Mr. John E. Kieling, Bureau Chief  
Hazardous Waste Bureau  
New Mexico Environment Department  
2905 Rodeo Park Drive East, Building 1  
Santa Fe, NM 87508-6303

Subject: Live Fire Extinguisher Refresher Training Documentation in Accordance with Attachment 25 of the Information Required by Paragraph 31 of the Settlement Agreement and Stipulated Final Order No. HWB 14-21 (CO), Dated March 18, 2016

Reference: Information Required by Paragraph 31 of the Settlement Agreement and Stipulated Final Order No. HWB 14-21 (CO), March 18, 2016

Dear Mr. Kieling:

The purpose of this letter is to provide the live fire extinguisher biennial refresher training documentation in accordance with Attachment 25 of the referenced submittal by the Respondents. Attachment 25 provided a work plan stating that the training documentation for live fire extinguisher biennial refresher training would be submitted to the NMED by October 30, 2017.

Enclosed is the approved course material for SAF-502FR, “Fire Extinguisher Live Fire Training Refresher.”

We certify under penalty of law that this document and all attachments were prepared under our direction or supervision according to a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on our inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of our knowledge and belief, true, accurate, and complete. We are aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

If you have any questions, please contact Mr. George T. Basabilvazo at (575) 234-7488.

Sincerely,

Todd Shrader, Manager  
Carlsbad Field Office

Bruce C. Covert, Project Manager  
Nuclear Waste Partnership LLC

Enclosure

cc: w/enclosure  
R. Maestas, NMED  
D. Biswell, NMED  
CBFO M&RC  
*ED denotes electronic distribution
1. SAF-502FR

1.1 Fire Extinguisher

Live Fire Training - Refresher

Notes:
1.2 Welcome

Hi, my name is Craig.
Welcome to SAF-502FR, “Fire Extinguisher Live Fire Training Refresher”.
I will be your online Instructor for this course.

Notes:
1.3 Prerequisites

The prerequisite for this course is SAF-502F, “Fire Extinguisher Live Fire Training”.

If you have not completed the prerequisite, you cannot get credit for this refresher and should EXIT the course now.

Otherwise, let’s CONTINUE!
1.4 Tips to Proceed

If you have never taken an eLearning course at WIPP, click the Show Me button below for navigation tips. Otherwise, you can skip the navigation tips and proceed directly to the course.

Notes:
2. Navigation

2.1 Navigation Tips

Here is a quick demo of how to navigate through the course.

Notes:
2.2 Speakers or Headphones

There may be sound clips or video in this course.
Adjust your speaker volume or use headphones so that you’ll be able to hear the audio.

Notes:
2.3 Timeline Bar

Look below at the **Timeline Bar**. You cannot proceed until after the Timeline Bar is full. You can click and drag on the Timeline Bar to control the pace.

Notes:
2.4 Menu Bar

The **Menu Bar** is located on the left. If you want to skip back, click on a previous page in the Menu. You cannot skip forward in the course.

Notes:
2.5 Resources

There are additional materials for this course (such as examples of procedures, the “WIPP Fundamentals Handbook”, and Lessons Learned) located in the Resource tab on the left. Documents will open in a new window after you click a file name.

Notes:

make a hyperlink to the Study Guide, found on the WIPP Tech Training
2.6 Exit

You can Exit the course by clicking the link in the top right corner of the screen.

Notes:
2.7 Time to Go!

OK ...  
It is time to get started!  
Click the NEXT button.
3. Completion Requirements

3.1 Target Audience

You are taking this course to reestablish the knowledge and skill you obtained in SAF-502F, “Fire Extinguisher Live Fire Training”. This course is designed for general employees who are expected, but not obligated, to fight incipient fires. If you are required to fight fire at WIPP, contact Technical Training for additional training information.

Notes:
3.2 Duration

This course is estimated to take 1 hour to complete.
You must also participate in a Live Fire Practical that will last approximately 1.5 hours.

Notes:
3.3 Knowledge Checks

There are Knowledge Checks throughout this course. You must answer the questions correctly to progress to the next section of the course.

If you answer incorrectly, you will be automatically redirected to the appropriate course material so that you can review it before attempting to answer the question again.

You cannot skip the Knowledge Checks.
3.4 Completion Documentation

At the end of this course, you will provide completion documentation to Technical Training for your training record.

