?**
- Yes, if they are included in the operator's approved ERP. Components that are grandfathered can be used for 5 years or until December 31, 2013.
18. **Do grandfathered refuge alternatives have to comply with § 75.600-3 (communications)?**
- Yes.
19. **Do items such as phones, fire extinguishers, and gas detectors need to be inside a grandfathered refuge alternative?**
- Yes.
20. **How will phones or wireless communications devices be used with grandfathered refuge alternatives?**
- Hardwired phones will require the installation of appropriate connections through the wall of the refuge alternative. Hard-sided refuge alternatives will require the installation of an appropriate connection through the wall that attaches to a suitable antenna for the use of wireless communications. These connections must be gas-tight. Both the connections and antenna must be able to withstand the overpressure and flash-fire criteria specified in § 7.505(a)(4) and (5).
21. **Does the requirement for 2000 calories of food per person per day apply to a grandfathered refuge alternative?**
- Yes.
22. **How much information is required to be included in the ERP for grandfathered units?**
- The information that is available for that refuge alternative to address the requirements provided in § 75.1507.

PART 7 APPROVALS

§ 7.8 Post-Approval Product Audit.

23. **Will MSHA's request for a post-approval product audit of a refuge alternative under § 7.8 occur annually?**
- Under § 7.8(b) MSHA may request a post-approval product audit once a year.
24. **Can MSHA request a product to test more often than annually?**
- The existing regulation provides that MSHA will conduct product audits no more than once per year except for cause. Therefore, if MSHA identifies a nonconformance in an audit, or receives a complaint about a product, MSHA would request that product for additional verification testing.
25. **How long will MSHA keep the refuge alternative during a post-approval product audit? Can the audit be conducted on a refuge alternative that is in production without affecting the customer delivery schedule?**
- MSHA will work with manufacturers to minimize the time necessary to conduct an audit. For example, the Agency may conduct subassembly examinations during production to minimize production delays.

26. **Will MSHA be conducting destructive testing during a post-approval product audit that would prevent the refuge alternative from being sold, or that would consume considerable costs in scrubbing materials?**

MSHA is not planning on conducting full-scale 96-hour destructive testing in the auditing phase of the product. Audits will be conducted by using representative sampling methods.

§ 7.503 Application Requirements.

27. **If materials have a potential to ignite, such as, seat upholstering material, rubber floor padding, etc., but are inside a steel prefabricated chamber, do they need an MSHA approval number?**

Yes. § 7.503 (a) (2) (iii) requires that the application include the materials that have a potential to ignite with their MSHA approval number.

28. **If a manufacturer has several refuge alternative models, will every model need a separate application for MSHA approval?**

Only one application is needed if models have only minor differences. If the difference to a model affects a critical characteristic, a separate application is needed. MSHA's Approval and Certification Center is offering pre-application consultations to discuss issues such as these.

29. **For multiple models, can one application be made with software and an explanation of the algorithms for the different models?**

No. A separate application for each model is needed.

30. **Would MSHA accept an application which uses a table showing various maximum mine air temperatures at differing occupancies in lieu of full-scale testing?**

No. Full-scale tests must be conducted.

§ 7.504 Refuge Alternatives and Components. General Requirements.

31. **What method of determining apparent temperature is required under § 7.504(b) (1)?**

MSHA used the Steadman Heat Index in developing the 95°F apparent temperature requirement of the final rule. Any scale may be used to determine apparent temperature; however, the equivalent of 95°F Steadman cannot be exceeded. 95°F Steadman corresponds to 84°F Wet Bulb Temperature.

32. **What heat input equivalent per person is required for the maximum apparent temperature tests under § 7.504(b)?**

From the NIOSH testing protocol, the maximum apparent temperature test is 400 BTU per hour per person. Additional heat from scrubbing agents or operation of electrical equipment needs to be included in the total heat load to be controlled/dissipated.

