



HAZARDOUS MATERIALS AWARENESS & OPERATIONS

SUPPLEMENTAL TRAINING WORKSHEETS (NFPA Standard 472, 2013 Edition)

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HAZARDOUS MATERIALS SUPPLEMENTAL TRAINING WORKSHEETS

Supplement Instruction

Purpose of this supplement

Materials in this packet are consistent with [NFPA 472: Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents](#), 2013 edition. The Alaska Fire Standards Council (AFSC) provides this supplement to enhance training resources for accredited departments or organizations that are conducting training in preparation for certification testing.

Description & Use

1. This packet supplements the [Hazardous Materials Training Record](#) and is designed for use by the Training Officer and Hazardous Materials Awareness/Operations candidate. Use of this packet throughout a training program will assist in verifying candidate competency and completion of the [Hazardous Materials Training Record](#).
2. This packet is designed to enhance training for Hazardous Materials Awareness and Operations. Training Officers/Training Program Managers and Hazardous Materials course instructors should utilize this supplemental packet during a course to prepare candidates for the certification exam. These worksheets should be given to every Hazardous Materials candidate at the beginning of a training course and used throughout the course for ongoing evaluation by the instructor.
3. For eligibility to complete the final certification examination, a candidate must demonstrate competency in all skills during training and satisfactorily complete all items on the Hazardous Materials training Record document. The completion of the Hazardous Materials Training Record establishes a candidate's eligibility to test. That document must be fully completed and signed by the Training Officer/Training Program Manager or designee for each candidate before a candidate can begin the final skills examination.

Hazardous Materials Awareness Final Written and Practical Examinations

Following is a brief outline of the reference materials and documents that are used for a Hazardous Materials Awareness final examination:

Hazardous Materials Written Examination References

- a. NFPA 472: *Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents*, 2013 edition
- b. Text (any one of the following)
 - Jones and Bartlett, *Hazardous Materials Awareness and Operations*, 1st Edition
 - IFSTA, *Hazardous Materials for First Responders* 4th Edition
- c. Reference Guide
 - Emergency Response Guide Book, 2012 Edition

HAZARDOUS MATERIALS SUPPLEMENTAL TRAINING WORKSHEETS

NFPA 472- 2013 Ed.

PRACTICAL TRAINING SKILL

HMS 1

Candidate:	Date:
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STANDARD: NFPA 472: 4.2.1(2)	SKILL AREA: DOT Hazard Class & Division ID
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TASK: Given a listing of the US DOT Hazard Classes and Divisions numbers (below), fill in the appropriate Hazard Class name and Division names.

PERFORMANCE OUTCOME: The candidate will complete this task with a minimum of 20 out of the 25 items answered correctly. Provide the written answer in the space next to the task step.

EQUIPMENT: Current Emergency Response Guidebook (ERG).

CONDITIONS: The candidate shall identify the following US DOT hazard classes and divisions:

No.	TASK STEPS	TEST		RETEST 1		RETEST 2	
		P	F	P	F	P	F
1.	Hazard Class 1:	<input type="checkbox"/>					
2.	Division 1.1	<input type="checkbox"/>					
3.	Division 1.2:	<input type="checkbox"/>					
4.	Division 1.3:	<input type="checkbox"/>					
5.	Division 1.4:	<input type="checkbox"/>					
6.	Division 1.5:	<input type="checkbox"/>					
7.	Division 1.6:	<input type="checkbox"/>					
8.	Hazard Class 2	<input type="checkbox"/>					
9.	Division 2.1:	<input type="checkbox"/>					
10.	Division 2.2:	<input type="checkbox"/>					
11.	Division 2.3:	<input type="checkbox"/>					
12.	Hazard Class 3-	<input type="checkbox"/>					
13.	Hazard Class 4-	<input type="checkbox"/>					
14.	Division 4.1	<input type="checkbox"/>					
15.	Division 4.2	<input type="checkbox"/>					
16.	Division 4.3	<input type="checkbox"/>					
17.	Hazard Class 5-	<input type="checkbox"/>					
18.	Division 5.1	<input type="checkbox"/>					
19.	Division 5.2	<input type="checkbox"/>					
20.	Hazard Class 6-	<input type="checkbox"/>					
21.	Division 6.1	<input type="checkbox"/>					
22.	Division 6.2	<input type="checkbox"/>					
23.	Hazard Class 7-	<input type="checkbox"/>					
24.	Hazard Class 8-	<input type="checkbox"/>					
25.	Hazard Class 9-	<input type="checkbox"/>					

