

## 1.0 PURPOSE

The purpose of this Standard Application Procedure (SAP) is to explain the basic investigative process and outline the minimum document requirements necessary to initiate an investigation leading to the issuance of a Refuge Alternative Structural Component Approval, Extension of Approval, or Subsequent Approval under 30 CFR Part 7, §7.505.

## 2.0 SCOPE

This SAP applies to all applications for Refuge Alternative Structural Component Approval, Extension of Approval, or Subsequent Approval under Part 7, Subpart L, §7.505.

## 3.0 REFERENCES

This SAP refers to “Application Cancellation Policy”, APOL1009.

## 4.0 DEFINITIONS

4.1. Approval- A document issued by MSHA which states that a product has met the requirements of this part and which authorizes an approval marking identifying the product as approved.

4.2. Extension Of Approval- A document issued by MSHA which states that the change to a product previously approved by MSHA under this part meets the requirements of this part and which authorizes the continued use of the approval marking after the appropriate extension number has been added.

4.3. Subsequent Approval – A product that is similar to one for which the applicant already holds an approval.

## 5.0 APPLICATION PROCEDURE

5.1. All applications must include the following information:

5.1.1. Application Letter - Each application letter for approval of a product should include a brief description of the product, and, if appropriate, a

statement indicating whether, in the applicant's opinion, testing is required. If testing is not required, the applicant should explain the reasons for not testing. The application letter must be signed by the person responsible for answering any questions regarding the subject application. (Refer to Enclosures A, B, and C for completed samples.)

- 5.1.2. Certified Statement(s), as required by Part 7. (Refer to Enclosure D.)
- 5.1.3. A checklist (Refer to Enclosure E). Submittal of this checklist to MSHA is optional.
- 5.1.4. One copy of all documentation required to show details of the design and construction of the Refuge Alternative Structural Component per 30 CFR, Subpart L, Paragraph 7.505, including test data, test results, calculations, and other information to support how requirements have been met. This documentation is outlined in the checklist, Enclosure E.

Note: Documents previously accepted by the Mine Safety and Health Administration does not need to be submitted, unless modified.

- 5.2. Upon receipt of the application package by the Approval and Certification Center, a fee estimate letter is prepared and sent to the applicant, unless the applicant has a blanket authorization on file. The fee estimate letter includes an estimate of the maximum anticipated fee to complete the investigation and a tentative starting date.
  - 5.2.1. An authorization response form is included with the fee estimate. The authorization response form indicates agreement to pay expenses up to the maximum estimated fee for the investigation or requests cancellation of the application. This form must be completed and returned by the applicant before any further action is taken on the application. If the form is not returned within thirty days from the date of the letter, the application is canceled.
  - 5.2.2. When unforeseen circumstances encountered during the investigation result in exceeding the estimated fee, the applicant is contacted (either by phone or email) and given the option of canceling the action or accepting the new estimated fee.

- 5.3. During the investigation, applicants are notified if MSHA elects to observe any product testing in accordance with Section 7.4(c), and of any discrepancies or additional information needed to process the application. Applicants are notified by mail and telephone. If an email address is provided, the discrepancy letter may be emailed.
- 5.4. After all the technical documents are evaluated and any changes required as a result of the viewing of any tests and inspection is finalized, the formal Approval, Extension of Approval, or Subsequent Approval letter is issued. An invoice for the total cost of the investigation is sent after final approval issuance.
- 5.5. Submit the application to MSHA by one of the following methods:
- 5.5.1. Mail to: MSHA Approval and Certification Center  
Attention: IPSO 765 Technology Drive, Triadelphia, WV 26059
- 5.5.2. FAX to: 304-547-2044
- 5.5.3. Electronically: For information and instructions on setting up an account with MSHA go to:  
<http://www.msha.gov/techsupp/acc/application/online.htm>  
Contact the Applied Engineering Division at 304-547-0400 for additional information concerning these procedures.

(SAMPLE)  
PART 7 REFUGE ALTERNATIVE STRUCTURAL COMPONENT  
APPROVAL APPLICATION LETTER

Chief, Approval and Certification Center  
765 Technology Drive  
Triadelphia, WV 26059

Company and Address:  
ABC Structural Component, Inc.  
2 Starlake Avenue  
Wheeling, WV 26003

Date: 01-01-2009

Subject: New Approval of the Refuge Alternative Structural Component Model 1XXXX

Company Application Code No.: 123456

Gentlemen:

We are requesting approval of the subject refuge alternative structural component built according to Drawing 1XXXX-1.

This refuge alternative structural component is for an inflatable, mobile, 10 occupant, 96 hour rated refuge chamber built to Structural Component drawing 1XXXX-1.

Enclosed are all drawings and specifications pertinent to this application. If there are any questions, please contact John Doe at 304-555-1234.

Sincerely,

John Doe  
President

Enclosure A

(SAMPLE)  
PART 7 REFUGE ALTERNATIVE STRUCTURAL COMPONENT  
EXTENSION OF APPROVAL APPLICATION LETTER

Chief, Approval and Certification Center  
765 Technology Drive  
Triadelphia, WV 26059

Company and Address:  
ABC Structural Component, Inc.  
2 Starlake Avenue  
Wheeling, WV 26003

Date: 01-01-2009

Subject: Extension of Approval of the Refuge Alternative Structural Component Model  
1XXXX Company Application Code No.: 123457

Gentlemen:

We are requesting approval of the subject refuge alternative structural component built according to Drawing 2XXXX-1. A brief description of the subject refuge alternative structural component is as follows:

The subject refuge alternative structural component is similar to the refuge alternative structural component under 07-LCA09XXXX-0, in that it is rated for 10 persons, for 96 hours; however, the existing air lock dimensions have increased from 4 ft. X 6 ft. to 6 ft. X 6 ft, which also increases the overall length of the refuge alternative by 2 ft.

Enclosed are all new or revised drawings and specifications pertinent to this application. If there are any questions, please contact John Doe at 304-555-1234.

Testing of this structural component is/is not necessary, based on the testing conducted and witnessed by an MSHA representative under Approval 07-LCA09XXXX-0.

Sincerely,

John Doe  
President

Enclosure B

(SAMPLE)  
PART 7 REFUGE ALTERNATIVE STRUCTURAL COMPONENT  
SUBSEQUENT APPROVAL APPLICATION LETTER

Chief, Approval and Certification Center  
765 Technology Drive  
Triadelphia, WV 260592

Company and Address:  
ABC Structural Component, Inc.  
2 Starlake Avenue  
Wheeling, WV 26003

Date: 01-01-2009

Subject: Subsequent Approval of the Refuge Alternative Structural Component Model  
3XXXX, Company Application Code No.: 123457

Gentlemen:

We are requesting a subsequent approval of the subject refuge alternative structural component built according to Drawing 1XXXX. The subject refuge alternative structural component is similar to the 10 person, 96 hour chamber built according to Drawing 1XXXX-1, Approval No. 07-LCA09XXXX-0, except the rating is being increased to a 12 person, 96 hour chamber which increases the overall length to 28 ft.

Testing of this structural component is/is not necessary, based on the testing conducted and witnessed by an MSHA representative under Approval 07-LCA09XXXX-0.

Enclosed are all of the new or revised drawings and specifications pertinent to this application. If there are any questions, please contact John Doe at 304-555-1234.

Sincerely,

John Doe  
President

Enclosure C

PART 7 REFUGE ALTERNATIVES STRUCTURAL COMPONENT  
CERTIFIED STATEMENTS

Company:

Date:

Address:

Subject:

Company Application Code No.:

I, \_\_\_\_\_, as the responsible company official, hereby certify that:  
(Signature)

(1) The subject refuge alternative structural component will have Quality Assurance functions performed as specified in Title 30 Code of Federal Regulations 30 CFR Part 7, Subpart A (7.7).

(2) The subject refuge alternative structural component has been designed to meet or exceed the general requirements set forth in 30 CFR Part 7, Subpart L (7.504).

(3) The subject refuge alternative structural component has been designed to meet or exceed the structural component criteria set forth in 30 CFR Part 7, Subpart L (7.505).

(4) The subject refuge alternative structural component has been tested and meets the performance portion of the technical requirements set forth in 30 CFR Part 7, Subpart L (7.504 and 7.505).

The proposed change cited in the application is the only change that affects the technical requirements (for subsequent and extensions of approval only)(30 CFR, Part 7, Subpart A, Section 7.3(f)). (If applicable)

Sincerely,

John Doe  
President

Enclosure D

**PART 7 REFUGE ALTERNATIVE STRUCTURAL COMPONENT APPROVAL/  
EXTENSION OF APPROVAL/ SUBSEQUENT APPROVAL CHECKLIST**

Complete all of the following by adding a checkmark on the lines provided. The checkmark signifies the item has been positively addressed. N/A signifies the item is not applicable to the design of the refuge alternative.