33. **Can a simple double throw switch that can select either of two independent telephone lines from a single mine phone inside a refuge alternative be used to meet the requirements of § 7.504(c)(1), or are two mine phones required?**

The communications and tracking requirements under both §§ 7.504(c) (1) and 75.1600 require two communication systems -- i.e., two independent systems for communication. A failure in one system or pathway cannot affect the other system or pathway. Thus, separate systems would be required because one switch connected to both systems would create the

potential for a single failure point and would not meet the requirements of the final rule.

34. Are there any MSHA-approved air conditioners that are suitable for use in a refuge alternative and that are currently available?

Yes. Please contact MSHA Technical Support at 304-547-0400 for more information.

35. Can the batteries from a battery-powered air conditioner be located outside the refuge alternative?

Yes, but they must be approved as intrinsically safe for use.

36. Do supplies need to be stored in containers that are able to withstand a certain psi?

No.

§ 7.505 Structural Components.

37. Does the floor space required under § 7.505(a) (1) include the seating area -- i.e., will installing seats and storing items under the seats reduce what is considered floor space?

The floor space includes the seating area. Seats will count as floor space, and storing items under the seats will not reduce the floor space.

38. What are the acceptable puncture and tear resistance test limits required under § 7.505?

Section 7.505(b) (6) provides the method for puncture resistance testing of structures, i.e. inflatable tent fabric. ASTM D2582-07 demonstrates how to test the fabric. Refuge alternative materials' tear resistance strength, as measured by ASTM D2582, should exceed 123 Newtons/28 lbs-force in both the warp and fill directions. For example, this test would equate to a 40-mm tear using carriage number 5 on the ASTM D2582-07 tester.

39. Does the whole unit, including internal components, need to withstand the flash fire?

Yes. The whole unit must withstand the flash fire. The internal components must withstand 300 °F for 3 seconds prior to deployment.

40. What is meant by the term “structure” regarding the loss of air pressure in § 7.505(c) (2)?

The “structure” is the inflatable portion of the refuge alternative. If the inflatable-type refuge alternative is damaged or leaks, it will need repair and additional compressed air to re-establish the pressure and volume of air that was lost.

§ 7.506 Breathable Air Components.

41. Are compressors or fans required to be approved by MSHA?

Yes. Compressors or fans are parts of the breathable air component that must be approved by MSHA.

42. What does the term “certified” mean, under § 7.506(d) (5), regarding regulators, piping, and other equipment for compressed breathable oxygen?

The term “certified” in § 7.506(d)(5) means that manufacturers, suppliers, and rebuilders of

oxygen systems and components must ascertain and confirm that a part or system is clean and the materials are suitable for use with oxygen in accordance with industry standards, and able to withstand the corresponding pressures with industry recognized safety factors. The reference cited in the preamble was: Safe Use of Oxygen and Oxygen Systems: Guidelines for Oxygen System Design, Materials Selection, Operations, Storage, and Transportation, ASTM Stock No.: MNL 36.

43. What is meant by “back up regulator” as referenced in § 7.506(d) (4)?

MSHA’s intent is that there is a spare part for any regulator and flow meter used in the refuge alternative.

44. Can MSHA provide applicants with guidelines on compliance with § 7.506(e)(1) and (2) regarding an analysis or study demonstrating that the breathable air component will not cause an ignition?

These requirements minimize or prevent the inherent potential fire hazard from oxygen and the fire hazards from chemicals used for removal of carbon dioxide. Applicants should analyze inherent potential fire hazards and include a mitigation plan to minimize or prevent ignition of breathable air component equipment or materials. One available resource concerning fire and ignition and handling cited in the preamble was: Safe Use of Oxygen and Oxygen Systems: Guidelines for Oxygen System Design, Materials Selection, Operations, Storage, and Transportation, ASTM Stock No.: MNL 36.

45. If operators have developed a refuge alternative using their own breathable air system by purchasing individually the oxygen and air tanks, soda lime, etc., do they need to submit these component parts for MSHA approval?

Yes. Sections 75.1506(a) (1) and (2) require that breathable air, air monitoring, and harmful gas removal components must be approved under part 7.

§ 7.507 Air-Monitoring Components.

46. Are gas sampling tubes permitted under § 7.507(a)?

Yes.

§ 7.508 Harmful Gas Removal Components.