This can be done either with an electronic signature (which goes directly to Technical Training) ... or by printing out the completion certificate and submitting it to Technical Training.
3.5 Job Performance Measure

A Job Performance Measure is required. Contact Technical Training to arrange for the SAF-502F Live Fire Practical Job Performance Measure.

After you satisfactorily complete the JPM, you will receive full credit for SAF-502FR, “Fire Extinguisher Live Fire Training - Refresher”.
4. Objectives

4.1 Terminal Objective

Terminal Objective

Upon completion of this course, the student will have the necessary knowledge and skills to use a portable fire extinguisher.

The course will review applicable regulations and procedures, fire classifications and characteristics, incipient stage fire hazards, when not to fight a fire, fire extinguishers types and how to properly operate a portable hand-held fire extinguisher demonstration.

Notes:
4.2 Enabling Objectives

Enabling Objectives

1. Review applicable regulations and WIPP procedures.
2. Name the elements of a Fire Tetrahedron.
3. Differentiate fire classifications.
4. Explain the purpose of a fire extinguisher.
5. Identify different fire extinguisher types.
6. Define an incipient fire.
7. Recognize when not to fight a fire.
8. Summarize how to operate a fire extinguisher.
5. EO 1: Regulations and Procedures

5.1 OSHA Regulations

OSHA Regulations

29 CFR 1910.157, "Fire Protection", requires that where the employer has provided portable fire extinguishers for employee use in the workplace, the employer shall also provide an educational program to familiarize employees with the general principles of fire extinguisher use and the hazards involved with incipient stage firefighting.
5.2 WIPP Procedures

WIPP Procedures

WP 12FP.01, “WIPP Fire Protection Program”, states that key focal points of the WIPP FP Program include providing appropriate fire safety and emergency response training to all employees.
5.3 Knowledge Check

(True/False, 10 points, 1 attempt permitted)

Knowledge Check

29 CFR 1910.157 requires all employees to fight incipient stage fires.

☐ True

☒ False

Feedback when correct:

That's right! 29 CFR 1910.157 does not require employees to fight fires.

Feedback when incorrect:

Wrong. 29 CFR 1910.157 only requires the employer to provide an educational program to familiarize employees with the general principles of fire extinguisher use and the hazards involved with incipient stage firefighting.
6. EO 2: Elements of Fire

6.1 Elements of a Fire Triangle

Elements of a Fire Triangle

Fire requires three elements, heat, fuel, and oxygen, to be present.
These three elements typically are referred to as the Fire Triangle.
The concept of a fire triangle aids in understanding the cause of fires
and how they can be prevented and extinguished.
6.2 How Fire Works

Heat, fuel and oxygen must combine in a precise way for a fire to start and continue to burn.
If one element of the Fire Triangle is not present or removed, fire will not start or, if already burning, will extinguish.

![Fire Triangle Diagram]

- Smother the air supply
- Cool the materials
- Remove the fuel source
6.3 Elements: Heat

Without sufficient heat, a fire cannot begin, and cannot continue.

Sources of heat can include:
- open flames
- the sun
- hot surfaces
- sparks and arcs
- friction
- chemical action
- electrical energy
6.4 Elements: Fuel

Elements: Fuel

Fire fuel consists of combustion materials which have (or could be) ignited. Without fuel, a fire will stop.

Fuel can be in the form of

- Gases
- Liquids
- Solids

Remove the fuel source
6.5 Elements: Oxygen

Elements: Oxygen

Without sufficient oxygen, a fire cannot begin, and it cannot continue.

• A fire requires 16% oxygen.
• Some fuels contain oxygen within their makeup to support burning.
6.6 Fire Tetrahedron

The Fire Triangle eventually evolved into the Fire Tetrahedron, which recognizes a fourth necessary element of fire, the exothermic chemical chain reaction.
6.7 How Fires Start

How Fires Start

1. Fire begins by an external ignition source - usually in the form of a flame or spark.
2. The external ignition source heats the fuel under the presence of oxygen.
3. As both fuel and oxygen are heated, molecular activity increases.
4. If properly heated, a self-sustaining chemical reaction is developed.
5. The chemical reaction will then escalate at a point where the external ignition source is no longer necessary for the propagation of the fire.
6.8 Knowledge Check

(Pick One, 10 points, 1 attempt permitted)

Knowledge Check

The elements of a fire tetrahedron are heat, fuel, oxygen, and ___.

