

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 Harmful Gas Removal Component Approval, Extension of Approval, or Subsequent Approval under 30 CFR Part 7, §7.508.

2.0 SCOPE

This SAP applies to all applications for Refuge Alternative Harmful Gas Removal Component Approval, Extension of Approval, or Subsequent Approval under Part 7, Subpart L, §7.508.

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 air-monitoring component per 30 CFR, Subpart L, Paragraph 7.508, 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 HARMFUL GAS REMOVAL COMPONENT
APPROVAL APPLICATION LETTER

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

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

Date: 01-01-2009

Subject: New Approval of the Refuge Alternative Harmful Gas Removal Component
Model 1XXXX

Company Application Code No.: 123456

Gentlemen:

We are requesting approval of the subject refuge harmful gas removal component built according to drawing 1XXXX-4.

This harmful gas removal component is for a 12 person refuge alternative rated for 96 hours.

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 HARMFUL GAS REMOVAL COMPONENT
EXTENSION OF APPROVAL APPLICATION LETTER

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

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

Date: 01-01-2009

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

Gentlemen:

We are requesting approval of the subject refuge alternative harmful gas removal
component built according to drawing 2XXXX-4.

The harmful gas removal component is similar to the refuge alternative harmful gas
removal component approved under 07-LCA09XXXX-0, except the soda lime curtains
have been replaced with lithium hydroxide curtains.

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 air-monitoring component is/is not necessary, based on the testing
conducted and witnessed by an MSHA representative under Approval 07-LCA
09XXXX-0.

Sincerely,

John Doe
President

Enclosure B

(SAMPLE)
PART 7 REFUGE ALTERNATIVE HARMFUL GAS REMOVAL COMPONENT
SUBSEQUENT APPROVAL APPLICATION LETTER

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

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

Date: 01-01-2009

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

Gentlemen:

We are requesting a subsequent approval of the subject harmful gas removal component built according to drawing 1XXXX. The subject refuge alternative harmful gas removal component is similar to the harmful gas removal component built according to drawing 1XXXX-1, Approval No. 07-LCA09XXXX-0, except the soda lime in the curtains have been replaced with lithium hydroxide.

Testing of this harmful gas removal component is/is not necessary, based on the testing conducted and witnessed by an MSHA representative under Approval 07-LCA 09XXXX-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 HARMFUL GAS REMOVAL 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 harmful gas removal 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 harmful gas removal 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 harmful gas removal component has been designed to meet or exceed the air-monitoring component criteria set forth in 30 CFR Part 7, Subpart L (7.508).

(4) The subject refuge alternative harmful gas removal component has been tested and meets the performance portion of the technical requirements set forth in 30 CFR Part 7, Subpart L (7.505(b)(5) and 7.508).

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

**PART 7 REFUGE ALTERNATIVE HARMFUL GAS REMOVAL 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 harmful gas removal 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 harmful gas removal component has been designed to meet the design portion of the technical requirements set forth in 30 CFR, Part 7, Subpart L (Section 7.508).
- _____ 8. A certified statement is included that specifies that the refuge alternative harmful gas removal component has been tested and meets the performance portion of the technical requirements set forth in 30 CFR Part 7, Subpart L (Section 7.505(b)(5) and 7.508).

TECHNICAL

<u>APPLICATION REQUIREMENTS (Section 7.503)</u> An application for approval of a refuge alternative or component shall include:	Drawing or Document No.
_____ 1. The refuge alternative's or component's make and model number, if applicable.(Section 7.503 (a) (1)) _____ 2. A list of the refuge alternative's or component's parts that includes: (Section 7.503 (a) (2)) _____ a. The MSHA approval number for electric-powered equipment; (Section 7.503 (a) (2) (i)) _____ b. Each component's or part's in-mine shelf life, service life, and recommended replacement schedule; (Section 7.503 (a) (2) (ii)) _____ 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 _____ 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)) _____ 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)) _____ 4. The length, width, and height of the space required for storage of each component. (Section 7.503 (a) (4)) _____ 5. A description of the breathable air component, including drawings, air-supply sources, piping, regulators, and controls.(Section 7.503 (b) (1)) _____ 6. 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)) _____ 7. 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)) _____ 8. 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))	