47. Is the purge test only required on the air lock?

No. Some refuge alternative designs may cause contamination of the main chamber during entry. Therefore, under § 7.508(c)(1) and (2), concerning testing for harmful gas removal, purging is required on the airlock and main chamber. The interior volume must be purged to bring the harmful gas concentrations to an acceptable level prior to persons removing breathing apparatus after entry.

48. What is meant by the 20-minute purge time requirement in § 7.508(a)(1)?

Purging must be effectively done within 20 minutes of miners beginning to enter the alternative.

49. Is the purge air quantity to be based on three times the total interior volume, air lock plus main chamber?

No. The quantity is to be determined in the approval testing.

50. **Can identical size air locks that are used on refuge alternatives with varying capacity cause a disparity in the quantity of purge air?**

Identical size airlocks may require different volumes of purge air depending on the full occupancy and any further use of the airlock.

51. **What temperature and pressure should be used when determining the CO₂ removal rate of 1.08 cubic feet per hour per person under § 7.508(a)(2)(ii)?**

The CO₂ removal rate of 1.08 cubic feet per hour per person is determined using a temperature of 60 °F and a pressure of 14.7 psia (pounds per square inch, absolute), which is 1 atmosphere.

52. **§ 7.508(c)(1)(i) and (iii) require gas sampling at three points along the vertical center line of the chamber and require sampling instruments to be continuously exposed to the test atmosphere. Are external analyzers permitted in lieu of internal analyzers?**

For harmful gas removal component testing, the analyzer location is at the discretion of the testing entity. An external analyzer would be acceptable as a testing instrument for gases drawn from the three sampling points.

53. **§ 7.508(c)(3) requires CO₂ testing at specified conditions. To comply with this requirement, are absorbents to be tested while maintaining the inside chamber temperature and humidity at the conditions specified for the 96-hour test?**

Yes.

54. **Are previous NIOSH tests of refuge alternatives or components sufficient for scrubber performance testing under § 7.508(c)(3)?**

No. For all units approved under the final rule, testing will be required to be performed under the conditions specified in § 7.508(c)(3).

55. **What type of testing is required under § 7.508(c)(4) to demonstrate the harmful gas removal component's ability to remove harmful gases effectively throughout its designated shelf life, specifically addressing effects of storage and transportation?**

The final rule does not include a requirement for a specific test. Testing must demonstrate the component's continued ability to remove harmful gases effectively throughout its designated shelf-life.

56. **What is meant by the term "excursions" regarding CO₂ removal testing under § 7.508(c)(3)?**

Excursions are rises in CO₂ concentrations above 1%, not to exceed 2.5%, when scrubbing efficiency changes. The time-weighted average of CO₂ concentration is not to exceed 1% over 96-hour test duration.

NON-U.S. CERTIFICATION AND TESTING

57. **Would MSHA accept a refuge alternative approved by another country?**

No.

- 58. If a foreign manufacturer applies for MSHA approval, would testing under the final rule need to be in the United States or would MSHA travel to another country to observe testing?**

MSHA could travel to observe testing at the applicant's expense and at MSHA's convenience.

FEES

- 59. What is the expected fee amount for MSHA's testing and evaluation services?**

The final cost depends on the completeness of the documentation and complexity of the product. Please reference 30 CFR Part 5 for fee information.

- 60. When does MSHA assess fees?**

MSHA provides a maximum fee *estimate* to the manufacturer, and the fee is agreed upon prior to MSHA's evaluation of the application. MSHA assesses and collects the fee after the approval or disapproval letter is issued.

- 61. Does MSHA need a draft application to provide the manufacturer with a fee estimate?**

No. MSHA provides a fee estimate after the formal application is received.

TESTING

- 62. Does design data need to be completed at the time of submitting the application?**

Design data must be included as part of the complete application.

- 63. Will MSHA's Office of Technical Support be witnessing refuge alternative and component testing?**

Yes. Please contact Wesley Shumaker, shumaker.wesley@dol.gov, 304-547-2081, Mike Getto Getto.Michael@dol.gov 304-547-2303, or Ben Gandy, gandy.benjamin@dol.gov, 304-547-2322 to discuss testing schedules.