Comments:

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PRACTICAL TRAINING SKILL

HMS 2

Candidate:	Date:
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STANDARD: NFPA 472: 4.2.1(8)	SKILL AREA: NFPA 704- Fixed Facility ID
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TASK: Given an example of the NFPA 704, *Standard System for the Identification for the Identification of the Hazardous Materials for Emergency Response*, describe the significance of the colors, numbers and special symbols.

PERFORMANCE OUTCOME: The candidate will complete this task with a minimum of 8 out of 11 items answered correctly. Describe the significance of the components of the NFPA 704 system detailed below and provide a written answer in the space next to the task step.

EQUIPMENT: No special equipment

CONDITIONS: The candidate shall identify the following:

No.	TASK STEPS	TEST		RETEST 1		RETEST 2	
		P	F	P	F	P	F
Identify what hazard categories the NFPA 704 color quadrants represent:							
1.		<input type="checkbox"/>					
2.		<input type="checkbox"/>					
3.		<input type="checkbox"/>					
4.		<input type="checkbox"/>					
List the NFPA 704 numerical hazard rating for the following:							
5.		<input type="checkbox"/>					
6.		<input type="checkbox"/>					
7.		<input type="checkbox"/>					
8.		<input type="checkbox"/>					
9.		<input type="checkbox"/>					
Within the Special Notes category, list the following:							
10.	Symbol for _____:	<input type="checkbox"/>					
11.	Symbol for _____:	<input type="checkbox"/>					

Comments:

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PRACTICAL TRAINING SKILL

HMS 3

Candidate:	Date:
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STANDARD: NFPA 472: 4.2.1(10)	SKILL AREA: Shipping Papers
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TASK: Given an example of a mode of transportation, provide the type of shipping paper, location of shipping paper and the responsible person.

PERFORMANCE OUTCOME: The candidate will complete this task with a minimum of 10 out of the 14 items answered correctly. Provide the written answer in the space next to the task step.

EQUIPMENT: No special equipment

CONDITIONS: The candidate shall identify the following:

No.	TASK STEPS	TEST		RETEST 1		RETEST 2	
		P	F	P	F	P	F
1.	Name of Highway Shipping Paper?	<input type="checkbox"/>					
2.	Location of Highway Shipping Paper?	<input type="checkbox"/>					
3.	Highway Responsible Person?	<input type="checkbox"/>					
4.	Name of Rail Shipping Paper?	<input type="checkbox"/>					
5.	Location of Rail Shipping Paper?	<input type="checkbox"/>					
6.	Rail Responsible Person?	<input type="checkbox"/>					
7.	Name of Water Shipping Paper?	<input type="checkbox"/>					
8.	Location of Water Shipping Paper?	<input type="checkbox"/>					
9.	Water Responsible Person?	<input type="checkbox"/>					
10.	Name of Air Shipping Paper?	<input type="checkbox"/>					
11.	Location of Air Shipping Paper?	<input type="checkbox"/>					
12.	Air Responsible Person?	<input type="checkbox"/>					

Comments:

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PRACTICAL TRAINING SKILL

HMS 4

Candidate:	Date:
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STANDARD: NFPA 472: 4.2.1; 4.4.1	SKILL AREA: Analyze Haz Mat/WMD Incidents
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TASK: Identify the general routes of human exposure and identify at least four specific actions necessary when an incident is suspected to involve criminal or terrorist activity.

PERFORMANCE OUTCOME: The candidate will complete this task with a minimum of 10 out of the 14 items answered correctly. Provide a written answer in the space next to the task step.