Note: It is strongly recommended that the checklist is included with the application. Providing the document/drawing number where the checklist item is met will further streamline the process. (For example, blast overpressure passing test results, test sheet number 15)

**ADMINISTRATIVE**

- \_\_\_\_\_ 1. The approval/subsequent approval or extension of approval application letter is enclosed.
- \_\_\_\_\_ 2. All correspondence, specifications, and lettering on documents are in English and are legible.
- \_\_\_\_\_ 3. All documents are titled, numbered, dated, include the company name, and show the latest revision level. If multiple pages are submitted, this information is on each page
- \_\_\_\_\_ 4. There are no pencil or ink notations, or correction fluid (white-out) on the drawings and bills of material.
- \_\_\_\_\_ 5. A certified statement is included that specifies that the refuge alternative will have Quality Assurance functions performed as specified in 30 CFR, Part 7, Subpart A (Section 7.7)
- \_\_\_\_\_ 6. A certified statement is included that specifies that the refuge alternative structural component has been designed to meet the design portion of the technical requirements set forth in 30 CFR, Part 7, Subpart L (Section 7.504).
- \_\_\_\_\_ 7. A certified statement is included that specifies that the refuge alternative structural component has been designed to meet the design portion of the technical requirements set forth in 30 CFR, Part 7, Subpart L (Section 7.505).
- \_\_\_\_\_ 8. A certified statement is included that specifies that the refuge alternative structural component has been tested and meets the performance portion of the technical requirements set forth in 30 CFR Part 7, Subpart L (Section 7.504 and Section 7.505).

TECHNICAL

<u>APPLICATION REQUIREMENTS (Section 7.503)</u>	Drawing or Document No.
<p><b>An application for approval of a refuge alternative or component shall include:</b></p> <ul style="list-style-type: none"><li>_____ 1. The refuge alternative's or component's make and model number, if applicable.(Section 7.503 (a) (1))</li><li>_____ 2. A list of the refuge alternative's or component's parts that includes: (Section 7.503 (a) (2))<ul style="list-style-type: none"><li>_____ a. The MSHA approval number for electric-powered equipment; ( Section 7.503 (a) (2) (i))</li><li>_____ b. Each component's or part's in-mine shelf life, service life, and recommended replacement schedule; (Section 7.503 (a) (2) (ii))</li><li>_____ c. Materials that have a potential to ignite used in each component or part with their MSHA approval number (Section 7.503 (a) (2) (iii)); and</li><li>_____ d. A statement that the component or part is compatible with other components and upon replacement, is equivalent to the original component or part (Section 7.503 (a) (2) (iv))</li></ul></li><li>_____ 3. The capacity and duration (the number of persons it is designed to maintain and for how long) of the refuge alternative or component on a per-person per-hour basis. (Section 7.503 (a) (3))</li><li>_____ 4. The length, width, and height of the space required for storage of each component. (Section 7.503 (a) (4))</li><li>_____ 5. The maximum volume, excluding the airlock; the dimensions of floor space and volume provided for each person using the refuge alternative; and the floor space and volume of the airlock.(Section 7.503 (b) (2))</li><li>_____ 6. The maximum positive pressures in the interior space and the airlock and a description of the means used to limit or control the positive pressure.(Section 7.503 (b) (3))</li><li>_____ 7. The maximum allowable apparent temperature of the interior space and the airlock and the means to control the apparent temperature. (Section 7.503 (b) (4))</li><li>_____ 8. The maximum mine air temperature under which the refuge alternative is designed to operate when the unit is fully occupied. (Section 7.503 (b) (5))</li></ul>	

	<b>Drawing or Document No.</b>
<p>_____ 9. Drawings that show the features of each component and contain sufficient information to document compliance with the technical requirements. (Section 7.503 (b) (6))</p> <p>_____ 10. A manual that contains sufficient detail for each refuge alternative or component addressing in-mine transportation, operation, and maintenance of the unit. (Section 7.503 (b) (7))</p> <p>_____ 11. A summary of the procedures for deploying refuge alternatives. (Section 7.503 (b) (8))</p> <p>_____ 12. A summary of the procedures for using the refuge alternative. (Section 7.503 (b) (9))</p> <p>_____ 13. The results of inspections, evaluations, calculations, and tests conducted under this subpart. (Section 7.503 (b) (10))</p>	
<p><b><u>REFUGE ALTERNATIVES AND COMPONENTS; GENERAL REQUIREMENTS. (Section 7.504)</u></b></p>	
<p><b>Refuge alternatives and components:</b></p>	
<p>_____ 1. Electrical components that are exposed to the mine atmosphere, shall be approved as intrinsically safe for use. Electrical components located inside the refuge alternative shall be either approved as intrinsically safe or approved as permissible (Section 7.504 (a) (1))</p> <p>_____ 2. Shall not produce continuous noise levels in excess of 85 dBA in the structure’s interior. (Section 7.504 (a) (2))</p> <p>_____ 3. Shall not liberate harmful or irritating gases or particulates into the structure’s interior or airlock. (Section 7.504) (a) (3))</p> <p>_____ 4. Shall be designed so that the refuge alternative can be safely moved with the use of appropriate devices such as tow bars. (Section 7.504 (a) (4))</p> <p>_____ 5. Shall be designed to withstand forces from collision of the refuge alternative structure during transport or handling. (Section 7.504 (a) (5))</p>	

<p><b>The apparent temperature in the structure shall be controlled as follows:</b></p>	<p><b>Drawing or Document No.</b></p>
<p>_____ 6. When used in accordance with the manufacturer’s instructions and defined limitations, the apparent temperature in the fully occupied refuge alternative shall not exceed 95 degrees Fahrenheit (°F). (Section 7.504 (b) (1))</p> <p>_____ 7. Tests shall be conducted to determine the maximum apparent temperature in the refuge alternative when used at maximum occupancy and in conjunction with required components. Test results, including calculations, shall be reported in the application. (Section 7.504 (b) (2))</p>	
<p><b>The refuge alternative shall include:</b></p> <p>_____ 8. A two-way communication facility that is a part of the mine communication system, which can be used from inside the refuge alternative; and accommodations for an additional communication system and other requirements as defined in the communications portion of the operator’s approved Emergency Response Plan. (Section 7.504 (c) (1))</p> <p>_____ 9. Lighting sufficient for persons to perform tasks; (Section 7.504 (c) (2))</p> <p>_____ 10. A means to contain human waste effectively and minimize objectionable odors; (Section 7.504 (c) (3))</p> <p>_____ 11. First aid supplies; (Section 7.504 (c) (4))</p> <p>_____ 12. Materials, parts, and tools for repair of components; (Section 7.504 (c) (5)) and</p> <p>_____ 13. A fire extinguisher that:</p> <p>_____ a. Meets the requirements for portable fire extinguishers used in underground coal mines under part 75; (Section 7.504 (c) (6) (i));</p> <p>_____ b. Is appropriate for extinguishing fires of chemicals used for harmful gas removal; (Section 7.504 (c) (6) (ii)) and</p> <p>_____ c. Uses a low-toxicity extinguishing agent that does not produce a hazardous by-product when deployed. (Section 7.504 (c) (6) (iii))</p>	

**Containers used for storage of refuge alternative components or provisions shall be:**

**Drawing or Document No.**

- \_\_\_\_\_ 14. Airtight, waterproof, and rodent-proof (Section 7.504 (d) (1))
- \_\_\_\_\_ 15. Easy to open and close without the use of tools; (Section 7.504 (d) (2)) and
- \_\_\_\_\_ 16. Conspicuously marked with an expiration date and instructions for use. (Section 7.504 (d) (3))

**STRUCTURAL COMPONENTS (Section 7.505)**

The structure shall –

- \_\_\_\_\_ 1. Provide at least 15 square feet of floor space per person and 30 to 60 cubic feet of volume per person according to the following chart. The airlock can be included in the space and volume if waste is disposed outside the refuge alternative. (Section 7.505 (a) (1))

MINING HEIGHT (INCHES)	UNRESTRICTED VOLUME (CUBIC FEET) PER PERSON*
36 or less	30
>36 - ≤42	37.5
>42 - ≤48	45
>48 - ≤54	52.5
>54	60

\* Includes an adjustment of 12 inches for clearances.

- \_\_\_\_\_ 2. Include storage space that secures and protects the components during transportation and that permit ready access to components for maintenance examinations. (Section 7.505 (a) (2))
- \_\_\_\_\_ 3. Include an airlock that creates a barrier and isolates the interior space from the mine atmosphere, except for a refuge alternative capable of maintaining adequate positive pressure. (Section 7.505) (a) (3))
  - \_\_\_\_\_ a. The airlock shall be designed for multiple uses to accommodate the structure’s maximum occupancy. (Section 7.505) (a)(3) (i))
  - \_\_\_\_\_ b. The airlock shall be configured to accommodate a stretcher without compromising its function. (Section 7.505) (a) (3) (ii))

	Drawing or Document No.
<p>_____ 4. Be designed and made to withstand 15 pounds per square inch (psi) overpressure for 0.2 seconds prior to deployment. (Section 7.505) (a) (4))</p> <p>_____ 5. Be designed and made to withstand exposure to a flash fire of 300°F for 3 seconds prior to deployment. (Section 7.505) (a) (5))</p> <p>_____ 6. Be made with materials that do not have a potential to ignite or are MSHA-approved. (Section 7.505) (a) (6))</p> <p>_____ 7. Be made from reinforced material that has sufficient durability to withstand routine handling and resist puncture and tearing during deployment and use. (Section 7.505) (a) (7))</p> <p>_____ 8. Be guarded or reinforced to prevent damage to the structure that would hinder deployment, entry, or use. (Section 7.505) (a) (8))</p> <p>_____ 9. Permit measurement of outside gas concentrations without exiting the structure or allowing entry of the outside atmosphere. (Section 7.505) (a) (9))</p>	
<p><b>Inspections or tests shall be conducted as follows:</b></p> <p>_____ 10. A test shall be conducted to demonstrate that trained persons can fully activate the structure, without the use of tools, within 10 minutes of reaching the refuge alternative; (Section 7.505) (b) (1))</p> <p>_____ 11. A test shall be conducted to demonstrate that an overpressure of 15 psi applied to the pre- deployed refuge alternative structure for 0.2 seconds does not allow gases to pass through the structure separating the interior and exterior atmospheres; (Section 7.505) (b) (2))</p> <p>_____ 12. A test shall be conducted to demonstrate that a flash fire of 300°F for 3 seconds does not allow gases to pass from the outside to the inside of the structure; (Section 7.505) (b) (3))</p> <p>_____ 13. An inspection shall be conducted to determine that the overpressure forces of 15 psi applied to the pre-deployed refuge alternative structure for 0.2 seconds does not prevent the stored components from operating; (Section 7.505) (b) (4))</p> <p>_____ 14. An inspection shall be conducted to determine that a flash fire of 300°F for 3 seconds does not prevent the stored components from operating; (Section 7.505) (b) (5))</p>	

<p>_____ 15. A test shall be conducted to demonstrate that each structure resists puncture and tearing when tested in accordance with ASTM D2582-07 <u>Standard Test Method for Puncture-Propagation Tear Resistance of Plastic Film and Thin Sheeting</u>; (Section 7.505 (b) (6))</p> <p>_____ 16. A test shall be conducted to demonstrate that each reasonably anticipated repair can be completed within 10 minutes of opening the storage space for repair materials and tools; (Section 7.505 (b) (7)) and</p> <p>_____ 17. A test shall be conducted to demonstrate that no harmful gases or noticeable odors are released from nonmetallic materials before or after the flash fire test. The test shall identify the gases released and determine their concentrations. (Section 7.505 (b) (8))</p> <p><b>If pressurized air is used to deploy the structure or maintain its shape, the structure shall –</b></p> <p>_____ 18. Include a pressure regulator or other means to prevent over pressurization of the structure, (Section 7.505 (c) (1)) and</p> <p>_____ 19. Provide a means to repair and re-pressurize the structure in case of failure of the structure or loss of air pressure. (Section 7.505 (c) (2))</p> <p><b>The refuge alternative structure shall provide a means –</b></p> <p>_____ 20. To conduct a preshift examination, without entering the structure, of components critical for deployment; (Section 7.505 (d) (1)) and</p> <p>_____ 21. To indicate unauthorized entry or tampering. (Section 7.505 (d) (2))</p> <p><b><u>APPROVAL MARKINGS (Section 7.509)</u></b></p> <p>_____ 1. Each approved refuge alternative or component shall be identified by a legible, permanent approval marking that is securely and conspicuously attached to the component or its container. (Section 7.509 (a))</p> <p>_____ 2. The approval marking shall be inscribed with the component’s MSHA approval number and any additional markings required by the approval. (Section 7.509 (b))</p>	<p style="text-align: center;"><b>Drawing or Document No.</b></p>
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<p>_____ 3. The refuge alternative structure shall provide a conspicuous means for indicating an out-of-service status, including the reason it is out of service. (Section 7.509 (c))</p> <p>_____ 4. The airlock shall be conspicuously marked with the recommended maximum number of persons that can use it at one time. (Section 7.509 (d))</p>	
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