_____ 9. 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)) _____ 10. Drawings that show the features of each component and contain sufficient information to document compliance with the technical requirements. (Section 7.503 (b) (6)) _____ 11. 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)) _____ 12. A summary of the procedures for deploying refuge alternatives. (Section 7.503 (b) (8)) _____ 13. A summary of the procedures for using the refuge alternative. (Section 7.503 (b) (9)) _____ 14. The results of inspections, evaluations, calculations, and tests conducted under this subpart. (Section 7.503 (b) (10)) _____ 15. The volume of breathable air available for removing harmful gas both at start-up and while persons enter through the airlock (Section 7.503 (d) (1)). _____ 16. The maximum volume of each gas that the component is designed to remove on a per-person per-hour basis. (Section 7.503 (d) (2))	Drawing or Document No.
<u>REFUGE ALTERNATIVES AND COMPONENTS:</u> <u>GENERAL REQUIREMENTS. (Section 7.504)</u> Refuge alternatives and components: _____ 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)) _____ 2. Shall not produce continuous noise levels in excess of 85 dBA in the structure's interior. (Section 7.504 (a) (2)) _____ 3. Shall not liberate harmful or irritating gases or particulates into the structure's interior or airlock. (Section 7.504) (a) (3)) _____ 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))	

_____ 5. Shall be designed to withstand forces from collision of the refuge alternative structure during transport or handling. (Section 7.504 (a) (5))	Drawing or Document No.
The apparent temperature in the structure shall be controlled as follows: _____ 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)) _____ 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)) The refuge alternative shall include: _____ 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)) _____ 9. Lighting sufficient for persons to perform tasks; (Section 7.504 (c) (2)) _____ 10. A means to contain human waste effectively and minimize objectionable odors; (Section 7.504 (c) (3)) _____ 11. First aid supplies; (Section 7.504 (c) (4)) _____ 12. Materials, parts, and tools for repair of components; (Section 7.504 (c) (5)) and _____ 13. A fire extinguisher that: _____ a. Meets the requirements for portable fire extinguishers used in underground coal mines under part 75; (Section 7.504 (c) (6) (i)); _____ b. Is appropriate for extinguishing fires of chemicals used for harmful gas removal; (Section 7.504 (c) (6) (ii)) and	

_____ c. Uses a low-toxicity extinguishing agent that does not produce a hazardous by-product when deployed. (Section 7.504 (c) (6) (iii))	Drawing or Document No.
Containers used for storage of refuge alternative components or provisions shall be: _____ 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)) <u>FLASH FIRE INSPECTION (Section 7.505)</u> _____ 1. 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)) <u>HARMFUL GAS REMOVAL COMPONENTS (Section 7.508)</u> _____ 1. Each refuge alternative shall include means for removing harmful gases. (Section 7.508(a)) _____ a. Purging or other effective procedures shall be provided for the airlock to dilute the carbon monoxide concentration to 25 ppm or less and the methane concentration to 1.0 percent or less as persons enter, within 20 minutes of persons deploying the refuge alternative. (Section 7.508 (a) (1)) _____ b. Chemical scrubbing or other effective procedures shall be provided so that the average carbon dioxide concentration in the occupied structure shall not exceed 1.0 percent over the rated duration, and excursions shall not exceed 2.5 percent. (Section 7.508 (a) (2)) _____ i. Carbon dioxide removal components shall be used with breathable air cylinders or oxygen cylinders. (Section 7.508 (a) (2) (i))	

	Drawing or Document No.
_____ ii. Carbon dioxide removal components shall remove carbon dioxide at a rate of 1.08 cubic feet per hour per person. (Section 7.508 (a) (2) (ii)) _____ c. Instructions shall be provided for deployment and operation of the harmful gas removal component. (Section 7.508 (a) (3)) _____ 2. The harmful gas removal component shall meet the following requirements: Each chemical used for removal of harmful gas shall be - (Section 7.508 (b)) _____ a. Contained such that when stored or used it cannot come in contact with persons, and it cannot release airborne particles. (Section 7.508(b) (1)) _____ b. Provided with all materials; parts, such as hangers, racks, and clips; equipment; and instructions necessary for deployment and use. (Section 7.508 (b) (2)) _____ c. Stored in an approved container that is conspicuously marked with the manufacturer's instructions for disposal of used chemical. (Section 7.508 (b) (3)) _____ 3. Each harmful gas removal component shall be tested to determine its ability to remove harmful gases. (Section 7.508 (c)) _____ a. The component shall be tested in a refuge alternative structure that is representative of the configuration and maximum volume for which the component is designed. (Section 7.508 (c) (1)) _____ i. The test shall include three sampling points located vertically along the centerlines of the length and width of the structure and equally spaced over the horizontal centerline of the height of the structure. (Section 7.508 (c) (1) (i)) _____ ii. The structure shall be sealed airtight. (Section 7.508 (c) (1) (ii))	

	Drawing or Document No.
_____ iii. The operating gas sampling instruments shall be placed inside the structure and continuously exposed to the test atmosphere. (Section 7.508 (c) (1) (iii)) _____ iv. Sampling instruments shall simultaneously measure the gas concentrations at the three sampling points. (Section 7.508 (c) (1) (iv)) _____ b. For testing the component's ability to remove carbon monoxide, the structure shall be filled with a test gas of either purified synthetic air or purified nitrogen that contains 400 ppm carbon monoxide, ± 5 percent. (Section 7.508 (c) (2)) _____ i. After a stable concentration of 400 ppm, ± 5 percent, carbon monoxide has been obtained for 5 minutes at all three sampling points, a timer shall be started and the structure shall be purged or carbon monoxide otherwise removed. (Section 7.508 (c) (2) (i)) _____ ii. Carbon monoxide concentration readings from each of the three sampling instruments shall be recorded every 2 minutes. (Section 7.508 (c) (2) (ii)) _____ iii. The time shall be recorded from the start of harmful gas removal until the readings of the three sampling instruments all indicate a carbon monoxide concentration of 25 ppm or less. (Section 7.508) (c) (2) (iii)) _____ c. For testing the component's ability to remove carbon dioxide, the carbon dioxide concentration shall not exceed 1.0 percent over the rated duration and excursions shall not exceed 2.5 percent under the following conditions: (Section 7.508 (c) (3))	

	Drawing or Document No.
_____ i. At 55° F (±4° F), 1 atmosphere (±1 percent), and 50 percent (±5 percent) relative humidity. (Section 7.508 (c) (3) (i)) _____ ii. At 55° F (±4° F), 1 atmosphere (±1 percent), and 100 percent (±5 percent) relative humidity. (Section 7.508 (c) (3) (ii)) _____ iii. At 90° F (±4° F), 1 atmosphere (±1 percent), and 50 percent (±5 percent) relative humidity. (Section 7.508 (c) (3) (iii)) _____ iv. At 82° F (±4° F), 1 atmosphere (±1 percent), and 100 percent (±5 percent) relative humidity. (Section 7.508 (c) (3) (iv)) _____ d. Testing shall demonstrate the component's continued ability to remove harmful gases effectively throughout its designated shelf-life, specifically addressing the effects of storage and transportation. (Section 7.508 (c) (4)) _____ 4. Alternate performance tests may be conducted if the tests provide the same level of assurance of the harmful gas removal component's capability as the tests specified in paragraph (c) of this section. Alternate tests shall be specified in the approval application. (Section 7.508 (d))	
<u>APPROVAL MARKINGS (Section 7.509)</u> _____ 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)) _____ 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)) _____ 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))	

_____ 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))	Drawing or Document No.