- 64. What type of test is required for the flash fire condition of 300 °F regarding § 7.505(b) (3)? In addition, what is the exact energy concentration in terms of Kw/m² that is required to be applied to the pre-deployed structure to demonstrate compliance?**

Part 7 does not specify the test methods manufacturers must use to demonstrate that their product complies with the standard. When the exterior of the refuge alternative is subject to a flash fire, as referenced in NFPA 2113, the measure of heat transferred to the inside of the structure is limited to a maximum of 84 Kw/m².

- 65. Does the bottom of the structural component have to be exposed to the flash fire for approval tests?**

If the bottom of the structure could be exposed, then it must be considered in the flash fire test.

- 66. Does the entire structural component need to be exposed to the flash fire test for approval?**

Yes.

- 67. During purge tests can the volume of the airlock or main chamber be reduced to account for the volume of occupants?**

No.

- 68. Is the 15 psi requirement static or dynamic?**

It is static because the rise time to 15 psig is a slow 0.1 second; the dynamic load factor is 1.

- 69. Is the 15 psi requirement for pressure in both directions on each stopping wall?**

Yes

- 70. Should air movement be taken into consideration during apparent temperature testing?**

Yes. Testing must reflect expected conditions at maximum occupancy in conjunction with required components. Any internal airflow associated with the use of the refuge alternative must be taken into consideration during the approval test.

- 71. Is there a set ambient mine temperature to be used in determining the maximum apparent temperature at maximum occupancy?**

Tests must be conducted at the maximum mine air temperature, under which the refuge alternative is designed to operate when the unit is fully occupied, to assure that the refuge alternative does not exceed the apparent temperature requirement in the final rule.

- 72. Is scaled-down testing allowable under § 7.508(c) (1) and (3)?**

No. For approval, full-scale tests must be conducted. Full-scale testing is conducted for 96 hours at the maximum volume for which the component is designed.

DESIGN

- 73. What is required for maintenance inspection?**

The applicant must provide a manual that addresses maintenance of each refuge alternative or component. Maintenance procedures or methods should include frequent maintenance checks and replacement schedules for components.

- 74. Do all refuge alternatives have to be designed to be moved safely (mobile)?**

Yes. Under § 7.504(a), refuge alternatives must be designed so that they can be moved safely with the use of appropriate devices, such as tow bars, and so that they can withstand forces from collision of the refuge alternative structure during transport or handling.

PART 75 SAFETY STANDARDS

§ 75.360 Preshift Examination at Fixed Intervals.

- 75. Does the preshift examination under § 75.360(d) require entering the refuge alternative to check the communication system, gas detectors, and batteries?**

No. The units approved under 30 CFR part 7 must be designed so that preshift examinations required under part 75 can be conducted without entering the unit. The preshift examiner must be able to look for damage to the tamper resistant seal and visible damage to the structure. The examiner must observe gauges showing ready availability of oxygen and mechanisms

required to deploy the unit and observe the battery status.

- 76. Are pre-shift examinations of refuge alternatives located in outby areas required under § 75.360(d) if no one is scheduled to work or travel in the area during the oncoming shift?**

No. A preshift exam is not required in this case.

- 77. How often should a compressor or fan that would supply breathable air to a refuge alternative be inspected?**

The compressor or fan must be checked during the preshift examination, which requires checking
“the ready availability of compressed oxygen and air.”

- 78. Do refuge alternatives and components require scheduled maintenance?**

Yes. The operator must maintain each refuge alternative and component according to the manufacturer’s specifications and procedures. If the manufacturer requires the tent to be unfolded and examined once a year, maintenance must be done on a yearly basis.

EMERGENCY MINE EVACUATION TRAINING (§§ 75.1502 and 75.1504)

- 79. When does the revised program of instruction for evacuation training and drills have to be submitted to MSHA?**

For mines with refuge alternatives in service on March 2, 2009, the revised program of instruction (§ 75.1502) must have been submitted by April 30, 2009.