- a. A chemical chain reaction
- b. A detonation
- c. An explosion

Feedback when correct:
You’re right. Heat + Fuel + Oxygen = Chemical chain reaction

Feedback when incorrect:
Oops! You need to review the purpose of a fire extinguisher.
6.9 How Fires Stop

How Fires Stop

As we saw with the Fire Triangle, once a fire has started, it will continue until:

- All of the available fuel has been consumed or
- The fuel and/or oxygen is removed or
- The temperature is reduced by cooling.

With the development of the Fire Tetrahedron, scientists recognized the fire can also be stopped by reducing the number of excited molecules. This breaks the exothermic chain reaction and stops the fire.
7. EO 3: Fire Class

7.1 Fire Class

Fire Class

Fires are classified based on fuel type. These classifications impact the type of suppression or extinguishing materials that can be used. Class letters used in this course follow United States classification standards. Be aware that other locations, such as Europe and Australia, follow their own standards for class letters.
7.2 Fire Class Pictograms

Fire Class Pictograms

Pictograms show the type of fuel used in each Fire Class.

A: Combustibles  B: Flammable Liquids + Gases  C: Electrical  D: Flammable Metals  K: Kitchen
7.3 Class A

Class A fires are fueled by ordinary combustibles such as wood, cloth, paper, rubber, coal, hay and many plastics. Water and dry chemical agents are effective.
7.4 Class B

Class B

Class B fires are fueled by flammable and combustible liquids. This includes petroleum greases, tars, oils, oil-based paints, solvents, lacquers, varnishes, and alcohols.

Class B fires are also fueled by flammable gases, such as natural gas, propane, hydrogen, and acetylene.

**High fire hazard:** water may not extinguish. Extinguish by creating a barrier between the fuel and the oxygen, such as layer of foam or dry chemical.
7.5 Class C

Class C

Class C fires are fueled by fuels that would be A or B except that they involve **energized electrical equipment**.

Special techniques and agents are required to extinguish -- most commonly carbon dioxide or dry chemical agents.

**Warning**: Use of water is very dangerous!
7.6 Class D

Class D

Class D fires are fueled by combustible metals, such as magnesium, titanium, zirconium, sodium, lithium and potassium.

Most cars contain numerous such metals.

Extinguish with special powders based on sodium chloride or other salts; also clean dry sand.
7.7 Class K

Class K fires are fueled by combustible cooking media (vegetable or animal oils and fats). Extinguish with wet chemicals designed for Class K.
8. EO 4: Fire Extinguisher Types

8.1 Fire Extinguishers

Fire Extinguishers

The purpose of a fire extinguisher is to control or extinguish small or incipient stage fires.
8.2 Match the Work Environment

Match the Work Environment

Fire extinguishers should be appropriately matched to the work environment and the types of potential fuels in the area.
8.3 Knowledge Check

(Pick One, 10 points, 1 attempt permitted)

Knowledge Check

What is the purpose of a fire extinguisher?

- a. To extinguish large fires
- b. To put water on electrical fires
- c. To extinguish only Class A fires
- d. To control or extinguish small or incipient stage fires

Feedback when correct:
That's right! The purpose of fire extinguishers is to fight small or incipient stage fires.

Feedback when incorrect:
Oops! You need to review the purpose of a fire extinguisher.
8.4 Pictograms on Extinguishers

Extinguishers are designed to put out fires based on Fire Class. The use of Fire Class pictograms on extinguishers aids in quickly identifying the type of fire the extinguisher can be used on.

<table>
<thead>
<tr>
<th>Pictogram</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Ordinary combustibles</td>
</tr>
<tr>
<td>AB</td>
<td>Ordinary combustibles + flammable liquids</td>
</tr>
<tr>
<td>BC</td>
<td>Flammable liquids + electrical</td>
</tr>
<tr>
<td>ABC</td>
<td>Multi-purpose: Ordinary combustibles + flammable liquids + electrical</td>
</tr>
<tr>
<td>D</td>
<td>Combustible metals</td>
</tr>
<tr>
<td>K</td>
<td>Kitchen</td>
</tr>
</tbody>
</table>
8.5 Air Pressurized Water & Water Mist Extinguishers