EQUIPMENT: No special equipment

CONDITIONS: The candidate shall complete the following:

No.	TASK STEPS	TEST		RETEST 1		RETEST 2		
		P	F	P	F	P	F	
	List the four general routes of entry for human exposure (4.4.1 [3] {d}):	1.	<input type="checkbox"/>					
		2.	<input type="checkbox"/>					
		3.	<input type="checkbox"/>					
		4.	<input type="checkbox"/>					
	Identify at least two actions that must be taken when an incident is suspected to involve a criminal or terrorist activity(4.4.1 [12]):	5.	<input type="checkbox"/>					
		6.	<input type="checkbox"/>					
	Identify at least four ways that Hazardous Materials/WMD can cause harm/damage to people, the environment, and property (4.4.1 [3] {c}):	7.	<input type="checkbox"/>					
		8.	<input type="checkbox"/>					
		9.	<input type="checkbox"/>					
		10.	<input type="checkbox"/>					
	Identify at least four types of locations that could be targets for criminal or terrorist activity using hazardous materials/WMD (4.2.1 [13]):	11.	<input type="checkbox"/>					
		12.	<input type="checkbox"/>					
		13.	<input type="checkbox"/>					
		14.	<input type="checkbox"/>					

Comments:

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PRACTICAL SKILL REQUIREMENTS

[HMS 5a](#)

Candidate:	Date:
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STANDARD: NFPA 472: 4.4.1	SKILL AREA: Initiating Protective Actions- ERG Use
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TASK: Given a UN Number or a chemical name, provide the appropriate information requested.

PERFORMANCE OUTCOME: The candidate will complete these tasks with a minimum of 23 out of the 31 items answered correctly. Provide the written answer(s) in the space next to the task step.

EQUIPMENT: Current Emergency Response Guidebook (ERG).

CONDITIONS: The candidate shall **Use the ERG** to identify the following:

No.	TASK STEPS	TEST		RETEST 1		RETEST 2	
		P	F	P	F	P	F
1.	Chemical Name of UN _____?	<input type="checkbox"/>					
2.	Small Spill Initial Isolation Distance for UN _____? (m/ft)	<input type="checkbox"/>					
3.	Large Spill Initial Isolation Distance (day) of UN _____? (m/ft)	<input type="checkbox"/>					
4.	Large spill Protective Action Distance (Night) for UN ____? (k/mi)	<input type="checkbox"/>					
5.	Guide Number for UN _____?	<input type="checkbox"/>					
6.	UN Number for _____?	<input type="checkbox"/>					
7.	Small Spill Initial Isolation Distance for _____ (no fire)? (m/ft)	<input type="checkbox"/>					
8.	Large Spill Initial Isolation Distance for _____ (no fire)? (m/ft)	<input type="checkbox"/>					
9.	Large Spill Protective Action Distance (Day) for _____ (no fire)? (k/mi)	<input type="checkbox"/>					
10.	Guide Number for _____?	<input type="checkbox"/>					
11.	Guide Number for Hazard Class ____?	<input type="checkbox"/>					
12.	Evacuation Distance for Large Fire involving Hazard Class ____? (m/ft)	<input type="checkbox"/>					
13.	Entries highlighted in Green (within the Yellow and Blue pages) refer to what concern?	<input type="checkbox"/>					
14.	For UN Number _____, the letter "P" next to the Guide Number signifies what?	<input type="checkbox"/>					
15.	In terms of hazardous materials, what does the TIH stand for?	<input type="checkbox"/>					

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PRACTICAL SKILL REQUIREMENTS

HMS 5b

No.	TASK STEPS		TEST		RETEST 1		RETEST 2	
			P	F	P	F	P	F
16.	What is the telephone number for CHEMTREC®?		<input type="checkbox"/>					
17.	What is the telephone number for the Nationwide Poison Control Center?		<input type="checkbox"/>					
18.	For a DOT _____, what Guide Number is used?:		<input type="checkbox"/>					
19.	What type of protective clothing shall be worn for _____?		<input type="checkbox"/>					
20.	Describe two potential hazards associated with a fire or explosion involving _____:		<input type="checkbox"/>					
21.	Describe two potential hazards related to health involving _____:		<input type="checkbox"/>					
22.	Describe the emergency response actions for a large fire involving _____:		<input type="checkbox"/>					
23.	Describe the emergency response actions for a spill or leak involving _____:		<input type="checkbox"/>					
24.	Describe the emergency response actions for first aid involving a _____ spill or leak:		<input type="checkbox"/>					
25.	In general, is a hazardous liquid spill of _____ considered a large or a small spill? Check one:	<input type="checkbox"/> Large Spill <input type="checkbox"/> Small Spill	<input type="checkbox"/>					
26.	Define: <i>Isolating the Hazard Area:</i>		<input type="checkbox"/>					
27.	Define: <i>Denial of Entry:</i>		<input type="checkbox"/>					
28.	The process of leaving or being removed from potentially hazardous location is called:		<input type="checkbox"/>					
29.	Having occupants remain in a structure or vehicle in order to provide protection from a rapidly approaching hazard is defined as:		<input type="checkbox"/>					
	Which of the following shapes identify the initial isolation zone and protective action zone (as shown in the Emer. Response Guidebook):		<input type="checkbox"/>					
30.			<input type="checkbox"/>					
31.			<input type="checkbox"/>					

Comments:

HAZARDOUS MATERIALS SUPPLEMENTAL TRAINING WORKSHEETS

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PRACTICAL TRAINING SKILL

HMS 6

Candidate:	Date:
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STANDARD: NFPA 472: 5.2.1.1.6 (A3.3.43.3)	SKILL AREA: Radiological Identification
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TASK: Given examples of radioactive material packages, the candidate shall identify characteristics of packages or containers by type.

PERFORMANCE OUTCOME: The candidate will complete this task with a minimum of 6 of 8 items answered correctly.

EQUIPMENT: No special equipment

CONDITIONS: Given the following information, the candidate shall:

No.	TASK STEPS	TEST		RETEST 1		RETEST 2		
		P	F	P	F	P	F	
	Identify a radioactive product example that is typically contained in Type A packaging: (<i>list one</i>)	1.	<input type="checkbox"/>					
	Type A packaging has an inner containment vessel made of what kinds of material? (<i>list two</i>)	2.	<input type="checkbox"/>					
		3.	<input type="checkbox"/>					
	Identify life-endangering hazard associated with contents in Type A packaging: (<i>low, moderate, high</i>)	4.	<input type="checkbox"/>					
	Identify a radioactive product example that is typically contained in Type B packaging: (<i>list one</i>)	5.	<input type="checkbox"/>					
	Type B packaging can include what kinds of containers? (<i>list one</i>)	6.	<input type="checkbox"/>					
	Identify life-endangering hazard associated with contents in Type B packaging: (<i>low, moderate, high</i>)	7.	<input type="checkbox"/>					
	Identify a radioactive product example that is typically contained in Type C packaging: (<i>list one</i>)	8.	<input type="checkbox"/>					
	Type C packaging design differs from Type A and Type B packaging in what way?	9.	<input type="checkbox"/>					

Comments:

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PRACTICAL TRAINING SKILL

[HMS 7](#)

Candidate:	Date:
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STANDARD: NFPA 472: 5.2.1.3.2	SKILL AREA: Pesticide Identification
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TASK: Given a label for a pesticide material, identify each of the following pieces of information; then match the pieces of information to the overall significance in surveying the hazardous materials incident.

PERFORMANCE OUTCOME: The candidate will complete these tasks with a minimum of 5 out of the 7 items answered correctly. Provide the written answer(s) in the space next to the task step.

EQUIPMENT: Pesticide Product Label.

CONDITIONS: Given an hazardous materials scenario, the candidate shall:

No.	TASK STEPS	TEST		RETEST 1		RETEST 2	
		P	F	P	F	P	F
1.	Identify the active ingredient	<input type="checkbox"/>					
2.	Identify the hazard statement	<input type="checkbox"/>					
3.	Identify the name of the pesticide	<input type="checkbox"/>					
4.	Identify the trade name	<input type="checkbox"/>					
5.	Identify the name of the precautionary statement	<input type="checkbox"/>					
6.	Identify the signal word	<input type="checkbox"/>					
7.	Identify the first aid procedures	<input type="checkbox"/>					

Comments:

HAZARDOUS MATERIALS SUPPLEMENTAL TRAINING WORKSHEETS

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PRACTICAL TRAINING SKILL

HMS 8

Candidate:	Date:
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STANDARD: NFPA 472: 5.2.2	SKILL AREA: Material Safety Data Sheets
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TASK: Given an Material Safety Data Sheet (MSDS) for a specified material, identify the following hazard and response information:

- (a) Physical and chemical characteristics
- (b) Physical hazards of the material
- (c) Health hazards of the material
- (d) Signs and symptoms of exposure
- (e) Routes of entry
- (f) Personal exposure limits
- (g) Manufacturers contact
- (h) Precautions for safe handling (including hygiene practices, protective measures, and procedures for cleanup of spills and leaks)
- (i) Applicable control measures, including personal protective equipment
- (j) Emergency and first-aid procedures

PERFORMANCE OUTCOME: The candidate will complete this task with a minimum of 18 of 23 items answered correctly.

EQUIPMENT: Product name, MSDS, and Emergency Response Guidebook (ERG).

CONDITIONS: Given an Material Safety Data Sheet, the candidate shall demonstrate the ability to:

No.	TASK STEPS	TEST		RETEST 1		RETEST 2	
		P	F	P	F	P	F
	Physical and chemical characteristics						
1.	a. Boiling point -	<input type="checkbox"/>					
2.	b. Specific gravity and/or vapor density -	<input type="checkbox"/>					
3.	c. Appearance/physical state: -	<input type="checkbox"/>					
4.	d. Odor: -	<input type="checkbox"/>					
5.	e. Flash point: -	<input type="checkbox"/>					
6.	f. Vapor pressure: -	<input type="checkbox"/>					
7.	g. Flammable range: -	<input type="checkbox"/>					
8.	h. Water solubility: -	<input type="checkbox"/>					
9.	Physical hazards of the material: -	<input type="checkbox"/>					
10.	Health hazards of the material: -	<input type="checkbox"/>					
11.	Signs and symptoms of exposure: -	<input type="checkbox"/>					
12.	Routes of entry: -	<input type="checkbox"/>					
	Personal exposure limits: -						
13.	a. PEL/PEL-C -	<input type="checkbox"/>					
14.	b. TLV/TWA -	<input type="checkbox"/>					
15.	c. STEL -	<input type="checkbox"/>					
16.	d. IDLH -	<input type="checkbox"/>					

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PRACTICAL TRAINING SKILL

HMS 8b

No.	TASK STEPS	TEST		RETEST 1		RETEST 2	
		P	F	P	F	P	F
17.	e. LD50/LC50 -	<input type="checkbox"/>					
18.	Manufacturer contact: -	<input type="checkbox"/>					
	Precaution for safe handling:						
19.	a. Hygiene practices: -	<input type="checkbox"/>					
20.	b. Protective measures: -	<input type="checkbox"/>					
21.	Applicable control measures: -	<input type="checkbox"/>					
22.	Personal Protective Equipment: -	<input type="checkbox"/>					
23.	Emergency and first-aid procedures: -	<input type="checkbox"/>					

Comments:	

HAZARDOUS MATERIALS SUPPLEMENTAL TRAINING WORKSHEETS

WORKSHEETS CORRELATION MAP			
HAZARDOUS MATERIALS SUPPLEMENTAL WORKSHEETS			
JOB PERFORMANCE REQUIREMENTS			
(NFPA 472, 2013 Edition)			
Resource Sheet #	NFPA Section	Tasks	NFPA Knowledge (cognitive) Requirement
<u>HMS 1</u>	4.2.1(2)	DOT Hazard Class and Division ID	Knowledge Competency Requirement
<u>HMS 2</u>	4.2.1(8)	NFPA 704- Fixed Facility	Knowledge Competency Requirement
<u>HMS 3</u>	4.2.1(10)	MSDS/Shipping Papers	Knowledge Competency Requirement
<u>HMS 4</u>	4.2.1; 4.4.1	Analyze Haz Mat/WMD Incidents	Knowledge Competency Requirement
<u>HMS 5</u>	4.4.1	Initiating Protective Actions- ERG Use	Knowledge Competency Requirement
<u>HMS 6</u>	5.2.1.1.6 (A3.3.43.3)	Radiological Identification	Knowledge Competency Requirement
<u>HMS 7</u>	5.2.1.3.2	Pesticide Identification	Knowledge Competency Requirement
<u>HMS 8</u>	5.2.2	Material Safety Data Sheets	Knowledge Competency Requirement