- 80. Can training conducted prior to the effective date of the rule be used to comply with the rule?**

No.

- 81. Is annual expectations training required for all miners on all units used at the mine?**

Yes.

- 82. What type of training is required for grandfathered refuge alternatives consisting of materials prepositioned for miners to deploy in a secure space?**

Miners must receive quarterly training and annual expectations training for each type of refuge alternative used in the mine.

- 83. Can training videos or a PowerPoint presentation be used to provide the annual expectations training in lieu of hands-on training on an actual refuge alternative?**

No. Expectations training requires an annual realistic experience of deploying and using a refuge alternative in a simulated emergency situation. Hands-on training is necessary to provide this experience.

- 84. How often must training consist of deploying and using the refuge alternative?**

Expectations training that consists of deployment and use of the refuge alternative must be conducted annually.

85. Do all miners need training on all types of refuge alternatives in the mine?

Yes.

86. Are visitors at the mine required to have refuge alternative training prior to going underground?

Yes. Visitors are required to have hazard training, which should include information on the location of refuge alternatives.

87. Do contractors who work underground at the mine have to be trained on using the refuge alternatives?

Yes. Contractors are required to have quarterly training and annual expectations training on the use of refuge alternatives at that mine.

88. Is training on refuge alternatives required for mine rescue teams?

No.

89. Is the mine operator or the manufacturer responsible for training on the use of refuge alternatives?

The mine operator is responsible for the training.

90. How should the training program be developed?

The manufacturer's manuals and summaries that are required in the application should be used by operators to develop training material required under § 75.1502(c) -- mine emergency evacuation program of instruction; § 75.1504(b) -- quarterly training; § 75.1504(c) -- annual expectations training; and § 75.1508(a)(1) -- training on examinations, maintenance, or repairs.

91. Will miners need to receive task training on the transportation of refuge alternatives?

Yes. Miners must be task trained in transportation of the refuge alternative before being assigned to move the unit.

VENTILATION, MINE, AND ESCAPEWAY MAPS

92. When do the ventilation maps, mine maps, and escapeway maps have to be updated?

The ventilation map update (§ 75.372(b) (11)) should be submitted with the next required ventilation map submission (§ 75.372(a) (1)). The mine map (§ 75.1200-1(n)) and escapeway map (§ 75.1505) revisions were required by March 2, 2009 and must be kept current through temporary notations.

93. In what locations are escapeway maps required under § 75.1505(a)?

The escapeway map must be posted or readily accessible for all miners — (1) In each working section; (2) In each area where mechanized mining equipment is being installed or removed; (3) At the refuge alternative; and (4) At a surface location of the mine where miners congregate, such as at the mine bulletin board, bathhouse, or waiting room.

- 94. If the escapeway map is posted at the working section does it also need to be posted at the refuge alternative for that section?**

Yes.

- 95. How soon should the maps be updated after a refuge alternative is moved or repositioned?**

By the end of the shift during which the move occurred.

§ 75.1506 Refuge Alternatives.

- 96. If a section uses “hot seat” change-out, does the capacity of the refuge alternative need to accommodate both crews?**

Yes.

- 97. Does the section refuge alternative need to accommodate mine inspectors, survey crews, contractors, mine management, manufacturers or vendors, and any other visitors?**

Yes. Refuge alternatives for the working sections must accommodate the maximum number of persons that reasonably can be expected to be working on or near the section at any time. This includes all miners that join those working at the section during a shift change, and any other persons who would routinely work near the section, such as managers, surveyors, vendors, and state and Federal inspectors. Refuge alternatives do not have to accommodate persons needed for emergency operations and special inspection activities.

- 98. Are refuge alternatives, spaced within one-hour travel distances, required either in bleeder systems or old works, where travel and work is usually limited to a fireboss or pumper?**

Yes. However, for bleeder systems or old works where travel and work is usually limited, the operator may request a different location for the refuge alternative based on an assessment of the risk to persons who work in those areas. The different location must be approved by the District Manager in the ERP.

- 99. If there are multiple escapeways, do refuge alternatives in outby areas need to be in each escapeway, or in only one escapeway?**

There is no requirement that refuge alternatives be located in either escapeway. Refuge alternatives must be spaced so that persons in outby areas are never more than a 30-minute travel distance from a refuge alternative or a safe exit.

- 100. Can the operator use a refuge alternative having the volume required for a 3.5-foot mining height, even though the average mining height may be 5 feet?**

No. Under § 75.1506(b) (1), the operator must determine the required volume per person using the mining height. If the average mining height is 5 feet, the refuge alternative must provide 60 cubic feet per person. MSHA considered clearance and maneuverability in determining these requirements.

- 101. What volume is required for a mine with a coal seam that is 6 feet in height, but with reserves that are 40 inches in height in the same mine?**

The required unrestricted volume per person is determined by the mining height where the refuge alternative is located. If the average mining height is 6 feet, the refuge alternative must provide 60 cubic feet per person. If the average mining height is 40 inches, the refuge

alternative must provide 37.5 cubic feet per person.

102. Where should directional signs required by § 75.1506(h)(2) be located?

Signs should be posted at intersections of the escapeway and the crosscut leading to the refuge alternative.

103. Are moving parts allowed outside of an explosion-proof enclosure?

Yes.

104. Are individually wrapped and sealed packets of food and water acceptable as sealed containers?

Yes, if the containers are airtight, waterproof, and rodent-proof.

105. When do provisions such as first-aid supplies, repair materials, food, and water have to be replaced?

These items must be replaced according to the manufacturer's recommendations.

LOCATION OF REFUGE ALTERNATIVES

106. When does the revised roof control plan and ERP need to contain the information for refuge alternative locations?

The coal mine operator should have submitted the roof control plan (§ 75.221(a) (12)) and the revised emergency response plan (§ 75.1507) by March 2, 2009.

107. Are refuge alternatives required for mines being rehabilitated where ventilation controls are being re-established, water is being pumped, additional roof support may be added, but mechanized mining equipment is not being installed or removed and there is no working face?

Under these circumstances, outby refuge alternatives are required unless the distance from the most inby point of rehabilitation is less than 30 minutes travel time from safe exit.

108. Can a refuge alternative be located in an entry?

No, because it would be within direct line of sight of the working face.

109. What is the crosscut setback requirement for a refuge alternative?

The refuge alternative should be placed midway between entries.

110. Can a refuge alternative be located greater than 1000 feet from the pillar line on a retreating section?

No. The refuge alternative must be located within 1000 feet of the pillar line.

111. Can exceptions be made for the location of a refuge alternative when the mine uses small pillars?

No. The refuge alternative should be located in a crosscut until it is deployed. When activated, an inflatable refuge alternative may expand into an entry. The crosscut and entry must be kept clear of obstructions that could interfere with deployment or use.

112. How will methane be detected for up to 96 hours inside the refuge alternative?

The refuge alternative must be equipped with methane detectors or other approved devices, such as stain tubes, capable of measuring gas concentrations for up to 96 hours. Multiple detectors may be needed. Also, detectors that will be turned on and off to conserve the battery must be approved for use in this manner.

113. If a refuge alternative cannot be located within 1000 feet of the nearest working face, for example, because of a belt drive, take-ups, oil storage, etc., how do I comply?

Issues associated with mine-specific conditions must be addressed in the ERP and approved by the District Manager.

114. Does the 500-foot separation requirement for oil or other combustible materials apply only to refuge alternatives located within 1000 feet from the nearest working face?

No. The 500-foot separation between fuel, oil, or other flammable or combustible material storage and a refuge alternative is required, where feasible, for all locations.

115. Where must a refuge alternative be located if a temporary diesel fuel storage area is located near the section loading point?

When a temporary fuel storage area is used, appropriate locations must be approved in the ERP.

116. Where must refuge alternatives be located on a continuous haulage section?

Within 1000 feet of the nearest working face.

117. Does the length of slopes and shafts have to be included in the outbyrefuge alternative locations?

No.

118. In consideration of a longwall section, will the entries on the headgate and tailgate be interpreted as being in the direct line of the working face?

Yes.

119. How is the 1000 feet from the face determined?

It is a straight line measurement from the closest part of the nearest working face to the refuge alternative.

120. Is the initial refuge alternative required to be installed when the section working face exceeds a distance of 1000 feet from the portal?

Yes.

121. Because the rule requires a refuge alternative within 1000 feet from locations where mechanized mining equipment (MME) is being installed or removed, are two refuge alternatives required when moving a section from one location to another location a few miles apart?

If the section move is accomplished by miners working at both the removal and installation sites, then refuge alternatives are required at both sites.

122. If the mine has a spare refuge alternative for setting up sections or other similar activities can this unit be stored underground in an out of service condition?

Yes. MSHA recommends regular maintenance inspections in case the refuge alternative is returned to service. Alternatively, the mine operator could identify and tag the unit as "out of service."

§ 75.1507 Emergency Response Plan: Refuge Alternatives.

123. How much information is required to be included in the ERP for units approved under part 7?

Specific information requirements are provided in § 75.1507.

124. What are some examples of acceptable lighting sufficient for persons to perform tasks?

Light sticks may be used, but battery powered, higher intensity lighting may be needed for certain tasks. The lighting must be adequate to allow miners to read instructions, warnings, and gauges; operate gas monitoring detectors; and perform other activities as described in the ERP related to the operation of the refuge alternative.

125. What if a pre-deployed refuge alternative is longer than the crosscut?

The mine plan could be adjusted to accommodate the length of the refuge alternative, or multiple shorter-length refuge alternatives may be used.

126. Where and when should the maximum mine air temperature be determined?

The maximum mine air temperature must be determined at each refuge alternative location during the warmest times of the year.

127. Is a branch line off a lifeline required from the entry where the refuge alternative is located or from all escapeways?

A branch line from a refuge alternative must be connected to lifelines in both the primary and alternate escapeways.

BOREHOLES

128. Does the final rule prohibit the use of boreholes?

No. Breathable air may be supplied by boreholes with fans or compressors installed on the surface.

129. Do boreholes have to be drilled within 1000 feet of the working face?

No. Boreholes may be located further from the working face, and the air may be piped to the refuge alternative location provided the pipes are properly protected.

130. Do boreholes with fans or compressors installed on the surface require a backup fan or compressor?

Yes. A backup fan or compressor must be provided to allow continuous operation in the event of failure. The backup fan or compressor must permit prompt re-activation of equipment, such as being connected to an existing airline, in the event of a primary fan or compressor failure.

131. Do refuge alternatives using boreholes and compressors need a supply of purge air?

No. Purging is not required where adequate positive pressure is maintained.

132. Can air, water, power, and communication be provided via surface bore holes?

Air and communications can be provided via the borehole. Water, however, must be supplied in the refuge alternative. Power can be supplied via the borehole if approved for intrinsic safety.

REMOVAL FROM SERVICE, BACK-UP REFUGE ALTERNATIVES, AND WITHDRAWAL OF MINERS

133. If a refuge alternative is removed from service due to damage, do persons need to be withdrawn from the area if there is a replacement unit on the surface that can be immediately taken underground?

Yes. A unit that is on the surface ready to be taken underground is not “readily available,” and persons would need to be withdrawn from the area until the replacement unit is installed.

134. Do refuge alternatives have to be removed from service if there is a leak in the compressed gas storage system that results in lower pressure than the minimum required?

Yes. The refuge alternative must be removed from service because it could not provide sufficient breathable air in an emergency.

135. If a refuge alternative is taken out of service, can the operator use a refuge alternative consisting of materials pre-positioned on a skid as a replacement?

Yes, until December 31, 2010, the operator may use other units that are in the mine and that have been approved in the ERP provided that miners have been trained to use these types of units.

136. What degree of damage requires a refuge alternative to be taken out of service?

Damage that interferes with the functioning of the refuge alternative or any component requires removal from service. This would include leaking compressed air cylinders, malfunctioning gas detectors, inoperable fans installed on the surface, damage to the structure that causes leaks, etc.

137. Who needs to be withdrawn if a refuge alternative is taken out of service?

All persons reasonably expected to use the refuge alternative must be withdrawn from the area serviced by the refuge alternative until the unit is repaired or replaced except for those persons referred to in 104(c) of the Mine Act.

138. If a refuge alternative is removed from service, does the removal need to be indicated on the mine maps?

No. Only refuge alternatives that are in service have to be marked on maps.

139. If a refuge alternative is removed from service, does a lifeline need to be attached to it?

No. Only refuge alternatives that are in service have to be attached to a lifeline.

GAS MONITORING AND MONITORING INSTRUMENTS

140. Is periodic calibration of air monitoring components required?

Yes, as required in the approved ERP.

141. Do gas monitoring components have to be charged?

Gas monitoring components must be kept fully charged and ready for immediate use and the charging methods included in the approved ERP.

142. Is atmospheric monitoring required both inside and outside for all types of refuge alternatives?

Yes. The air outside the refuge alternative can be monitored by using pumps or remote sensors.

143. Can batteries on gas detectors be changed while miners are inside the refuge alternative?

Yes, if the MSHA approval allows it.

144. Do gas monitoring instruments have to be stored inside the refuge alternative?

No. Gas monitoring instruments may be stored outside the refuge alternative if they are in a protected box that meets the structural requirements for a refuge alternative. The box must be kept at the location of the refuge alternative to facilitate maintenance of the instruments.

15 PSI STOPPINGS

145. What is an acceptable 15 psi stopping?

It is a stopping that has been designed, built and certified by a registered professional engineer with current certification and approved in the ERP.

146. Is a Mitchell-Barrett design for mine seals acceptable as a stopping?

Yes, if the door meets the requirements for 15 psi overpressure.

147. What type of door should be used with a 15 psi stopping?

The door and frame structure must withstand a 15 psi overpressure external to the structure. The entire structure, including the door, must be certified for the specific mine application by a registered professional engineer with current certification.

148. Are submarine doors required with a 15 psi stopping?

No.

149. Will the internal wall of the airlock need to meet the 15 psi criteria, or is it considered protected by the external 15 psi stopping?

The requirement for 15 psi stoppings applies only to the external walls.

150. Is a stopping a component of the refuge alternative?

Yes. A 15 psi stopping is part of the structural component of a refuge alternative

constructed prior to an event. The 15 psi stopping must be approved in the ERP.

151. Are breathable air components placed behind 15 psi stoppings required to meet the overpressure and flash fire requirements of the rule?

Components do not need to withstand the 15 psi overpressure; however, prior to deployment, components must withstand 300 °F for 3 seconds.

SERVICE & REPAIR

152. May a refuge alternative be opened during a non-emergency?

A refuge alternative should only be opened for maintenance recommended by the manufacturer or to repair damage.

75.1508 Training and Records for Examination, Maintenance, and Repair of Refuge Alternatives and Components.

153. Is a preshift examiner required to be trained to examine a refuge alternative? If so, does a 5000-23 form need to be completed for this training?

Yes. Under § 75.1508(a), all persons examining, maintaining, or repairing, refuge alternatives or components must be instructed in how to perform this work. The operator must certify, by signature and date, the training of persons who examine, maintain, and repair refuge alternatives and components. A 5000-23 training form, while permitted, does not need to be completed.

154. Does the requirement for training for examination include the preshift examiners or just those who perform periodic examinations on the refuge alternatives?

Under § 75.1508(a), all persons examining, maintaining, or repairing, refuge alternatives or components must be instructed in how to perform their respective tasks.

§ 75.1600-3 Communications Facilities: Refuge Alternatives.

155. What does “an additional communication system” mean under § 75.1600-3(a)(2)?

The “additional communication system” is the post-accident two-way communication system that is used to meet the requirements of the MINER Act. This system must be specified and approved in the ERP and will be reviewed according to MSHA’s Program Policy Letter (PPL) on “Guidance for Compliance with Post-Accident Two-Way Communications and Electronic Tracking Requirements of the Mine Improvement and New Emergency Response Act (MINER Act)” (P11- V-11).