Air Pressurized Water & Water Mist Extinguishers

A

Used for ordinary combustibles fires.
8.6 Dry Chemical Multipurpose Extinguishers

Dry Chemical Multipurpose Extinguishers

Used for ordinary combustibles and flammable liquids fires.
8.7 Carbon Dioxide Extinguishers

Carbon Dioxide Extinguishers

Used for flammable liquids and energized electrical equipment fires.
8.8 Dry Chemical Multipurpose Extinguishers

Dry Chemical Multipurpose Extinguishers

ABC

Used for ordinary combustibles, flammable liquids, and energized electrical equipment fires.
8.9 Dry Powder Extinguishers

Dry Powder Extinguishers

D

Used for flammable metals fires only.
8.10 Wet Chemical Extinguishers

Wet Chemical Extinguishers

K

Used for kitchen fires.
Drag the description to link it with the proper Extinguisher Type.

(Matching Drag-and-Drop, 10 points, 1 attempt permitted)

<table>
<thead>
<tr>
<th>Extinguisher Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Ordinary Combustibles</td>
</tr>
<tr>
<td>D</td>
<td>Flammable Metals</td>
</tr>
<tr>
<td>ABC</td>
<td>Multiple Purpose</td>
</tr>
<tr>
<td>K</td>
<td>Kitchen</td>
</tr>
</tbody>
</table>

Feedback when correct:

That's right! You matched the descriptions to the proper Extinguisher Types.

Feedback when incorrect:

You did not select the correct descriptions for the Extinguisher Types. Let’s review the material.
9. Fighting an Incipient Fire

9.1 Incipient Fires

Incipient Fires

- **OSHA** defines an incipient fire as a fire which is in the initial or beginning stage and which can be controlled or extinguished by portable fire extinguishers or small hose systems without the need for protective clothing or breathing apparatus.

- **NFPA** defines an incipient fire as a fire which is in the initial or beginning stage and which can be controlled or extinguished by portable fire extinguishers or small amounts of dry extinguishing agents without the need for protective clothing or breathing apparatus.

9.2 Knowledge Check

(Multiple Choice, 10 points, 1 attempt permitted)
Knowledge Check

How does NFPA define an incipient fire?

A fire which is in the initial or beginning stage and which can be controlled or extinguished by fire extinguishers and requires the wearing of protective clothing or breathing apparatus.

A fire which is in the initial or beginning stage and which can be controlled or extinguished by wet chemical extinguishing agents without the need for protective clothing.

A fire which is in the initial or beginning stage and which can be controlled or extinguished by portable fire extinguishers or small amounts of dry extinguishing agents without the need for protective clothing or breathing apparatus.

<table>
<thead>
<tr>
<th>Correct</th>
<th>Choice</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A fire which is in the initial or beginning stage and which can be controlled or extinguished by fire extinguishers and requires the wearing of protective clothing or breathing apparatus.</td>
</tr>
<tr>
<td></td>
<td>A fire which is in the initial or beginning stage and which can be controlled or extinguished by wet chemical extinguishing agents without the need for protective clothing.</td>
</tr>
<tr>
<td>X</td>
<td>A fire which is in the initial or beginning stage and which can be controlled or extinguished by portable fire extinguishers or small amounts of dry extinguishing agents without the need for protective clothing or breathing apparatus.</td>
</tr>
</tbody>
</table>

Feedback when correct:

That's right! You selected the correct response.

Feedback when incorrect: You did not select the correct response.
10. Untitled Scene

10.1 Hazards

Hazards

An incipient stage fire can quickly become a large fire.
Be aware of where the fire is located. If it is partially hidden in a wall or ceiling, or cannot be reached from a standing position, you should evacuate.
Be aware of the materials burning. If there are toxic substances or lots of smoke, the fire cannot be fought without respiratory protection.
Be aware of your escape path. Don’t fight a fire that might block your ability to evacuate.
10.2 Do not fight a fire if ...

Do not fight a fire if ...

- The fire is too large
- The air is not safe to breath, too much smoke
- No clear escape way

Your safety is #1 ...
If you have any doubts about your ability to fight a fire, evacuate the area immediately.

10.3 Check all that apply.
You should not fight a fire if:

(Multiple Response, 10 points, 1 attempt permitted)

Check all that apply.

You should not fight a fire if:

- [X] It is partially hidden in a wall or ceiling.
- [ ] It is a large fire, but the air is not toxic.
- [ ] You must wear a respirator to breathe.
- [X] Your escape path is blocked.
- [ ] You must use a ladder to reach the fire.

<table>
<thead>
<tr>
<th>Correct Choice</th>
</tr>
</thead>
<tbody>
<tr>
<td>X It is partially hidden in a wall or ceiling.</td>
</tr>
<tr>
<td>It is a large fire, but the air is not toxic.</td>
</tr>
<tr>
<td>You must wear a respirator to breathe.</td>
</tr>
<tr>
<td>X Your escape path is blocked.</td>
</tr>
<tr>
<td>You must use a ladder to reach the fire.</td>
</tr>
</tbody>
</table>

Feedback when correct: That's right! You selected the correct response.

Feedback when incorrect: You did not select the correct response. Let's review the material again.
11. Operating a Fire Extinguisher

11.1 Before Fighting a Fire

Before Fighting a Fire

Make a notification to the CMR at 8111 and give them information
- Name
- Location of the fire, our location if different
- Size of the fire
- If anyone is injured or trapped
11.2 Who should you contact prior to fighting an incipient stage fire?

(Multiple Choice, 10 points, 1 attempt permitted)

Who should you contact prior to fighting an incipient stage fire?

- Your manager
- CMR
- Security
- The UFE

Correct Choice

<table>
<thead>
<tr>
<th>Correct Choice</th>
<th>Choice</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Your manager</td>
</tr>
<tr>
<td>X</td>
<td>CMR</td>
</tr>
<tr>
<td></td>
<td>Security</td>
</tr>
<tr>
<td></td>
<td>The UFE</td>
</tr>
</tbody>
</table>

Feedback when correct:

That's right! You should contact the CMR at 8-1-1-1 prior to fighting a fire.

Feedback when incorrect:

You did not select the correct response.
11.3 Pressure Gauge

Pressure Gauge

If the extinguisher has a pressure gauge, check to make sure the pressure indicating needle is in the green before proceeding.
11.4 PASS Technique

To operate an extinguisher:

- **Pull** the pin
- **Aim** nozzle at base of fire
- **Squeeze** the handle
- **Sweep** nozzle side to side

Know your extinguisher
Use the correct extinguisher

(Check your own extinguisher's label for detailed instructions.)
11.5 ANSUL Redline Cartridge Type Extinguisher

Here's a video for operating an ANSUL Redline extinguisher. It operates differently from the PASS technique. The video will open in a separate browser window.

Web Object

Address:
https://youtu.be/ENbC6j87Hs
11.6 After Discharging an Extinguisher

After Discharging an Extinguisher

Evacuate immediately if you empty an extinguisher and the fire is not out, or if the fire has grown beyond the incipient stage. Call the CMR from a safe location and update them.
11.7 Put the steps in the correct sequence from top to bottom for using the PASS technique for extinguishing a fire.

(Sequence Drop-down, 10 points, 1 attempt permitted)

Correct Order

<table>
<thead>
<tr>
<th>Correct Order</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pull the pin.</td>
</tr>
<tr>
<td>Aim at the base.</td>
</tr>
<tr>
<td>Squeeze the trigger.</td>
</tr>
<tr>
<td>Sweep side to side</td>
</tr>
</tbody>
</table>

**Feedback when correct:** That's right! You selected the correct sequence for the using the PASS technique.

**Feedback when incorrect:** You did not select the correct sequence for PASS.
12. Completion Signature

12.1 Completion Certificate

```
Completion Certificate
SAF-502FR
“Fire Extinguisher Live Fire Refresher”
Revision 0
Approval Date: 8/31/2017

- I have read the material and understand the content of this training.
- I will print, sign, and submit this Completion Certificate to Technical Training or I will electronically sign by clicking the green button.
- I must schedule and pass a Job Performance Measure.

Print Name (Last, First): __________________________
Training ID # __________________________
Signature: __________________________
Date: ______________

Click here to sign electronically.

Notes:

http://bellview/readandsign/Read.aspx?id=80
```
12.2 Thank You. End of Course

Thank you for completing the signature process. I'd love to hear what you thought of this course. Send your comments to Tech.Training@wipp.ws

SEND EMAIL

EXIT COURSE

Notes: